2022 PROJECT PROPOSAL CHECKLIST

2023-25 Biennium Four-year Higher Education Scoring Process

INSTITUTION	CAMPUS LOCATION
360 - University of Washington	Seattle Campus
PROJECT TITLE	**FPMT UNIQUE FACILITY ID # (OR NA)**
CBPS: Infrastructure Renewal	NA
PROJECT CATEGORY	**PROJECT SUBCATEGORY**
Infrastructure	Major
PROPOSAL IS	
New or Updated Proposal (for scoring)	Resubmitted Proposal (retain prior score)
☒ New proposal ☐ Resubmittal to be scored (more than 2 biennia old or significantly changed)	☐ Resubmittal from 2019-21 biennium ☐ Resubmittal from 2021-23 biennium
CONTACT	**PHONE NUMBER**
John Wetzel	206-616-5924

PROPOSAL CONTENT

- ☒ Project Proposal Checklist: this form; one for each proposal
- ☒ Project Proposal Form: Specific to category/subcategory (10-page limit)
- ☒ Appendices: templates, forms, exhibits and supporting/supplemental documentation for scoring.

INSTITUTIONAL PRIORITY

- ☒ Institutional Priority Form. Sent separately (not in this packet) to: Darrell Jennings.

Check the corresponding boxes below if the proposed project meets the minimum threshold or if the item listed is provided in the proposal submittal.

MINIMUM THRESHOLDS

- ☒ Project is not an exclusive enterprise function such as a bookstore, dormitory or contract food service.
- ☒ Project meets LEED Silver Standard requirements. **When applicable.**
- ☒ Institution has a greenhouse gas emissions reduction policy in place in accordance with RCW 70A.45.050 and vehicle emissions reduction policy in place per RCW 47.01.440 or RCW 43.160.020 as applicable.
- ☐ Design proposals: A complete predesign study was submitted to OFM by July 1, 2022.
- ☐ Growth proposals: Based on solid enrollment projections and is more cost-effectively providing enrollment access than alternatives such as university centers and distance learning.
- ☐ Renovation proposals: Project should cost between 60 – 80% of current replacement value and extend the useful life of the facility by at least 25 years.
- ☐ Acquisition proposals: Land acquisition is not related to a current facility funding request.
- ☒ Infrastructure proposals: Project is not a facility repair project.
- ☐ Stand-alone, infrastructure and acquisition proposals: is a single project requesting funds for one biennium.

2022 PROJECT PROPOSAL CHECKLIST

2023-25 Biennium Four-year Higher Education Scoring Process

REQUIRED APPENDICES

- ☐ Capital Project Report CBS 002
- ☒ Project cost estimate: Excel C-100 **APPENDIX A**
- ☐ Degree Totals and Targets template to indicate the number of Bachelors, High Demand and Advanced degrees expected to be awarded in 2023. (Required for Overarching Criteria scoring criteria for Major Growth, Renovation, Replacement and Research proposals).
- ☐ Availability of Space/Campus Utilization template for the campus where the project is located. (Required for all categories/subcategories except Infrastructure and Acquisition proposals).
- ☐ Assignable Square Feet template to indicate program-related space allocation. (Required for Growth, Renovation and Replacement proposals, all categories/subcategories).

OPTIONAL APPENDICES

Attach supplemental and supporting project documentation, *limit to materials directly related to and needed for the evaluation criteria*, such as:

- ☐ Degree and enrollment growth projections
- ☒ Selected excerpts from institutional plans **SEE BELOW**
- ☐ Data on instructional and/or research space utilization
- ☐ Additional documentation for selected cost comparables (acquisition)
- ☒ Selected materials on facility conditions **SEE BELOW**
- ☒ Selected materials on code compliance **SEE BELOW**
- ☐ Tables supporting calculation of program space allocations, weighted average facility age, etc.
- ☐ Evidence of consistency of proposed research projects with state, regional, or local economic development plans
- ☐ Evidence of availability of non-state matching funds
- ☒ Selected documentation of prior facility failures, high cost maintenance, and/or system unreliability for infrastructure projects **SEE BELOW**
- ☒ Documentation of professional assessment of costs for land acquisition, land cleanup, and infrastructure projects **SEE BELOW**
- ☒ Selected documentation of engineering studies, site survey and recommendations, or opinion letters for infrastructure and land cleanup projects **SEE BELOW**
- ☒ Other: See list below:

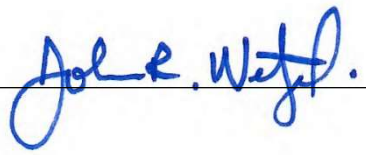
Appendix B	*ISES Comprehensive Facilities Condition Assessment Proposal*
Appendix C	*UW Energy Transformation Strategy Presentation (excerpts)*
Appendix D	*ADA - Barrier Removal Implementation Plan*
Appendix E	*UW Graves Hall - Timber and Framing Assessment*
Appendix F	*Fire/Life Safety System Assessment*
Appendix G	*Hutchinson Hall - Elevator Information*
Appendix H	*2021 Classroom Renewal Study*

2022 PROJECT PROPOSAL CHECKLIST

2023-25 Biennium Four-year Higher Education Scoring Process

I certify that the above checked items indicate either that the proposed project meets the minimum thresholds or the corresponding items have been included in this submittal.

Name: John Wetzel Title: Director

Signature:  Date: August 15, 2022

INSTITUTION	CAMPUS
University of Washington	Seattle Campus
PROJECT TITLE	
CBPS: Infrastructure Renewal	

SUMMARY NARRATIVE

- Problem statement (short description of the project – the needs and the benefits)
- History of the project or facility
- University programs addressed or encompassed by the project

The University of Washington is requesting $35M from the our 064 Building Account to support a variety of infrastructure renewal projects across the Seattle Campus. The majority of these projects also help the University begin to address the Clean Buildings Performance Standard.

The University has a substantial backlog of deferred maintenance/renewal issues and with increasing costs and the complexity of these projects, these infrastructure projects now typically exceed the ceiling for Minor Works ($2 million or less) and therefore continue to be deferred due to funding constraints. This Infrastructure Renewal request will enable us to solve major deficiencies that cannot be solved via the Minor Works Program.

In 2019, the University of Washington invested in a comprehensive Facilities Condition Assessment (FCA) of 145 of our Education and General Use (E&G) buildings (10,564,409 SF) to better define the task in front of us. This assessment was completed in July 2022 and has provided an extensive analysis that will assist in the process of prioritizing and reducing the deferred maintenance backlog. The FCA work product outline is attached (Appendix B) for an overview of what was included in this assessment.

This request includes infrastructure projects related to Energy Modernization, Equity/ Inclusion (Accessibility Improvements), Fire/Life Safety Improvements, Power Plant Chiller, Graves Hall Roof Replacement, Hutchinson Hall Elevator, and Classroom Infrastructure. The benefit/needs (scope) for each project is detailed below.

<u>Energy Modernization Projects:</u>

The University of Washington's best compliance path for the Washington State's Clean Buildings Performance Standard is through monitoring based commissioning of its existing buildings, replacement of aging and obsolete major equipment and systems, extensive metering of buildings. The benefit of this approach is that the infrastructure required to be in place will position the University to not only be compliant with the Clean Buildings Performance Standard, but it will also enable us to minimize energy needs and identify additional areas for energy savings.

The significant operational risk of increasing energy demand and associated costs provides an enormous opportunity - an opportunity for us to conserve, and to be creative about how energy is produced, distributed, and consumed on campus. UW's energy challenges are a microcosm of much larger global issues. More resilient, climate friendly infrastructure is becoming a necessity in response to changing weather patterns, increased greenhouse gas (GHG) emissions and aging infrastructure deficits.

This program will help us modernize campus utility metering/HVAC control systems and expand advanced monitoring technologies using smart campus principles to reduce energy consumption and support the energy modernization program across the institution. This is envisioned to be an ongoing program that will not only enable UW to comply with the Clean Buildings Performance Standard, it will enable infrastructure invetsments to reduce maintenance repairs, reduce service interruptions and enhance further energy savings initiatives.

Equity/Inclusion (Accessibility Improvements):

These projects will address campus infrastructure issues related to ADA compliance and barriers to program access. Removal of identified barriers will provide greater universal campus access to key venues open to the public, improved access to program spaces, and remediate pathways to/from transit stops, dial-a-ride stops, and accessible parking. These projects will also enhance the overall campus experience and align synergies with the 2019 Seattle Campus Master Plan to maximize campus development and the use of maintenance dollars.

Fire/Life Safety Improvements:

This projects will address facility deficiencies (code compliance with local, state, and federal applicable laws) related to the health, safety, and welfare of the occupants and the public. There are several obsolete building fire/life safety systems that have an increasing number of multiple repairs and service interruptions. These obsolete systems are in most cases monitored by a campus wide system that is also obsolete and is not compatible to support new systems without infrastructure being replaced.

Power Plant Chiller:

The Central Plant is the heartbeat of the Seattle Campus and its cooling capacity needs investment. The first requirement is to increase capacity by adding a new chiller and associated cooling tower. This new chiller is essential to keep a portion of the campus operational and directly aligns with our Energy Modernization Program. Some benefits to providing chilled water from a central source versus individual building chillers are:

- *Fewer personnel are required. All chillers require preventative maintenance and with more pieces of equipment, labor hours are increased.*
- *The system can be operated more efficiently if it is in one location.*
- *The chemical treatment system could be simplified because it would be a located at a single source.*

Graves Hall Roof Replacement:

This project is part of an on-going program for maintenance and renewal projects related to our building envelopes. A thorough investigation and study was performed on the Graves Hall roof which found that the condition of the joints, beams and columns around the exterior of the building has significant widespread decay. In addition, there is a deficit of safe access making on-going maintenance and repairs difficult. This roof replacement project would provide an improved envelope that would keep the structure dry and protect the building occupants and materials.

Hutchinson Hall Elevator:

Hutchinson Hall was built without an elevator and this project will add an elevator to connect all floors and provide a stop at each floor while not impacting the historical character of the building. Without this elevator, all but the first floor in the building would continue to remain inaccessible and the University would continue to need to schedule all classes in spaces on the first floor where there are few classrooms and all performances and practices would have to be relocated across campus.

Classroom Infrastructure:

These projects will support our ongoing classroom renewal initiative. General use classrooms require constant effort to renovate, update and maintain these resources to adapt the physical space to current technology, pedagogy, and faculty/student expectations. This renovation work would include accessibility improvements, architectural improvements, mechanical, electrical and systems upgrades and audio-visual systems for several classrooms, seminar rooms and lecture halls. It is important for the University to invest in historic buildings and provide safe learning environments. Renovations of these classrooms and lecture halls will make a significant impact on the quality of the learning and event spaces at the University.

GENERAL CATEGORY SCORING CRITERIA

1. Significant health, safety, and code issues

A. Identify whether the project is needed to bring the facility within current life safety (including seismic and ADA), energy, utilities or transportation code requirements.
B. Clearly identify the applicable standard or code, and describe how the project will improve consistency with it. Provide selected supporting documentation in appendix and reference in the body of the proposal.

Appendix C contains excerpts from a recent presentation of the wholistic strategy of addressing items A. & B. above with the Energy Modernization and Power Plant Chiller projects.

Appendices D and G are Architectural/Engineering studies addressing items A. & B. above with the Equity/Inclusion (Accessibility Improvements) and Hutchinson Hall Elevator projects.

2. Evidence of increased repairs and/or service interruption

Identify prior facility repairs, work order repair history or contractor repair call-outs, increased utility and/or maintenance costs, and/or system unreliability. Provide selected supporting documentation in appendix, and reference them in the body of the proposal.

Our most recent major infrastructure failure occured on July 26th of this year when we experienced cooling system loads that exeeeded our chilled water production. Staff/students were sent home from some facilities due to this failure. These issues occured at some of our various decentralized cooling chillers/towers that would benefit from a centralized district cooling system.

Appendix F contains list of buildings with obsolete fire alarm panels that there are no available parts. Failure of these panels would result in the building being evacuated or requiring a 24/7 fire watch.

3. Impact on institutional operations without the infrastructure project

Describe how and the extent to which there would be an impact on existing operations and programs. Describe the potential impact on future, already funded or planned construction projects or program needs should this infrastructure project not occur.

There are numerous pieces of this Infrastructure project that are critical to on-going operations of the University.

- *Energy Modifications – There are currently at least 75 University buildings with old pneumatic building environmental controls. Pneumatic control parts are increasingly difficult to procure and there is a vast deficit of personnel with knowledge to maintain and repair pneumatic control systems. This Pneumatic to DDC controls conversion project would provide more reliable systems and additional energy savings opportunities. The Monitoring Based Commissioning Equipment primarily is to support the reduction of energy consumption and improving efficiencies but has the added benefit of continuing stable and reliable operations due to the pre-identification of failing equipment prior to actual failure.*

- *Equity/Inclusion (Accessibility Improvements) – Removing the barriers to access contributes to the flexibility of schedules and programs. These projects will provide a more continuous access experience throughout central campus, providing access to critical programs and buildings that serve the greatest number of students, faculty, and visitors.*

- *Fire/Life Safety Improvements – Failure of the obsolete and aging fire alarm panels and/or the current campus monitoring loop would result in each building being evacuated or requiring a 24/7 fire watch.*

- *Power Plant Chiller – Several of the existing chillers are at the end of their service life and existing loads at peak temperatures is less than N+1 (meaning no backup in place should any single system component fail). Recent failures of the decentralized building chillers reinforce the strategy of a centralized chilled water system. This new Power Plant chiller will ensure that the University Power Plant central cooling Chilled Water system is reliable and can provide the adequate cooling integral to ongoing academic and research needs. This new chiller is one the first steps of the Energy Modernization project.*

- *Graves Hall Roof Replacement – The existing roof is 56 years old and has substantial deterioration of the exposed glu-laminated timbers that support the roof overhangs. With extremely limited safe access, extensive maintenance or repairs are very difficult and expensive.*

4. Reasonable estimate

Provide as much detailed cost estimate information as possible, including documentation of professional assessment of costs (may contain opinions of external experts or experienced project management staff from the institution).

Estimates have been developed for most of the projects included in this request and are captured in the Appendices.

5. Engineering study

Identify whether there is a completed comprehensive engineering study, site survey and recommendations or opinion letter. Provide referenced supporting documentation in appendix.

Yes. Studies have been prepared for the projects included in this request and are captured in the Appendices.

Appendix B	*ISES Comprehensive Facilities Condition Assessment Proposal*
Appendix C	*UW Energy Transformation Strategy Presentation (excerpts)*
Appendix D	*ADA - Barrier Removal Implementation Plan*
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6. Support by planning

Describe the proposed project's relationship and relative importance to the institution's:
A. Campus/facilities master plan
B. Ongoing academic and/or research program need and strategic plan

The projects included in this infrastructure renewal request are essential to our strategic approach to campus stewardship that is guided by 2019 Seattle Campus Master Plan and other foundational documents.

The Campus Master Plan (CMP) has five overarching principles. These are outlined below and include a decsription about which project(s) align with these principles:

***Flexible Framework** – The Power Plant Chiller will provide additional cooling capacity to support the University's educational, research and service missions.*

***Learning Based Academic and Research Partnerships** – The Equity/Inclusion (Accessibility Improvements) provides accessible building footprints to accommodate a range of functions, including academic and research partnerships.*

***Sustainable Development** – Energy Modernization, Fire/Life Safety Improvements, Graves Hall Roof Replacement and Classroom Infrastructure projects all reinvest in existing facilities.*

***Connectivity** - The Equity/Inclusion (Accessibility Improvements) provides enhancements pedestrian connections and improves access across campus.*

Stewardship of Historic, Cultural, and Ecological Resources *– Hutchinson Hall Elevator Replacement provides accessibility improvements that align and complement the historical character of the building.*

The Campus Master Plan is available at: https://www.washington.edu/community/2019-uw-seattle-campus-master-plan/

The Energy Modernization project work directly with the UW Environmental Stewardship Committee and aligns with the UW Sustainability Action Plan.

The Sustainability Action Plan is available at: https://green.uw.edu/sustainability-plan

7. Resource efficiency and sustainability

Document project benefits associated with low-impact stormwater management techniques, improvements in energy and resource conservation, and use of renewable energy sources

Energy/Resource Conservation

Our curreny Energy Modernization project (of which several components are included in this request) directly addresses needed improvements in energy and resource conservation. Please see Appendix B.

Low Impact Stormwater Management

One of the most common barriers identified in the ADA Transition Plan was adverse running slopes of campus pathways. This topography makes meeting maximum running slope requirements a challenge and was the driving influence on most of the concepts developed. In most cases, the solution to addressing running slope also addressed other barriers to accessibility. The Equity/Inclusion (Accessibility Improvements) project has identified opportunities to incorporate storm drain improvements and more efficient and safety enhancing site lighting into the regrading pathways and parking lots. Please see Appendix D.

APPENDIX A

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY
Updated June 2022

Agency	University of Washington
Project Name	CBPS: Infrastructure Renewal
OFM Project Number	40000132

Contact Information	
Name	Brett Magnuson
Phone Number	206-883-2087
Email	brettm@uw.edu

Statistics			
Gross Square Feet		MACC per Gross Square Foot	
Usable Square Feet		Escalated MACC per Gross Square Foot	
Alt Gross Unit of Measure			
Space Efficiency		A/E Fee Class	B
Construction Type	Other Sch. B Projects	A/E Fee Percentage	10.24%
Remodel	Yes	Projected Life of Asset (Years)	
Additional Project Details			
Procurement Approach	DBB	Art Requirement Applies	No
Inflation Rate	4.90%	Higher Ed Institution	Yes
Sales Tax Rate %	10.25%	Location Used for Tax Rate	Seattle
Contingency Rate	5%		
Base Month (Estimate Date)	August-22	OFM UFI# (from FPMT, if available)	
Project Administered By	Agency		

Schedule			
Predesign Start	June-20	Predesign End	June-23
Design Start	July-23	Design End	June-24
Construction Start	July-24	Construction End	June-25
Construction Duration	11 Months		

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Project Cost Estimate

Total Project	**$31,456,047**	Total Project Escalated	**$35,000,291**
		Rounded Escalated Total	**$35,000,000**

Cost Estimate Summary

Acquisition			
Acquisition Subtotal	**$0**	**Acquisition Subtotal Escalated**	**$0**

Consultant Services			
Predesign Services	$0		
Design Phase Services	$1,431,279		
Extra Services	$2,362,000		
Other Services	$688,038		
Design Services Contingency	$224,066		
Consultant Services Subtotal	**$4,705,383**	**Consultant Services Subtotal Escalated**	**$5,073,145**

Construction			
Maximum Allowable Construction Cost (MACC)	$19,140,000	Maximum Allowable Construction Cost (MACC) Escalated	$21,444,456
DBB Risk Contingencies	$0		
DBB Management	$0		
Owner Construction Contingency	$1,117,000		$1,251,487
Non-Taxable Items	$40,000		$44,816
Sales Tax	$2,080,443	Sales Tax Escalated	$2,330,928
Construction Subtotal	**$22,377,443**	**Construction Subtotal Escalated**	**$25,071,687**

Equipment			
Equipment	$546,000		
Sales Tax	$55,965		
Non-Taxable Items	$0		
Equipment Subtotal	**$601,965**	**Equipment Subtotal Escalated**	**$674,443**

Artwork			
Artwork Subtotal	**$45,011**	**Artwork Subtotal Escalated**	**$45,011**

Agency Project Administration			
Agency Project Administration Subtotal	$1,126,245		
DES Additional Services Subtotal	$1,000,000		
Other Project Admin Costs	$0		
Project Administration Subtotal	**$2,126,245**	**Project Administration Subtotal Escalated**	**$2,382,245**

Other Costs			
Other Costs Subtotal	**$1,600,000**	**Other Costs Subtotal Escalated**	**$1,753,760**

Project Cost Estimate			
Total Project	**$31,456,047**	Total Project Escalated	**$35,000,291**
		Rounded Escalated Total	**$35,000,000**

Funding Summary

	Project Cost (Escalated)	Funded in Prior Biennia	New Approp Request 2023-2025	THIS FUNDING IS BEING REQUESTED FROM THE UW 064 BUILDING ACCOUNT 2025-2027	Out Years
Acquisition					
Acquisition Subtotal	$0		$0		**$0**
Consultant Services					
Consultant Services Subtotal	$5,073,145		$5,073,145		**$0**
Construction					
Construction Subtotal	$25,071,687		$25,071,687		**$0**
Equipment					
Equipment Subtotal	$674,443		$674,443		**$0**
Artwork					
Artwork Subtotal	$45,011		$45,011		**$0**
Agency Project Administration					
Project Administration Subtotal	$2,382,245		$2,382,245		**$0**
Other Costs					
Other Costs Subtotal	$1,753,760		$1,753,760		**$0**
Project Cost Estimate					
Total Project	**$35,000,291**	**$0**	**$35,000,291**	**$0**	**$0**
	$35,000,000	**$0**	**$35,000,000**	**$0**	**$0**
	Percentage requested as a new appropriation		**100%**		

What is planned for the requested new appropriation? (*Ex. Acquisition and design, phase 1 construction, etc.*)
Design and construction.
Insert Row Here

What has been completed or is underway with a previous appropriation?
Not applicable.
Insert Row Here

What is planned with a future appropriation?
Not applicable.
Insert Row Here

Cost Estimate Details

Acquisition Costs					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
Purchase/Lease					
Appraisal and Closing					
Right of Way					
Demolition					
Pre-Site Development					
Other					
Insert Row Here					
ACQUISITION TOTAL	**$0**		**NA**	**$0**	

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Cost Estimate Details

Consultant Services				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Pre-Schematic Design Services				
Programming/Site Analysis				
Environmental Analysis				
Predesign Study				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0447**	**$0**	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	$1,431,279			69% of A/E Basic Services
Other				
Insert Row Here				
Sub TOTAL	**$1,431,279**	**1.0680**	**$1,528,606**	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)				
Geotechnical Investigation	$15,000			Piles
Commissioning	$950,000			
Site Survey				
Testing	$650,000			HazMat, SDCI
LEED Services				
Voice/Data Consultant				
Value Engineering				
Constructability Review				
Environmental Mitigation (EIS)				
Landscape Consultant	$17,000			
Other	$230,000			ADA, Safety, Historical, Energy
Insert Row Here	$500,000			Studies
Sub TOTAL	**$2,362,000**	**1.0680**	**$2,522,616**	Escalated to Mid-Design
4) Other Services				
Bid/Construction/Closeout	$643,038			31% of A/E Basic Services
HVAC Balancing	$45,000			
Staffing				
Other				
Insert Row Here				
Sub TOTAL	**$688,038**	**1.1204**	**$770,879**	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	$224,066			
Other				
Insert Row Here				
Sub TOTAL	**$224,066**	**1.1204**	**$251,044**	Escalated to Mid-Const.

CONSULTANT SERVICES TOTAL	**$4,705,383**		**$5,073,145**	

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Cost Estimate Details

Construction Contracts				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
1) Site Work				
G10 - Site Preparation				
G20 - Site Improvements				
G30 - Site Mechanical Utilities				
G40 - Site Electrical Utilities				
G60 - Other Site Construction				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0961**	**$0**	
2) Related Project Costs				
Offsite Improvements				
City Utilities Relocation				
Parking Mitigation				
Stormwater Retention/Detention				
Other				
Insert Row Here				
Sub TOTAL	**$0**	**1.0961**	**$0**	
3) Facility Construction				
A10 - Foundations				
A20 - Basement Construction				
B10 - Superstructure				
B20 - Exterior Closure				
B30 - Roofing				
C10 - Interior Construction				
C20 - Stairs				
C30 - Interior Finishes				
D10 - Conveying				
D20 - Plumbing Systems				
D30 - HVAC Systems				
D40 - Fire Protection Systems				
D50 - Electrical Systems				
F10 - Special Construction	$40,000			
F20 - Selective Demolition				
General Conditions				
Other Direct Cost	$19,100,000			Total MACC
Insert Row Here				
Sub TOTAL	**$19,140,000**	**1.1204**	**$21,444,456**	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	**$19,140,000**		**$21,444,456**	
	NA		*NA per 0*	

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7) Owner Construction Contingency				
Allowance for Change Orders	$957,000			
Other	$160,000			est contingency
Insert Row Here				
Sub TOTAL	**$1,117,000**	**1.1204**	**$1,251,487**	
8) Non-Taxable Items				
Other	$40,000			Security, traffic control
Insert Row Here				
Sub TOTAL	**$40,000**	**1.1204**	**$44,816**	
9) Sales Tax				
Sub TOTAL	**$2,080,443**		**$2,330,928**	
CONSTRUCTION CONTRACTS TOTAL	**$22,377,443**		**$25,071,687**	

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Cost Estimate Details

Equipment					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Equipment					
E10 - Equipment	$206,000				
E20 - Furnishings	$340,000				
F10 - Special Construction					
Other					
Insert Row Here					
Sub TOTAL	**$546,000**		**1.1204**	**$611,739**	
2) Non Taxable Items					
Other					
Insert Row Here					
Sub TOTAL	**$0**		**1.1204**	**$0**	
3) Sales Tax					
Sub TOTAL	**$55,965**			**$62,704**	
EQUIPMENT TOTAL	**$601,965**			**$674,443**	

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Cost Estimate Details

Artwork					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Artwork					
Project Artwork	$0				0.5% of total project cost for new construction
Higher Ed Artwork	$174,776				0.5% of total project cost for new and renewal construction
Other	-$174,765				
Insert Row Here	$45,000				Classroom Infrastructure
ARTWORK TOTAL	**$45,011**		**NA**	**$45,011**	

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Cost Estimate Details

Project Management					
Item	**Base Amount**		**Escalation Factor**	**Escalated Cost**	**Notes**
1) Agency Project Management					
Agency Project Management	$1,126,245				
Additional Services	$1,000,000				Energy, Equity, Fire/Life Safety, PP Chiller
Other					
Insert Row Here					
Subtotal of Other	*$0*				
PROJECT MANAGEMENT TOTAL	**$2,126,245**		**1.1204**	**$2,382,245**	

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Cost Estimate Details

Other Costs				
Item	**Base Amount**	**Escalation Factor**	**Escalated Cost**	**Notes**
Mitigation Costs				
Hazardous Material Remediation/Removal	$1,000,000			
Historic and Archeological Mitigation				
Other	$600,000			Move
Insert Row Here				
OTHER COSTS TOTAL	**$1,600,000**	**1.0961**	**$1,753,760**	

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C-100(2022)
Additional Notes

Tab A. Acquisition
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Tab B. Consultant Services
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Tab C. Construction Contracts
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Tab D. Equipment
Insert Row Here

Tab E. Artwork
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Tab F. Project Management
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Tab G. Other Costs
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APPENDIX B

SOME PAGES HAVE BEEN REMOVED TO REDUCE FILE SIZE

PROPOSAL IN RESPONSE TO
RFP # DOC2044206747

COMPREHENSIVE FACILITIES CONDITIONS ASSESSMENT

UNIVERSITY OF WASHINGTON

NOVEMBER 26, 2019

ISES CORPORATION

3100 BRECKINRIDGE BLVD
SUITE 400
DULUTH, GA 30096
800.881.ISES
HTTPS://ISESCORP.COM

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November 26, 2019

Ms. Tricia Olsen Demarest
Senior Contracts Manager
Procurement Services
University of Washington
Via ARIBA

Dear Ms. Demarest:

ISES Corporation is pleased to present this proposal to provide facilities condition assessment services to the University of Washington. We are keen on this opportunity and confident that ISES is fully qualified to meet your needs.

ISES is committed to supporting the mission and goals of the facilities organizations we serve. The company is a minority-owned small business, which I solely own. We provide your organization with the data and tools necessary to ensure that scarce capital resources are invested in the most efficient manner. We are service-oriented and determined to provide our clients with the best possible professional services in a timely and cost-effective manner.

Several key factors differentiate us from other firms that *say* they conduct facility condition assessments (FCAs).

- **Experience.** While other firms may claim to have conducted hundreds of FCAs and equipment inventories for colleges and universities, we are the only firm that has continually provided this service to US higher education institutions for more than three decades.
- **Thorough assessment.** Our assessors walk every building, roof to basement, and each floor in between. They enter every single room unless it's locked. Facility inspections are conducted with sensitivity to the activities and needs of the building occupants. The only time we use a sampling method to collect FCA data is when inspecting residences, like dormitories or apartments. Occupant privacy dictates that we evaluate a small number of representative rooms selected by an escort.
- **Expertise.** Our senior leadership sets us apart. We employ individuals with senior level facilities management experience. We know about the challenges you face because we've been in your shoes.
- **Service before software.** Some FCA providers originated as software developers who added facilities consulting services, as an afterthought, to enhance sales. Our primary focus has always been on providing FCAs, day in and day out.
- **Facility consulting foremost.** Other FCA providers are owned by international multimillion-dollar firms whose main emphasis is construction management and design engineering. ISES was founded with the sole mission of providing FCA and asset inventory services. More than 30 years later, this remains our core business.

We thank you for considering our services for your facilities consulting needs.

Very respectfully,

ISES Corporation
Edward H. Gee
President & Founder

SECTION 1

EXPERIENCE AND PAST PERFORMANCE

FACILITIES CONSULTING SERVICES

880.881.ISES (4737)
HTTPS://ISESCORP.COM
3100 BRECKINRIDGE BLVD ▪ SUITE 400 ▪ DULUTH, GA 30096

CONTACT

Tony Simpson
Vice President
909.206.3303
tonys@isescorp.com

INCORPORATION

State of Georgia, 1987

PROFESSIONAL A&E FIRM

Georgia, Illinois, Missouri

LOCATIONS	1
DUNS	180546798
TIN	58-1428942
GSA 03FAC	GS-21F-0045W
NAICS	541611

MINORITY CERTIFICATIONS

- SBA-SDB (self-certified)
- Illinois: MBE
- Virginia: SWaM

EMPLOYEE A&E LICENSES

Alabama	New York
Arizona	North Carolina
Connecticut	Ohio
Florida	South Carolina
Georgia	Tennessee
Illinois	Texas
Maryland	Utah
Massachusetts	Vermont
Missouri	Virginia
New Hampshire	Washington, D.C.
New Jersey	West Virginia

COMPANY

ISES Corporation is a *facilities consulting firm* that helps building portfolio managers make better capital planning and investment decisions. We provide our clients with a wealth of *detailed* and *accurate* data about their buildings and a relational database in which to maintain the information.

SERVICES

An ISES **condition assessment** results in a report on the fitness of your facilities, utility systems or hardscape. The information is also entered into a secure database where the identified needs may be sorted numerous ways, generating investment priorities based on building, system classification, need category and more. The facility condition assessment is our cornerstone service, which we have been providing for more than three decades.

Our **organizational analysis** results in a plan to streamline the efficiency and performance of a facilities management department. We look at the organizational structure, technology, behavioral relationships, function and capacity and compare them to industry best practices and models. A detailed organizational analysis includes a **business process review** and a **staffing and resources study**, although some clients engage us to provide these services separately. The resulting report advises clients of changes and course corrections that will improve productivity and proficiency.

Preventive maintenance programming is a multiphase service that includes conducting a detailed equipment inventory, barcoding the devices, and delivering a documented program of preventive and predictive maintenance that will lengthen the lifecycle of facility systems and equipment. This service is often incorporated with a condition assessment or an organizational analysis but may be conducted as a separate engagement.

CLIENT SECTORS

ISES provides consulting services to facility managers with one or multiple buildings, including the US Government, states, counties, cities, towns, universities, colleges, hospitals, hotels and institutional investors.

EXPERTISE

ISES employs architectural and engineering assessors, many of whom hold Professional Engineer, Registered Architect, Commissioning Authority, LEED and Energy Management certifications. Our engineering assessors also have mechanical, industrial, civil or electrical engineering degrees. We hire individuals with prior experience working inside an institutional maintenance and engineering environment.

ISES HIGHER EDUCATION CLIENTS (more than 100)

Amarillo College
Auburn University
Augusta University
Ave Maria University
Berklee College of Music
Black Hawk College
University System of Georgia
Bob Jones University
Boston College
Brown University
California Institute of Technology
California State University
- *Bakersfield*
- *Channel Islands*
- *Chico*
- *East Bay*
- *Fresno*
- *Fullerton*
- *Humboldt*
- *Long Beach*
- *Los Angeles*
- *Maritime Academy*
- *Monterey Bay*
- *Northridge*
- *Pomona*
- *Sacramento*
- *San Bernardino*
- *San Diego*
- *San Francisco*
- *San José*
- *San Luis Obispo*
- *San Marcos*
- *Sonoma*
- *Stanislaus*

Case Western Reserve University
Chapman University
Claremont University Consortium
Clayton State University
College of Charleston
Columbia College
Cooper Union
Cornell University
Dillard University
Duke University
Duke University Medical Center
East Carolina University
Emory University
Florida A&M University
Florida Atlantic University
Florida State University
Fort Valley State University
Furman University
George Washington University
Georgetown University
Georgia College
Georgia Highlands College
Georgia Institute of Technology
Georgia Perimeter College
Georgia Southern University
Georgia State University
Harvard University Dining Services
Howard University
Illinois State University
Impact 360 Institute
Iowa State University
Jacksonville State University
Johns Hopkins University
Kansas Association of Cmty Colleges
Kansas Board of Regents
Kennesaw State University
Kenyon College
Kishwaukee College
Loma Linda University Medical Center
Louisiana State University
Loyola Law School
Loyola Marymount University
Massachusetts Inst of Technology
McHenry County College
Medical College of Georgia
Mercer University
Miami University
Michigan State University
Middle Georgia College
Middlebury College
Missouri University of Sci & Tech
Morehouse College
Nevada System of Higher Education
New College of Florida
New Mexico State University
North Carolina State University
Northern Michigan University
Notre Dame of Maryland University
Oak Ridge Associated Universities
Oakland Community College
Oakland University
Occidental College
Ohio University
Oklahoma State University
Oregon State University
Pennsylvania State University
Pepperdine University
Pitzer College
Pomona College
Portland Community College
Portland State University
Princeton University
Purdue University
Rice University
Rowan University
Rutgers University
San Bernardino CC District
Santa Clara University
Savannah State University
Soka University
Southern Oregon University
Southern Utah University
St. Louis College of Pharmacy
Stanford University
Stephen F. Austin University
Stetson University
Syracuse University
Tarleton State University
Texas A&M University
Texas Tech University
Tift College
Truckee Meadows Community College
Tulane University
University of Alabama
University of Alabama at Birmingham
University of Arizona
University of California
- ***Berkeley***
- *Davis*
- *Irvine*
- *Riverside*
- *San Diego*
- *Santa Cruz*

University of Central Florida
University of Chicago
University of Colorado at Boulder
University of Connecticut
UCONN Health Center
University of Florida
University of Georgia
University of Hawai'i at Mānoa
University of Houston System
University of Illinois at Chicago
University of Iowa
University of La Verne
University of Massachusetts Lowell

University of Miami
University of Michigan
University of Michigan-Flint
University of Minnesota
University of Missouri System
University of Missouri-Columbia
University of Missouri-Kansas City
University of Missouri-St. Louis
University of Nevada, Las Vegas
University of Nebraska-Lincoln
University of Nebraska at Omaha
University of Nevada, Reno
University of North Carolina, Chapel Hill
University of North Dakota
University of North Florida
University of North Georgia
University of Notre Dame
University of Oregon
University of Pennsylvania
University of Pittsburgh
University of Puget Sound
University of Rochester
University of San Diego
University of South Carolina
University of Southern California
University of Tennessee at Chattanooga
University of Texas at Austin
University of Texas at El Paso
University of Texas Health Science Center at Houston
University of Texas MD Anderson Cancer Center
University of Texas Medical Branch at Galveston
University of the Arts
University of the Pacific
University of Utah
University of West Florida
University of West Georgia
University of Wyoming
Valdosta State University
Vanderbilt University
Vanderbilt University Medical Center
Washington State University
Washington University
Washington University School of Medicine
Wellesley College
Western Carolina University
Western Michigan University
Young Harris College

_____
***Member of PAC-12**

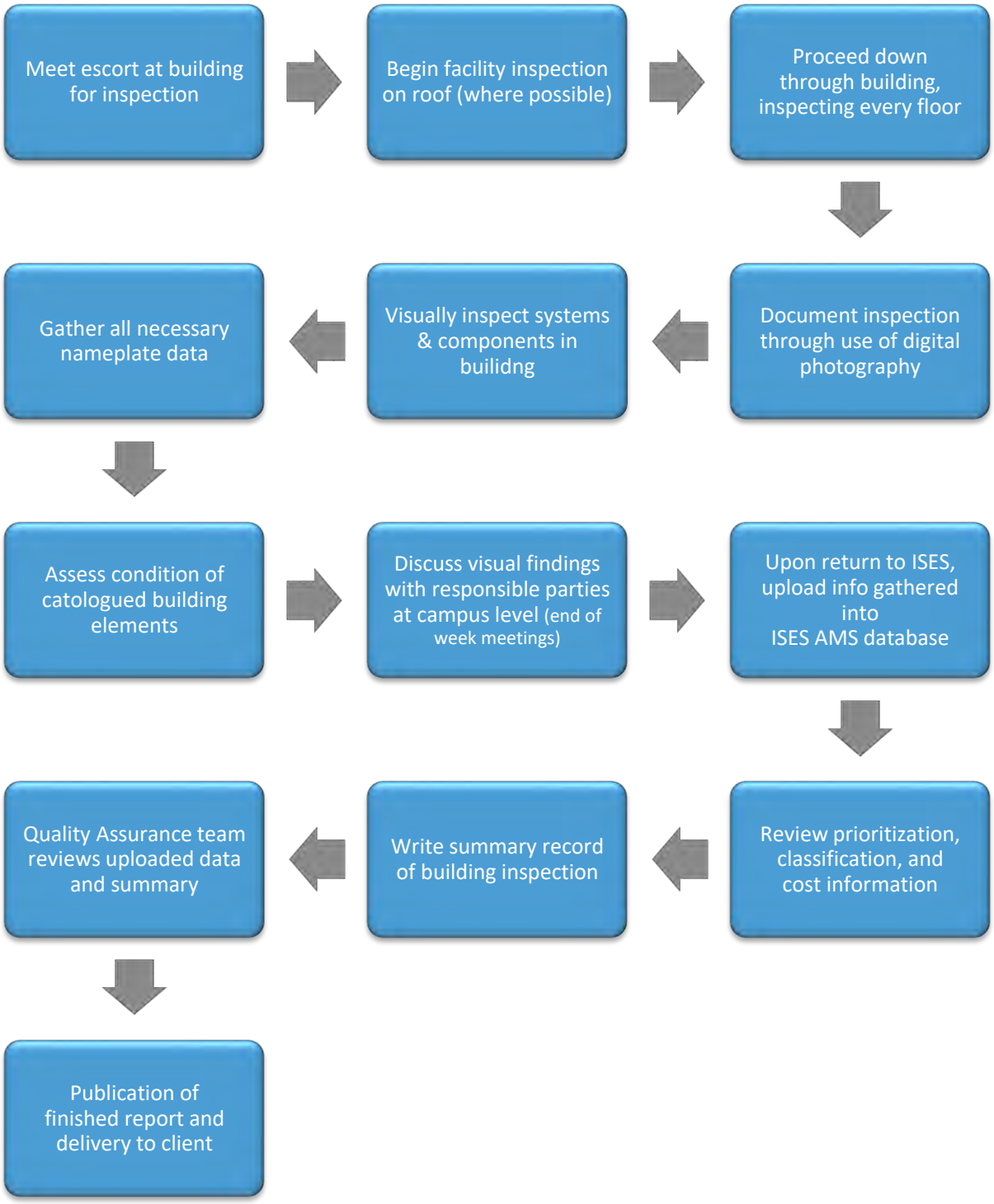
One thing I've learned over the years is that we facilities folks speak in technical terms, meaning we focus on getting things fixed and running buildings, but upper management speak in budgetary terms, it's a numbers game. Neither is right or wrong, just a different mindset, but both are needed to meet the needs of the campus and be successful. What I love about ISES reports is that it converts the technical to budgetary. It gives the technical person the numbers he or she needs to talk to the budget person and the budget person the data he or she needs to approve expenditures.

Michael Murray, CEFP, Director, Facilities Services, California State University, Los Angeles

SECTION 2

APPROACH AND METHODOLOGY

FACILITY CONDITION ASSESSMENTS



Introduction

Proper stewardship of a facilities portfolio includes long-range facility renewal planning. Such planning requires knowledge of the current condition of your entire portfolio. The data generated from an ISES Facility Condition Assessment (FCA) establishes the necessary baseline for proper planning to occur.

Retaining ISES to conduct an FCA means you'll have knowledge of the current state of each facility, analyzed both separately and in comparison to your other assets. This allows you to appreciate the condition to which your facilities should be maintained, either at a glance or in depth. Having more precise data lets you evaluate the level of facility renewal funding necessary to maintain and upgrade your assets in accordance with the standards applied.

ISES proposes to conduct a comprehensive FCA study for the University of Washington, also referred to as UW or the Client. The study will include 149 E&G facilities encompassing approximately 13.3 million gross square feet (GSF). Our work will complement the previously completed ROPA study and our findings are exportable from our database (via Excel) to AssetWorks' AiM database.

Preassessment and Kickoff

Upon receiving Notice to Proceed, the project manager carefully reviews the scope of work, as outlined in the Request for Proposal and proposal submittal, and requests preliminary information to help the teams prepare for the site inspections.

During the kickoff meeting, the work scope is reviewed to ensure full understanding by all parties, calibrate expectations and address housekeeping issues, such as security and building escorts. The onsite inspection teams participate in the meeting and additional Client contacts are invited as well to minimize any opportunity for misunderstanding and confusion. Clear expectations regarding the end product report are articulated and recorded. Client documents are obtained for reference, if available.

The outcome of these discussions is communicated to the Director of Quality Assurance to ensure that the final deliverables meet your requirements.

Facility Assessment

Extensive experience has led ISES to develop a standardized system of data collection that efficiently and effectively utilizes the time spent on site. Each asset is inspected by a two-person team, which consists of experienced architectural and engineering inspectors. They inspect the various components in each building and determine what repairs or modifications may be necessary to restore the buildings to an acceptable condition or to a level defined by the Client. The physical survey is visual and nondestructive.

The FCA team typically starts on the roof, or the highest accessible level, and proceeds to the lowest level, inspecting each of the following categories:

- Immediate building site (5' radius)
- Exterior structure and roof systems
- Interior structure, including architectural finishes
- Vertical transportation
- Fire/life safety
- Heating, ventilation and air conditioning systems
- Plumbing systems
- Electrical systems

Exterior equipment obviously associated with a building, such as a pad-mounted chiller, transformer or loading

dock service lot, is included in the assessment. In some instances, the dedicated parking areas of an off-site facility may be included in the survey. However, general parking facilities are not included in the building assessments and are more appropriately addressed by a campuswide hardscape report.

Gather Nameplate Data

ISES teams will gather information requested on items listed in Exhibit F listed in Exhibit G of the RFP and provide the findings in MS Excel for upload to AiM, with the following stipulations:

1. In the Life/Safety category, we will gather information at the system level. We will not be gathering nameplate data on every smoke and gas detector.
2. ISES teams will not gather nameplate information on steam traps, VAVs, mixing valves or mixing boxes.
3. Nameplate data will not be gathered, not will stickers be applied under Alternate F, for any items for which ladders or lifts are required for access.
4. ISES teams will conduct no reconciliation between old (if they exist) and new AiM identification numbers.

Staff Interviews

The visual nature of this inspection process requires close interaction with the Client's operations and maintenance personnel. Many of the problems inherent in building systems are not visually apparent. This necessitates ISES assessors to conduct staff interviews to ensure that all known system problems are cataloged and identified. Working as a team with your personnel improves the accuracy of the database and provides the most useful data.

The ISES Project Manager will provide a form on which your maintenance staff can easily convey building concerns. ISES may also request assistance from the Client's management and staff to obtain basic information from local contractors or vendors concerning the cost of various repairs and renovations. This will ensure a higher degree of precision when estimating the cost of renewal needs. Additionally, it is imperative that the Client provide all information possible, including any existing capital budget program information, capital project lists, special studies and building maintenance history.

Data Development

Following the onsite survey, the inspector reviews and orders his (or her) notes and photos. A textual summary document is prepared describing current conditions and highlighting the building's major deficiencies. Facility renewal needs are developed for recommended corrective action. In addition, an inventory of renewable components is created with the associated lifecycle data, installation date and replacement estimate.

Cost Estimating

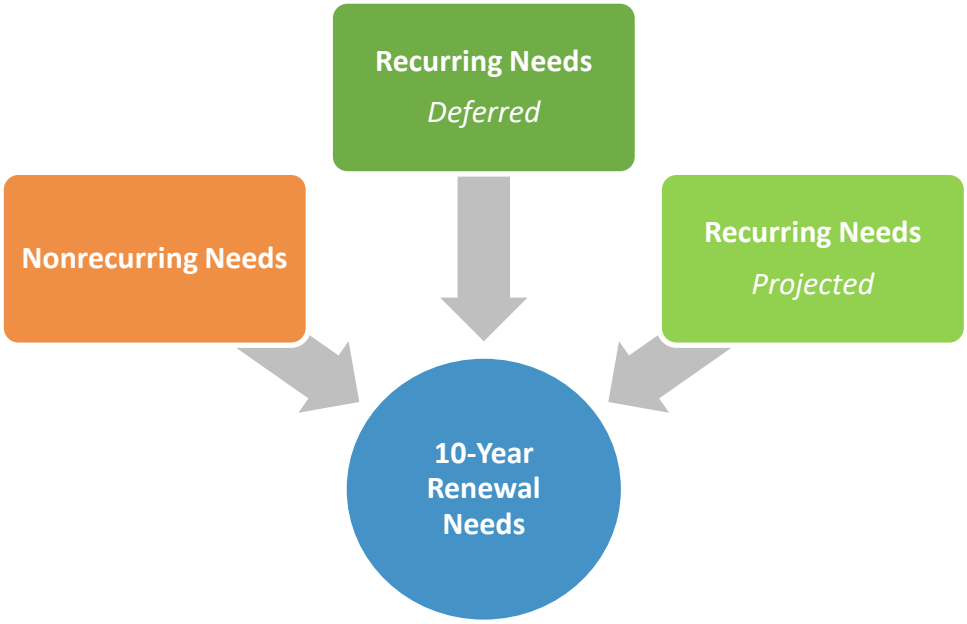
The total costs include variable project delivery expenses as determined by the owner. Cost estimates are indexed to local conditions and markups, as the situation dictates. They can be calculated by building, group of buildings, category of deficiency and numerous other ways.

AMS Cost Library

AMS has an embedded cost library that is developed and maintained by ISES. Although RSMeans is one of the sources used in developing this library, our cost data is not limited strictly to published cost data indices. Our methodology allows our trained, experienced assessors to adjust useful life to reflect actual conditions of the systems inspected. This provides more detailed data, resulting in realistic budget costs. We are confident that our own embedded cost library will provide far more valuable data than compared to RSMeans.

Facility Renewal Needs

Facility renewal needs are developed to address anything that is currently deficient or expected to require attention within the next ten years based on existing conditions, industry averages and anticipated lifecycle failures. These recommendations are to bring the facility to modern standards without any expectation of change to facility space layout or function. All renewal needs are properly classified, prioritized and estimated for long-range planning purposes. Facility renewal needs are divided into two main categories – recurring and nonrecurring.



- Recurring Needs *(stored in the Renewable Component Inventory module)*

  Recurring needs are associated with replacement or renewal of major building components and systems on a regular cycle. Examples include roofs, chillers, windows, finishes and air handling units.

  Future recurring needs are forecast by developing an inventory of renewable components within the facility. The inventory includes associated renewal costs, installation dates and life expectancies for each component and is categorized by ASTM UNIFORMAT II classification codes. The result is a detailed year-by-year projection of recurring renewal needs for a given asset.

  - *Deferred Renewal*
    Recurring repairs that are past due for completion but have not yet been accomplished as part of normal maintenance or capital repair efforts. Further deferral of such renewal could impair the proper

functioning of the facility. Costs estimated for Deferred Renewal needs should include compliance with applicable codes, even if such compliance requires expenditures beyond those essential to effect the needed repairs. (These do not pertain to components found in what is considered to be program-use space within a building.)

- *Projected Renewal*
  Recurring renewal efforts that will be due within the scope of the assessment. These represent regular or normal facility maintenance, repair or renovation that should be planned in the near future. (These efforts do not pertain to components found in what is considered to be program-use space within a building.)

- ## Nonrecurring Needs (stored in the Projects module)

Nonrecurring needs are one-time facility repairs and improvements. They typically consist of improvements to accommodate accessibility, address fire/life safety issues or alter a building for a new use. They also include nonrecurring deficiencies that could negatively affect the structure or systems and components within. Examples of such needs are repair of building façade damage or a roof section or installing an ADA entrance ramp.

Project recommendations are developed for these needs with estimated costs to rectify said deficiencies. Each has a unique project number and is categorized by system, priority and classification.

- *Plant/Program Adaption*
  Nonrecurring expenditures required to adapt the physical plant to the evolving needs of the organization and to changing codes or standards. These are expenditures beyond normal maintenance. Examples include compliance with changing codes (e.g., accessibility), facility alterations required by changed teaching or research methods and improvements occasioned by the adoption of modern technology (e.g., the use of personal computer networks).

- *Corrective Action*
  Nonrecurring expenditures for repairs needed to correct random and unpredictable deficiencies. Such recommendations are not related to aligning a building with codes or standards. Deficiencies classified as “Corrective Action” could have an effect on building aesthetics, safety or usability.

Nonrecurring needs are located on CAD floor plans (if good quality, single-line space management drawings are provided by the owner). The images and CAD drawings are integrated with the database.

Nonrecurring Prioritization

While the recurring renewal needs are year-based, making further prioritization unnecessary, each nonrecurring renewal need has an assigned priority to indicate the criticality of the recommended work. The priorities for this subset of the data are defined as follows.

- Priority 1 – High
  Items in this category include:
  a. correcting a cited safety hazard
  b. stopping accelerated deterioration
  c. returning a facility to normal operation

- ### Priority 2 – Medium
  Items in this category include:
  a. repairs to prevent further deterioration
  b. improvements to facility approach/entry and access to goods and services (DOJ ADA title III, priorities 1 and 2)
  c. correction of potential safety hazards

- ### Priority 3 – Low
  Items in this category include:
  a. improving access to restrooms and other amenities (DOJ ADA title III, priorities 3 and 4)
  b. bringing a facility into compliance with current building codes as grandfather clauses expire
  c. increasing usability following an occupancy or use change
  d. actions that are recommended but not required by code

Current Replacement Value

ISES traditionally calculates Current Replacement Value (CRV) using a cost per gross square foot based on building size and use (e.g., theater, research lab, classroom building, etc.). We utilize RSMeans Square Foot costs as the starting point. This base number is adjusted for the size of the facility and modified with city cost indices to the local area, with appropriate modifiers for professional fees and demolition of existing structure added. Our standard methodology prorates the base cost per GSF according to different facility use types.

The cost factors and their applications can be changed readily upon consultation with the Client without impacting project scope or cost, as long as the change is made prior to Executive Summary preparation and export to Excel for upload to AiM. Calculated CRVs are updated automatically in the AMS software when the annual inflation factor is added to the database.

Traditional methods of calculating CRV do not take into account the historic significance of a structure. Replacement of a historic structure would only occur in the event of a catastrophic loss of building. In such occurrences, the normal practice ISES observes is to calculate the cost to construct modern facilities that meet your architectural standards rather than attempt to mimic the historical construction style that has been lost.

Facility Condition Index (FCI)

The FCI is a ratio of the Deferred Renewal costs to the CRV. The CRV is based on replacement with present construction standards for the facility use type and not original design parameters.

$$FCI = \frac{\text{Deferred Renewal Needs}}{\text{Current Replacement Value}}$$

Facility Condition Needs Index (FCNI)

The FCNI provides a lifecycle cost comparison. It is a ratio of 10-year renewal needs (including Deferred Renewal) to the CRV of the asset. This index gives you a comparison within all buildings for identifying worst case/best case building conditions.

$$FCNI = \frac{\text{10-Year Renewal Needs}}{\text{Current Replacement Value}}$$

FCNIs that are greater than 1.0 indicate that the sum of the estimated cost of renewal needs recommended to restore the facility to modern standards is greater than the hard costs to replace the building.

Code Compliance

An ISES FCA complies fully with ASTM E2018-15. It includes an evaluation of resource conservation opportunities and addresses compliance with the ADA Accessibility Guidelines. All equipment and building components that can be accessed will receive a thorough visual inspection. The inspection team will, for example, lift ceiling tiles in suspended ceilings and open access doors to reveal hidden equipment and building components that are integral to the survey. They will inspect all areas within designated facilities consistent with ASTM E-2018-15 standards and in compliance with applicable NFPA and OSHA standards, as well as local or campus safety requirements.

The FCA is an inspection of an existing facility intended to identify building system upgrades which could increase the projected lifespan of the building, decrease the operating cost for the building, or a combination of the two. ISES Corporation is not functioning as a design architect, design engineer or building code official. In conducting the FCA, ISES is not making an all-inclusive code compliance inspection. If building code violations are observed, they will be reported to the Owner. However, any list of code violations is not exhaustive. If code violations exist, their correction is the responsibility of the professional who designed them, the party who constructed them or the Owner's representative who approved them. If major remodeling or additions to existing spaces are contemplated, ISES' recommendations are contingent upon a registered design professional's certification that the modifications can be made in compliance with all applicable codes existing at the time of such remodeling or addition.

Energy Reduction Opportunities

Individual building reports will identify opportunities to conserve energy or water within recommended maintenance and facility renewal deficiency repairs or upgrades. These are casual opportunities observed during the facility walk-through, and the suggestions are not a substitute for an ASHRAE Energy Audit.

EXECUTIVE SUMMARY AND PRESENTATION

ISES Corporation not only delivers a report on the condition of each facility in your study, but also a summary of your buildings as a group. Upon completion of the FCA process, ISES prepares an Executive Summary Report that provides consolidated reporting data across the entire asset portfolio.

Renewal cost estimates will be sorted and totaled by building, system code, priority and FCNI. We will work with you to sort the data based on your unique funding requirements. The overall condition of the facility portfolio will be categorized to give you a "bottom line" for the entire collection of assets. Comparisons between your portfolio and analogous organizations will be developed.

An FCA study sometimes results in a formidably high anticipated capital budget for facilities renewal. As an objective third party, ISES is prepared to deliver a PowerPoint presentation to your key audience(s) or assist you in presenting the results of the FCA to senior administration, boards of trustees, citizens or other groups who grant funding. This presentation will include an explanation of the FCA process, along with all pertinent information from the database, photographic images, graphics and charts.

> *"While most high performing facilities teams have a unique understanding of the condition of their buildings and systems, sometimes inhouse views are myopic because of the many competing challenges of day-to-day facilities management. Facilities Condition Assessments based on actual detailed inspections and interviews by an outside vendor provide the needed perspective to fully evaluate the existing condition of assets.*
>
> *This critical and unbiased look is necessary for development of valid data and recommendations for effective renewal decisions. The FCAs I had conducted by ISES Corporation on nearly 2.2M GSF have already had a powerful and immediate impact on campus budget and planning efforts because of the credibility of the FCA information."*
>
> Kevin Doyle, Director, Ret., Facilities Management and Services,
> California State University, Chico

SUMMARY OF DELIVERABLES

The following items shall be provided as part of this project:

1. Project execution plan and schedule
2. Inclusion of preexisting FCA data (if provided by Client)
3. FCA Findings

   Mindful of your desire to control costs, and that our price is a significant portion of your evaluation, to economize we will not provide printed reports for each facility. However, all FCA findings will be loaded into the ISES AMS database, including:

   - lifecycle components
   - recommendations for correction
   - photolog entries

   The data sorts, tables and graphs are self-printable within AMS. An aspect of our free AMS training is to show you how. All information will be incorporated in the Executive Summary Report.

4. Functional FCA database
   - cloud-based
   - multi-user
   - various security levels
   - hosted by ISES
   - unlimited support (with hosting fee)
5. MS Excel Workbook for Data Upload to AssetWorks AiM
6. Executive Summary Report of all assessment data delivered in PDF format and bound volume
7. Formal, multimedia presentation of all Executive Summary results if desired
8. Deliverables for Alternates if Selected

   A. Deliverables comparable to base bid FCA deliverables

   B. Deliverables comparable to base bid FCA deliverables

   C. Deliverables comparable to base bid FCA deliverables

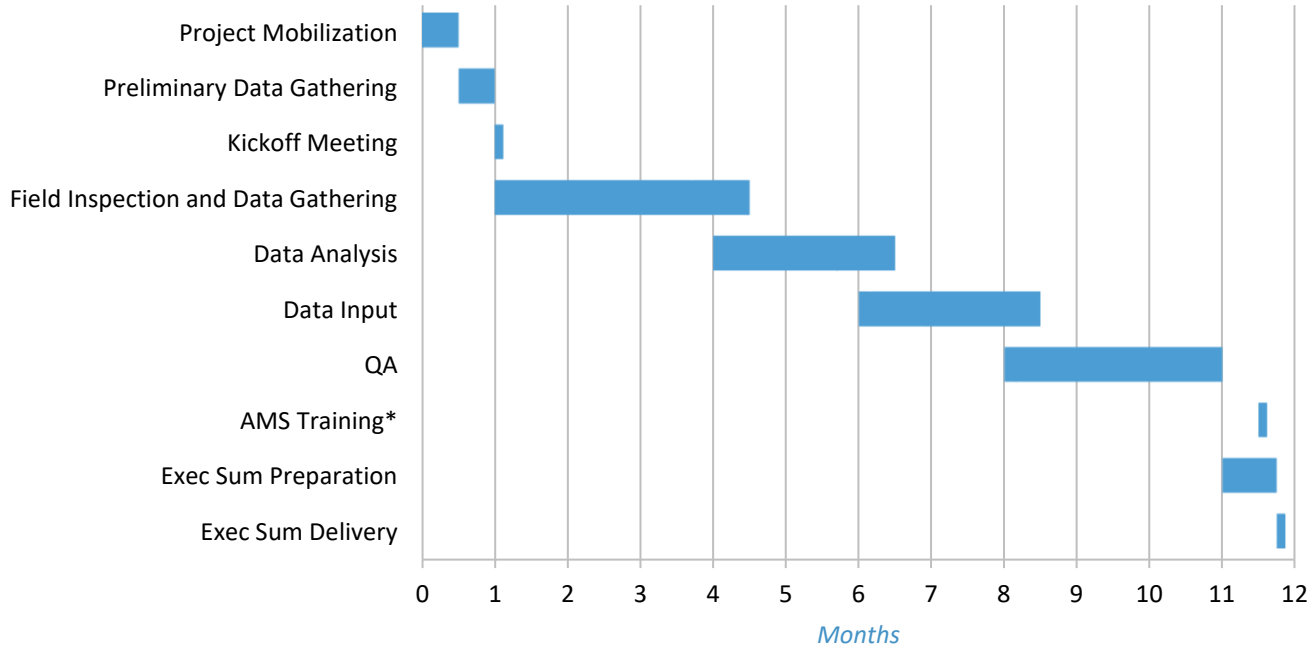
   D. MS Excel Workbook

   E. Deliverables comparable to base bid FCA deliverables

   F. MS Excel Workbook

PROJECT SCHEDULE (BASE BID)

Inspection schedules will be coordinated with the Client after written receipt of Notice-to-Proceed. To maintain a lid on costs, the project duration, from commencement of field inspections to project completion, is expected to take no longer than 12 calendar months. The project will be scheduled in such a way as to reduce overall travel expenses and to promote field survey cost-effectiveness.



** AMS Training can occur any time after this date.*

We have priced an accelerated six-month schedule. If that option is selected, any facilities added to the scope will not be completed in that timeframe.

The following sample reports can be generated for a single building, group of buildings or all buildings.

ASSET SUMMARY

All costs shown as Present Value

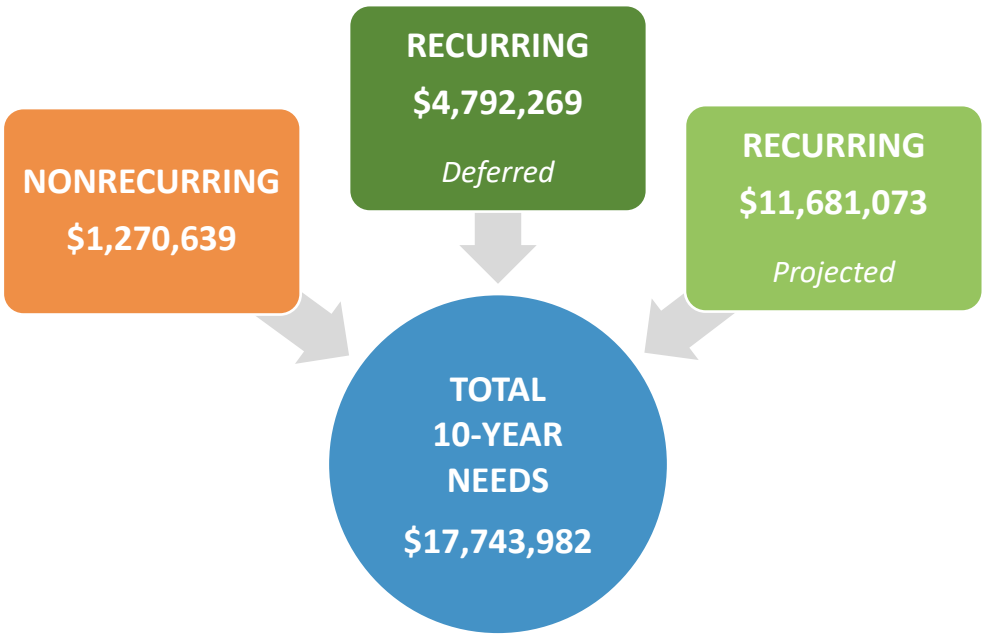
ASSET CODE	001		
ASSET NAME	JAMES HALL	**CURRENT REPLACEMENT VALUE**	$63,111,000
ASSET USE	Office/Administrative	**FACILITY CONDITION NEEDS INDEX**	0.28
YEAR BUILT	1975	**FACILITY CONDITION INDEX**	0.08
GROSS SQUARE FEET	127,050	**10-YEAR NEEDS PER SQUARE FOOT**	$139.66
INSPECTION DATE	02/28/2019		

FCNI SCALE

The FCNI for this asset is 0.28

- **Excellent Condition** (typically new construction)
- **Good Condition** (maintained within lifecycle)
- **Fair Condition** (normal renovations required)
- **Below Average Condition** (major renovation required)
- **Poor Condition** (total renovation required)
- **Replacement Indicated** (unless historic)

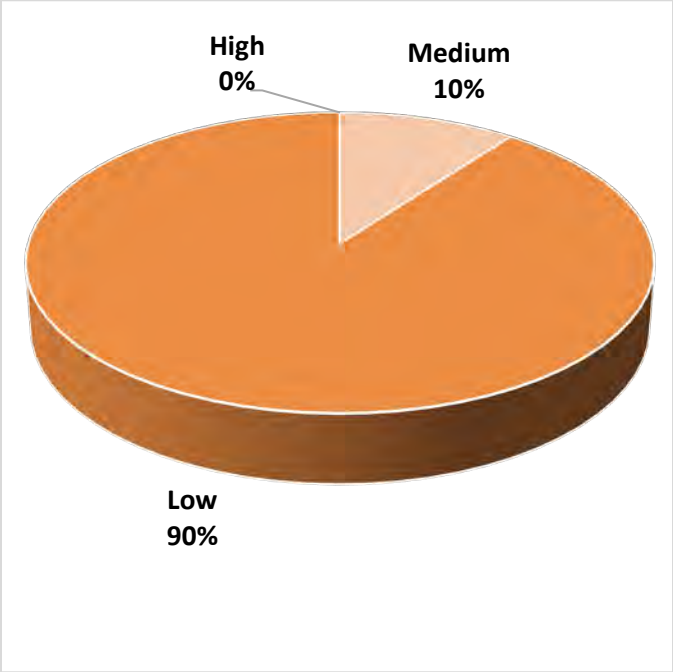
TOTAL 10-YEAR RENEWAL NEEDS



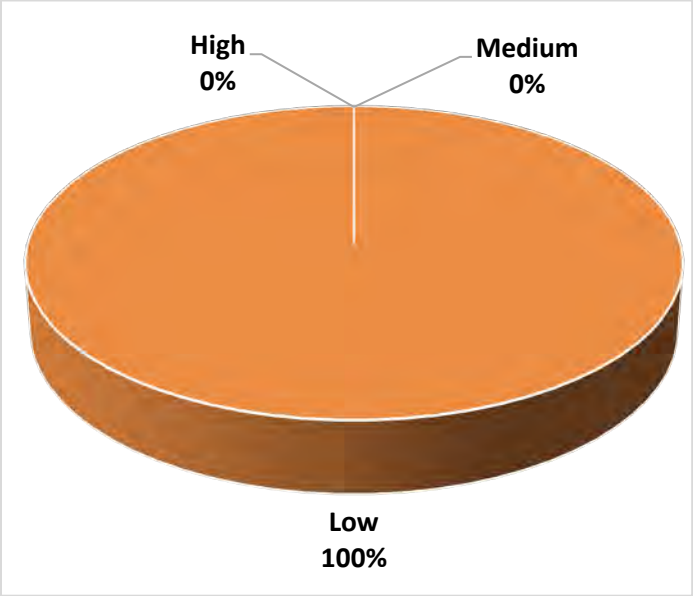
NONRECURRING NEEDS

Priority by Project Cost

PLANT ADAPTION		
1 – High	$0	0.0%
2 – Medium	$117,846	10.3%
3 – Low	$1,023, 071	89.7%
TOTAL	**$118,940**	**100%**

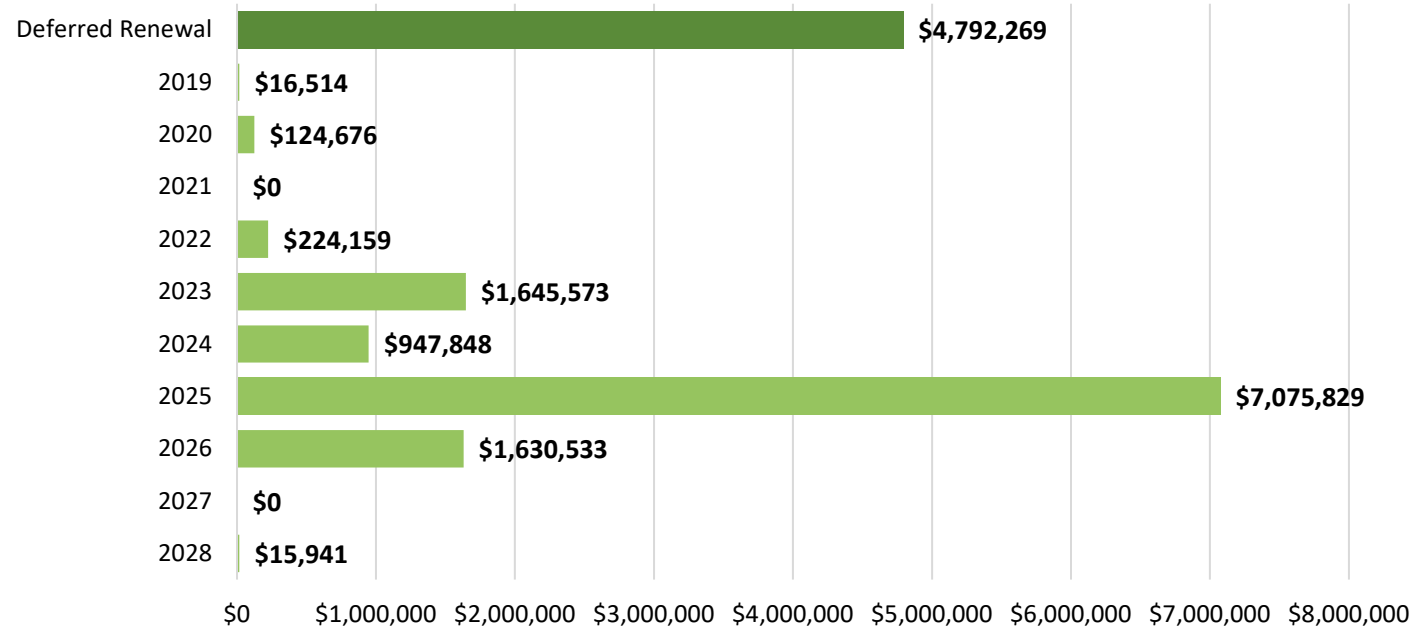


CORRECTIVE ACTION		
1 – High	**$0**	**0.0%**
2 – Medium	**$0**	**0.0%**
3 – Low	**$129,722**	**100%**
TOTAL	**$129,722**	**100%**

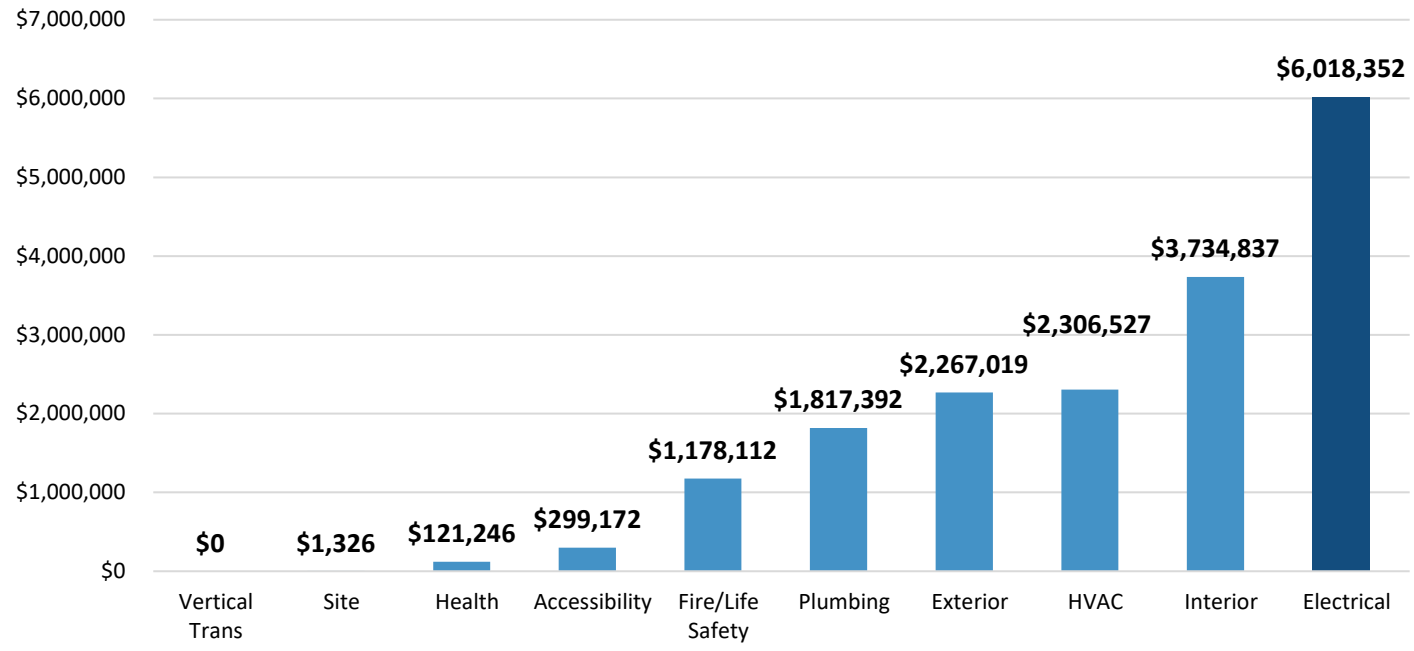


RECURRING NEEDS

Component Replacements by Year



RENEWAL NEEDS BY SYSTEM



ITEMIZED RECURRING NEEDS

(RENEWABLE COMPONENTS)

ASSET CODE	COMP CODE	COMPONENT DESCRIPTION	IDENTIFIER	CUSTOMER ID	LOCATION	UNIFORMAT	REPLACEMENT YEAR	REPLACEMENT COST
001	FN32	FAN - UTILITY SET, 1/4" SP (.4-1.25 HP)	EF-1		343	D3040	Deferred Renewal	$6,635
001	FN32	FAN - UTILITY SET, 1/4" SP (.4-1.25 HP)	EF-2		ME0109	D3040	Deferred Renewal	$6,635
001	FN32	FAN - UTILITY SET, 1/4" SP (.4-1.25 HP)	EF-3		181	D3040	Deferred Renewal	$6,635
001	HV14	HVAC DISTRIBUTION NETWORKS - OFFICE	ORIGINAL PIPING			D3040	Deferred Renewal	$1,533,821
001	BA37	HVAC CONTROLS - FIELD PANELS/OPS SOFTWARE - OFFICE	DDC HYB FP			D3060	Deferred Renewal	$130,982
001	BA60	HVAC CONTROLS - MAJOR INSTRUMENTATION - OFFICE	DDC HYB MI			D3060	Deferred Renewal	$66,884
001	MC01	MOTOR CONTROL CENTER VERTICAL SECTION, 600V (<=400A) W/STARTERS	MCC-3		181	D5010	Deferred Renewal	$227,200
001	MC01	MOTOR CONTROL CENTER VERTICAL SECTION, 600V (<=400A) W/STARTERS	MCC-1		343	D5010	Deferred Renewal	$302,934
001	MC01	MOTOR CONTROL CENTER VERTICAL SECTION, 600V (<=400A) W/STARTERS	MCC-2		ME0108	D5010	Deferred Renewal	$302,934
001	VF08	VARIABLE FREQUENCY DRIVE (30-40 HP)	VFD AHU-4		203	D5010	2026	$15,941
001	VF08	VARIABLE FREQUENCY DRIVE (30-40 HP)	VFD AHU-3		266	D5010	2026	$15,941
001	VF08	VARIABLE FREQUENCY DRIVE (30-40 HP)	VFD AHU-2		130	D5010	2026	$15,941
001	VF08	VARIABLE FREQUENCY DRIVE (30-40 HP)	VFD AHU-1		ME0108	D5010	2028	$15,941
							TOTAL	**$16,473,342**

SAMPLE UNIVERSITY
Facility Condition Assessment
Cost Summaries and Totals

JAMES HALL
ASSET 001

ITEMIZED NONRECURRING NEEDS

(PROJECTS)

PROJECT NUMBER	PROJECT TITLE	UNIFORMAT	PRIORITY	CLASSIFICATION	PROJECT COST
001AC01	BUILDING EXTERIOR ACCESSIBILITY UPGRADES	B2030	2	Plant Adaption	$11,932
001FS01	INSTALL ROOF ACCESS LADDER AND ROOF HATCH	C1010	2	Plant Adaption	$5,981
001AC04	RESTROOM ACCESSIBILITY UPGRADES	D2010	2	Plant Adaption	$41,097
001HE02	ASBESTOS ABATEMENT - MECHANICAL SYSTEMS	F2020	2	Plant Adaption	$58,835
001ES01	EXTERIOR MASONRY WALL RENEWAL	B2010	3	Corrective Action	$85,182
001ES02	EXTERIOR WALL FINISH RENEWAL	B2010	3	Corrective Action	$44,540
001AC02	DRINKING FOUNTAIN, SERVICE COUNTER, & KITCHENETTE UPGRADES	C1010	3	Plant Adaption	$47,007
001AC03	INTERIOR DOOR ACCESSIBILITY UPGRADES	C1010	3	Plant Adaption	$179,342
001AC05	STAIR AND RAILING UPGRADES	C2020	3	Plant Adaption	$19,793
001FS02	FIRE SPRINKLER SYSTEM INSTALLATION	D4010	3	Plant Adaption	$451,848
001EL02	INSTALL OCCUPANCY SENSOR/DIMMING LIGHTING CONTROLS	D5020	3	Plant Adaption	$91,418
001EL01	INSTALL EMERGENCY GENERATOR AND POWER NETWORK	D5090	3	Plant Adaption	$171,252
001HE01	ASBESTOS ABATEMENT - INTERIOR FINISH SYSTEMS	F2020	3	Plant Adaption	$62,411
				TOTAL	**$1,270,639**

SAMPLE UNIVERSITY
Facility Condition Assessment
Renewable Components

JAMES HALL
ASSET 001

RECURRING NEEDS BY YEAR

All costs shown as Future Value using a 3% average inflation rate

DEFERRED RENEWAL
No component replacements.

2019						
UNIFORMAT	**COMPONENT DESCRIPTION**	**IDENTIFIER**	**QTY**	**UNITS**	**REPLACEMENT COST**	**YEAR**
B3010	ROOF - APPLIED FINISH OVER CONCRETE STRUCTURE	LIGHTWEIGHT CONCRETE	3,000	SF	$31,368	2019
2019 PROJECTED COMPONENT REPLACEMENT COST					**$31,368**	

2020
No projected component replacements.

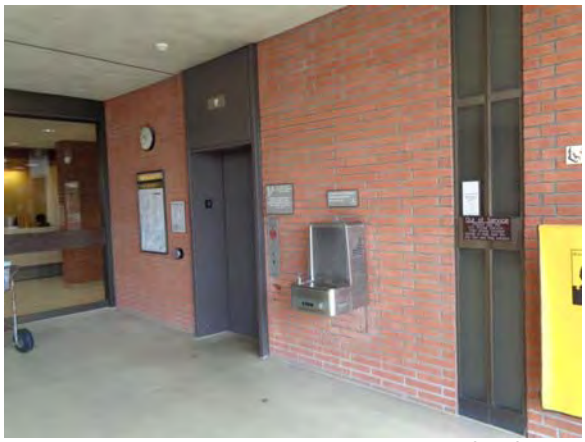
2021						
UNIFORMAT	**COMPONENT DESCRIPTION**	**IDENTIFIER**	**QTY**	**UNITS**	**REPLACEMENT COST**	**YEAR**
C3020	FLOORING - FLUID APPLIED, PAINT OR CLEAR SEAL		2,790	SF	$14,054	2021
G2010	CONCRETE VEHICULAR PAVING - JOINT MAINTENANCE		410	LF	$3,844	2021
D3060	HVAC CONTROLS - FIELD PANELS/OPS SOFTWARE – LABORATORY	DDC FP	164,369	SF	$560,508	2021
D3060	HVAC CONTROLS - MAJOR INSTRUMENTATION – LABORATORY	DDC MI	164,369	SF	$282,165	2021
2021 PROJECTED COMPONENT REPLACEMENT COST					**$860,570**	

2022
No projected component replacements.

2023						
UNIFORMAT	**COMPONENT DESCRIPTION**	**IDENTIFIER**	**QTY**	**UNITS**	**REPLACEMENT COST**	**YEAR**
C3020	FLOORING - CARPET, TILE OR ROLL, STANDARD		18,160	SF	$294,549	2023
			388,120	SF	$1,747,793	2023
2023 PROJECTED COMPONENT REPLACEMENT COST					**$2,042,342**	

001034a **2/28/2019**
Kitchenette with nonaccessible sink
Third floor, room 386A

001034e **2/28/2019**
Motor control center
Room ME0108



001035a **2/28/2019**
Single-level drinking fountain
Third floor, east walkway

001035e **2/28/2019**
Local panelboards
Room 130

001036a **2/28/2019**
Open stairwell with nongraspable handrails
Third floor, stairwell SW302

Air handling unit AHU-2
Room 130

SAMPLE UNIVERSITY
Facility Condition Assessment
Cost Summaries and Totals

RENEWAL NEEDS MATRIX

All dollars shown as Present Value

CATEGORY	NONRECURRING NEEDS (PROJECTS)			RECURRING NEEDS (COMPONENT REPLACEMENTS)											TOTALS
	High	Medium	Low	Deferred Renewal	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
ACCESSIBILITY	$114,203	$15,292,369	$3,800,755	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	**$19,207,327**
EXTERIOR	$0	$327,592	$6,948,087	$26,561,551	$8,238,931	$12,760,987	$9,928,972	$8,373,676	$16,535,342	$1,922,124	$6,021,916	$1,281,351	$3,781,667	$3,718,187	**$106,400,383**
INTERIOR	$0	$35,575	$1,363,195	$16,435,136	$3,006,864	$16,176,312	$10,243,822	$16,630,436	$11,391,013	$9,608,813	$14,081,029	$3,136,804	$6,985,056	$15,266,672	**$124,360,726**
PLUMBING	$0	$132,635	$248,252	$22,312,028	$1,477,892	$4,180,014	$1,881,349	$8,720,578	$534,297	$2,314,882	$3,075,134	$3,548,339	$8,549,116	$7,831,102	**$64,805,617**
HVAC	$0	$0	$50,685,618	$75,921,262	$188,038	$1,691,099	$2,820,325	$5,810,420	$4,428,065	$7,154,451	$5,524,815	$2,440,809	$2,460,309	$7,695,246	**$166,820,456**
FIRE/LIFE SAFETY	$12,682	$566,292	$24,788,655	$5,430,946	$928,226	$2,351,789	$4,976,779	$1,534,310	$1,070,552	$3,555,464	$132,717	$656,145	$1,943,057	$731,316	**$48,678,929**
ELECTRICAL	$0	$0	$6,438,903	$59,612,570	$2,263,476	$7,134,316	$3,371,553	$4,737,596	$6,370,293	$716,251	$11,064,251	$4,890,584	$5,088,822	$2,000,968	**$113,689,585**
SITE	$0	$424,788	$3,656,525	$445,566	$0	$222,821	$153,950	$137,427	$15,963	$444,265	$21,170	$95,651	$29,196	$38,552	**$5,685,873**
VERTICAL TRANS	$0	$0	$0	$1,176,024	$1,936,980	$1,189,508	$0	$691,779	$1,540,793	$0	$0	$345,889	$1,383,557	$0	**$8,264,530**
HEALTH	$0	$2,435,306	$2,125,278	$1,093,612	$16,992	$0	$0	$12,167	$1,947,377	$77,824	$29,158	$2,843,374	$0	$0	**$10,581,088**
Subtotals	*$126,885*	*$19,214,556*	*$100,055,268*	*$208,988,694*	*$18,057,398*	*$45,706,845*	*$33,376,750*	*$46,648,388*	*$43,833,695*	*$25,794,074*	*$39,950,190*	*$19,238,947*	*$30,220,780*	*$37,282,042*	*$668,494,513*
TOTAL NONRECURRING $119,396,709				**TOTAL RECURRING $549,097,804**											

CURRENT REPLACEMENT VALUE	**$2,132,357,469**
FACILITY CONDITION NEEDS INDEX	**0.31**
FACILITY CONDITION INDEX	**0.10**

GROSS SQUARE FEET	**5,603,395**
TOTAL 10-YEAR RENEWAL NEEDS	**$668,494,513**
10-YEAR NEEDS/SF	**$119.30**

ASSET DATA AND NEEDS

ASSET CODE	ASSET NAME	BUILT	GSF	CURRENT REPLACEMENT VALUE	NONRECURRING NEEDS	DEFERRED RENEWAL	RECURRING NEEDS	TOTAL 10-YEAR NEEDS	FCNI	FCI
001	JAMES HALL	1975	127,050	$63,111,000	$1,270,639	$4,792,269	$11,681,073	$ 17,743,982	0.28	0.08
002	STUDENT HEALTH SERVICES	1976	38,629	$23,566,000	$694,261	$751,959	$6,876,463	$ 8,322,683	0.35	0.03
003	NURSING	1969	23,453	$13,794,000	$221,296	$61,613	$1,875,224	$ 2,158,133	0.16	0.00
004	SAMUELS HOUSE	1957	2,474	$783,000	$396,017	$346,326	$261,837	$ 1,004,180	1.28	0.44
005	FAMILY AND CONSUMER SCIENCES	1970	39,860	$20,663,000	$87,994	$1,109,671	$5,559,734	$ 6,757,399	0.33	0.05
006	UNIVERSITY STUDENT UNION	1972	161,300	$67,607,000	$1,246,406	$2,028,186	$20,023,446	$ 23,298,038	0.34	0.03
007	CAFETERIA	1960	35,305	$19,796,000	$1,134,616	$6,514,415	$5,126,659	$ 12,775,690	0.65	0.33
008	BOOKSTORE	1954	65,922	$18,856,000	$4,458,717	$3,101,227	$1,375,424	$ 8,935,367	0.47	0.16
009	PSYCHOLOGY	1970	85,147	$41,574,000	$8,185,670	$2,534,947	$11,906,110	$ 22,626,727	0.54	0.06
010	LIBERAL ARTS 5	1959	63,220	$32,574,168	$1,829,169	$11,896,612	$2,527,121	$ 16,252,902	0.50	0.37
011	LIBERAL ARTS 4	1955	14,210	$8,459,911	$248,394	$10,802	$102,708	$ 361,904	0.04	0.00
012	LIBERAL ARTS 3	1954	15,689	$9,340,378	$285,768	$9,786	$118,051	$ 413,604	0.04	0.00
013	LIBERAL ARTS 2	1954	13,708	$8,160,573	$246,216	$11,268	$105,930	$ 363,414	0.04	0.00
014	LIBERAL ARTS 1	1962	40,230	$21,526,531	$807,281	$4,482,879	$4,350,705	$ 9,640,865	0.45	0.21
015	FACULTY OFFICE 3	1959	33,373	$17,531,917	$1,644,315	$6,303,178	$821,545	$ 8,769,038	0.50	0.36
016	FACULTY OFFICE 2	1957	11,994	$6,837,293	$504,057	$1,198,829	$1,037,254	$ 2,740,141	0.40	0.18
017	LECTURE HA[illegible]1	1955	7,050	$3,275,171	$197,775	$686,344	$612,622	$ 1,496,741	0.46	0.21
094	MOLECULAR AND LIFE SCIENCES	2003	93,159	$60,777,000	$38,957	$455,229	$8,487,027	$ 8,981,213	0.15	0.01
095	HALL OF SCIENCE	2011	164,369	$105,708,000	$499	$0	$2,744,072	$ 2,744,571	0.03	0.00
200	UNIVERSITY FOUNDATION	1993	63,464	$31,525,000	$140,608	$1,876,365	$5,777,232	$ 7,794,205	0.25	0.06
300A	WILLIAMS RESIDENCE HALL	1964	55,600	$30,610,000	$753,572	$986,568	$4,934,890	$ 6,675,029	0.22	0.03
300D	MAIN DINING HALL	1964	10,866	$6,155,000	$80,837	$0	$339,226	$ 420,063	0.07	0.00
300P	THOMAS RESIDENCE HALL	1964	55,600	$30,610,000	$761,619	$977,670	$5,058,016	$ 6,797,305	0.22	0.03
PR001	MILLER HOUSE	1992	5,326	$1,831,000	$23,017	$35,157	$157,734	$ 215,909	0.12	0.02
		TOTALS	**5,603,395**	**$2,132,357,469**	**$119,396,709**	**$208,988,694**	**$340,109,110**	**$668,494,513**	**0.31**	**0.10**

CAPITAL RENEWAL SUBSYSTEM COSTS

All dollars shown as Present Value

CATEGORY	RECURRING NEEDS (COMPONENT REPLACEMENTS)											TOTALS
	Deferred Renewal	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
a.1 Roofing - Built-up, etc.	$89,029,007	$20,616,226	$20,057,762	$10,880,830	$18,053,033	$20,786,507	$12,319,363	$20,947,581	$14,962,096	$17,527,656	$20,029,790	**$265,209,851**
a.2 Roofing - Tile	$53,571	$141,106	$0	$0	$593,010	$995,096	$0	$0	$0	$0	$0	**$1,782,784**
b.1 Building Exteriors (Hard)	$424,702,666	$36,224,661	$47,313,293	$26,959,271	$30,853,970	$42,845,562	$15,496,660	$42,169,048	$40,100,499	$33,833,880	$27,237,253	**$767,736,763**
b.2 Building Exteriors (Soft)	$8,710,853	$639,071	$407,503	$31,964	$21,890	$1,820,787	$114,787	$772,922	$930,622	$225,720	$3,146,052	**$16,822,172**
c.1 Elevators and Conveying Systems	$124,421,803	$9,895,153	$10,167,256	$12,146,143	$9,652,165	$11,336,872	$7,377,041	$16,058,179	$17,202,543	$11,957,137	$18,859,065	**$249,073,356**
d.1 HVAC - Equipment/Controls	$446,263,848	$21,447,464	$57,414,374	$28,020,089	$28,297,567	$27,674,742	$43,995,659	$38,751,747	$64,127,371	$31,276,164	$58,443,937	**$845,712,962**
e.1 HVAC - Distribution Systems	$840,157,167	$9,847,228	$47,421,614	$10,929,527	$12,423,521	$20,231,236	$25,558,412	$35,018,204	$7,323,373	$54,232,679	$18,397,566	**$1,081,540,528**
f.1 Electrical - Equipment	$1,001,609,339	$37,231,990	$90,635,815	$53,040,476	$41,527,616	$56,001,509	$51,131,144	$114,226,991	$61,035,215	$75,646,993	$83,253,640	**$1,665,340,730**
g.1 Plumbing Fixtures	$62,044,340	$4,001,709	$4,859,510	$5,099,584	$3,319,021	$22,874,165	$5,944,098	$10,377,316	$10,524,195	$8,540,929	$9,996,858	**$147,581,726**
g.2 Plumbing Rough-in	$576,291,753	$7,952,236	$26,922,170	$5,164,617	$9,871,551	$13,820,045	$18,177,783	$26,976,029	$16,143,811	$40,546,876	$28,333,963	**$770,200,835**
h.1 Fire Protection	$7,310,440	$546,948	$1,866,737	$1,114,955	$556,175	$2,566,696	$953,071	$1,875,466	$1,076,072	$1,052,680	$819,063	**$19,738,303**
h.2 Fire Detection	$115,383,585	$8,579,469	$17,655,479	$21,548,654	$10,882,393	$17,449,430	$18,897,751	$30,553,006	$21,451,568	$11,961,555	$18,012,056	**$292,374,947**
i.1 Built-in Equipment and Specialties	$26,789,430	$6,319,447	$10,820,173	$1,606,177	$1,491,679	$6,634,684	$460,541	$5,961,343	$5,614,649	$4,597,356	$8,385,418	**$78,680,898**
j.1 Interior Finishes: Walls, Floors, Doors	$648,237,375	$106,921,014	$138,646,176	$88,872,572	$151,300,508	$87,358,912	$91,145,369	$139,214,027	$114,963,546	$103,095,738	$84,647,653	**$1,754,402,889**
TOTALS	**$4,371,005,176**	**$270,363,723**	**$474,187,864**	**$265,414,859**	**$318,844,101**	**$332,396,242**	**$291,571,679**	**$482,901,861**	**$375,455,561**	**$394,495,363**	**$379,562,316**	**$7,956,198,744**

APPENDIX C

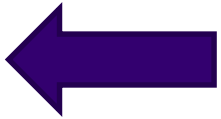
SOME SLIDES HAVE BEEN REMOVED TO REDUCE FILE SIZE

UW GREEN REVOLVING FUND & ENERGY TRANSFORMATION STRATEGY

UWF/OPB 08.11.22

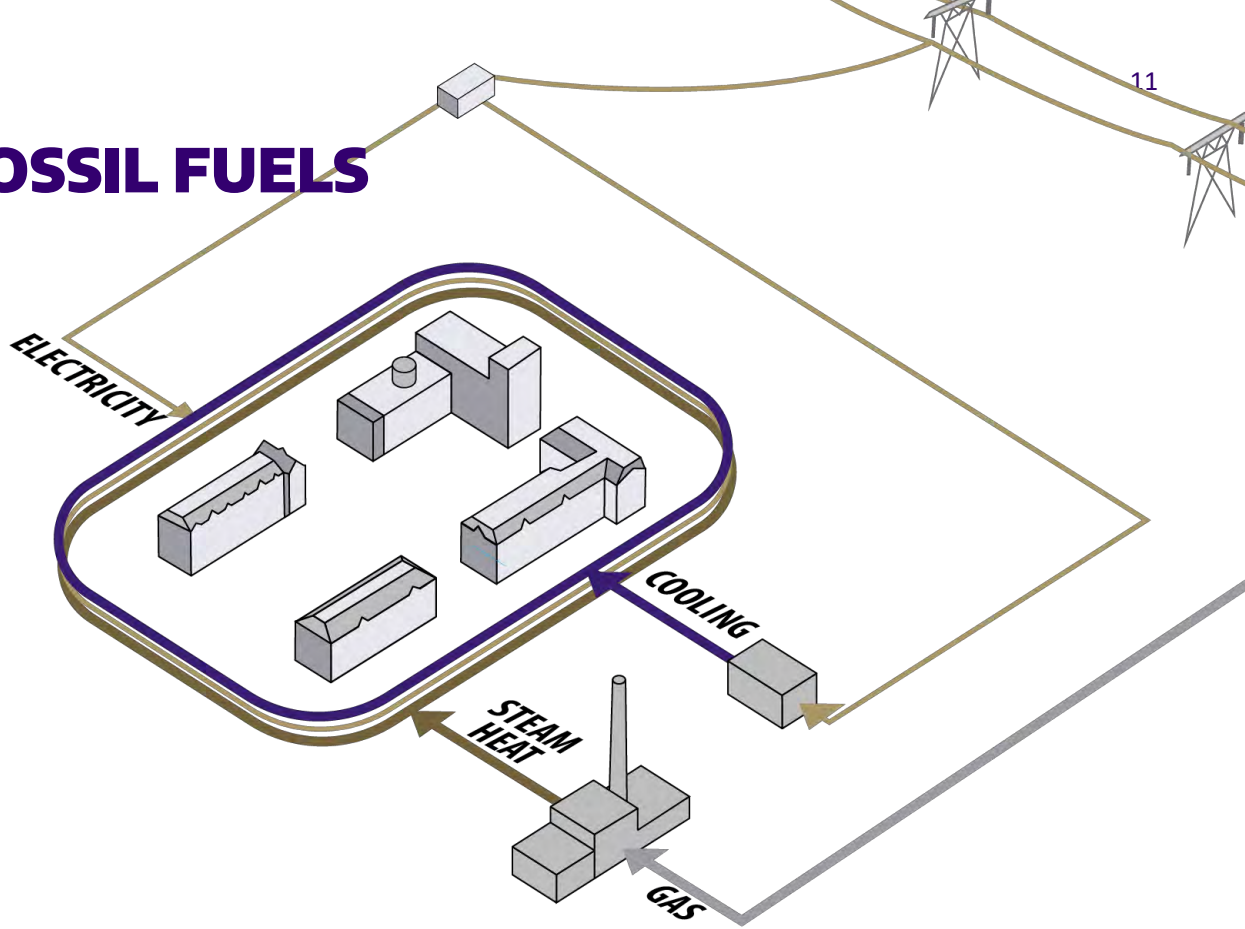
UNIVERSITY of WASHINGTON

AGENDA

- Our proposal
- Green revolving fund (GRF)
- **Energy transformation strategy** 
  - context
  - foundational infrastructure / solutions
- Discussion

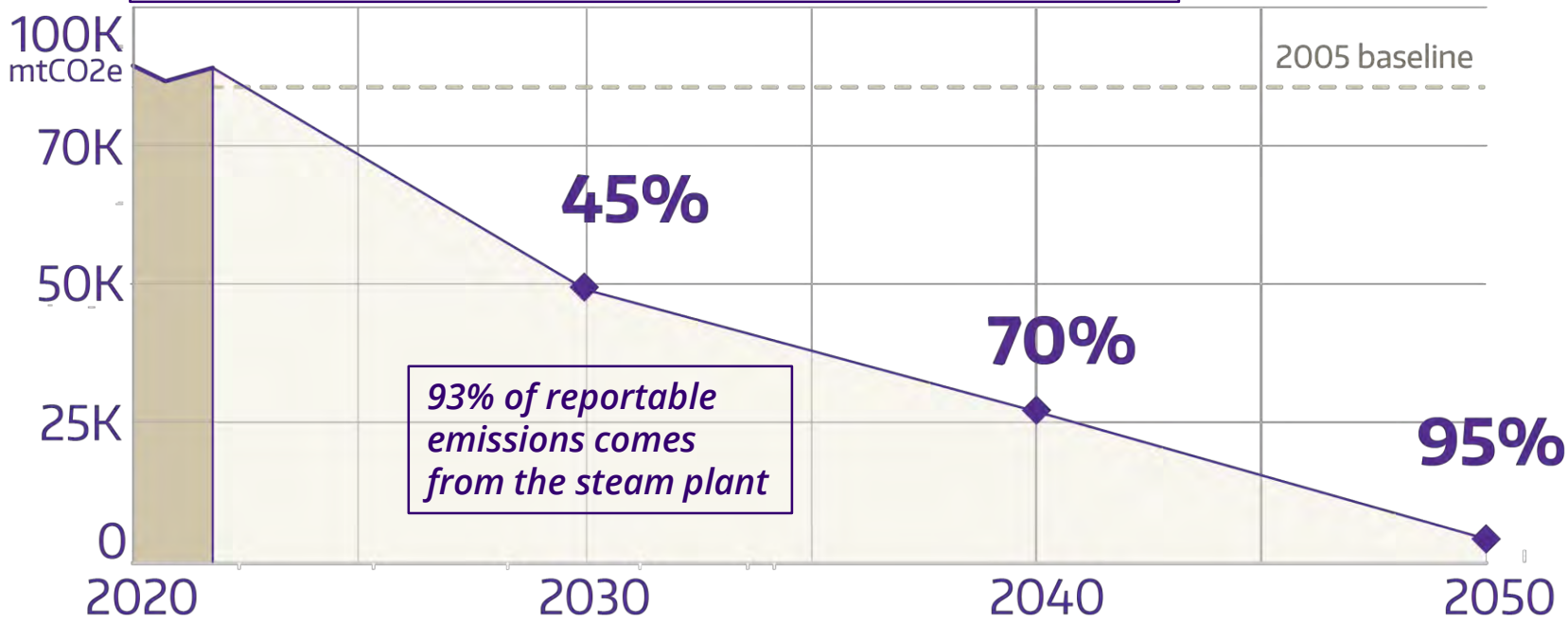
HEATING AND FOSSIL FUELS

We presently consume natural gas to produce steam at our central plant, for the primary purpose of providing heat to our buildings.



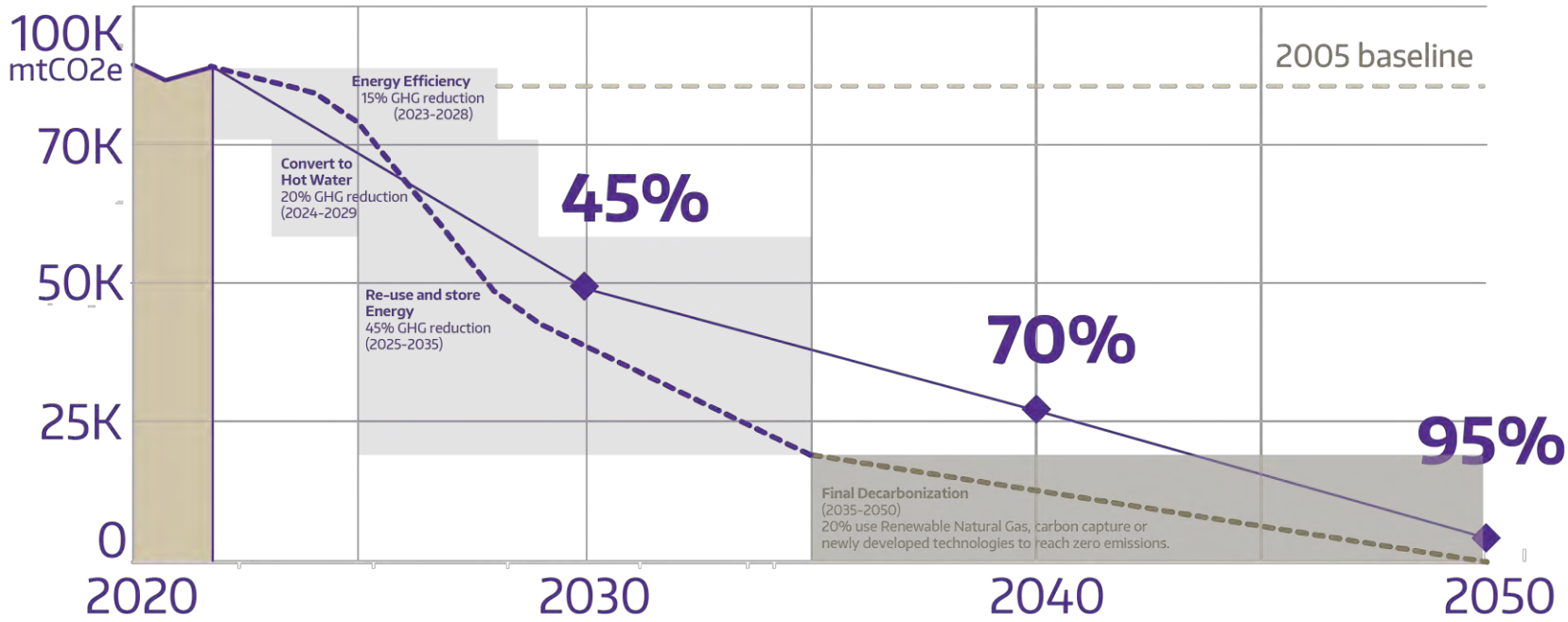
URGENT ACTION REQUIRED!

UW initial annual carbon liability between $3.7 and $5.2M.



Need a significant shift away from carbon sourced heating!

WE HAVE A PLAN!

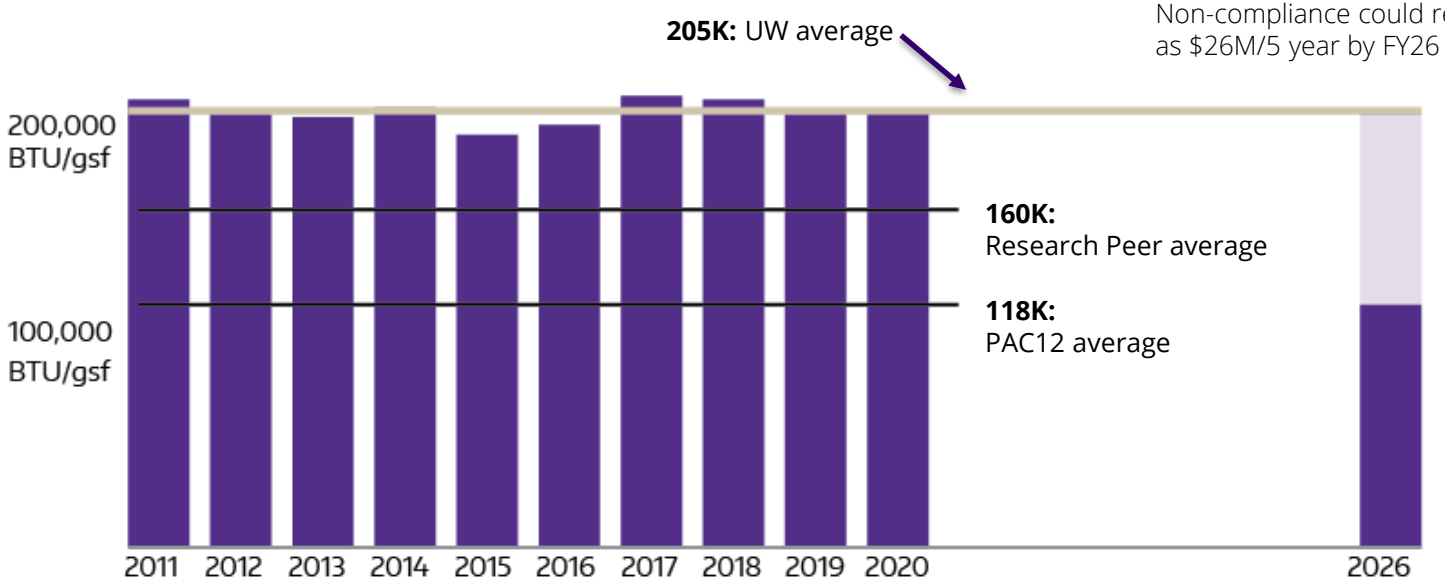


WE CAN/MUST USE LESS ENERGY

CLEAN BUILDING PERFORMANCE STANDARD

Mandate to reduce energy use ~45% by 2026

Non-compliance could result in fines as high as $26M/5 year by FY26



(Sightlines data)

Research peers:
Clemson U, MIT, Northwestern, The Ohio State U, U of Arkansas, U of Connecticut, U of Florida, U. Of Georgia, U. Of Maryland, U. of Oregon

OBJECTIVES

Inspire & lead: model a path to meet environmental and financial challenges

Support the UW mission:

- cooling is no longer a luxury in the PNW
- avoid regulatory penalties: avoid reputational risk of non-compliance
- share: democratize actionable campus data and share with research
- resilient: mitigate service disruption risk
  - no fossil fuels: eliminate dependency on fossil fuels
  - future proof: design to meet changing environmental conditions (climate adaptation)
  - optionality: flexibility to leverage future technologies
  - diversify: mitigate commodity risks/dependency

Lowest cost: lowest total cost of ownership (CapEx/OpEx)

Embed: energy efforts within the strategic facilities renewal plan

WHAT DO WE NEED TO DO… FOUNDATIONAL SOLUTIONS

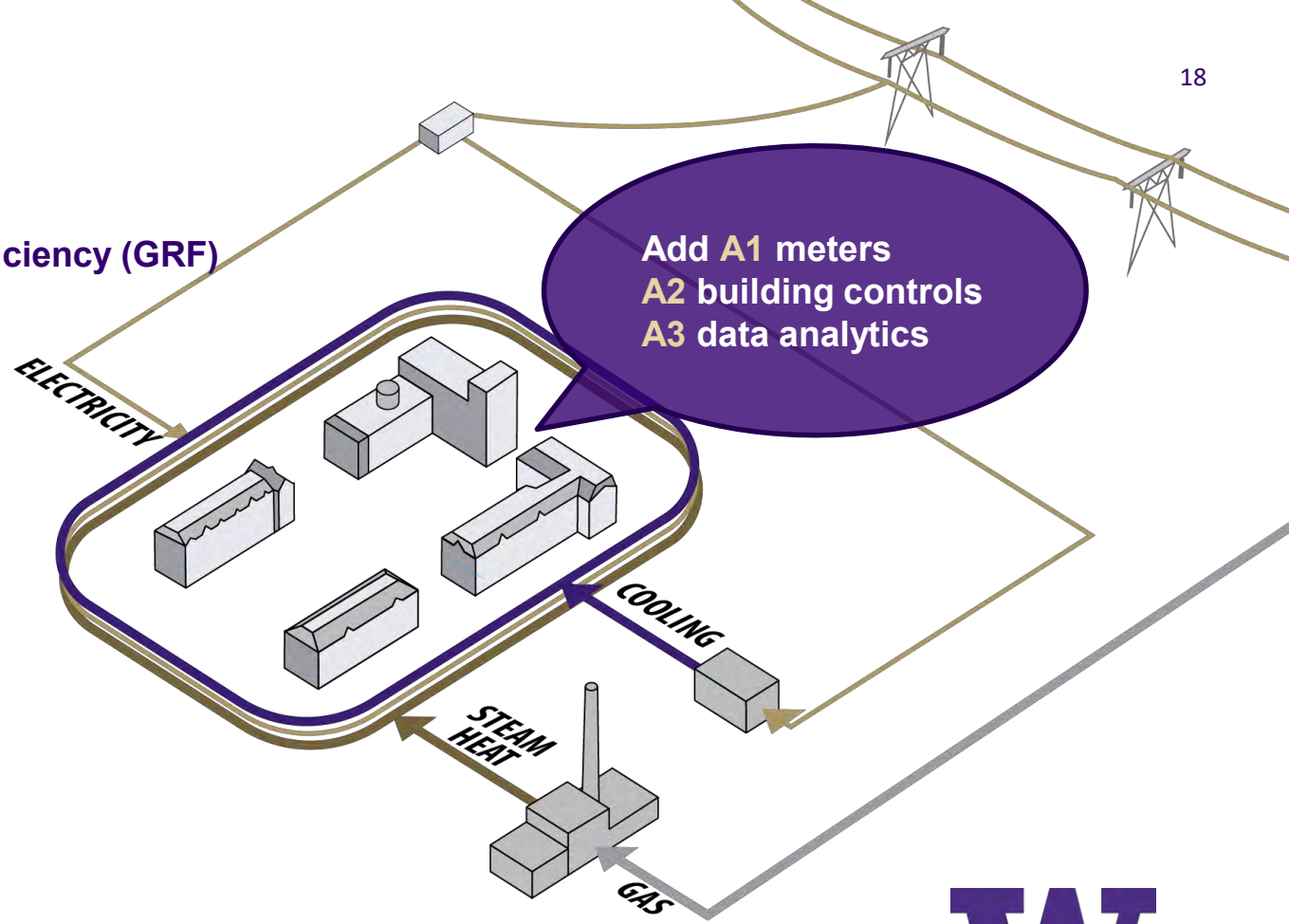
A. DATA
    1. Metering
    2. Controls
    3. Data analytics
    4. Accelerate energy efficiency (6x) - The "Green Revolving Fund"

B. DISTRICT ENERGY
    1. Hot water (away from steam),
    2. Centralized cooling,
    3. Thermal storage & re-use, and
    4. Reduce electrical demand.

2023–2028

A1–A4 DATA

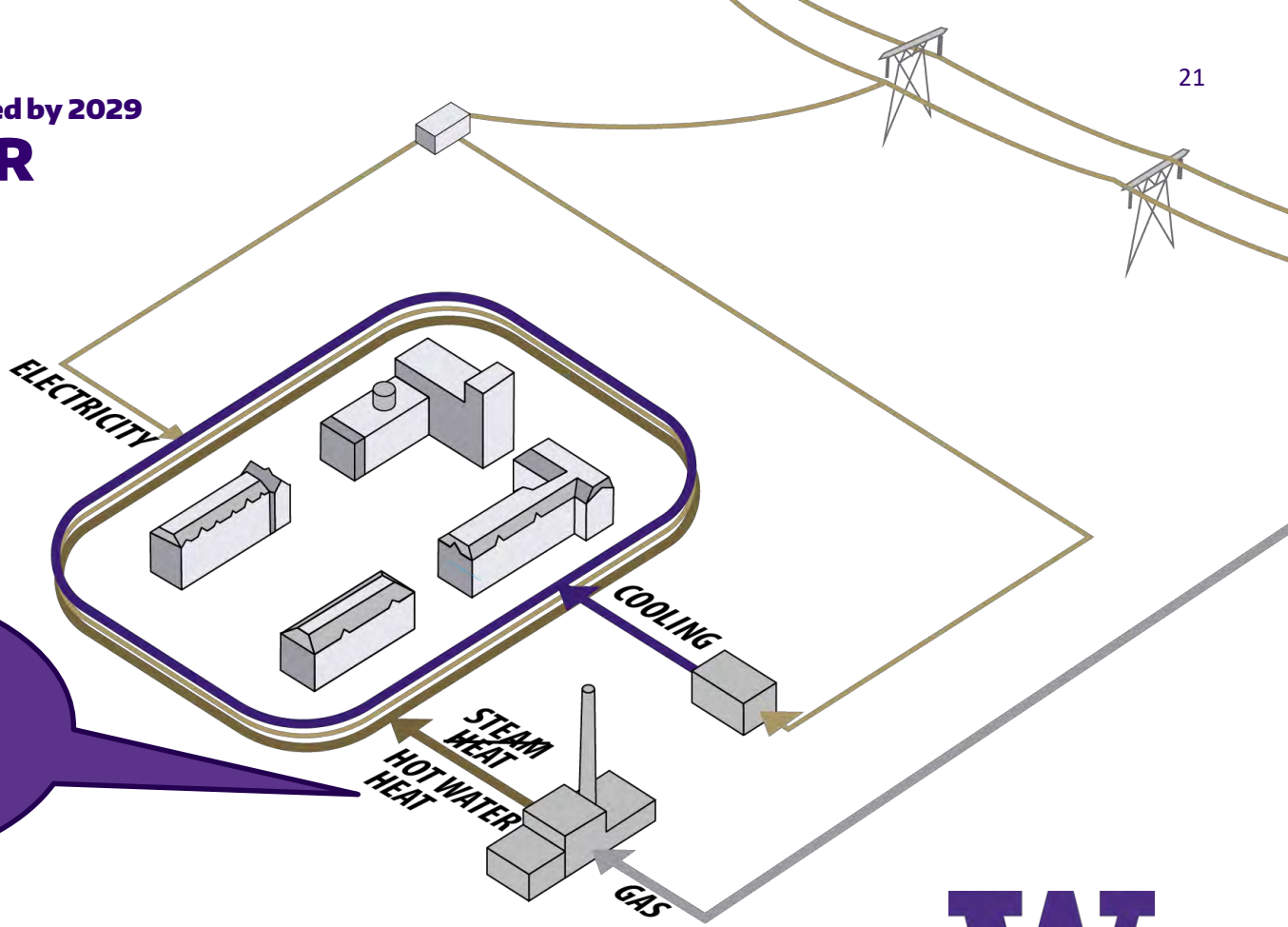
- A4 Accelerate energy efficiency (GRF)
- Enable compliance



engineering in 2023, completed by 2029

B1 HOT WATER

- Reduce waste
- Enable
  - Heat recovery
  - Non-fossil fuel

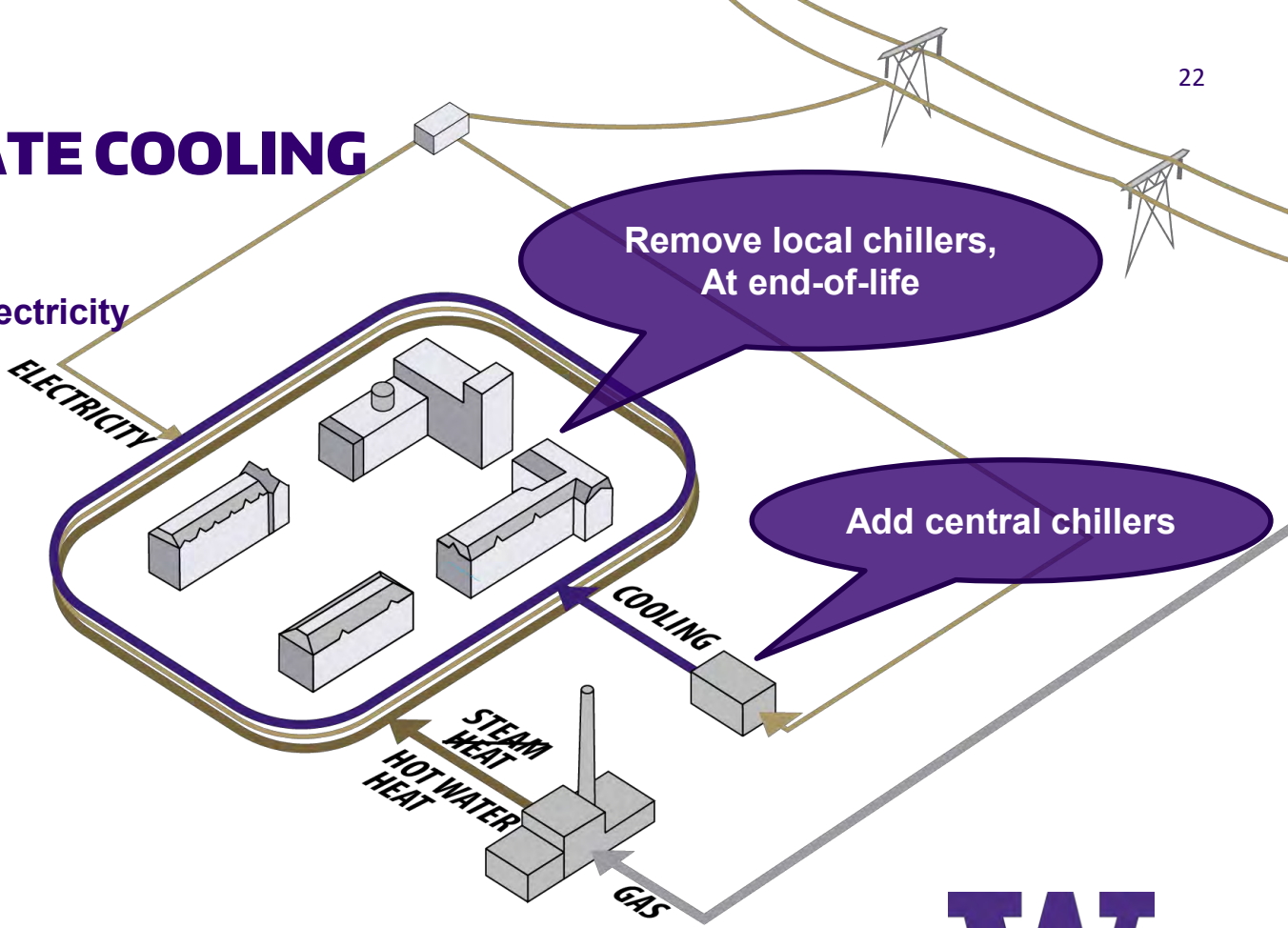


Transition from steam to hot water

2023-2033

B2 CONSOLIDATE COOLING

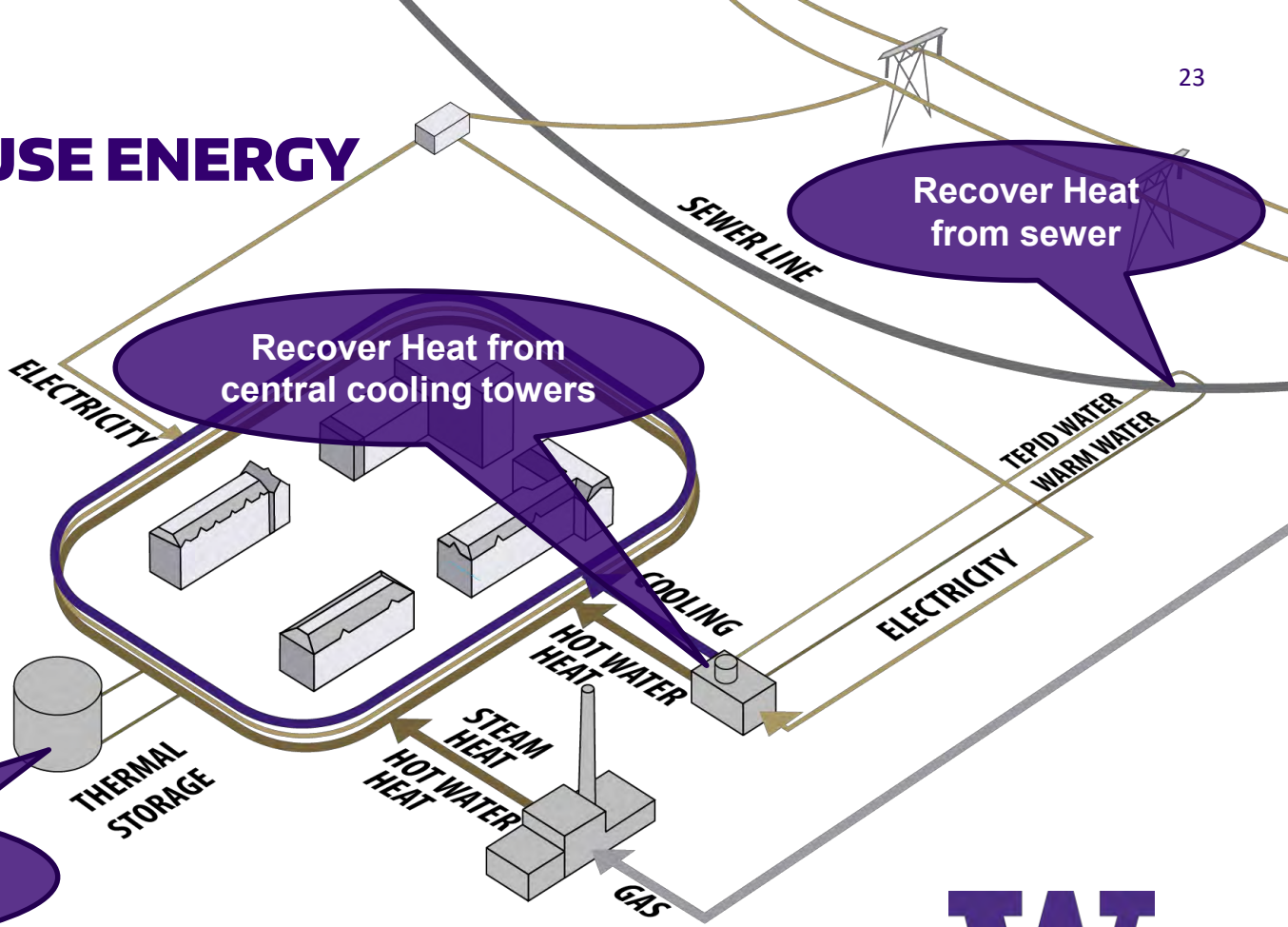
- Increase reliability
- Most efficient use of electricity
- Enable heat recovery



2025-2035

B3 STORE/REUSE ENERGY

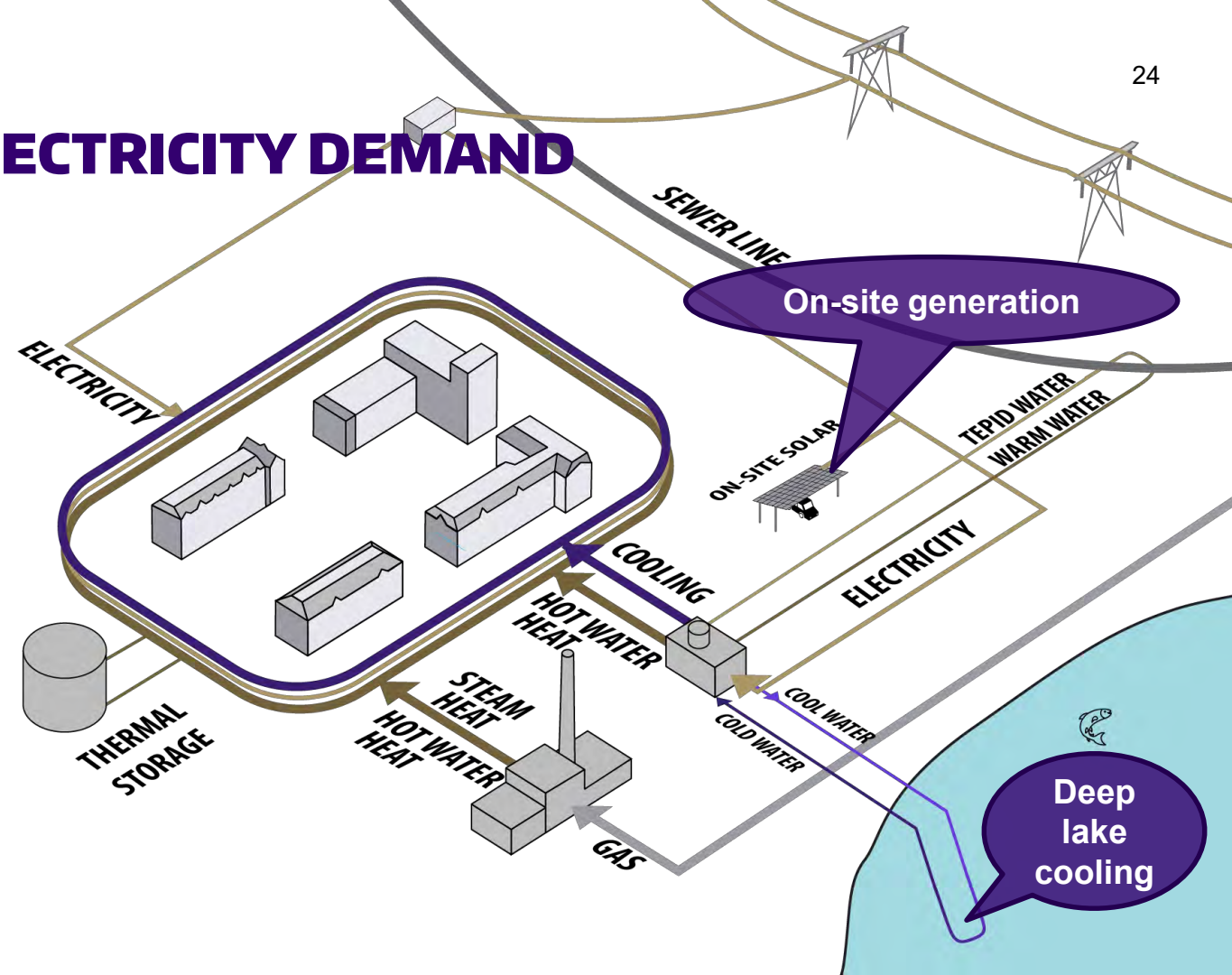
- Improve reliability
- Help with electricity capacity constraint
- Improve equipment efficiency



2023-2035

B4 REDUCE ELECTRICITY DEMAND

- Free up capacity
- Increase resilience
- Reduce cost



APPENDIX D

UNIVERSITY of WASHINGTON

SOME PAGES HAVE BEEN REMOVED TO REDUCE FILE SIZE

ADA Barrier Removal Implementation Plan

for the

University of Washington – Seattle Campus

September 2021

TABLE OF CONTENTS

THE UNIVERSITY OF WASHINGTON prepared an ADA Transition Plan in 2020. This plan included: the results of a self-assessment of access barriers at exterior points of arrival, pathways, and exterior doorways; scoring criteria and resulting prioritization based on factors such as program served, high volume pathways, and connections to key points of access to the campus; and resulting plan recommendations.

The set of projects described in this document represents an important piece of work imperative to achieving ADA compliance and implementation of the Transition Plan recommendations. These projects have been specifically identified for barrier removal in pathways that are not anticipated to be remediated by other campus efforts including, but not limited to:

- Ongoing maintenance activities,
- Responding to barriers reported through UWF Customer Care (Barrier to Access Reporting),
- Parking lot remediation,
- Building renovations, or
- Major capital/new building projects.

PROJECT GOALS

Four primary goals were identified to support the development of the concept plans, furthering the ADA Transition Plan implementation strategy.

1. **Remove identified accessibility barriers and provide greater universal access on campus.** Barriers to accessibility identified as part of the ADA Transition plan applied to different features including curb ramps, sidewalks, discontinuities and obstacles in pedestrian routes, pedestrian pushbuttons, staircases, wheelchair ramps, and building entrances. Common barriers identified are adverse slopes due to the topography of campus, vertical and horizontal discontinuities due to the type of, or cracking and moving of, pathway material, and issues with building entrances.
2. **Ensure projects are scoped in a manner that enhances the overall campus experience and builds upon the unique legacy of the outdoor environment.** The pathways and pedestrian network are integral to the campus character and experience. Any barrier removal project should enrich the campus experience by considering a consistent language of design elements that enhance wayfinding, safety, and the general enjoyment of the campus environment.

3. **Maximize campus development and maintenance dollars.** The University currently uses several methods, including building renovations and maintenance, to remove barriers to access on campus. The following table outlines the current funding sources that may remove barriers to access while maximizing campus development and use of maintenance dollars.
4. **Identify a sustainable implementation plan for barrier removal, incorporating strategic phasing and funding of these projects over a 10-15 year time frame.** Demonstrate that progress can be maintained to support continual barrier removal efforts and future projects can be planned for and adjusted based on current conditions.

PROJECT IDENTIFICATION

Evaluation criteria were developed to help guide the selection and development of projects. These criteria included:

- **Improved Access to Key Venues Open to General Public** - Improvements should improve access to programs where the general public is invited to visit (e.g. Kane, Meany, Suzallo, Hec Ed, Stadium, IMA, outdoor spaces like the Quad, Red Square, Rainier Vista)
- **Improved Access to Program Spaces** - Improvements should improve access to important program spaces (large accessible classrooms, UW Tower, campus housing, etc.)
- **Improved access to/from transit stops, dial-a-ride stops, accessible parking**
- **Synergy with Other Campus Development** - Economies of scale can be reached if improvements can be constructed in coordination with other campus development such as adjacent development sites, maintenance activities, and minor capital projects.
- **Contributes to Equitable Distribution of Projects Across Campus**
- **Scope and Scale of Project Contributes to Flexibility in Funding Schedules/Programs**

Using the criteria above, campus staff, with consultant assistance, reviewed the prioritization scores assigned to each facility as part of the ADA Transition Plan and identified eleven projects that would meet the goals of the ADA Plan implementation strategy. The projects identified are shown in Figure 1.

Collectively, these projects will provide a more continuous universal access experience throughout central campus, providing access to critical program and buildings that serve the greatest number of visitors.

APPROACH & METHODOLOGY

CONCEPT DEVELOPMENT

The following pages provide additional details for each project concept. Concepts were developed to meet the goals identified and evaluated based on the criteria. The scope of each concept varies and is dependent on the type of barrier to be removed, context of the area around the project site, and the need to make critical connections. While some concepts involve removing and replacing facilities in-place, others propose a more holistic approach to a broader area. A consistent approach was used for all projects to ensure barrier removal activities resulted in a similar campus experience in terms of landscape, mobility, and safety.

One of the most common barriers identified in the ADA Transition Plan was adverse running slopes of campus pathways. The topography of campus makes meeting maximum running slope requirements a challenge and was the driving influence on most of the concepts developed. In most cases, the solution to addressing running slope also addressed other barriers to accessibility.

Previous planning efforts were also reviewed and considered as part of project development. These efforts included:

- 2015 Parrington Lawn to Denny Yard Study – Karen Kiest | Landscape Architects
- 2008 Rainier Vista Concept Plan Report – MVVA Landscape Architects

COST ESTIMATES

A conceptual level cost estimate was prepared for each project concept. This was done by first calculating the estimated areas of each project site, including the amount of existing and new hardscape and softscape. These areas were used to calculate estimated quantities as follows:

- **Demolition Hardscape** – assumed a 6-inch depth on all hardscape scheduled for removal
- **Clearing and Grubbing Softscape** – assumed removal of 4-inch depth vegetation/ soils across all new softscape area
- **Earthwork Import/Export** – assumed one foot depth of import/export of material over entire site area
- **Hardscape** – total area of new hardscape
- **Softscape** – total area of new softscape

Unit prices were developed for the items described above based on recent bid tabulations and experience.

Specific quantities were also assumed for light poles/fixtures, wheelchair ramps, and staircases with unit prices applied to each item.

In addition, lump sum allowances were developed for the following items:

- Temporary Erosion and Sediment Control
- Surveying
- Storm Drain Improvements
- Utility impacts
- Site Furnishings
- Miscellaneous

The lump sum amounts for these items were estimated based on the size of the project and level of complexity involved to complete the project.

BENTON LANE
SHARED USE ROADWAY

Site Area (SF).....11878
Ex Hardscape (SF).....10709
Ex Softscape (SF).....1169
New Hardscape (SF).....11815
New Softscape (SF) 63

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$5,000	$5,000
Surveying	1	LS	$5,000	$5,000
Demolition - hardscape	198	CY	$65	$12,890
Clearing & Grubbing - softscape	14	CY	$45	$649
Earthwork - Import / Export	440	CY	$35	$15,397
Storm Drain Allowance	1	LS	$50,000	$50,000
Misc. Utilities Allowance	1	LS	$30,000	$30,000
Lighting/Power	4	Each	$10,000	$40,000
Hardscape (concrete w/sandblast or exposed agg. finish)	11,815	SF	$20	$236,300
Softscape (planting, irrigation, etc.)	63	SF	$12	$756
Site furnishings (benches, tables, bike racks, etc.)	1	LS	$10,000	$10,000
Extra-Wide Curb Ramp with Bollards	1	Each	$10,000	$10,000
Misc / Specialty Item	1	LS	$5,000	$5,000
			Sub Total	*$421,000*
			Contingency (campus engineering, campus in-plant services, advertising) @ 30%	$127,000
			Design (15% of Sub Total[1])	$64,000
			Mobilization (10% of Sub Total[1])	$43,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$51,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$26,000
			Construction Permit (5% of Sub Total[1])	$22,000
			Sales Tax (10.1% of Sub Total[1])	$43,000
			TOTAL PROJECT ESTIMATE	**$797,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

MASON ROAD
PATHWAY REPLACEMENT

Site Area (SF).....5748
Ex Hardscape (SF).....1488
Ex Softscape (SF).....4260
New Hardscape (SF).....1676
New Softscape (SF) 4072

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$5,000	$5,000
Survey	1	LS	$5,000	$5,000
Demolition - hardscape	28	CY	$65	$1,791
Clearing & Grubbing - softscape	53	CY	$45	$2,367
Earthwork - Import / Export	213	CY	$35	$7,451
Lighting / Power	1	Each	$10,000	$10,000
Hardscape (concrete w/sandblast or exposed agg. Finish)	1,676	SF	$20	$33,520
Softscape (planting, irrigation, etc.)	4,072	SF	$12	$48,864
Retaining Wall	1	LS	$75,000	$75,000
Handrails	600	LF	$150	$90,000
Misc / Specialty Item	1	LS	$5,000	$5,000
			Sub Total	*$284,000*
			Contingency (campus engineering, campus in-plant services, advertising) @ 30%	$86,000
			Design (15% of Sub Total[1])	$43,000
			Mobilization (10% of Sub Total[1])	$29,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$35,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$18,000
			Construction Permit (5% of Sub Total[1])	$15,000
			Sales Tax (10.1% of Sub Total[1])	$29,000
			TOTAL PROJECT ESTIMATE	**$539,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

STEVENS WAY SOUTH

CURB RAMP IMPROVEMENTS

Site Area (SF).....5738
Ex Hardscape (SF).....4028
Ex Softscape (SF).....1710
New Hardscape (SF).....4028
New Softscape (SF) 1710

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$3,000	$3,000
Surveying	1	LS	$5,000	$5,000
Demolition - hardscape	75	CY	$65	$4,849
Clearing & grubbing - softscape	21	CY	$45	$950
Earthwork - Import / Export	213	CY	$35	$7,438
Curb ramp	19	Each	$4,600	$87,400
Hardscape (concrete w/sandblast or exposed agg. finish)	69	SF	$20	$1,385
Softscape (planting, irrigation, etc.)	1,710	SF	$12	$20,520
			Sub Total	*$131,000*
Contingency (campus engineering, campus in-plant services advertising) @ 30%				$40,000
Design (30% of Sub Total[1])				$40,000
Mobilization (10% of Sub Total[1])				$14,000
Project temporary traffic and pedestrian control (12% of Sub Total[1])				$16,000
UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])				$8,000
Construction Permit (5% of Sub Total[1])				$7,000
Sales Tax (10.1% of Sub Total[1])				$14,000
			TOTAL PROJECT ESTIMATE	**$270,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

STEVENS WAY NORTH

CURB RAMP IMPROVEMENTS

Site Area (SF).....1208
Ex Hardscape (SF).....848
Ex Softscape (SF).....360
New Hardscape (SF).....848
New Softscape (SF) 360

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$2,000	$2,000
Surveying	1	LS	$2,500	$2,500
Demolition - hardscape	16	CY	$65	$1,021
Clearing & grubbing - softscape	4	CY	$45	$200
Earthwork - Import / Export	45	CY	$35	$1,566
Hardscape (concrete w/sandblast or exposed agg. finish)	848	SF	$20	$16,960
Softscape (planting, irrigation, etc.)	360	SF	$12	$4,320
Curb ramp	4	Each	$4,600	$18,400
			Sub Total	*$47,000*
Contingency (campus engineering, campus in-plant services advertising) @ 30%				$15,000
Design (30% of Sub Total[1])				$15,000
Mobilization (10% of Sub Total[1])				$5,000
Project temporary traffic and pedestrian control (12% of Sub Total[1])				$6,000
UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])				$3,000
Construction Permit (5% of Sub Total[1])				$3,000
Sales Tax (10.1% of Sub Total[1])				$5,000
			TOTAL PROJECT ESTIMATE	**$99,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

MEMORIAL WAY NE

SEGMENTS 1 & 2, OPTION 1

Site Area (SF).....89084
Ex Hardscape (SF).....59775
Ex Softscape (SF).....27127
New Hardscape (SF).....37252
New Softscape (SF) 50713

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$10,000	$10,000
Surveying	1	LS	$5,000	$5,000
Demolition - hardscape	1,107	CY	$65	$71,951
Clearing & grubbing - softscape	738	CY	$45	$33,208
Earthwork - Import / Export	3,299	CY	$35	$115,479
Storm Drain Allowance	1	LS	$50,000	$50,000
Misc. Utilities Allowance	1	LS	$35,000	$35,000
Lighting / Power	10	Each	$10,000	$100,000
Curb ramp	8	Each	$4,600	$36,800
Wheelchair ramp with handrails	4	Each	$10,000	$40,000
Hardscape (concrete w/sandblast or exposed agg. finish)	37,252	SF	$20	$745,040
Softscape (planting, irrigation, etc.)	50,713	SF	$12	$608,556
Site Furnishings (benches, tables, bike racks, etc)	1	LS	$5,000	$5,000
Misc / Specialty Item	1	LS	$5,000	$5,000
			Sub Total	*$1,862,000*
			Contingency (campus engineering, campus in-plant servies, advertising) @ 30%	$559,000
			Design (15% of Sub Total[1])	$280,000
			Mobilization (10% of Sub Total[1])	$187,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$224,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$112,000
			Construction Permit (5% of Sub Total[1])	$94,000
			Sales Tax (10.1% of Sub Total[1])	$189,000
			TOTAL PROJECT ESTIMATE	**$3,507,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

MEMORIAL WAY NE

SEGMENTS 1 & 2, OPTION 2

Site Area (SF).....39807
Ex Hardscape (SF).....23420
Ex Softscape (SF).....16387
New Hardscape (SF).....23420
New Softscape (SF) 16387

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$10,000	$10,000
Surveying	1	LS	$5,000	$5,000
Demolition - hardscape	434	CY	$65	$28,191
Clearing & grubbing - softscape	289	CY	$45	$13,011
Earthwork - Import / Export	1,474	CY	$35	$51,602
Storm Drain Allowance	1	LS	$20,000	$20,000
Misc. Utilities Allowance	1	LS	$15,000	$15,000
Lighting / Power	10	Each	$10,000	$100,000
Curb ramp	17	Each	$4,600	$78,200
Hardscape (concrete w/sandblast or exposed agg. finish)	23,420	SF	$20	$468,400
Softscape (planting, irrigation, etc.)	16,387	SF	$12	$196,644
Site Furnishings (benches, tables, bike racks, etc)	1	LS	$5,000	$5,000
Misc / Specialty Item	1	LS	$5,000	$5,000
			Sub Total	*$997,000*
			Contingency (campus engineering, campus in-plant services advertising) @ 30%	$300,000
			Design (15% of Sub Total[1])	$150,000
			Mobilization (10% of Sub Total[1])	$100,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$120,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$60,000
			Construction Permit (5% of Sub Total[1])	$50,000
			Sales Tax (10.1% of Sub Total[1])	$101,000
			TOTAL PROJECT ESTIMATE	**$1,878,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

SKAGIT AND KING LANES

SHARED USE ROADWAY

Site Area (SF).....92,236
Ex Hardscape (SF).....55,025
Ex Softscape (SF).....37,211
New Hardscape (SF).....47,345
New Softscape (SF) 42,842

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

Cost Estimate 2021

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$10,000	$10,000
Surveying	1	LS	$10,000	$10,000
Demolition - hardscape	1,019	CY	$65	$66,234
Clearing & grubbing - softscape	459	CY	$45	$20,673
Earthwork - Import / Export	3,416	CY	$35	$119,565
Storm Drain Allowance	1	LS	$50,000	$50,000
Misc. Utilities Allowance	1	LS	$30,000	$30,000
Lighting / Power	14	Each	$10,000	$140,000
Wheelchair ramp with handrails	10	Each	$10,000	$100,000
Staircase with handrails	4	Each	$10,000	$40,000
Hardscape (concrete w/sandblast or exposed agg. finish)	47,345	SF	$20	$946,900
Softscape (planting, irrigation, etc.)	42,842	SF	$12	$514,104
Retaining Wall	1	LS	$75,000	$75,000
Site Furnishings (benches, tables, bike racks, etc)	1	LS	$25,000	$25,000
Misc / Specialty Item	1	LS	$5,000	$5,000
			Sub Total	*$2,153,000*
			Contingency (campus engineering, campus in-plant services advertising) @ 30%	$646,000
			Design (15% of Sub Total[1])	$323,000
			Mobilization (10% of Sub Total[1])	$216,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$259,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$130,000
			Construction Permit (5% of Sub Total[1])	$108,000
			Sales Tax (10.1% of Sub Total[1])	$218,000
			TOTAL PROJECT ESTIMATE	**$4,053,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

SPOKANE LANE NE
SHARED USE ROADWAY

Site Area (SF).....46482
Ex Hardscape (SF).....26056
Ex Softscape (SF).....11969
New Hardscape (SF).....26560
New Softscape (SF) 11465

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$10,000	$5,000
Surveying	1	LS	$7,500	$7,500
Demolition - hardscape	483	CY	$65	$31,364
Clearing & Grubbing - softscape	142	CY	$45	$6,369
Earthwork - Import / Export	1,722	CY	$35	$60,254
Storm Drain Allowance	1	LS	$50,000	$50,000
Misc. Utilities Allowance	1	LS	$30,000	$30,000
Lighting / Power	6	Each	$10,000	$60,000
Wheelchair ramp with handrails	6	Each	$10,000	$60,000
Staircase with handrails	2	Each	$10,000	$20,000
Hardscape (concrete w/sandblast or exposed agg. finish)	26,560	SF	$20	$531,200
Softscape (planting, irrigation, etc.)	11,465	SF	$12	$137,580
Retaining Wall	1	LS	$50,000	$50,000
Site Furnishings (benches, tables, bike racks, etc)	1	LS	$25,000	$25,000
Misc / Specialty Item	1	LS	$10,000	$10,000
			Sub Total	*$1,085,000*
Contingency (campus engineering, campus in-plant services, advertising) @ 30%				$326,000
Design (15% of Sub Total[1])				$163,000
Mobilization (10% of Sub Total[1])				$109,000
Project temporary traffic and pedestrian control (12% of Sub Total[1])				$131,000
UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])				$66,000
Construction Permit (5% of Sub Total[1])				$55,000
Sales Tax (10.1% of Sub Total[1])				$110,000
			TOTAL PROJECT ESTIMATE	**$2,045,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

WHITMAN COURT NE

OPTION 1 – PATHWAY REPLACEMENT

Site Area (SF).....27263
Ex Hardscape (SF).....7170
Ex Softscape (SF).....20093
New Hardscape (SF).....7170
New Softscape (SF) 10047

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

Cost Estimate 2021

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$5,000	$5,000
Surveying	1	LS	$5,000	$5,000
Demolition - hardscape	133	CY	$65	$8,631
Clearing & Grubbing - softscape	124	CY	$45	$5,581
Earthwork - Import / Export	638	CY	$35	$22,318
Misc. Utilities Allowance	1	LS	$30,000	$30,000
Hardscape (concrete w/sandblast or exposed agg. finish)	7,170	SF	$20	$143,400
Softscape (planting, irrigation, etc.)	10,047	SF	$12	$120,558
Curb Ramps	4	Each	$4,600	$18,400
			Sub Total	*$359,000*
Contingency (campus engineering, campus in-plant services, advertising) @ 30%				$108,000
Design (15% of Sub Total[1])				$54,000
Mobilization (10% of Sub Total[1])				$36,000
Project temporary traffic and pedestrian control (12% of Sub Total[1])				$44,000
UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])				$22,000
Construction Permit (5% of Sub Total[1])				$18,000
Sales Tax (10.1% of Sub Total[1])				$37,000
			TOTAL PROJECT ESTIMATE	**$678,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

WHITMAN COURT NE

OPTION 2 – SHARED USE ROADWAY

Site Area (SF).....65636
Ex Hardscape (SF).....36131
Ex Softscape (SF).....29505
New Hardscape (SF).....18864
New Softscape (SF) 14753

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

Cost Estimate 2021

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$5,000	$5,000
Surveying	1	LS	$5,000	$5,000
Demolition - hardscape	349	CY	$65	$22,707
Clearing & Grubbing - softscape	182	CY	$45	$8,196
Earthwork - Import / Export	1,245	CY	$35	$43,577
Misc. Utilities Allowance	1	LS	$30,000	$30,000
Hardscape (concrete w/sandblast or exposed agg. finish)	18,864	SF	$20	$377,280
Softscape (planting, irrigation, etc.)	14,753	SF	$12	$177,030
			Sub Total	*$669,000*
Contingency (campus engineering, campus in-plant services, advertising) @ 30%				$201,000
Design (15% of Sub Total[1])				$101,000
Mobilization (10% of Sub Total[1])				$67,000
Project temporary traffic and pedestrian control (12% of Sub Total[1])				$81,000
UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])				$41,000
Construction Permit (5% of Sub Total[1])				$34,000
Sales Tax (10.1% of Sub Total[1])				$68,000
			TOTAL PROJECT ESTIMATE	**$1,262,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

PARRINGTON LAWN
PATHWAY REPLACEMENT

Site Area (SF).....125,169
Ex Hardscape (SF).....36,277
Ex Softscape (SF).....88,892
New Hardscape (SF).....45,752
New Softscape (SF) 79,417

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$10,000	$10,000
Demolition - hardscape	620	CY	$65	$40,300
Clearing & Grubbing - softscape	693	CY	$45	$31,166
Earthwork - Import/Export	2,099	CY	$35	$73,455
Storm Drain Allowance	1	LS	$25,000	$25,000
Misc Utilities Allowance	1	LS	$10,000	$10,000
Lighting / Power	25	EA	$10,000	$250,000
Stairs, ramps, walls, handrails	8	EA	$10,000	$80,000
Hardscape (concrete w/ sandblast or exposed agg. finish)	45,752	SF	$20	$628,000
Softscape (planting, irrigation, etc)	79,417	SF	$10	$566,650
Site Furnishings (benches, tables, bike racks, etc)	4	LS	$10,000	$40,000
Misc / specialty item	1	LS	$10,000	$10,000
			Sub Total	*$1,765,000*
			Contingency (UW Campus Coordination) @ 30%	$530,000
			Design (15% of Sub Total[1])	$265,000
			Mobilization (10% of Sub Total[1])	$177,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$212,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$106,000
			Construction Permit (5% of Sub Total[1])	$89,000
			Sales Tax (10.1% of Sub Total[1])	$179,000
			TOTAL PROJECT ESTIMATE	**$3,323,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

DENNY YARD
PATHWAY REPLACEMENT – WEST

Site Area (SF).....81,798
Ex Hardscape (SF).....17,346
Ex Softscape (SF).....64,452
New Hardscape (SF).....24,444
New Softscape (SF) 57,354

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$10,000	$ 10,000
Demolition - hardscape	453	CY	$65	$29,423
Clearing & Grubbing - softscape	701	CY	$45	$31,545
Earthwork - Import/Export	2,124	CY	$35	$74,348
Storm Drain Allowance	1	LS	$25,000	$25,000
Misc Utilities Allowance	1	LS	$10,000	$10,000
Lighting / Power	20	EA	$10,000	$200,000
Stairs, ramps, walls, handrails	8	EA	$10,000	$80,000
Hardscape (concrete w/ sandblast or exposed agg. finish)	24,444	SF	$20	$488,880
Softscape (planting, irrigation, etc)	57,354	SF	$10	$573,540
Site Furnishings (benches, tables, bike racks, etc)	4	LS	$10,000	$40,000
Misc / specialty item	1	LS	$10,000	$10,000
			Sub Total	*$1,573,000*
			Contingency (UW Campus Coordination) @ 30%	$472,000
			Design (15% of Sub Total[1])	$236,000
			Mobilization (10% of Sub Total[1])	$158,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$189,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$95,000
			Construction Permit (5% of Sub Total[1])	$79,000
			Sales Tax (10.1% of Sub Total[1])	$159,000
			TOTAL PROJECT ESTIMATE	**$2,961,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

DENNY YARD
PATHWAY REPLACEMENT – EAST

Site Area (SF).....59,431
Ex Hardscape (SF).....10,973
Ex Softscape (SF).....48,458
New Hardscape (SF).....6,125
New Softscape (SF) 53,306

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$10,000	$10,000
Demolition - hardscape	113	CY	$65	$7,373
Clearing & Grubbing - softscape	652	CY	$45	$29,318
Earthwork - Import/Export	1,974	CY	$35	$69,100
Storm Drain Allowance	1	LS	$25,000	$25,000
Misc Utilities Allowance	1	LS	$10,000	$10,000
Lighting / Power	30	EA	$10,000	$300,000
Stairs, ramps, walls, handrails	8	EA	$10,000	$80,000
Hardscape (concrete w/ sandblast or exposed agg. finish)	6,125	SF	$20	$122,500
Softscape (planting, irrigation, etc)	53,306	SF	$10	$533,060
Site Furnishings (benches, tables, bike racks, etc)	4	LS	$10,000	$40,000
Misc / specialty item	1	LS	$10,000	$10,000
			Sub Total	*$1,237,000*
			Contingency (UW Campus Coordination) @ 30%	$372,000
			Design (15% of Sub Total[1])	$186,000
			Mobilization (10% of Sub Total[1])	$124,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$149,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$75,000
			Construction Permit (5% of Sub Total[1])	$62,000
			Sales Tax (10.1% of Sub Total[1])	$125,000
			TOTAL PROJECT ESTIMATE	**$2,330,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

DENNY YARD
PATHWAY REPLACEMENT – SINGLE PHASE

Site Area (SF).....141,229
Ex Hardscape (SF).....35,905
Ex Softscape (SF).....143,466
New Hardscape (SF).....30,569
New Softscape (SF) 110,840

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

Cost Estimate 2021

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$10,000	$10,000
Demolition - hardscape	492	CY	$65	$31,981
Clearing & Grubbing - softscape	1,353	CY	$45	$60,863
Earthwork - Import/Export	4,099	CY	$35	$143,448
Storm Drain Allowance	1	LS	$25,000	$25,000
Misc Utilities Allowance	1	LS	$10,000	$10,000
Lighting / Power	30	EA	$10,000	$300,000
Stairs, ramps, walls, handrails	8	EA	$10,000	$80,000
Hardscape (concrete w/ sandblast or exposed agg. finish)	30,569	SF	$20	$531,380
Softscape (planting, irrigation, etc)	110,840	SF	$10	$1,106,600
Site Furnishings (benches, tables, bike racks, etc)	4	LS	$10,000	$40,000
Misc / specialty item	1	LS	$10,000	$10,000
			Sub Total	*$2,350,000*
			Contingency (UW Campus Coordination) @ 30%	$705,000
			Design (15% of Sub Total[1])	$353,000
			Mobilization (10% of Sub Total[1])	$235,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$282,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$141,000
			Construction Permit (5% of Sub Total[1])	$118,000
			Sales Tax (10.1% of Sub Total[1])	$238,000
			TOTAL PROJECT ESTIMATE	**$4,422,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

RAINIER VISTA NORTH

PATHWAY REPLACEMENT

Site Area (SF).....26,985
Ex Hardscape (SF).....21,784
Ex Softscape (SF).....5,201
New Hardscape (SF).....22,312
New Softscape (SF) 5,500

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$10,000	$10,000
Demolition - hardscape	403	CY	$65	$26,221
Clearing & Grubbing - softscape	64	CY	$45	$2,860
Earthwork - Import/Export	204	CY	$35	$7,130
Storm Drain Allowance	1	LS	$25,000	$25,000
Misc Utilities Allowance	1	LS	$10,000	$10,000
Lighting / Power	14	EA	$10,000	$140,000
Stairs, ramps, walls, handrails	2	EA	$30,000	$60,000
Hardscape (concrete w/ sandblast or exposed agg. finish)	22,312	SF	$20	$446,240
Softscape (planting, irrigation, etc)	5,500	SF	$12	$66,000
Site Furnishings (benches, tables, bike racks, etc)	4	LS	$10,000	$40,000
Misc / specialty item	1	LS	$10,000	$10,000
			Sub Total	*$844,000*
			Contingency (UW Campus Coordination) @ 30%	$254,000
			Design (15% of Sub Total[1])	$127,000
			Mobilization (10% of Sub Total[1])	$85,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$102,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$51,000
			Construction Permit (5% of Sub Total[1])	$43,000
			Sales Tax (10.1% of Sub Total[1])	$86,000
			TOTAL PROJECT ESTIMATE	**$1,592,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

SCIENCE QUAD
PATHWAY REPLACEMENT – PHASE I

Site Area (SF).....19889
Ex Hardscape (SF).....19,889
Ex Softscape (SF).....0
New Hardscape (SF).....19,889
New Softscape (SF) 0

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$10,000	$10,000
Demolition - hardscape	368	CY	$65	$23,940
Clearing & Grubbing - softscape	0	CY	$45	$
Earthwork - Import/Export	0	CY	$35	$
Storm Drain Allowance	1	LS	$25,000	$25,000
Misc Utilities Allowance	1	LS	$10,000	$10,000
Lighting / Power	0	EA	$10,000	$
Stairs, ramps, walls, handrails	0	EA	$10,000	$
Hardscape (concrete w/ sandblast or exposed agg. finish)	19,889	SF	$20	$397,780
Softscape (planting, irrigation, etc)	0	SF	$12	$
Site Furnishings (benches, tables, bike racks, etc)	0	LS	$15,000	$
Misc / specialty item	0	LS	$10,000	$
			Sub Total	*$467,000*
			Contingency (UW Campus Coordination) @ 30%	$141,000
			Design (15% of Sub Total[1])	$71,000
			Mobilization (10% of Sub Total[1])	$47,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$57,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$29,000
			Construction Permit (5% of Sub Total[1])	$24,000
			Sales Tax (10.1% of Sub Total[1])	$48,000
			TOTAL PROJECT ESTIMATE	**$884,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

SCIENCE QUAD
PATHWAY REPLACEMENT – PHASE II

Site Area (SF).....91,951
Ex Hardscape (SF).....33,809
Ex Softscape (SF).....58,142
New Hardscape (SF).....33,809
New Softscape (SF) 58,142

Cost Estimate 2021

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$10,000	$10,000
Demolition - hardscape	626	CY	$65	$40,696
Clearing & Grubbing - softscape	711	CY	$45	$31,978
Earthwork - Import/Export	2,153	CY	$35	$75,369
Storm Drain Allowance	1	LS	$25,000	$25,000
Misc Utilities Allowance	1	LS	$10,000	$10,000
Lighting / Power	0	EA	$10,000	$
Stairs, ramps, walls, handrails	0	EA	$10,000	$
Hardscape (concrete w/ sandblast or exposed agg. finish)	33,809	SF	$20	$676,180
Softscape (planting, irrigation, etc)	58,142	SF	$12	$697,704
Site Furnishings (benches, tables, bike racks, etc)	0	LS	$15,000	$
Misc / specialty item	0	LS	$10,000	$
			Sub Total	*$1,567,000*
			Contingency (UW Campus Coordination) @ 30%	$471,000
			Design (15% of Sub Total[1])	$236,000
			Mobilization (10% of Sub Total[1])	$157,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$189,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$95,000
			Construction Permit (5% of Sub Total[1])	$79,000
			Sales Tax (10.1% of Sub Total[1])	$159,000
			TOTAL PROJECT ESTIMATE	**$2,953,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

RAINIER VISTA SOUTH
PATHWAY REPLACEMENT & RESTORATION

Site Area (SF).....80,934
Ex Hardscape (SF).....27,423
Ex Softscape (SF).....53,511
New Hardscape (SF).....27,689
New Softscape (SF) 53,245

ASSUMPTIONS

1. The following costs are not included in this estimate: pavement rehabilitation, construction inspection, or environmental abatement.
2. Unit costs include a planning level estimate of material, labor, and equipment costs.

Cost Estimate 2021

DESCRIPTION	QTY	UNIT	COST	TOTAL
TESC	1	LS	$10,000	$10,000
Demolition - hardscape	513	CY	$65	$33,329
Clearing & Grubbing - softscape	651	CY	$45	$29,285
Earthwork - Import/Export	1,972	CY	$35	$69,021
Storm Drain Allowance	1	LS	$25,000	$25,000
Misc Utilities Allowance	1	LS	$10,000	$10,000
Lighting / Power	20	EA	$10,000	$200,000
Stairs, ramps, walls, handrails	2	EA	$10,000	$20,000
Hardscape (concrete w/ sandblast or exposed agg. finish)	27,689	SF	$20	$553,780
Softscape (planting, irrigation, etc)	53,245	SF	$12	$638,940
Site Furnishings (benches, tables, bike racks, etc)	2	LS	$15,000	$30,000
Misc / specialty item	1	LS	$10,000	$10,000
			Sub Total	*$1,630,000*
			Contingency (UW Campus Coordination) @ 30%	$489,000
			Design (15% of Sub Total[1])	$245,000
			Mobilization (10% of Sub Total[1])	$163,000
			Project temporary traffic and pedestrian control (12% of Sub Total[1])	$196,000
			UW Project Management (PM Fee, 4% and CM Fee, 2% of Sub Total[1])	$98,000
			Construction Permit (5% of Sub Total[1])	$82,000
			Sales Tax (10.1% of Sub Total[1])	$165,000
			TOTAL PROJECT ESTIMATE	**$3,068,000**

1. Estimates for construction costs are based on the best information available at this time and will require adjustments as more detailed information becomes available. This estimate should be used for planning purposes only.

APPENDIX E

UW Graves Hall Administration Building

Timber and Framing Assessment

June 2014

SOME PAGES HAVE BEEN REMOVED TO REDUCE FILE SIZE

SHKS ARCHITECTS

TABLE OF CONTENTS

June 9, 2014

Bill McKinney
University of Washington
Maintenance Coordinator, Facilities Services
Maintenance & Alterations Division
Plant Services Building
Seattle, WA 98195-4285

RE: UW Graves Hall Exterior Timber and Framing Assessment

UW Purchase Order #78425PS

Dear Mr. McKinney:

Project Background:

In November of 2013 SHKS Architects visited the Graves Building with Bill McKinney and Tom Berg to observe the condition of the timber roof framing that had been recently exposed. It was evident at this visit that damage to the timber framing had occurred over the years and that some of the damage appeared to be quite significant. After observing the conditions SHKS Architects and their consultant, Case Forensics were retained to conduct observe, test, analyze, evaluate and make recommendations regarding the deteriorated timber framing at Graves Hall.

On January 7th, 8th and 9th SHKS and Case Forensics performed field observation of the deteriorated material. Case Forensics conducted drill resistance testing at 421 test locations to collect data regarding the internal condition of the timber members. The findings of this testing and analysis is included in Case Forensics' memo dated January 28th, 2014 and included as Appendix A to this report.

Findings:

Of the 421 locations tested by Case, 100 are determined to be in poor condition requiring replacement of a portion or all of the subject timber. In general the affected timbers are located in the outer boundary of the roof structure typically in the first 4 to 6 feet of boundary area. There are concentrated areas of damage located in the northwest corner and southwest corner of the building and along the north and south boundaries. Additionally, the roofing membrane is the original 3 ply built up assembly installed when the building was first constructed. The membrane is in its 50th year of service and is well beyond its expected service life and should be replaced completely. There is damage to the roof structure which will require repair or replacement of materials. This work should be done at the same time as the re-roofing project to take advantage of access to the roof sheathing and framing while the existing

roof is demolished. In the period before a repair and re-roofing project is undertaken, measures should be put in place to temporarily support the damaged areas and direct pedestrian traffic away from the areas directly below the compromised structure. Temporary support can be accomplished by means of scaffold shoring or other system appropriate for the conditions in the field. Temporary support systems should be design and installed by a company familiar with the project conditions.

Access to the roof should be limited to those areas outside of the boundary zones until temporary protection measures are in place.

Recommendations:

The following recommendations represent our professional opinion of the measures to be taken to mitigate current conditions and effect repairs to extend the life of the building.

1. Interim: Support highly damaged areas until repair/replacement can occur. These areas are located at the four corners of the building and should be fully supported by temporary structure until the repair project is undertaken. At three locations provide additional pole shoring or other means or support to support deteriorated beam ends. Temporary fencing should be provided to prevent pedestrians from passing under any portion of the roof overhang. Where entrance or egress from the building is required overhead protection should be provided.

2. Roofing: Remove and replace roofing at main roof and penthouse. Install new modified bitumen roofing assembly with granulated cap sheet consistent with University standards. Install over new insulation described below.

3. Roof Insulation: Remove and replace rigid roof insulation at main roof and penthouse. Increase insulation to meet current energy code requirement. Install insulation over vapor barrier/ temporary roof.

4. Roof Sheathing: Remove and replace all deteriorated sheathing with new plywood sheathing at main roof and penthouse. Framing: Remove and replace deteriorated framing members. Replace roof joists, soffit framing and miscellaneous blocking as required to eliminate presence of rot and mold.

5. Glu-Laminated timbers: Remove and replace all glu-laminated timbers from building column line to end of timber at overhang at main roof and penthouse. Provide architectural grade material fabricated to match existing profiles. Install concealed steel support system to support timbers. See Fig.4, Appendix C, for illustration of concealed support concept. Attach supporting steel structure to existing framing material and conceal in joist space.

6. Sheet Metal Flashings: Remove and replace sheet metal flashings with copper and stainless steel flashing material. Use Copper material at all exposed conditions and stainless material at concealed conditions. Install cap flashings over exposed timber ends.

7. Built-in Gutter: Line gutter with soldered stainless steel gutter liner installed over a Kemperol liner. Coat stainless liner with Kemperol system.

8. Downspouts: Remove and replace downspouts. Increase size of downspout to 3 inch diameter and modify location to prevent penetration of wood timber.

9. Ventilation: Assure soffit areas are well ventilated

Cost:

A Pre-Design Cost Plan was developed by Haley Consulting in consultation with SHKS Architects according to the recommendations outlined above. See Appendix B for a copy of the Pre-Design Cost Plan. The cost plan includes projected construction costs, contractor overhead, profit, sales tax, escalation and a design contingency reflective of the conceptual nature of the project at the time the costs were developed. Soft costs for consulting fees, Owner management expenses and other owner expenses are not included. The anticipated cost for repair is One Million Two Hundred Forty Six Dollars ($1,246,000) assuming project construction will occur beginning in June 2015.

Schedule:

We recommend that measures to support the most severely deteriorated areas be undertaken as soon as practicable and that construction of the repair outlined in this report be undertaken no later than the summer of 2015.

Sincerely,

Jonathan Hartung
Principal

Figure 2.1

2.1 WEST ELEVATION

The northwest corner exhibits significant deterioration likely resulting in structural compromise. Temporary reinforcement has been installed in an effort to mitigate potential collapse.

Figure 2.2

2.2 WEST ELEVATION

Deterioration is present along the gutter line and has progressed into framing and soffit support members.

Figure 2.3

2.3 WEST ELEVATION

Deterioration present along underside of gutter and in soffit framing members. Plywood deteriorated. General framing shows evidence of deterioration.

Figure 2.4

2.4 WEST ELEVATION

Deterioration present along underside of gutter and in soffit framing members. Plywood deteriorated. General framing shows evidence of deterioration.

Figure 2.5

2.5 WEST ELEVATION

Deterioration present along underside of gutter and in soffit framing members. Plywood deteriorated. General framing shows evidence of deterioration.

Figure 2.6

2.6 WEST ELEVATION

Some evidence of moisture damage along gutter and in framing.

Figure 2.7

2.7 WEST ELEVATION

Some evidence of moisture damage along gutter and in framing.

Figure 2.8

2.8 WEST ELEVATION

Some evidence of moisture damage along gutter and in framing.

Figure 2.9

2.9 WEST ELEVATION

Deterioration present along underside of gutter and in soffit framing members. Plywood deteriorated. General framing shows evidence of deterioration.

Figure 2.10

2.10 WEST ELEVATION

The southwest corner exhibits significant deterioration in plywood sheathing, general framing and soffit members. Structure may be compromised.


Figure 2.11

2.11 EAST ELEVATION

The southeast corner exhibits significant deterioration in plywood sheathing, general framing and soffit members. Structure may be compromised.


Figure 2.12

2.12 EAST ELEVATION

Deterioration is present along the gutter line and has progressed into framing and soffit support members.


Figure 2.13

2.13 EAST ELEVATION

Some evidence of moisture damage along gutter and in framing.


Figure 2.14

2.14 EAST ELEVATION

Some evidence of moisture damage along gutter and in framing.


Figure 2.15

2.15 EAST ELEVATION

Some evidence of moisture damage along gutter and in framing.

Figure 2.16

2.16 EAST ELEVATION

Some evidence of moisture damage along gutter and in framing.

Figure 2.17

2.17 EAST ELEVATION

Some evidence of moisture damage along gutter and in framing.

Figure 2.18

2.18 EAST ELEVATION

Some evidence of moisture damage along gutter and in framing.

Figure 2.19

2.19 EAST ELEVATION

Deterioration present along underside of gutter and in soffit framing members. Plywood deteriorated. General framing shows evidence of deterioration.

Figure 2.20

2.20 EAST ELEVATION

The northeast corner exhibits moderate to significant deterioration in plywood sheathing, general framing and soffit members. Structure may be compromised.

Figure 3.1

3.1 SOUTH ELEVATION

The southwest corner exhibits significant deterioration in plywood sheathing, general framing and soffit members. Structure may be compromised.

Figure 3.2

3.2 SOUTH ELEVATION

Limited evidence of moisture intrusion. Some damage to fascia. Plywood sheathing and framing appear undamaged.

Figure 3.3

3.3 SOUTH ELEVATION

Limited evidence of moisture intrusion. Some damage to fascia. Plywood sheathing and framing appear undamaged.

Figure 3.4

3.4 SOUTH ELEVATION

Limited evidence of moisture intrusion. Some damage to fascia. Plywood sheathing and framing appear undamaged.

Figure 3.5

3.5 SOUTH ELEVATION

Limited evidence of moisture intrusion. Some damage to fascia. Plywood sheathing and framing appear undamaged.

Figure 3.6

3.6 SOUTH ELEVATION

Limited evidence of moisture intrusion. Some damage to fascia. Plywood sheathing and framing appear undamaged.

Figure 3.7

3.7 SOUTH ELEVATION

The southeast corner exhibits significant deterioration in plywood sheathing, general framing and soffit members. Structure may be compromised.

Figure 3.8

3.8 NORTH ELEVATION

The northeast corner exhibits moderate to significant deterioration in plywood sheathing, general framing and soffit members. Structure may be compromised.

Figure 3.9

3.9 NORTH ELEVATION

Limited evidence of moisture intrusion. Some damage to fascia. Plywood sheathing and framing appear undamaged.

Figure 3.10

3.10 NORTH ELEVATION

Limited evidence of moisture intrusion. Some damage to fascia. Plywood sheathing and framing appear undamaged.

Figure 3.11

3.11 NORTH ELEVATION

Limited evidence of moisture intrusion. Some damage to fascia. Plywood sheathing and framing appear undamaged.

Figure 3.12

3.12 NORTH ELEVATION

Minor evidence of moisture damage. Some repair of plywood sheathing and framing required. Apparent damage to fascia.

Figure 3.13

3.13 NORTH ELEVATION

Deterioration present along underside plywood sheathing and at framing and soffit framing members.

Figure 3.14

3.14 NORTH ELEVATION

The northwest corner exhibits significant deterioration likely resulting in structural compromise. Temporary reinforcement has been installed in an effort to mitigate potential collapse.

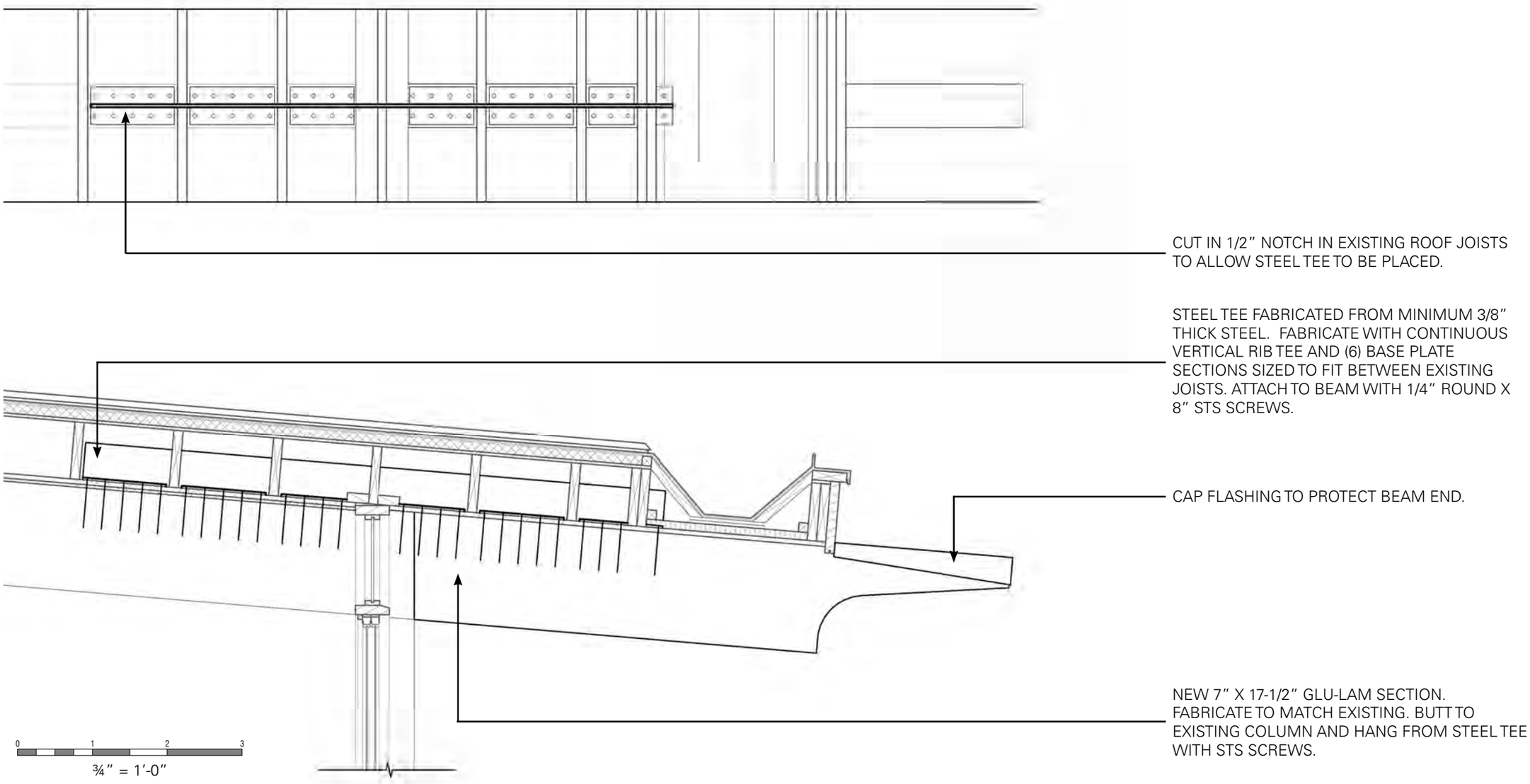


Figure 4
Eave Detail

APPENDIX A
Case Forensics Report

May 2, 2014

Mr. Jonathan Hartung
SHKS Architects
1050 N. 38th St.
Seattle, WA 98103

Re: **UW Graves Hall Exterior Timber and Framing Assessment**

UW Purchase Order No. 78330PS
CASE File No: 2194002

STATEMENT/BACKGROUND INFORMATION

On November 5, 2013, CASE Forensics Corporation (CASE) visited Graves Hall to determine the scope and evaluate the logistics associated with the proposed timber assessment. On Monday, January 6, 2014, CASE mobilized to the building but did not begin the investigation due to man lift access issues. The field work along the exterior of the building commenced on Tuesday, January 7th and was completed on Thursday, January 9th. On March 18th, additional testing was performed at select locations along the building interior.

PURPOSE, SCOPE, AND SUMMARY OF FINDINGS

The purpose of this assessment was to determine the condition of the joists, beams and columns around the exterior of the building. The onsite evaluation was conducted by Alec Liebman, Forensic Investigator with CASE. A 34 foot electric man lift was utilized to access the timber components. The equipment employed for the investigation consisted of an IML Model PD400 Resistograph and an Extech wood moisture meter. The locations focused on during the investigation included the east and west sides of the roof framing, the east and west ends of the north and south sides, and the Glulam columns around the perimeter.

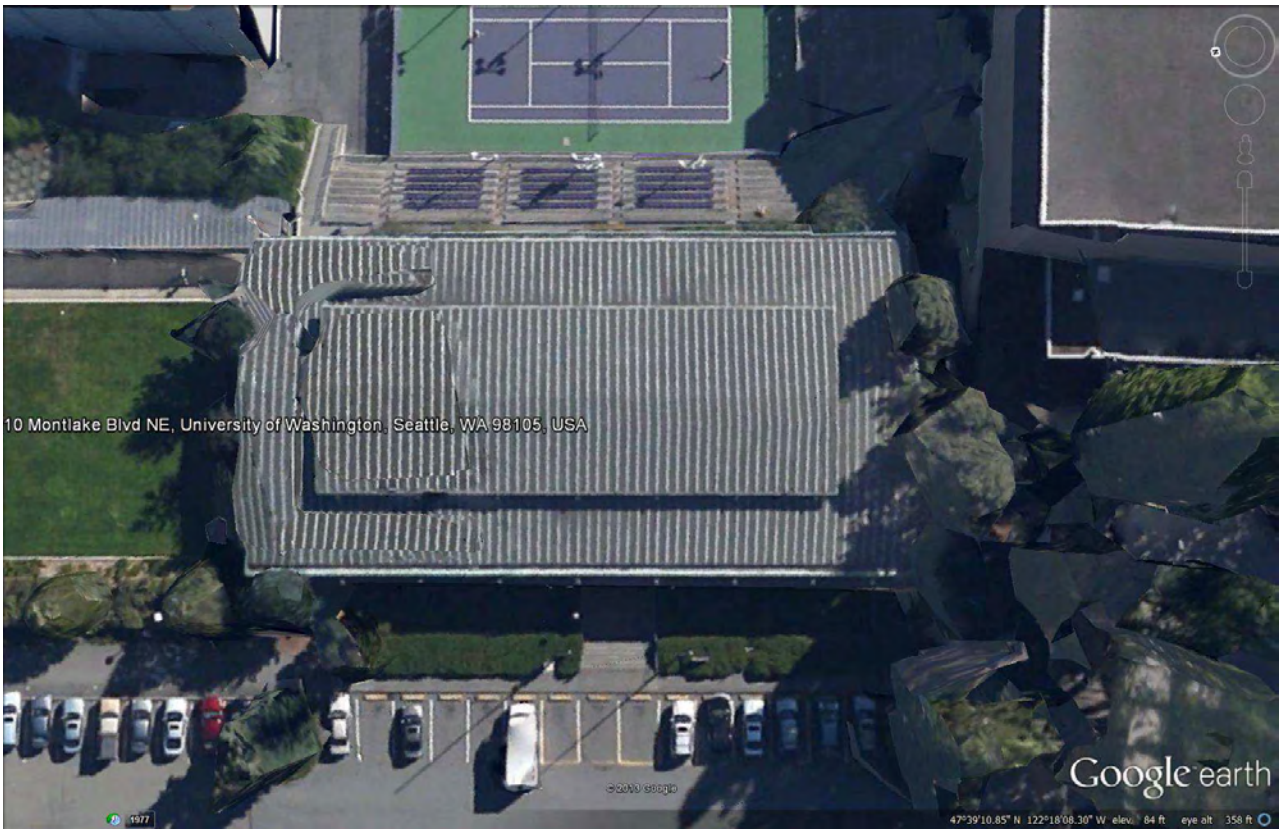
Drill Resistance Testing:

Resistograph technology allows for the determination of the decay in the timber and wood components of a structure. The equipment utilized for this investigation employs a 30 inch long 3 millimeter diameter drill bit which causes virtually no damage and is regularly used by arborists on living trees. The resistance to the drill (operating at a user determined rate of rotation and rate of advance based upon the wood type) is graphed and downloaded on a computer to facilitate analysis of the results. Representative examples of the graphs can be found in the appendix.

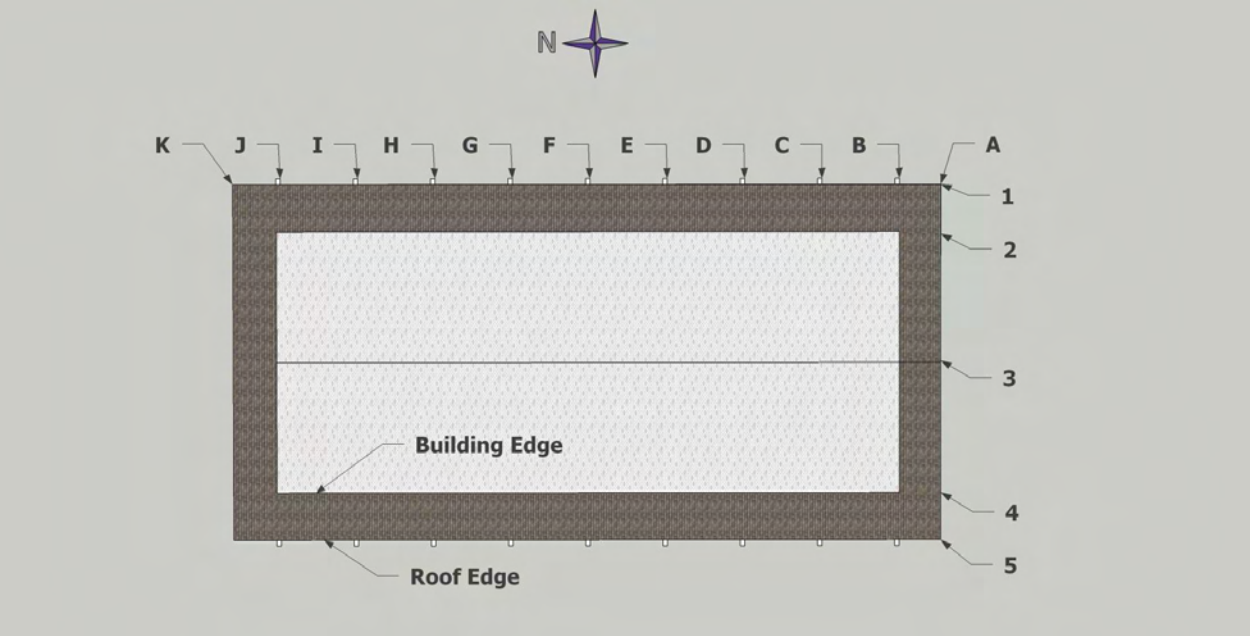
At Graves Hall, a total of 407 drill resistance tests were performed along the exterior and 8 tests were performed in the interior. The extent of decay at each test location was assessed and the following drawings developed depicting the areas of concern. Timber components determined to be in poor condition are depicted in red. In the case of the beams and columns, the specific region where decay was detected is indicated.

Representative moisture readings were also taken. While some decayed areas showed elevated moisture contents, others appear to have been affected by moisture in the past as readings are not indicative of current moisture issues. These moisture readings can be found in the table of test results.

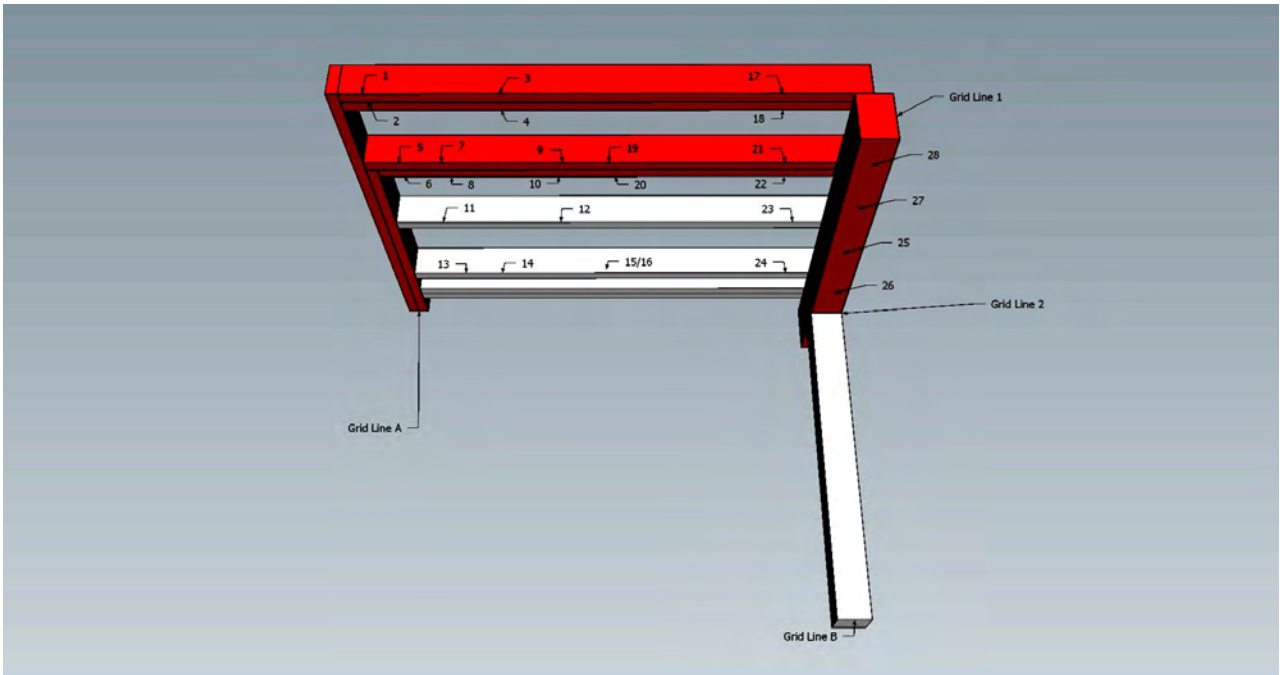
- Graves Hall -



- Test Program Grid Lines -



- Drill Resistance Locations and Results -



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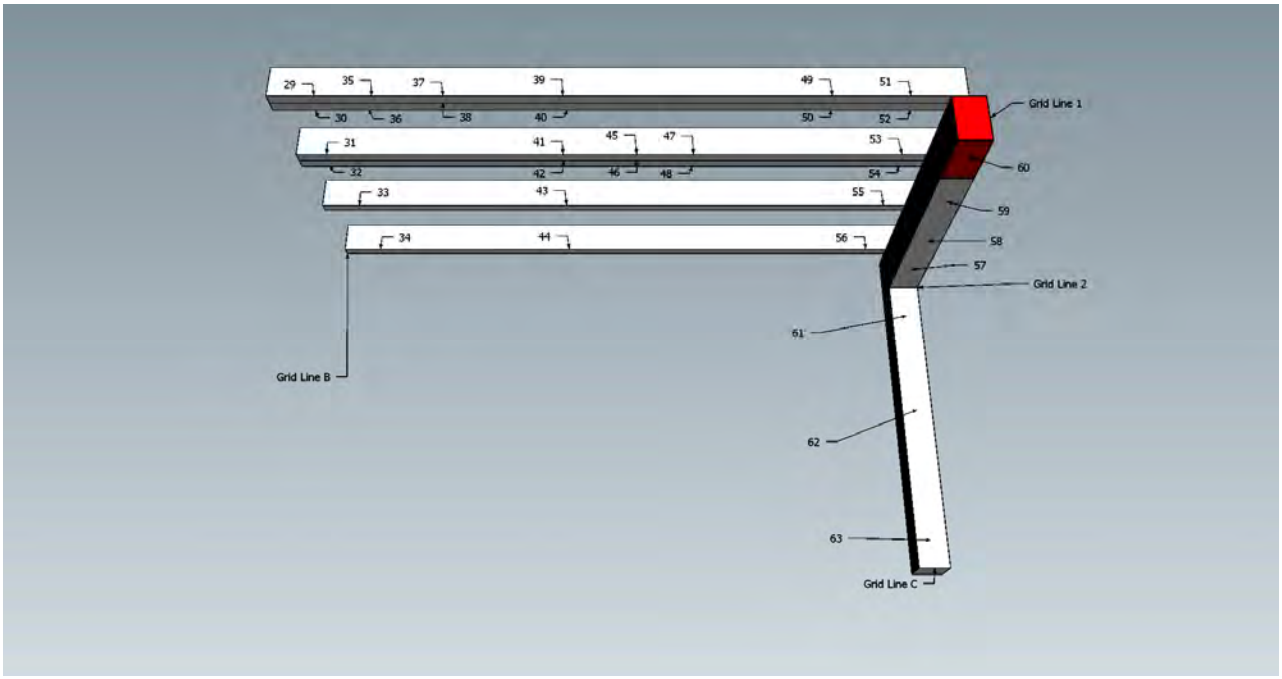

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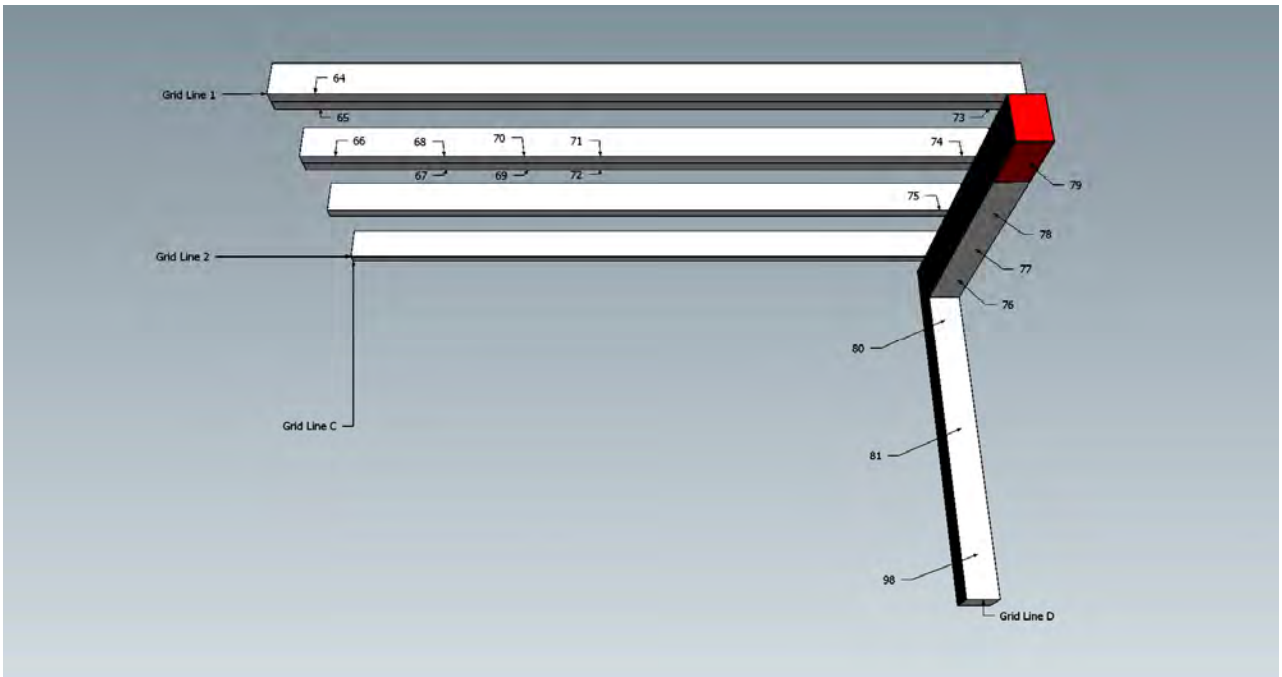

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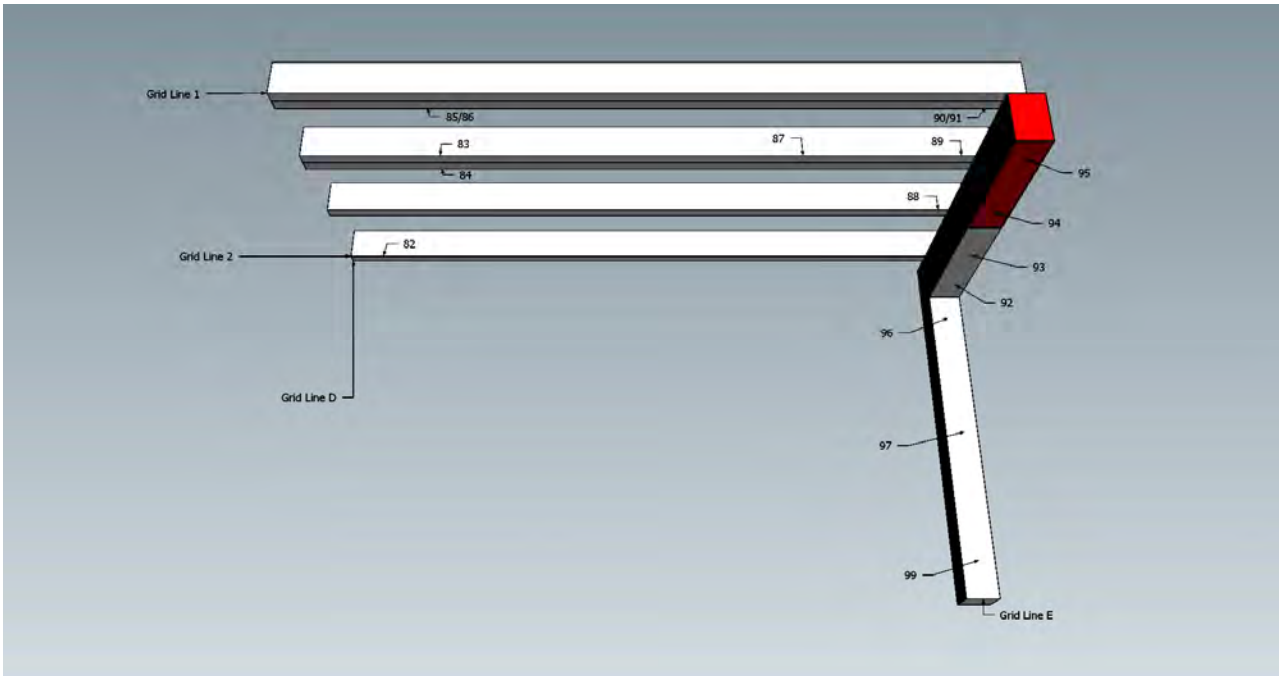

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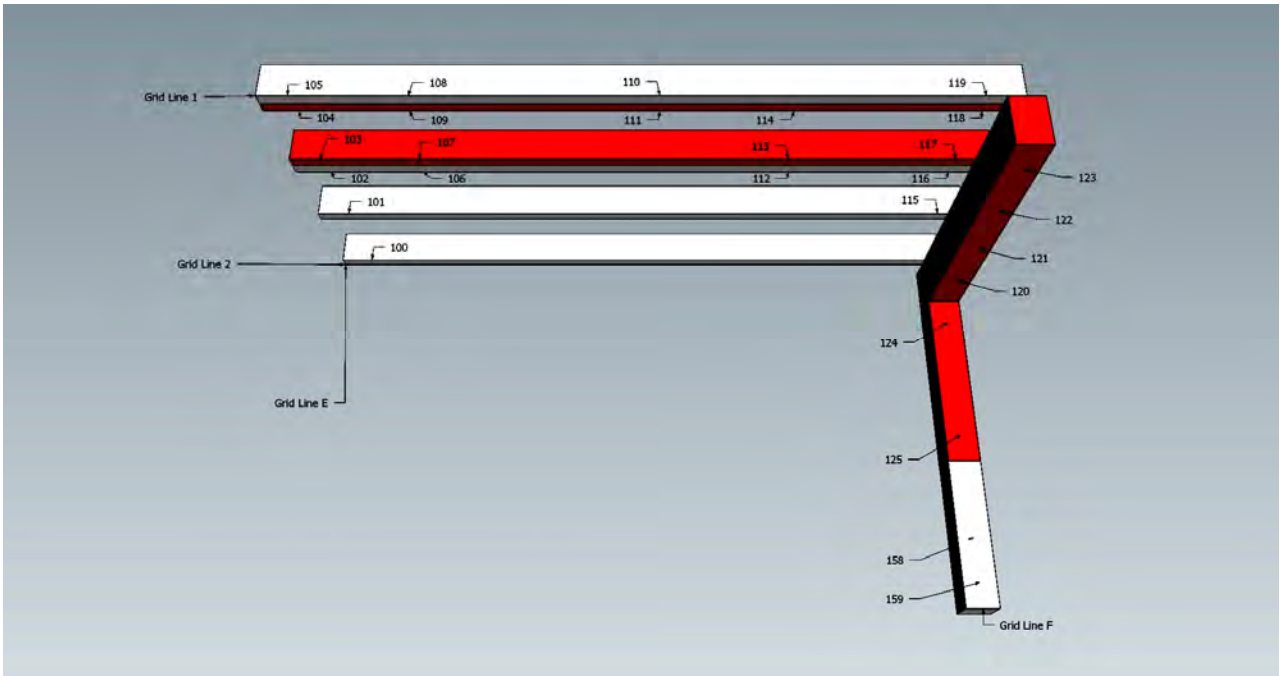
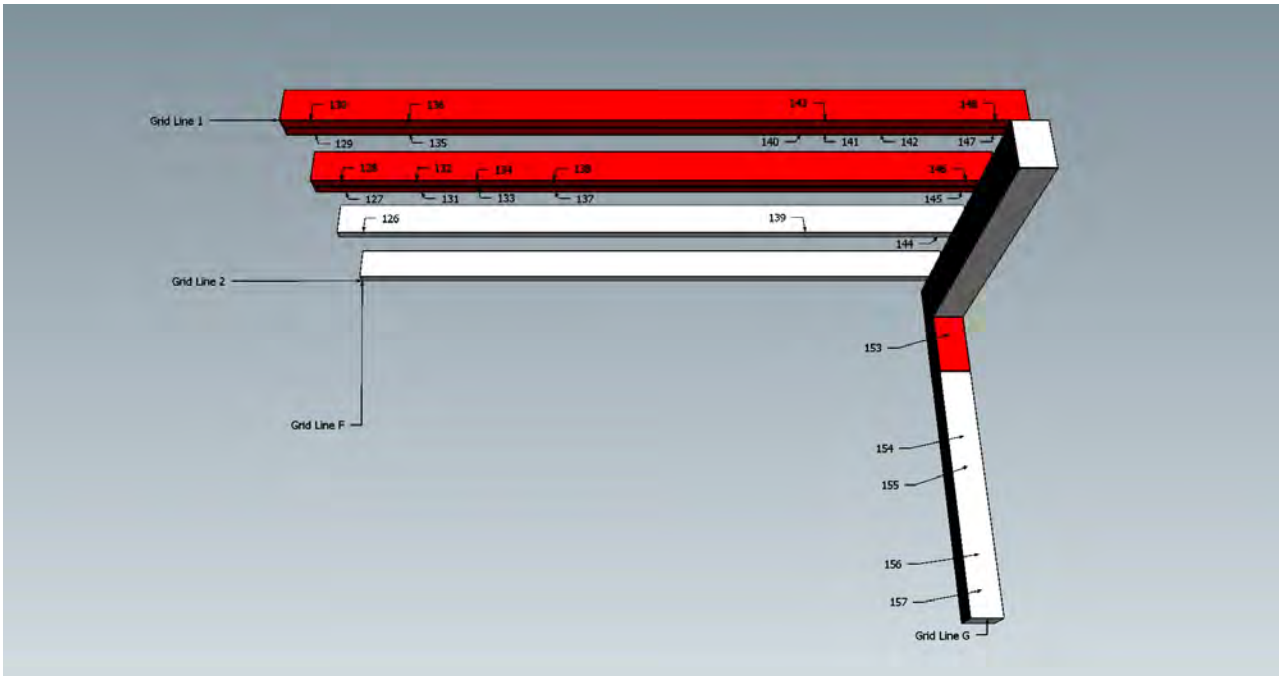


Grid Lines 1 - 2 between Grid Lines E - F



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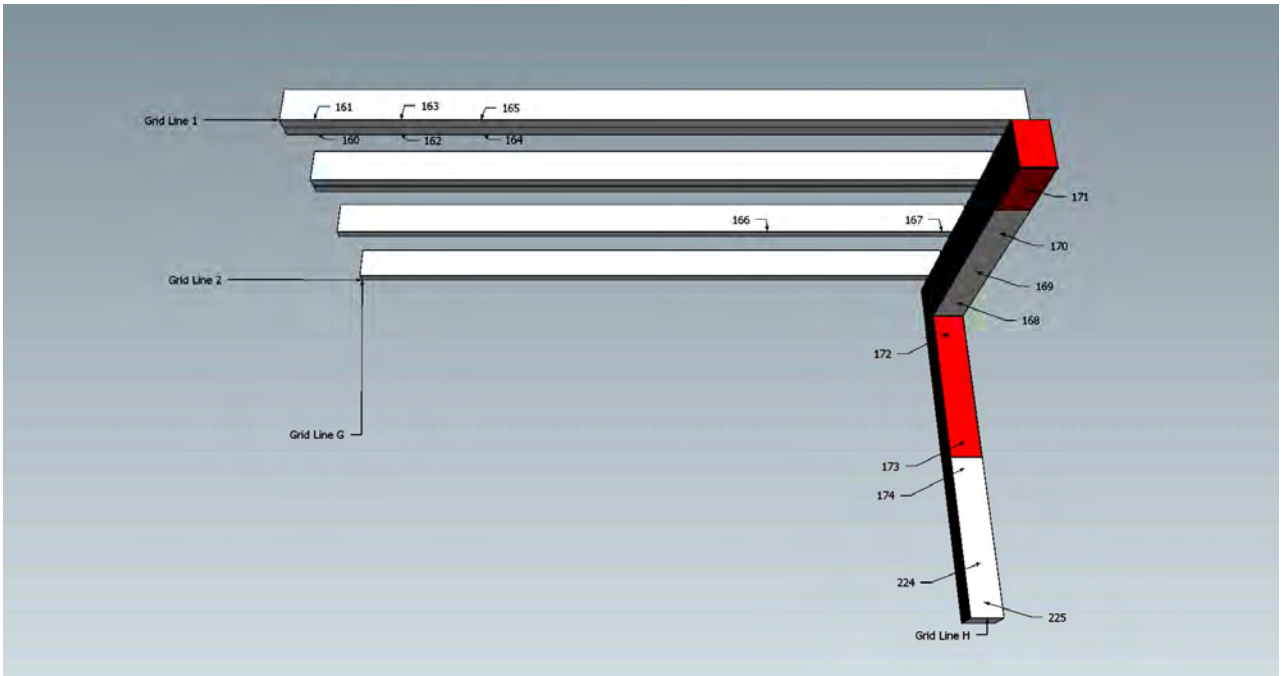

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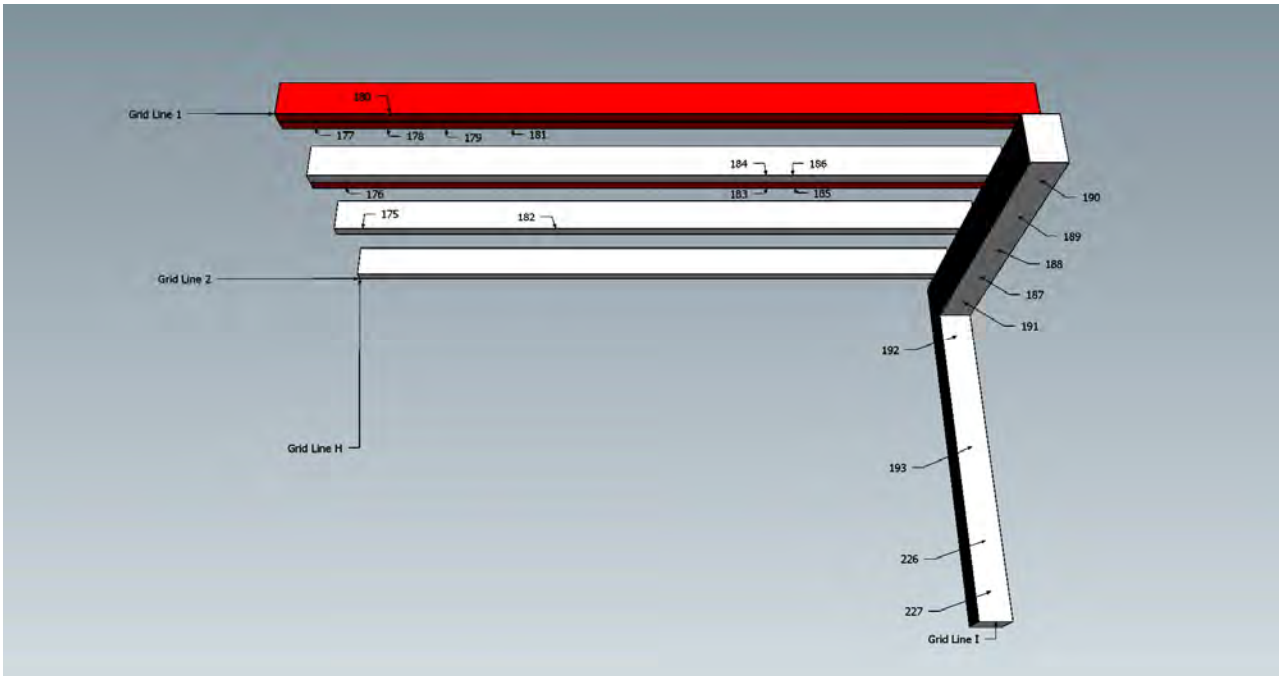

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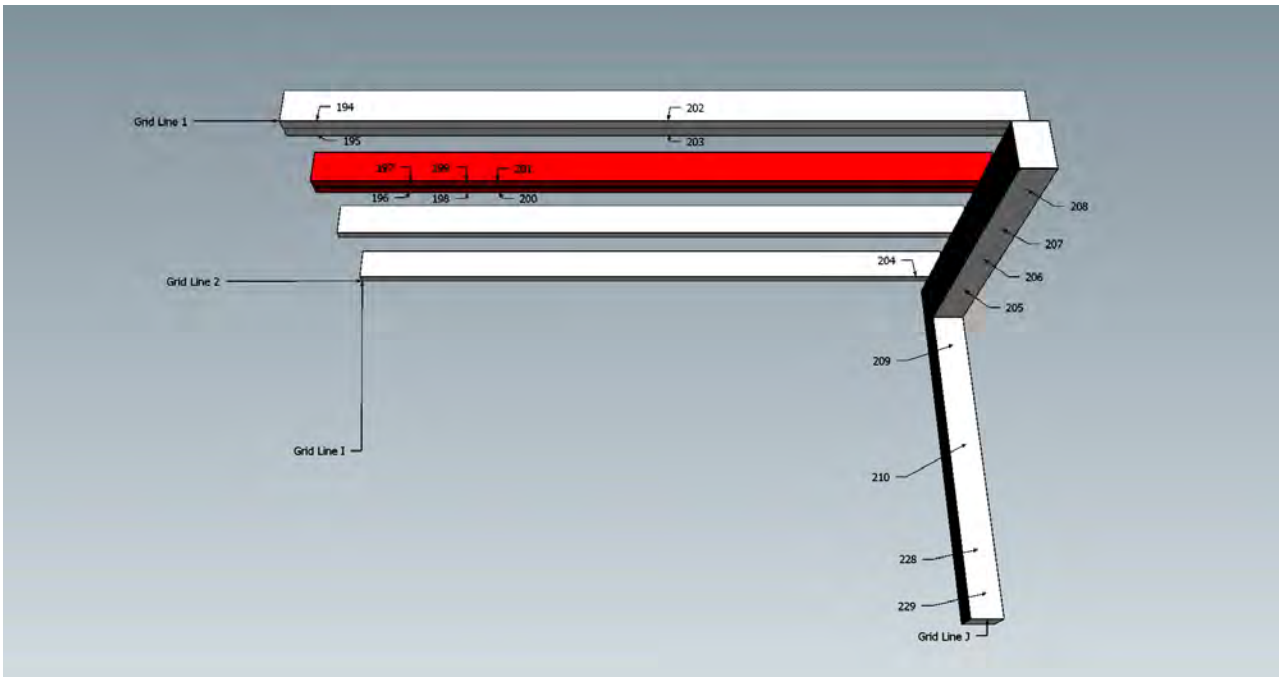

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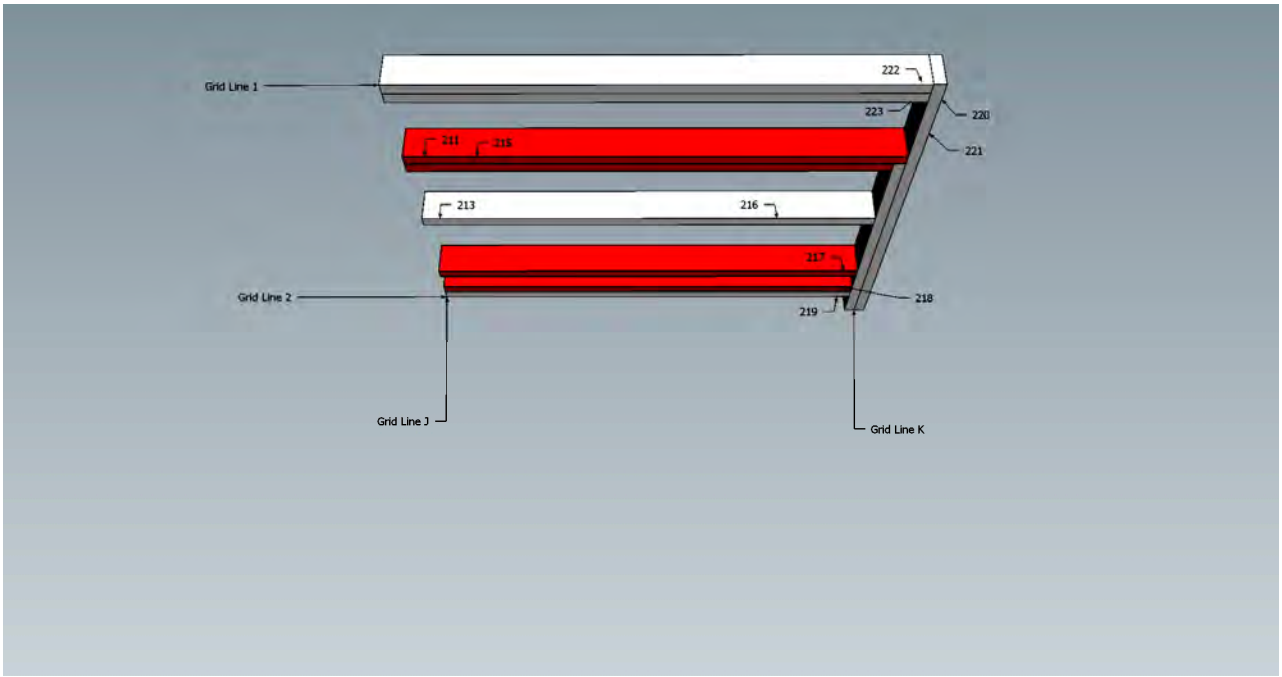
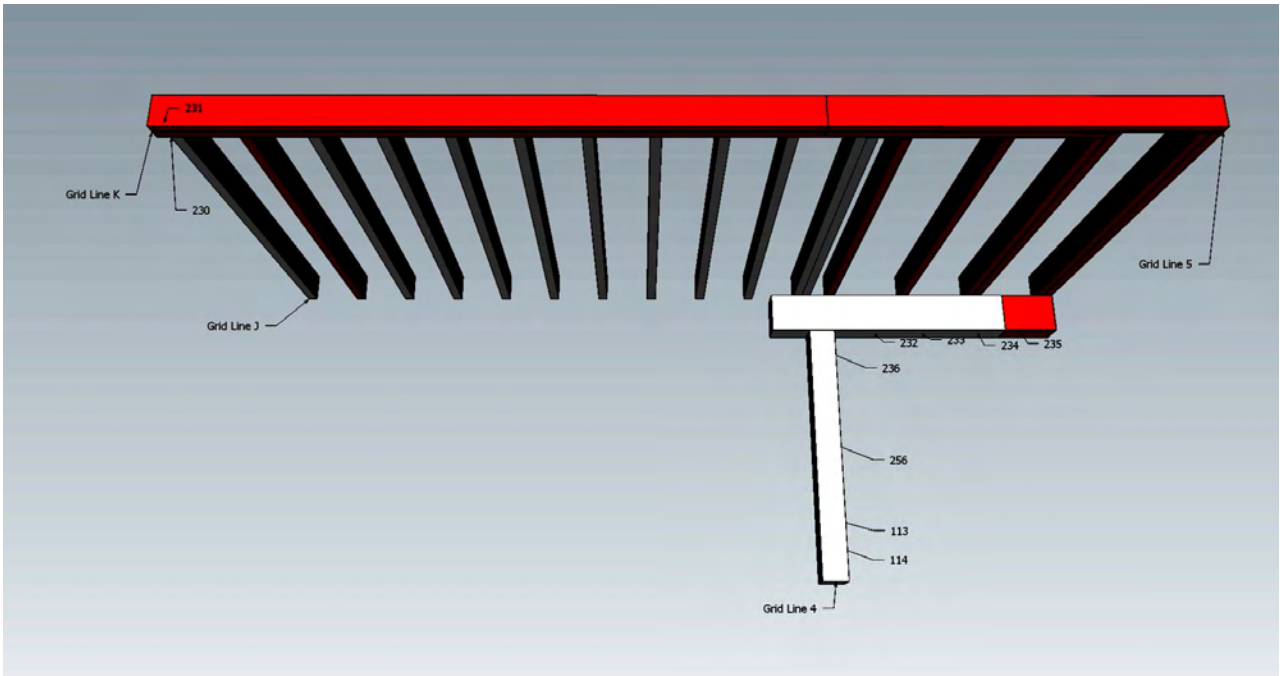


Grid Lines 1 - 2 between Grid Lines J - K



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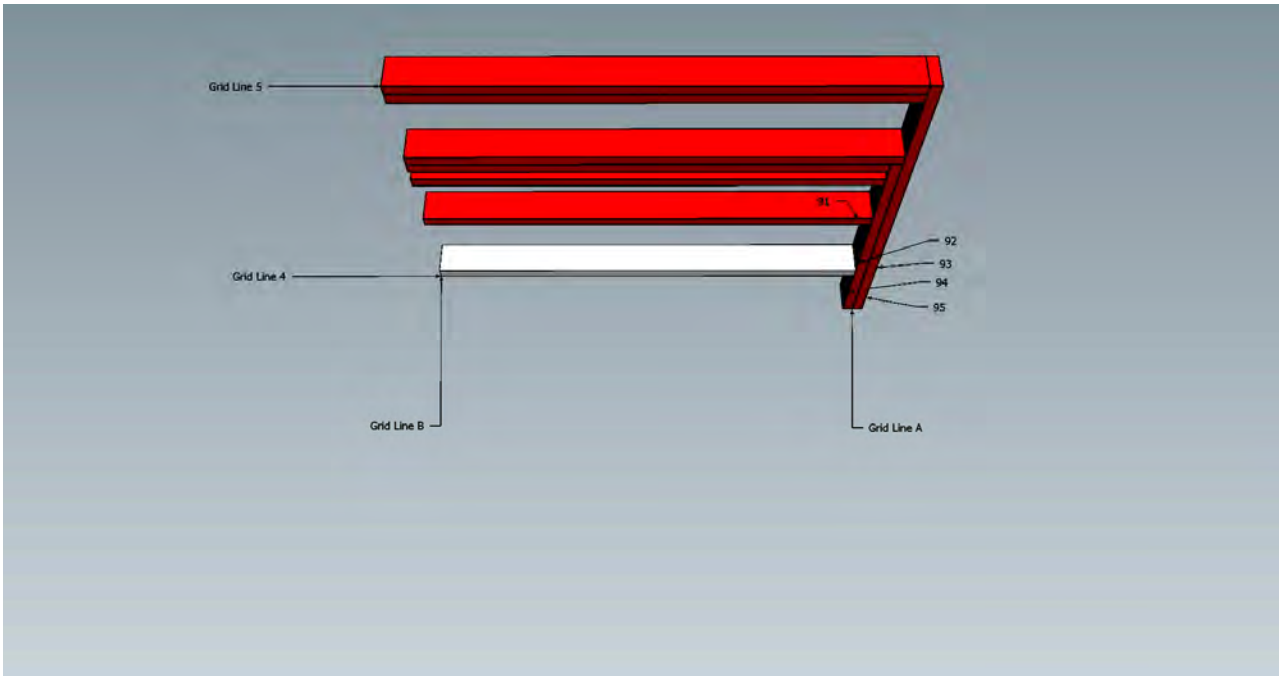

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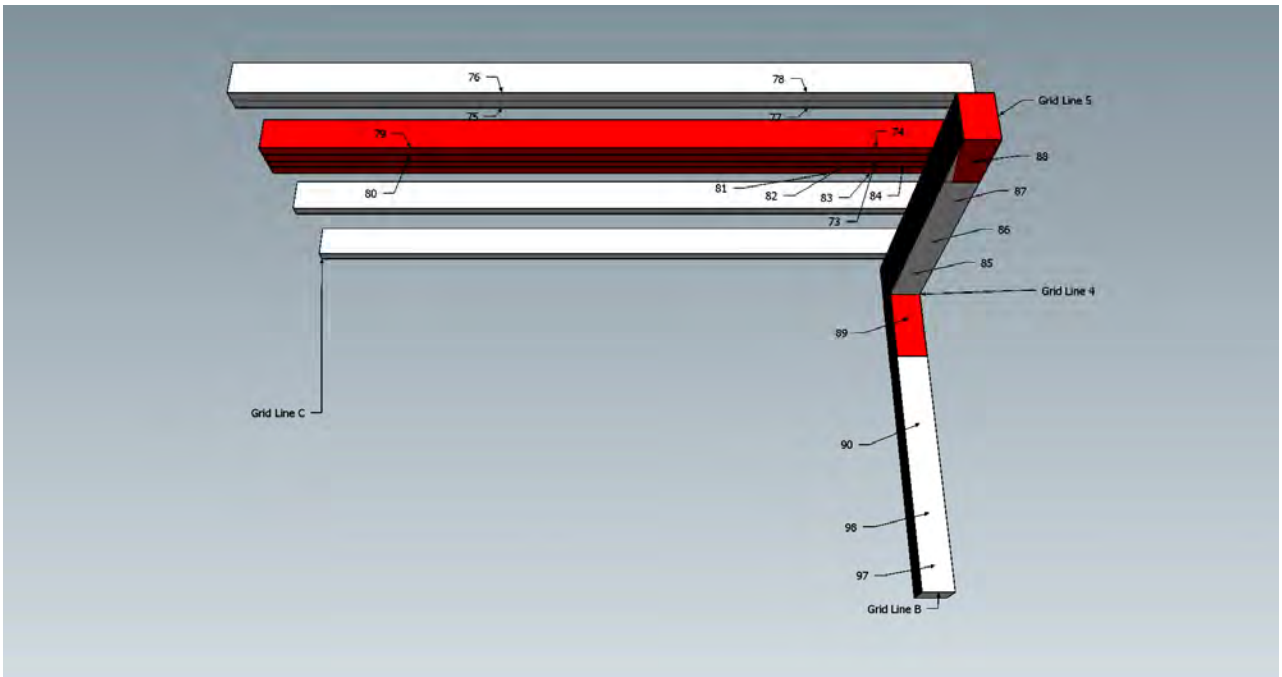

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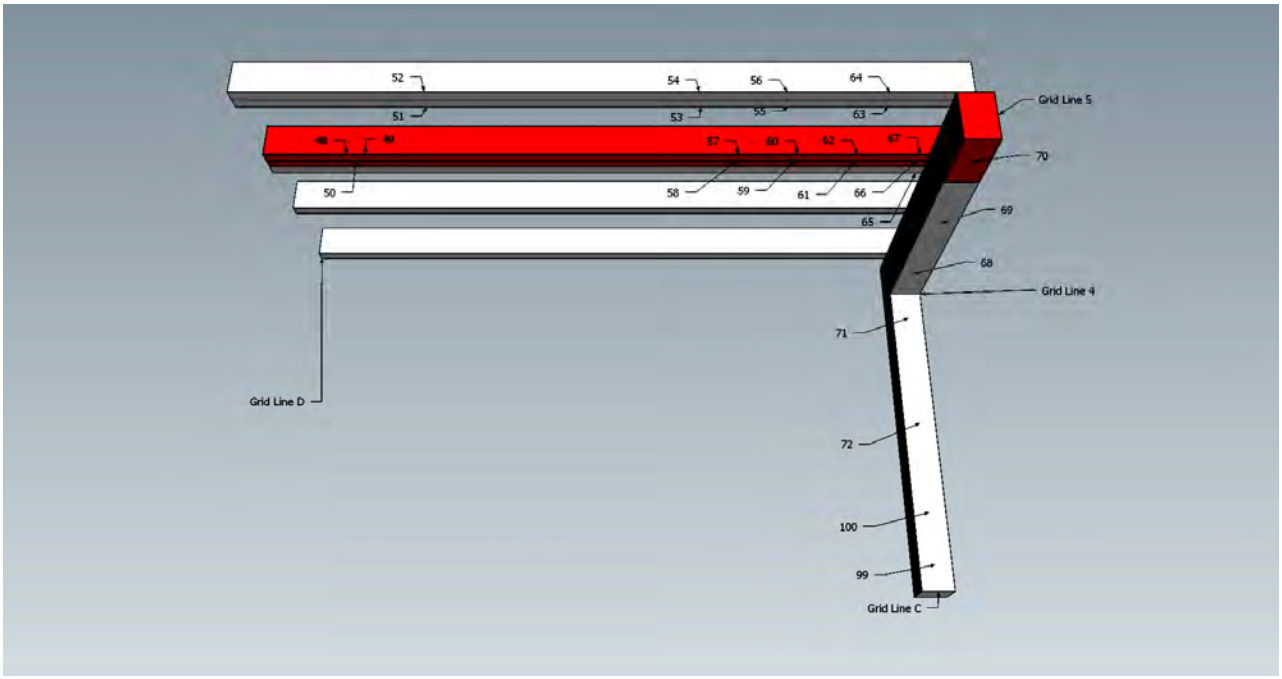

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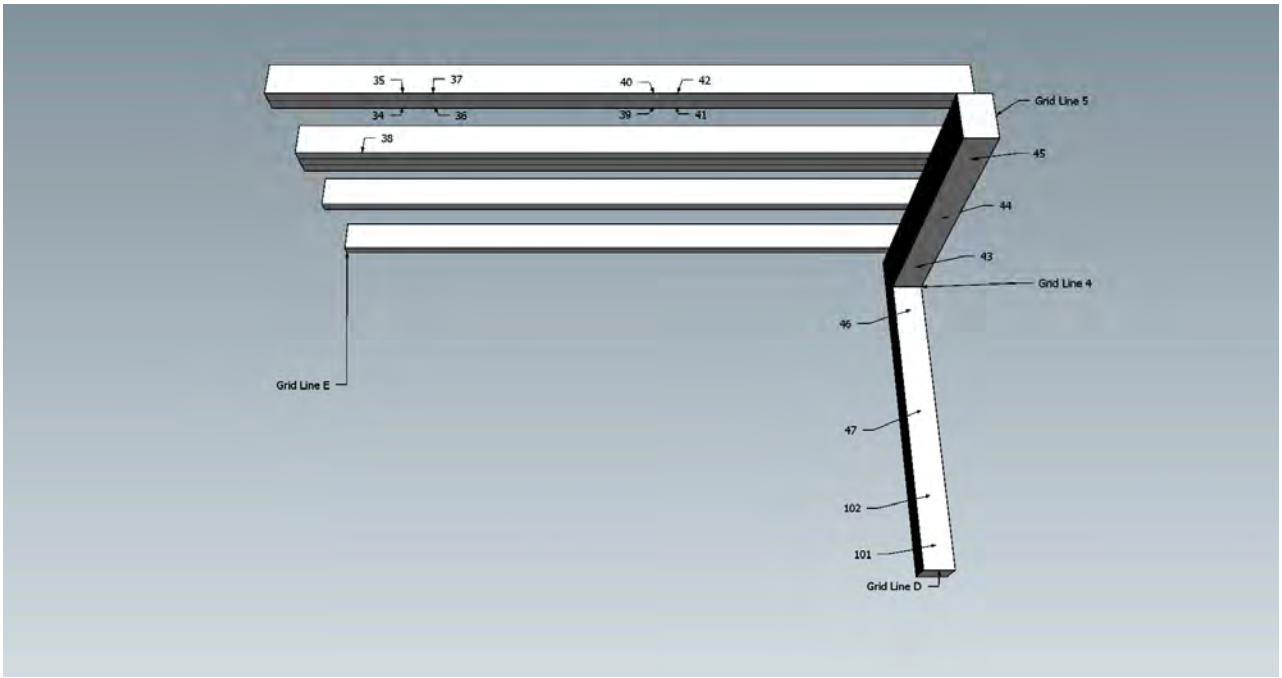

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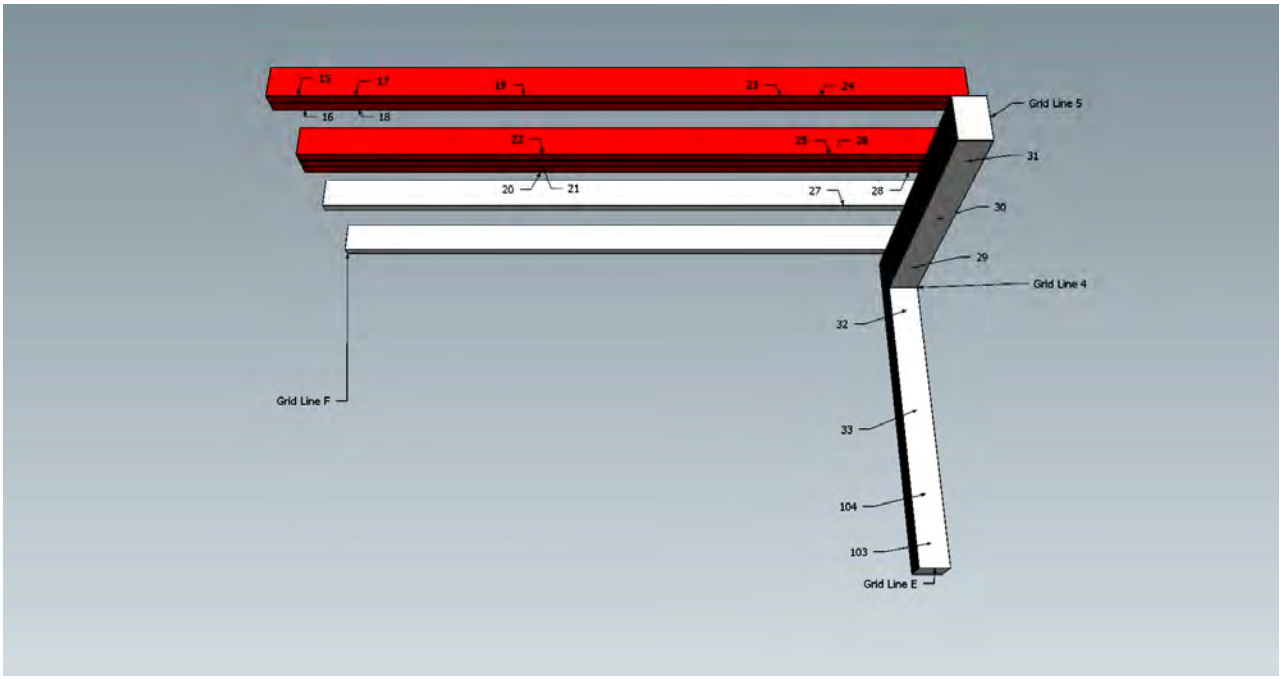

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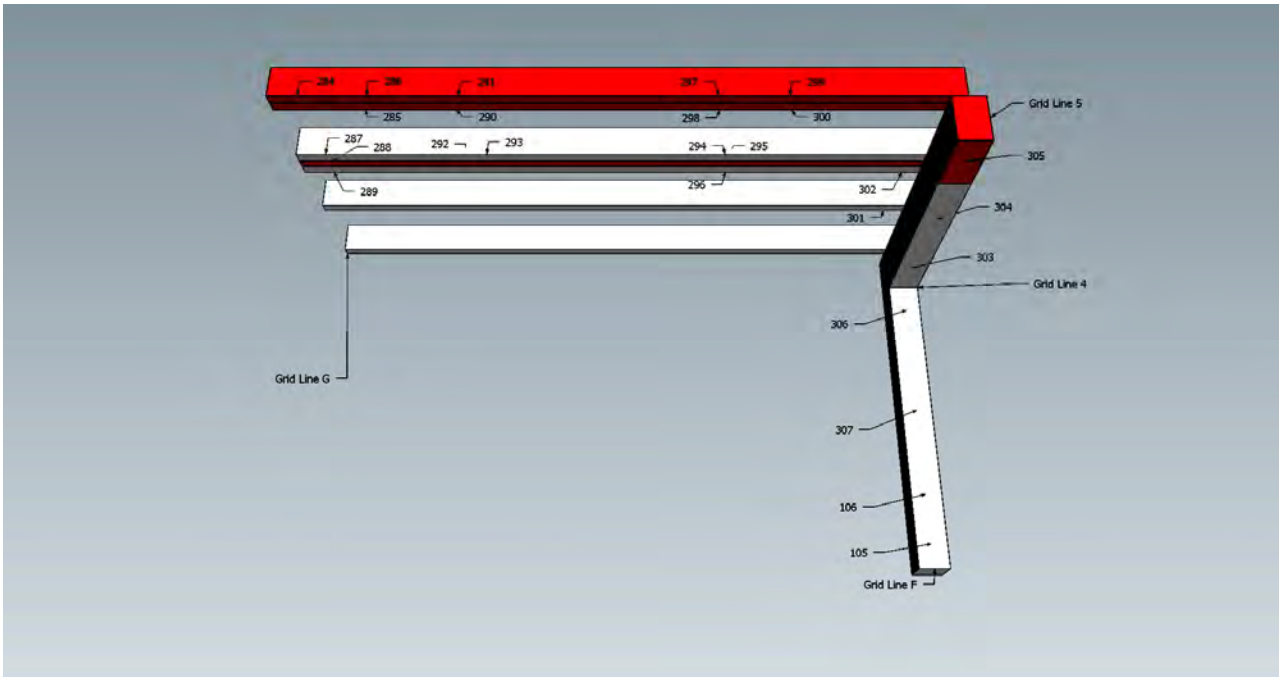

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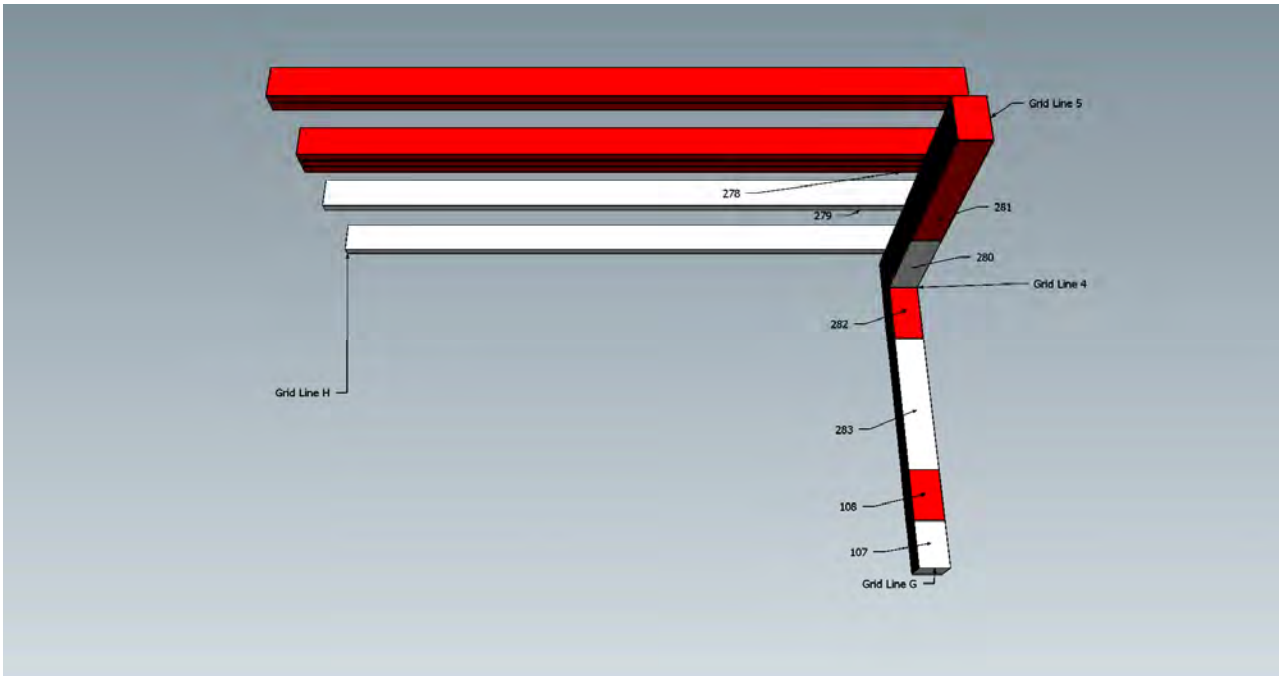

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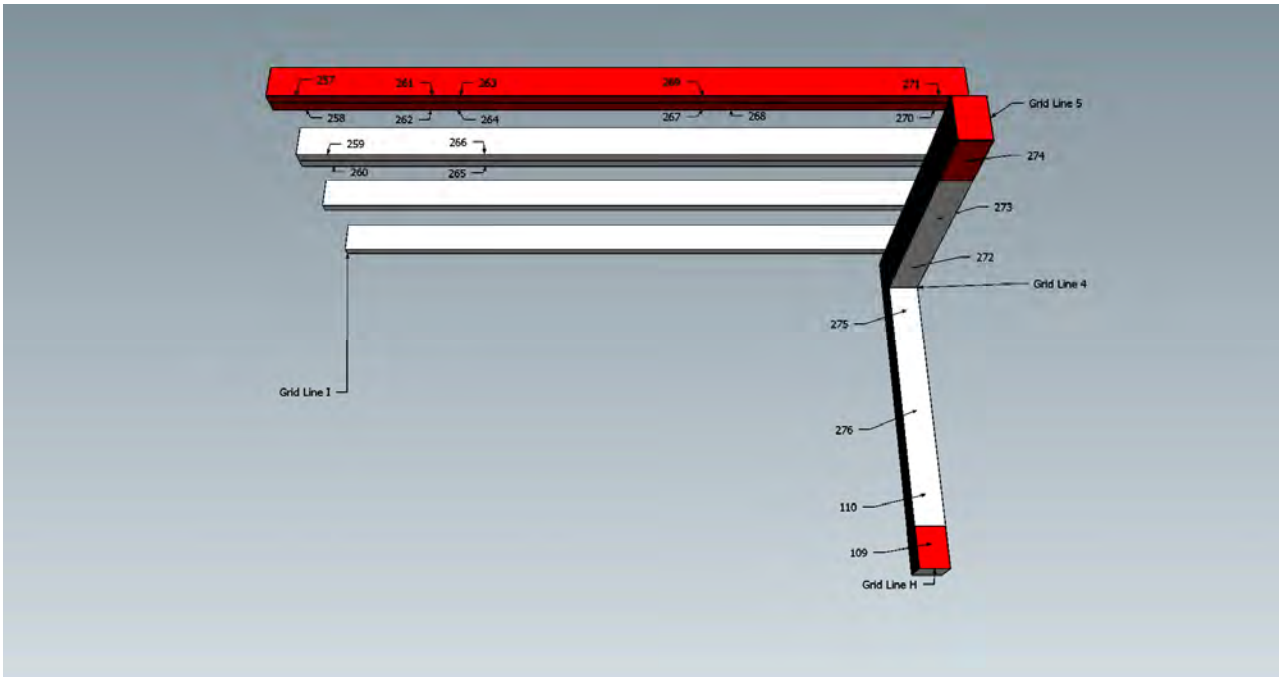

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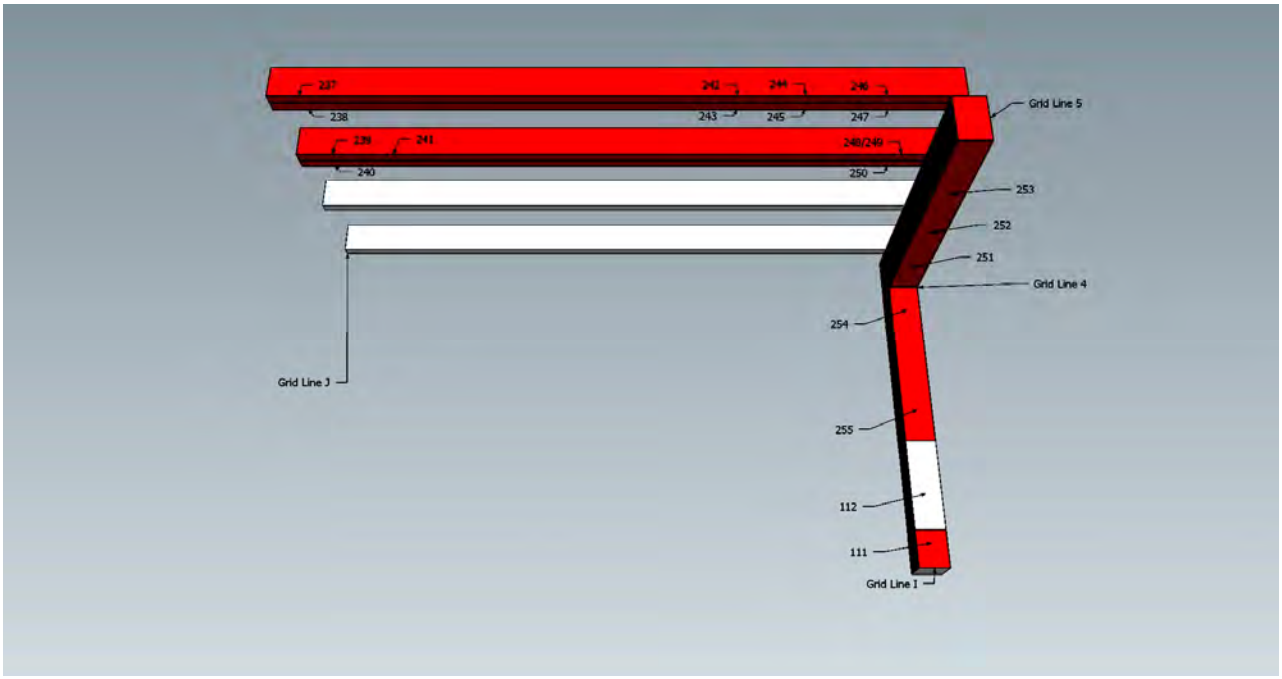

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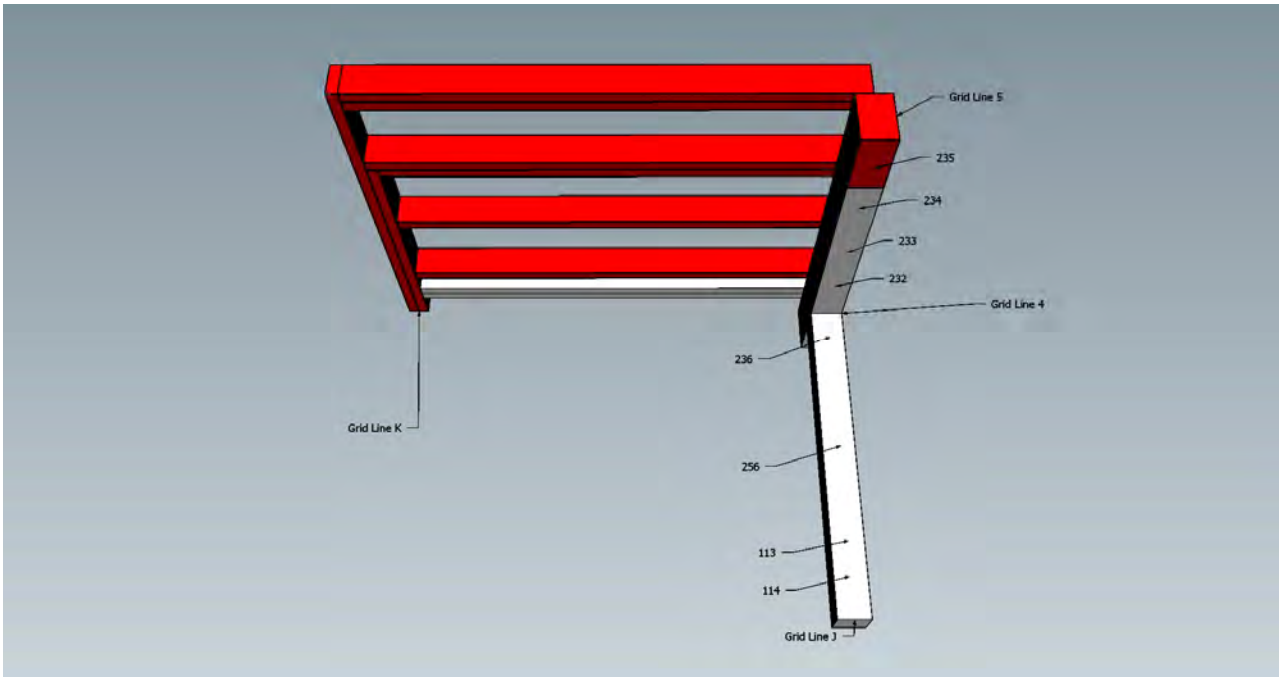

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- Test Results & Moisture Content –

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5		Poor	45		OK	85		OK	125	11.7%	Poor
6		Poor	46		OK	86		OK	126		OK
7		Poor	47		OK	87	15.5%	OK	127	25.0%	OK
8		Poor	48		OK	88		OK	128	17.0%	Poor
9		OK	49		OK	89	13.4%	OK	129		Poor
10		OK	50		OK	90		OK	130	13.7%	OK
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14		OK	54		OK	94		Poor	134		Poor
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17		OK	57		OK	97		OK	137	13.1%	OK
18		OK	58		OK	98	14.9%	OK	138		Poor
19		OK	59		OK	99	16.8%	OK	139	12.7%	OK
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21		OK	61		OK	101	12.7%	OK	141		OK
22		Poor	62		OK	102	14.2%	OK	142		OK
23		OK	63		OK	103	13.8%	Poor	143	12.5%	Poor
24		OK	64		OK	104	17.1%	OK	144	14.3%	OK
25		OK	65	14.2%	OK	105	14.3%	OK	145	13.2%	OK
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30		OK	70		OK	110	13.9%	OK	150	12.5%	OK
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32		OK	72		OK	112		OK	152	22.0%	OK
33		OK	73	13.7%	OK	113	22.6%	Poor	153		Poor
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40		OK	80		OK	120		Poor	160	29.4%	OK

- Test Results & Moisture Content –

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165		OK	205	13.1%	OK	245		OK	285		OK
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185		Poor	225		OK	265		OK	305		Poor
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189		OK	229	15.1%	Poor	269	13.1%	OK			
190		OK	230	15.1%	Poor	270	28.2%	OK			
191		OK	231	15.2%	Poor	271	15.3%	OK			
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196	23.9%	OK	236	19.5%	OK	276		OK			
197		Poor	237		Poor	277		OK			
198		OK	238		OK	278		OK			
199	29.9%	Poor	239	14.5%	Poor	279		OK			
200		Poor	240	13.8%	OK	280	15.3%	OK			

- Test Results & Moisture Content –

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51		OK	91		Poor						
52		OK	92		Poor						
53		OK	93		OK						
54		OK	94		Poor						

CONCLUSIONS:

Deterioration of the timber roofing components is fairly widespread. As can be noted visually onsite, it is quite extensive at the corners of the structure. The testing program revealed a considerable amount of decay that appears associated with the gutters, downspouts or penetrations for the downspouts particularly affecting the outer most joists and outboard ends of the Glulam beams. In select locations there is evidence of decay in the joists close to the building envelope and in the Glulam beams and columns along the building line. The extent of decay in the Glulam columns does not appear to pose a structural problem as it typically is limited to a single lamination. Subsequent testing results indicate that the decay does not appear to extend inside the building.

CASE reserves the right to supplement or amend this report should additional information become available.

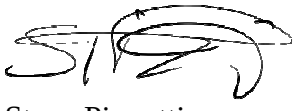
If you have any questions or comments regarding any element of our report, please do not hesitate to contact us at 425-775-5550.

Respectfully Submitted:

Alec Liebman
Forensic Investigator
CASE Forensics

Mark Liebman
Senior Forensic Investigator
CASE Forensics

Reviewed by:



Steve Pignotti
Principal
CASE Forensics Corporation

APPENDIX B
Predesign Cost Plan

PRE-DESIGN
COST PLAN

for

Graves Hall UW
Roofing & Roof Repairs
Seattle, WA

Haley Consulting Group

May 2, 2014

PRE-DESIGN COST PLAN

for

Graves Hall UW
Roofing & Roof Repairs
Seattle, WA

SHKS Architects
1050 North 38th Street
Seattle, Washington 98103-

(206) 675-9151

May 2, 2014

CONTENTS

BASIS OF COST PLAN

Cost Plan Prepared From Pre-Design	Dated	Received
Drawings issued for Pre-Design		
Architectural		
RR-1	03/05/14	03/28/14
Discussions with the Project Architect		

Conditions of Construction

The pricing is based on the following general conditions of construction

A start date of June 2015

A construction period of 4 months

The general contract will be competitively bid with qualified general and main subcontractors

There will not be small business set aside requirements

The contractor will be required to pay prevailing wages

The structural portion of the project will be phased

The general contractor will have to coordinate the schedule with owners and tenants

INCLUSIONS

Work includes removal and repair of the roof framing at the perimeter. The end of the beam will be replaced for the first 8' at the lower level and 6' at the upper level. An 8' inverted T made from 3/8" plate steel will be bolted to the top of each beam to support the top of each section.

New gutters will be framed and flashed.

New roofing and sheetmetal flashing with an insulation upgrade across the whole structure.

BIDDING PROCESS - MARKET CONDITIONS

This document is based on the measurement and pricing of quantities wherever information is provided and/or reasonable assumptions for other work not covered in the drawings or specifications, as stated within this document. Unit rates have been obtained from historical records and/or discussion with subcontractors. The unit rates reflect current bid costs in the area. All unit rates relevant to subcontractor work include the subcontractors overhead and profit unless otherwise stated. The mark-ups cover the costs of field overhead, home office overhead and profit and range from 15% to 25% of the cost for a particular item of work.

Pricing reflects probable construction costs obtainable in the project locality on the date of this statement of probable costs. This estimate is a determination of fair market value for the construction of this project.

EXCLUSIONS

Owner supplied and installed furniture, fixtures and equipment

Loose furniture and equipment except as specifically identified

Security equipment and devices

Audio visual equipment

Compression of schedule, premium or shift work, and restrictions on the contractor's working hours

Design, testing, inspection or construction management fees

Architectural and design fees

Scope change and post contract contingencies

Assessments, taxes, finance, legal and development charges

Environmental impact mitigation

Builder's risk, project wrap-up and other owner provided insurance program

Land and easement acquisition

Cost escalation beyond a start date of June 2015

ROOF REPAIRS COMPONENT SUMMARY

		Gross Area: 15,050 SF	
		$/SF	$x1,000
1. Foundations		0.00	0
2. Vertical Structure		0.00	0
3. Floor & Roof Structures		8.76	132
4. Exterior Cladding		0.59	9
5. Roofing, Waterproofing & Skylights		34.34	517
Shell (1-5)		43.69	657
6. Interior Partitions, Doors & Glazing		0.00	0
7. Floor, Wall & Ceiling Finishes		0.50	8
Interiors (6-7)		0.50	8
8. Function Equipment & Specialties		0.00	0
9. Stairs & Vertical Transportation		0.00	0
Equipment & Vertical Transportation (8-9)		0.00	0
10. Plumbing Systems		0.00	0
11. Heating, Ventilating & Air Conditioning		0.00	0
12. Electric Lighting, Power & Communications		0.00	0
13. Fire Protection Systems		0.00	0
Mechanical & Electrical (10-13)		0.00	0
Total Building Construction (1-13)		44.19	665
14. Site Preparation & Demolition		14.80	223
15. Site Paving, Structures & Landscaping		0.00	0
16. Utilities on Site		0.00	0
Total Site Construction (14-16)		14.80	223
TOTAL BUILDING & SITE (1-16)		58.99	888
General Conditions	10.00%	5.91	89
Contractor's Overhead & Profit or Fee	7.50%	4.85	73
PLANNED CONSTRUCTION COST	*May 2014*	69.75	1,050
Contingency for Development of Design	15.00%	10.43	157
Escalation to Start Date (June 2015)	3.25%	2.59	39
RECOMMENDED BUDGET	*June 2015*	82.78	1,246

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
3. Floor and Roof Structure				
Rebuild Framing at Perimeter	5,000	SF	18.00	90,000
Rebuild Framing at Gutters	340	LF	55.00	18,700
Replace Beams				
Steel Inverted T	2,625	LB	2.90	7,614
Replace Partial Beams - 8' in from End	144	LF	65.00	9,360
Replace Partial Beams - Upper Roof 6' from End	112	LF	55.00	6,160
				131,834
4. Exterior Cladding				
Lower Roof Beams				
Repairs to Exterior Cladding at Beams	18	EA	300.00	5,400
Upper Roof Beams				
Repairs to Exterior Cladding at Beams	14	EA	250.00	3,500
				8,900
5. Roofing, Waterproofing & Skylights				
Roofing				
Membrane Roofing with Insulation upgrade	15,050	SF	22.00	331,100
Roof Flashings - Copper or Stainless	15,050	SF	5.50	82,775
Gutter flashing - Membrane	2,040	SF	8.50	17,340
Soffit	5,000	SF	12.50	62,500
Beam end flashings				
Lower Beams	18	EA	250.00	4,500
Upper Beams	14	EA	200.00	2,800
Downspouts	18	EA	125.00	2,250
Conductor heads	18	EA	750.00	13,500
				516,765

Item Description	*Quantity*	*Unit*	*Rate*	*Total*
7. Floor, Wall & Ceiling Finishes				
Misc Crack repair and Paint	1	LS	7,500.00	7,500
				7,500
14. Site Preparation & Building Demolition				
Site Preparation				
Perimeter Fencing and Pedestrian Paths	575	LF	7.00	4,025
Scaffolding	13,800	SF	8.50	117,300
Demolition				
Demo Roofing - Assume asbestos	15,050	SF	4.25	63,963
Demo Framing	5,000	SF	7.50	37,500
				222,788

UW GRAVES HALL ROOF REPAIR

ABBREVIATIONS

&	AND
L	ANGLE
@	AT
⌀	DIAMETER
#	POUND OR NUMBER
(E)	EXISTING
℄	CENTERLINE
ℙ	PROPERTY LINE
A.B.	ANCHOR BOLT
ABV	ABOVE
AC	AIR CONDITIONING
ACP	ACOUSTIC CEILING PANEL
ACU	AIR CONDITION UNIT
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
APPROX	APPROXIMATELY
ARCH	ARCHITECT, ARCHITECTURAL
BLDG	BUILDING
BLW	BELOW
BM	BEAM
B.O.	BOTTOM OF
BRS	BACKER ROD & SEALANT
CB	CATCH BASIN
CBB	CEMENT BACKER BOARD
CEM	CEMENT
CJ	CONTROL JOINT
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
COND	CONDITION
CONT	CONTINUOUS
CPT	CARPET
CT	CERAMIC TILE
CTR	CENTER
DBL	DOUBLE
DEMO	DEMOLISH
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
DISP	DISPENSER
DN	DOWN
DR	DOOR
DS	DOWNSPOUT
DTL	DETAIL
DW	DISHWASHER
E	EAST
EA	EACH
ECS	EXTERIOR COMPOSITE SIDING
EF	EXHAUST FAN
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
ELEV	ELEVATOR
EMERG	EMERGENCY
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
FBP	FIBER BOARD PANEL
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FF	FINISH FLOOR
FH	FIRE HYDRANT
FIN	FINISH
FLR	FLOOR
F.O.	FACE OF
FOIC	FURNISHED BY OWNER, INSTALL BY CONTRACTOR
FOIO	FURNISHED BY OWNER INSTALL BY OWNER
FR	FIRE RESISTANT
FS	FLOOR SINK
FT	FEET
GA	GAUGE
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GL	GLASS
GLB	GLU-LAM BEAM
GND	GROUND
GR	GRADE
GRT'D	GROUTED
GWB	GYPSUM WALL BOARD
HB	HOSE BIBB
HC	HANDICAP
HCMU	HOLLOW CLAY MASONRY UNIT
HDWD	HARDWOOD
HDWE	HARDWARE
HT	HEIGHT
HM	HOLLOW METAL
HR	HOUR
HORIZ	HORIZONTAL
I.D.	INSIDE DIAMETER
INSUL	INSULATION
INT	INTERIOR
JAN	JANITOR
JT	JOINT
KIT	KITCHEN
LAB	LABORATORY
LAM	LAMINATE
LAV	LAVATORY
LKR	LOCKER
LOC	LOCATE
LT	LIGHT
LVL	LAMINATED VENEER LUMBER
M	MEN'S
MATL	MATERIAL
MAX	MAXIMUM
MC	MEDICINE CABINET
MECH	MECHANICAL
MEMB	MEMBRANE
MFR	MANUFACTURER
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MH	MANHOLE
MO	MASONRY OPENING
MTD	MOUNTED
MTL	METAL
MULL	MULLION
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
NR	NOT RATED
OA	OVERALL
OBS	OBSCURE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
OFF	OFFICE
OPNG	OPENING
OPP	OPPOSITE
PC	PRECAST CONCRETE
PL	PLATE
PLAS	PLASTER
PLY	PLYWOOD
P.LAM	PLASTIC LAMINATE
PNT	PAINT
POC	POINT OF CONNECTION
PR	PAIR
PSL	PARALLEL STRAND LUMBER
PT	PRESSURE TREATED
PTN	PARTITION
QT	QUARRY TILE
R or RAD	RADIUS
RB	RESILIENT BASE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RECEPT	RECEPTACLE
REF	REFERENCE
REFR	REFRIGERATOR
REINF	REINFORCED
RELOC	RELOCATE
REQ'D	REQUIRED
RES	RESILIENT
RM	ROOM
RO	ROUGH OPENING
RV	ROOF VENT
RL	RAIN WATER LEADER
S	SOUTH
SA	SMOKE ALARM
SC	SOLID CORE
SCHED	SCHEDULE
SECT	SECTION
SG	SAFETY GLASS
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
S.S.	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
STN	STAIN
STOR	STORAGE
STRUCT	STRUCTURE
SOG	SLAB ON GRADE
SUSP	SUSPENDED
SYM	SYMMETRICAL
T, TMP	TEMPERED
T&G	TONGUE & GROOVE
TEL	TELEPHONE
TER	TERRAZZO
THK	THICK
T.O.	TOP OF
TS	TUBE STEEL
TV	TELEVISION
TYP	TYPICAL
UL	UNDERWRITERS' LABORATORIES
UNO	UNLESS NOTED OTHERWISE
UTIL	UTILITY
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VTR	VENT THRU ROOF
W	WEST
W/	WITH
WC	WATER CLOSET
WD	WOOD
WF	WIDE FLANGE
WIN	WINDOW
W/O	WITHOUT
WOM	WALK OFF MAT
WM	WOMEN'S
WP	WATERPROOFING
WR	WATER RESISTANT
WRB	WATER-RESISTIVE BARRIER
WSCT	WAINSCOT
WT	WEIGHT

MATERIAL SYMBOLS

- BATT INSULATION
- CONCRETE
- RIGID INSULATION
- EARTH
- GRAVEL
- WOOD
- MASONRY
- PLYWOOD
- STEEL

DRAFTING SYMBOLS

- WALL SECTION (1 / A101, SIM)
- BLDG SECTION (1 / A101, SIM)
- EXTERIOR ELEVATION (1 / A101)
- INTERIOR ELEVATION (1 / A101)
- DETAIL (1 / A101, SIM)
- NORTH ARROW
- GRID HEAD (0)
- ROOM TAG (ROOM NAME / 101)
- WINDOW TAG (1i)
- WALL TAG (1i)
- DOOR & DOOR TAG (101)
- KEY NOTE (1)
- ELEVATION NOTE (NAME / ELEVATION)
- SPOT ELEVATION (XXX / T.O. XXX)
- CENTERLINE
- PROPERTY LINE
- FLOOR TRANSITION (XXX_XXX)
- REVISION (1 / DESCRIPTION)
- BREAKLINE
- DIMENSION POINT
- DETAIL BORDER
- DETAIL TITLE

GENERAL NOTES

1. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL NOTES AND SYMBOLS
2. MATERIALS, ASSEMBLIES AND NOTED ITEMS ARE NEW UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS. NOTIFY THE ARCHITECT OF ANY CONDITIONS INCONSISTENT WITH THE INTENT OF THE DRAWINGS PRIOR TO STARTING OR CONTINUING WORK IN THE AREA CONCERNED.

CODE:

1. ALL WORK SHALL CONFORM TO APPLICABLE CODES AND LOCAL BUILDING REQUIREMENTS, WHICH INCLUDE THE MOST CURRENT EDITIONS OF THE INTERNATIONAL BUILDING CODE WITH LOCAL AMENDMENTS, INTERNATIONAL MECHANICAL CODE (IMC), NATIONAL ELECTRICAL CODE (NEC), AND INTERNATIONAL FIRE CODE (IFC)
2. ELECTRICAL PERMITS TO BE APPLIED FOR UNDER SEPARATE APPLICATION BY CONTRACTOR.
3. PROVIDE CLOSURE MEETING THE REQUIREMENT OF GOVERNING FIRE AUTHORITIES BETWEEN FIRE RATED FLOORS, SHAFTS, AND BUILDING PARTITIONS AND PENETRATING DUCTS, PIPES, CONDUIT, MECHANICAL, ELECTRICAL, AND OTHER ITEMS.
4. RECESSES LOCATED WITHIN FIRE RATED PARTITIONS SHALL BE CONSTRUCTED TO MAINTAIN THE REQUIRED FIRE RATING OF THE PARTITION.
5. EXISTING FIRE EXTINGUISHERS AND CABINETS ARE NOT SHOWN ON PLANS. PROTECT EXISTING FIRE EXTINGUISHERS AND CABINETS (RECESSED OR SURFACE MOUNTED) FROM DAMAGE.

HAZMAT:

1. HAZARDOUS MATERIAL REMOVAL & DISPOSAL: BEFORE BEGINNING ANY DEMOLITION OR OTHER WORK, COMPLY WITH DOCUMENTS PREPARED BY THE OWNER'S HAZARDOUS MATERIALS CONSULTANT. THIS APPLIES TO DEMOLITION, DISPOSAL AND CONSTRUCTION OPERATIONS ASSOCIATED WITH THE PROJECT. THE CONTRACTOR WILL SUSPEND WORK IMMEDIATELY AND NOTIFY THE OWNER IF MATERIALS SUSPECTED OF BEING HAZARDOUS, AND NOT PREVIOUSLY IDENTIFIED, ARE ENCOUNTERED IN THE COURSE OF THE CONTRACTOR'S WORK.

DEMOLITION:

1. WHERE ITEMS ARE INDICATED ON PLANS TO BE DEMOLISHED, IT SHALL MEAN THE COMPLETE REMOVAL AND DISPOSAL OF THE ITEM INDICATED UNLESS OTHERWISE NOTED. CONTRACTOR IS RESPONSIBLE FOR REVIEW OF THE HAZARDOUS MATERIALS ABATEMENT, ARCHITECTURAL, ELECTRICAL DRAWINGS, AND SPECIFICATIONS FOR CUTTING AND PATCHING WORK.

DIMENSIONS:

1. DO NOT SCALE DRAWINGS.
2. VERIFY DIMENSIONS SHOWN ON DRAWINGS. USE ONLY DIMENSIONS INDICATED. PRIOR TO STARTING OR CONTINUING WORK, NOTIFY ARCHITECT OF DISCREPANCIES OR CONDITIONS INCONSISTENT WITH THE INTENT OF THE CONSTRUCTION DOCUMENTS.
3. DIMENSIONS ARE TO FACE OF CONCRETE, FACE OF MASONRY, OR FACE OF STUD, UNLESS OTHERWISE NOTED.
4. FINISHED SURFACE OF INFILL OR EXTENSIONS OF EXISTING PARTITIONS SHALL ALIGN WITH ADJACENT EXISTING SURFACES UNLESS OTHERWISE NOTED.
5. VERTICAL DIMENSIONS ARE MEASURED FROM STRUCTURAL SLAB, TOP OF STEEL OR TOP OF SHEATHING, UNLESS NOTED OTHERWISE.
6. DOORS NOT LOCATED BY DIMENSION ON PLANS SHALL BE SIX INCHES FROM FACE OF ADJOINING PARTITION TO HINGE EDGE OF DOOR OPENING. PROVIDE MINIMUM 18" CLEAR FROM FACE OF ADJOINING PARTITION OR OTHER OBSTRUCTION TO JAMB EDGE OF DOOR OPENING, UNLESS OTHERWISE NOTED. NOTIFY ARCHITECT IF REQUIRED CLEARANCES ARE NOT AVAILABLE.
7. WINDOWS ARE DIMENSIONED TO CENTERLINE OF OPENING WITHIN FRAMED WALLS AND TO MASONRY OPENING WITHIN MASONRY WALLS, UNLESS OTHERWISE NOTED.

COORDINATION:

1. COORDINATE ALL OPERATIONS WITH OWNER, SUCH AS AREAS USED FOR MATERIAL STORAGE, ACCESS TO AND FROM THE SITE, TIMING OF WORK AND REQUIREMENTS OF NOISE ORDINANCE. INSTALL DUST AND NOISE BARRIERS AS REQUIRED TO PROTECT EXISTING ADJACENT ROOMS AND OCCUPANTS AND TO MAINTAIN AN ENVIRONMENT SUITABLE TO PERMIT CONTINUED OCCUPANCY OF SUBJECT AND ADJACENT BUILDINGS.
2. COORDINATE WITH OWNER'S AUDIO VISUAL VENDOR WHEN ROUGHING-IN CONDUIT
3. COORDINATE WITH OWNER'S DOOR HARDWARE PROVIDER FOR AUTOMATED DOOR ACCESS, CAAMS, AND SECURITY. GC IS RESPONSIBLE FOR CONDUIT ROUGHINS BETWEEN RETROFIT DOORS AND OPERATOR BUTTON.
4. REVIEW DEMOLITION DRAWINGS. PATCH AND REPAIR ALL EXISTING SURFACES AFFECTED BY DEMOLITION WORK.
5. VERIFY LOCATIONS OF EXISTING SYSTEMS. CAP, MARK AND PROTECT AS NECESSARY TO COMPLETE THE WORK.
6. REVIEW ARCHITECTURAL AND ELECTRICAL DRAWINGS AND PROVIDE ROUGH-INS THROUGH SLABS, BEAMS, WALLS, CEILINGS, AND ROOFS FOR DUCTS, PIPES, CONDUITS, JUNCTION BOXES, CABINETS, AND EQUIPMENT. VERIFY SIZE AND LOCATION BEFORE PROCEEDING WITH WORK. COORDINATE WITH INSTALLATION REQUIREMENTS. PATCH AND REPAIR EXISTING SURFACES AS NECESSARY TO COMPLETE WORK.
7. COORDINATE AND PROVIDE REQUIRED PENETRATIONS AND PATCHING WITH INDIVIDUAL SUBCONTRACTORS TO SUIT NEW WORK.
8. CONTRACTOR TO OBTAIN AND VERIFY ROUGH-IN DIMENSION REQUIREMENTS FOR CABINETRY, EQUIPMENT, ACCESSORIES AND THE LIKE INCLUDING THOSE DESIGNATED FOIC AND FOIO. CONTRACTOR TO PROVIDE BACKING, BLOCKING, SUPPORT AS REQUIRED FOR INSTALLATION. CONTRACTOR TO COORDINATE POWER, DATA, COMMUNICATIONS AND SECURITY REQUIREMENTS FOR FOIC AND FOIO EQUIPMENT WHERE SERVICES ARE REQUIRED. INCLUDE STUB OUTS AND CONNECTIONS. VERIFY AND COORDINATE DIMENSIONS OF FOIC AND FOIO ITEMS PRIOR TO PROCEEDING WITH WORK. INCLUDE STUB OUTS FOR FUTURE WORK.
9. PIPING, CONDUITS, DUCTS, ETC. SHALL BE CONCEALED IN WALLS, CHASES, ABOVE SUSPENDED CEILINGS, BELOW FLOORS OR BE FURRED-IN IN ROOMS WITH EXISTING CEILINGS, UNLESS OTHERWISE NOTED. DO NOT CONCEAL PIPING, CONDUITS, DUCTS, ETC. IN ELECTRICAL, MECHANICAL, AND COMMUNICATION ROOMS.
10. CAREFULLY COORDINATE MECHANICAL, ELECTRICAL, AND BUILDING SYSTEM INSTALLATIONS WITH EXISTING STRUCTURE AND BUILDING SYSTEMS.
11. "REMOVE" MEANS TO COMPLETELY AND PERMANENTLY REMOVE FROM THE PROJECT.
12. REFER TO LIGHTING PLAN AND ELECTRICAL DRAWINGS FOR ELECTRICAL DEVICES AND LOCATIONS. COORDINATE AND REVIEW DEVICE LOCATIONS WITH ARCHITECT IN FIELD PRIOR TO ROUGH-IN.

PROJECT INFORMATION

PROJECT OWNER:
UNIVERSITY OF WASHINGTON
CONTACT:YANNICK MATHEWS
EMAIL:ymathews@uw.edu
TEL:206.221.8988

PROJECT ADDRESS:
3910 MONTLAKE BLVD NE,SEATTLE ,WA 98105

SCOPE DESCRIPTION: ROOFING REPLACEMENT FOR THE MAIN ROOF AND PENTHOUSE, INCLUDING GLULAM BEAM REPAIR

ZONING ANALYSIS

1. **PROJECT ADDRESS:** 3910 MONTLAKE BLVD NE,SEATTLE ,WA 98105
2. **PARCEL NUMBER:**
3. **LEGAL DESCRIPTION:**
4. **LOT AREA:** EXISTING, NO CHANGE
5. **ZONE:**
6. **CURRENT USE:** OCCUPANCY, NO CHANGE
7. **YEAR BUILT:**
8. **(E) BLDG AREA:**
9. **(E) LOT COVERAGE:** EXISTING, NO CHANGE
10. **HT LIMIT:** EXISTING, NO CHANGE
11. **PARKING QUANTITY:** EXISTING, NO CHANGE
12. **REQUIRED SETBACKS:** EXISTING, NO CHANGE

APPLICABLE CODES

2018 SEATTLE BUILDING CODE
2018 SEATTLE EXISTING BUILDING CODE
2018 UNIFORM PLUMBING CODE
2018 INTERNATIONAL FIRE CODE
2010 ADA STANDARDS FOR ACCESSIBLE DESIGN
2018 SEATTLE ENERGY CODE

DESIGN TEAM

ARCHITECT:
SHKS ARCHITECTS
1050 NORTH 38TH ST
SEATTLE, WA 98103
TEL: 206.224.3328
CONTACT: MATT HAMEL
EMAIL:MattH@SHKSARCHITECTS.COM

STRUCTURAL ENGINEER:
IDE -INTEGRATED DESIGN ENGINEERS
CONTACT: MIROSLAV DOYTCHEV
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BUILDING ENVELOPE CONSULTANT:
WETHERHOLT AND ASSOCIATES
CONTACT:DON DAVIS
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COST CONSULTANT:
HALEY CONSULTING GROUP
CONTACT: MARK HALEY
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FALL PROTECTION CONSULTANT:
GRAVITEC
CONTACT: AUSTIN FELLOWS
EMAIL:fellows@gravitec.com

SHEET INDEX

UNIVERSITY OF WASHINGTON

Project Title

GRAVES HALL ROOF REPAIR

Preliminary Design

Consultant Name

SHKS ARCHITECTS

1050 N. 38th St.
Seattle, WA 98103
PH: 206.675.9151
www.shksarchitects.com

Seal

Keyplan

Rev	Description
1	
2	
3	

Date	04/28/22
Project No.	207523
Project Mgr:	YM
Designer	NA
Checked	MI
Approved	
Facility No.	
Records/DPD No.	
Bldg I.D.	1149

Sheet Name

COVER SHEET

Sheet No.

A0.0

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APPENDIX F

1) FACILITIES SERVICES MAINTAINED OBSOLETE FIRE ALARM EQUIPMENT - HIGH PRIORITY					
BUILDING/FIRE ALARM	BRAND	MODEL	INSTALL DATE	DEFICIENCY	SOLUTION
UW Police Dept Trusite Computer	SIMPLEX	TSW	6/14/2016	Used by UWPD to monitor campus fire alarms. Alerts FOMS and key building personnel by text message. Computer is obsolete and expected life of hard disk is exceded.	Replace UWPD Truesite computer. Location needs better accessibility.
Add TrueSite Monitoring Loop 5	SIMPLEX	4120	10/4/2004	The four current 4120 loops are incompatible with future FA panels. New 5th ES loop is needed to function with those panels.	Install equipment for new 5th ES loop.
Music Building	SIMPLEX	4100+	7/1/1991	Obsolete FA control panel.	Replace FA control panel. Non-ADA Strobes
Gerberding Hall	SIMPLEX	4100+	1/1/1993	Obsolete FA control panel.	Replace FA control panel. Non-ADA Strobes
Chemistry Library	SIMPLEX	4100U	11/1/1988	Obsolete Gamwell Flex III AC horn module and AC horns.	Replace fire alarm system, FA control panel might be re-usable.
Plant Services Bldg	SIMPLEX	4100U	6/1/1979	Obsolete Gamwell Flex III AC horn module and AC horns.	Replace fire alarm system, FA control panel might be re-usable.
South Campus Center	SIMPLEX	4100U	1/1/1975	Obsolete Simplex 4208 AC horn module and AC horns.	Replace fire alarm system, FA control panel might be re-usable.
Aerospace & Engineering Research	SIMPLEX	4100+	1/1/1990	Obsolete FA control panel.	Replace FA control panel.
1) FACILITIES SERVICES MAINTAINED OBSOLETE FIRE ALARM EQUIPMENT - HIGH PRIORITY					
BUILDING/FIRE ALARM	BRAND	MODEL	INSTALL DATE	DEFICIENCY	SOLUTION
Marine Studies & Fisheries Teaching	SIMPLEX	4100+	1/1/1990	Obsolete FA control panel.	Replace FA control panel.
Suzzallo & Allen Libraries	SIMPLEX	4100+	8/1/1990	Obsolete FA control panel.	Replace FA control panel.
Bagley Hall	SIMPLEX	4100U	4/1/2007	FA Control Panel OK but field wiring is undersized and Strobes are non-ADA from 1985.	Upgrade Notification circuit devices and wiring.
2) FACILITIES SERVICES MAINTAINED OBSOLETE FIRE ALARM EQUIPMENT					
BUILDING/FIRE ALARM	BRAND	MODEL	INSTALL DATE	DEFICIENCY	SOLUTION
Bank of America Executive Ed Center	SIMPLEX	4100+	5/30/1997	Obsolete FA control panel.	Replace FA control panel.
Benson Hall	SIMPLEX	4100+	8/12/1999	Obsolete FA control panel.	Replace FA control panel.
Bloedel Hall	SIMPLEX	4100+	6/20/1997	Obsolete FA control panel.	Replace FA control panel.
Chemistry Building	SIMPLEX	4100+	1/1/1994	Obsolete FA control panel.	Replace FA control panel.
Fishery Sciences Bldg	SIMPLEX	4100+	6/23/1999	Obsolete FA control panel.	Replace FA control panel.
Gowen & Smith Halls	SIMPLEX	4100+	12/27/2001	Obsolete FA control panel.	Replace FA control panel.
Health Sciences A-Wing-UW	SIMPLEX	4100+	2/1/1995	Obsolete FA control panel.	Replace FA control panel.
Health Sciences B-Wing-UW	SIMPLEX	4100+	6/1/1994	Obsolete FA control panel.	Replace FA control panel.
Health Sciences C & D-Wings-UW	SIMPLEX	4100+	2/1/1995	Obsolete FA control panel.	Replace FA control panel.
2) FACILITIES SERVICES MAINTAINED OBSOLETE FIRE ALARM EQUIPMENT					
BUILDING/FIRE ALARM	BRAND	MODEL	INSTALL DATE	DEFICIENCY	SOLUTION
Health Sciences E & F-Wings	SIMPLEX	4100+	9/1/1994	Obsolete FA control panel.	Replace FA control panel.
Health Sciences G & H-Wings	SIMPLEX	4100+	1/1/1992	Obsolete FA control panel.	Replace FA control panel.
Health Sciences H-Wing So.	SIMPLEX	4100+	1/1/1994	Obsolete FA control panel.	Replace FA control panel.
Health Sciences I-Wing	SIMPLEX	4100+	4/1/1995	Obsolete FA control panel.	Replace FA control panel.
Health Sciences J-Wing	SIMPLEX	4100+	6/1/1994	Obsolete FA control panel.	Replace FA control panel.

Health Sciences K-Wing	SIMPLEX	4100+	7/1/1995	Obsolete FA control panel.	Replace FA control panel.
Health Sciences T-Wing	SIMPLEX	4100+	4/28/1997	Obsolete FA control panel.	Replace FA control panel.
Henry Art Gallery	SIMPLEX	4100+	2/6/1997	Obsolete FA control panel.	Replace FA control panel.
Hutchinson Hall	SIMPLEX	4100+	1/16/1998	Obsolete FA control panel.	Replace FA control panel.
Marine Sciences	SIMPLEX	4100+	3/12/1997	Obsolete FA control panel.	Replace FA control panel.
2) FACILITIES SERVICES MAINTAINED OBSOLETE FIRE ALARM EQUIPMENT					
BUILDING/FIRE ALARM	BRAND	MODEL	INSTALL DATE	DEFICIENCY	SOLUTION
Ocean Sciences Bldg	SIMPLEX	4100+	7/29/1999	Obsolete FA control panel.	Replace FA control panel.
Oceanography Teaching Bldg	SIMPLEX	4100+	10/24/1996	Obsolete FA control panel.	Replace FA control panel.
Paul Allen Center for CSE	SIMPLEX	4100+	6/19/1997	Obsolete FA control panel.	Replace FA control panel.
Physics/Astronomy Building	SIMPLEX	4100+	1/1/1994	Obsolete FA control panel.	Replace FA control panel.
Portage Bay Bldg (sub-panel for east addition)	SIMPLEX	4100+	1/1/1990	Obsolete FA sub-panel.	Replace FA sub-panel.
Social Work/Speech & Hearing	SIMPLEX	4100+	11/1/1998	Obsolete FA control panel.	Replace FA control panel.
Thomson Hall	SIMPLEX	4100+	10/9/1996	Obsolete FA control panel.	Replace FA control panel.
Transportation Services	GAMEWELL	FLEX 300	1/1/1982	Obsolete FA control panel.	Replace FA control panel.
William H Gates Law School	SIMPLEX	4100+	7/7/2003	Obsolete FA control panel.	Replace FA control panel.
Winkenwerder	SIMPLEX	4100+	6/20/1997	Obsolete FA control panel.	Replace FA control panel.

APPENDIX G

MITHUN

Seattle
Pier 56, 1201 Alaskan Way #200
Seattle, WA 98101

San Francisco
660 Market Street #300
San Francisco, CA 94104

Los Angeles
Mithun | Hodgetts + Fung
5837 Adams Boulevard
Culver City, CA 90232

Memorandum

To:	Kyle Knapp Clark Construction	**Date:** **Project #:**	24 March, 2021 S1808.30
From:	Mithun	**Project:**	UW Seismic URM Improvements – Phase III Hutchinson Hall
cc:	file		
Re:	**Elevator Scoping Documents**		

This memo serves as a summary of diagrammatic elevator documents for Hutchinson Hall for the purposes of providing scoping assessment and cost analysis for UW to review and help evaluate if the elevator will become part of the URM Improvements.

The following documents attached are drafts and will be developed further as needed/ required.

- Architectural scoping plans
- Specification for Traction Elevator- Basis of Design (example section)
- Structural scoping plans - Degenkolb
- High-level code summary
- Improvements to Accessibility Memo – Studio Pacifica

The scoping effort as described herein and supplemented with concept planning diagrams has been performed at the request of University of Washington both in terms of evaluating whether an elevator is required by code and also if as an optional improvement to improve access to all levels of the building.

Is an Elevator Required?

Under 2018 Seattle Existing Building Code (SEBC), the addition of an elevator is not necessarily required when unreinforced masonry improvements do not affect the primary function of the building (*as defined by SEBC 305.7 Alterations affecting an area containing a primary function*)The existing access (stair) lift at the building's main/open stair is acceptable as part of the building access path (see attached Studio Pacifica report) and provides access to a majority of occupied spaces within Hutchinson Hall. Because there is no lift serving the upper most floors in a portion of the building the rooms on the uppermost levels (Second Floor North and Third Floor North) would remain inaccessible. For this to be acceptable the University would need to continue to schedule all classes, and performances in spaces on the lower floors with delineated accessible path (served by lift, ramp or direct/on-grade entrances).

However, if the City finds the primary function of the building is impacted through the introduction of required structural members as part of the unreinforced masonry improvements then as described by SEBC 305.7 – "*the scope of improvements to the building will require dedicated construction funding to improve accessible route not in excess of 20% of the costs of the alterations affecting the primary function*." Several forthcoming steps will need to occur to determine if this threshold is triggered including:

- URM structural design needs to be developed by Degenkolb and Mithun to determine if there is impact to the primary functions of the building.
- A pre-application meeting with SDCI is needed to review improvements and initial ruling on impact to primary function. If SDCI determines the project is subject to 20% ADA improvements then a conversation about how that is achieved will be framed utilizing the Department of Justice's Standards for Accessible Design priority list in conjunction with the facility conditions and access/ADA deficiency inventory report by Studio Pacifica. If SDCI interprets the structural improvements will impact primary function and the project is subject to 20% dedicated improvements to ADA then the project may be challenged to achieve the 20% percent threshold without considering the addition of a new elevator. The other accessible/ADA improvements as outlined by Studio Pacifica's report are expected to not sufficiently meet a 20% threshold of construction costs.

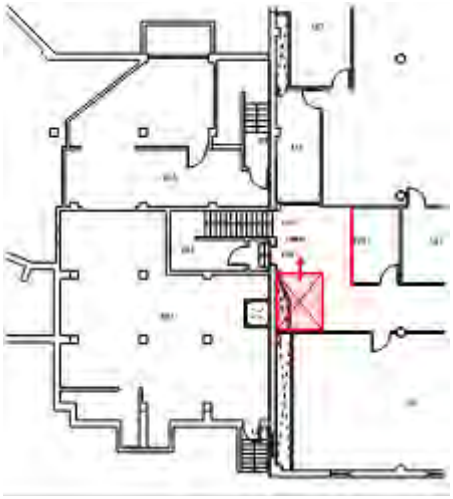
Proposed Elevator Scope

The following options have been considered with respect to service benefits to the building and potential impacts. As part of scoping evaluation, building walk-throughs were completed on 2/22/21 and 3/12/21 by members from Clark Construction, Mithun Architects, Degenkolb Engineers and Studio Pacifica. Historical building information and documentation was gathered from University of Washington's archival documents to serve as backgrounds for scope planning and initial evaluations.

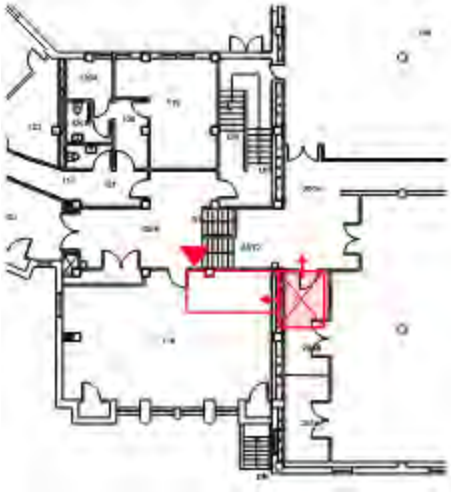
[See following sheets]

Planning Option – (Red)

Located south and west of the existing open stair this option was considered to connect all levels with the new elevator. While this option provides access to all levels and eliminates the existing stair lift at the open stair it requires a non-standard front and side elevator door configuration. Additionally, the access point at levels 2 north and 3 north require significant reconfiguration at historically important rooms 211 and 303. Because of the impacts on the upper levels and the elevator door configuration this option was deemed non-desirable.



First Floor South



First Floor North / Second Floor South

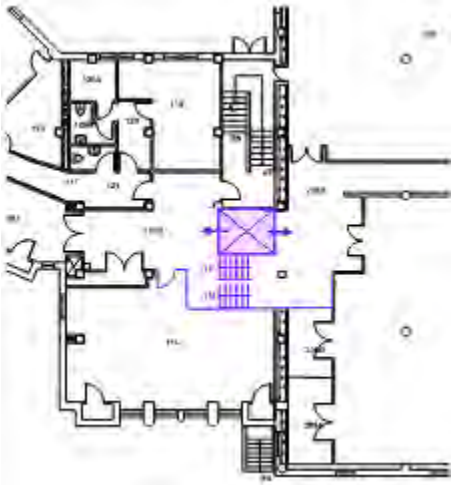
Second Floor North

Third Floor North

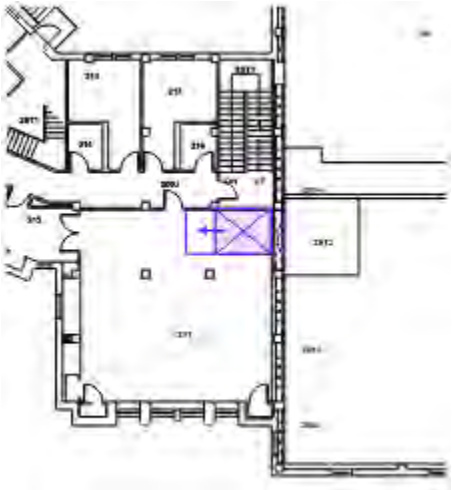
Planning Option – (Purple)

Located where the existing open stair is currently this option was considered to connect all levels with the new elevator. This location puts the elevator at a central axis point and requires a new open connector stair between First Floor South - First Floor North and Second Floor South. While this provides access to all levels and eliminates the existing chair lift it requires the new stair configuration in addition to the elevator itself. Moreover, the shaft location impacts steam tunnels below the building and on the uppermost levels poses negative impacts on the historic rooms and the attic/turret access stair. Because the constraints outweigh the benefits this option was deemed non-desirable.

First Floor South



First Floor North / Second Floor South

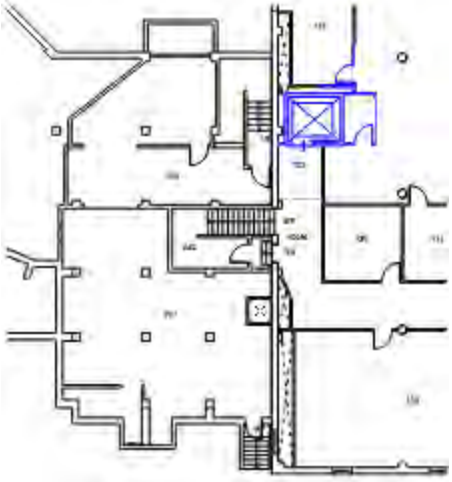


Second Floor North

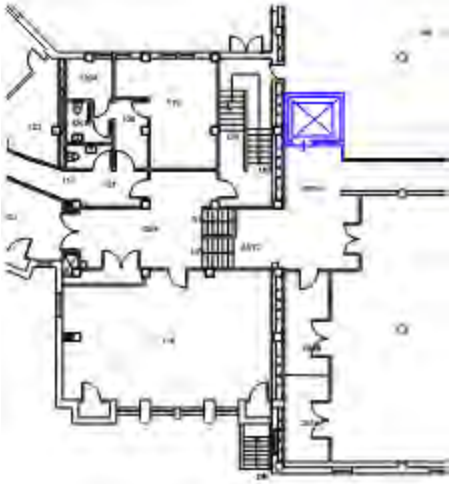
Third Floor North

Planning Option – (Blue)

Located south and east of the existing open stair adjacent to the enclosed (rated stair) this option connects most but not all floors with stops at First Floor South, Second Floor South, Second Floor North and Third Floor North. Because of floor-to-floor heights the elevator is unable to stop at First Floor North. Access to First Floor North would continue to be served via the existing stair lift. Access to the top two levels is created with new floor in-fills that connect to existing slabs at the rated stair. This connection requires a rated opening between the stair and the elevator area/lobby (door on hold-open). While this option which utilizes both the new elevator and the existing stair lift to serve all levels it is less efficient in terms of having two means of vertical travel. This option is also located immediately adjacent to the load bearing rated stair wall that interferes with existing wall footings. Because of the impacts on the wall/column footing and the need to retain the stair lift this option was deemed less desirable.

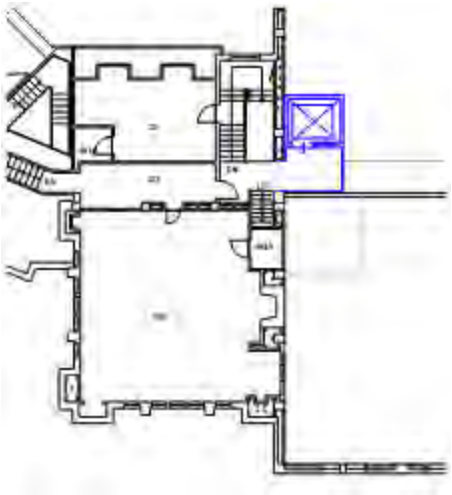


First Floor South



First Floor North / Second Floor South

Second Floor North



Third Floor North

Planning Option – (Green)

Similar to the blue option this green option is south and east of the existing open stair. It is in proximity to but pulled away from the enclosed (rated stair) this option connects all floors with stops at each level. Access to the top two levels is created with new floor in-fills that connect to existing slabs at the rated stair. These connections require a rated opening between the stair and the elevator area/lobby (door on hold-open). This option avoids existing wall footings. Because this option serves all floors and does not negatively impact the historical character of major building elements it has been deemed the most feasible.

[See scoping documents attached separately for the green option described above]

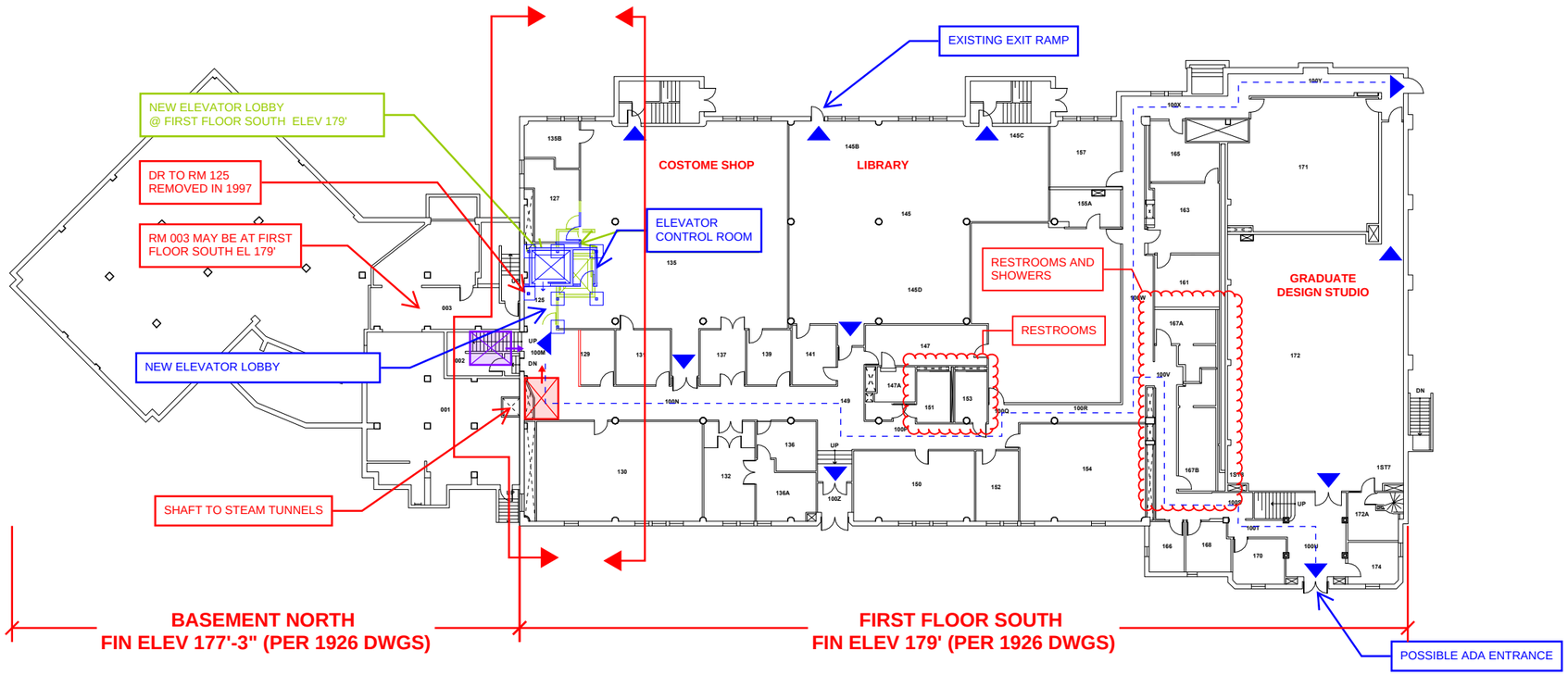
Additional Accessibility Improvement Notes

In addition to the elevator scoping described above the team is evaluating potential ADA/ accessibility/universal access improvements that may be required by code (per SEBC 305.7) or as optional scope under this project. The enclosed report by Studio Pacifica has been developed to provide an existing conditions summary and recommendations for improvements. Forthcoming unreinforced masonry structural design efforts will determine if primary functions of the building are impacted. If so, SDCI's is expected to require Hutchinson Hall accessibility improvements to reach 20% of the primary functional area affected. Prioritized strategies for renovation to meet the code intent will be developed. Financial constraints combined with building conditions limit areas for improvement. The project was funded for seismic improvements and was not identified during initial budget exercises to incorporate additional scope related to accessibility. In order to provide a framework for improvement, we will propose to follow the Department of Justice's Standards for Accessible Design's prioritization of elements that provide greatest access, in the following order:

- Priority 1- An accessible entrance
- Priority 2- An accessible route to the altered area
- Priority 3- At least one accessible restroom for each sex or a single unisex restroom
- Priority 4- Accessible telephone
- Priority 5- Accessible drinking fountains; and
- Priority 6- When possible, additional accessible elements such as parking, storage, and alarms.

Please refer to the attached report by Studio Pacifica for more details. As design and cost analysis progress and dialogue with the City of Seattle is expected to review the extent of URM improvements this issue will continue to be refined as needed.

END OF MEMO

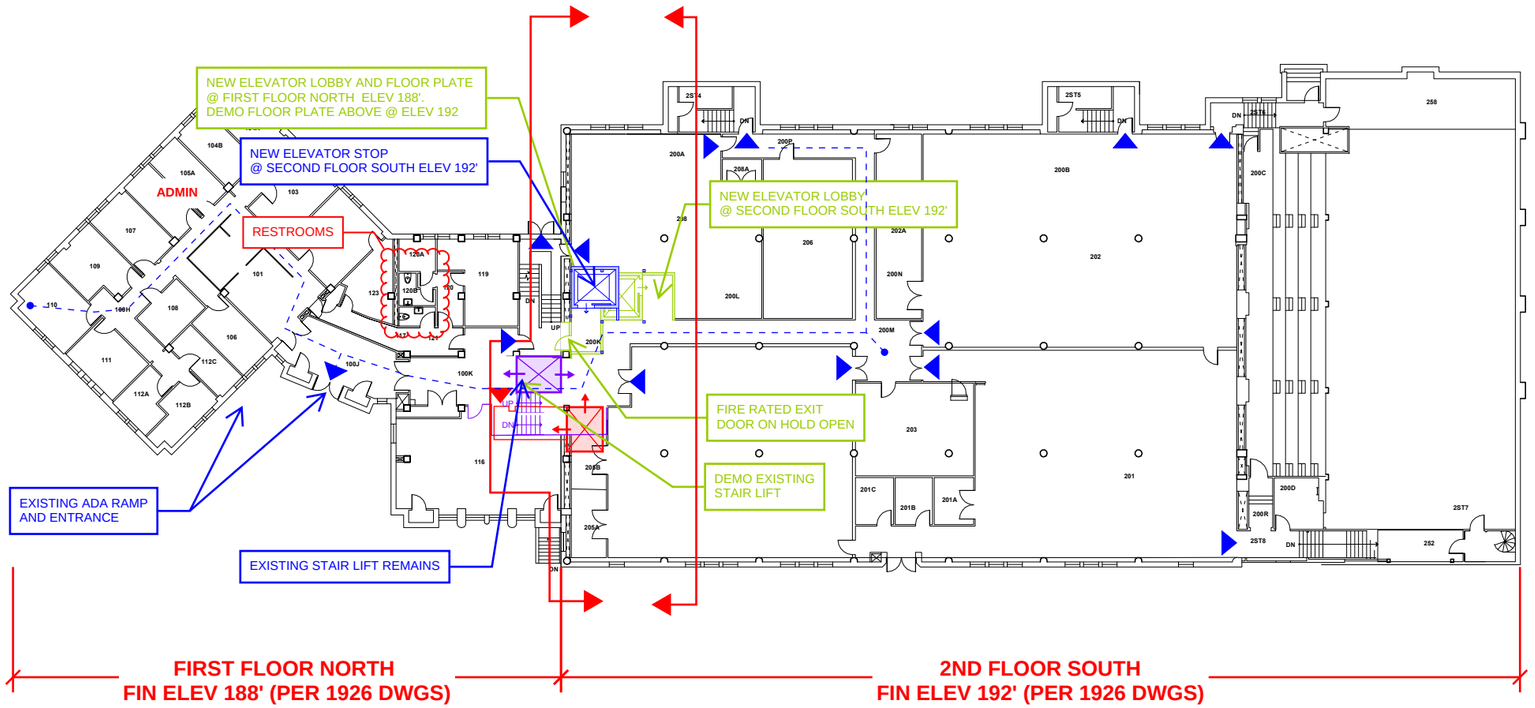


BASEMENT, FIRST FLOOR SOUTH

0 8' 16' 32'

1/32" = 1'-0"

1



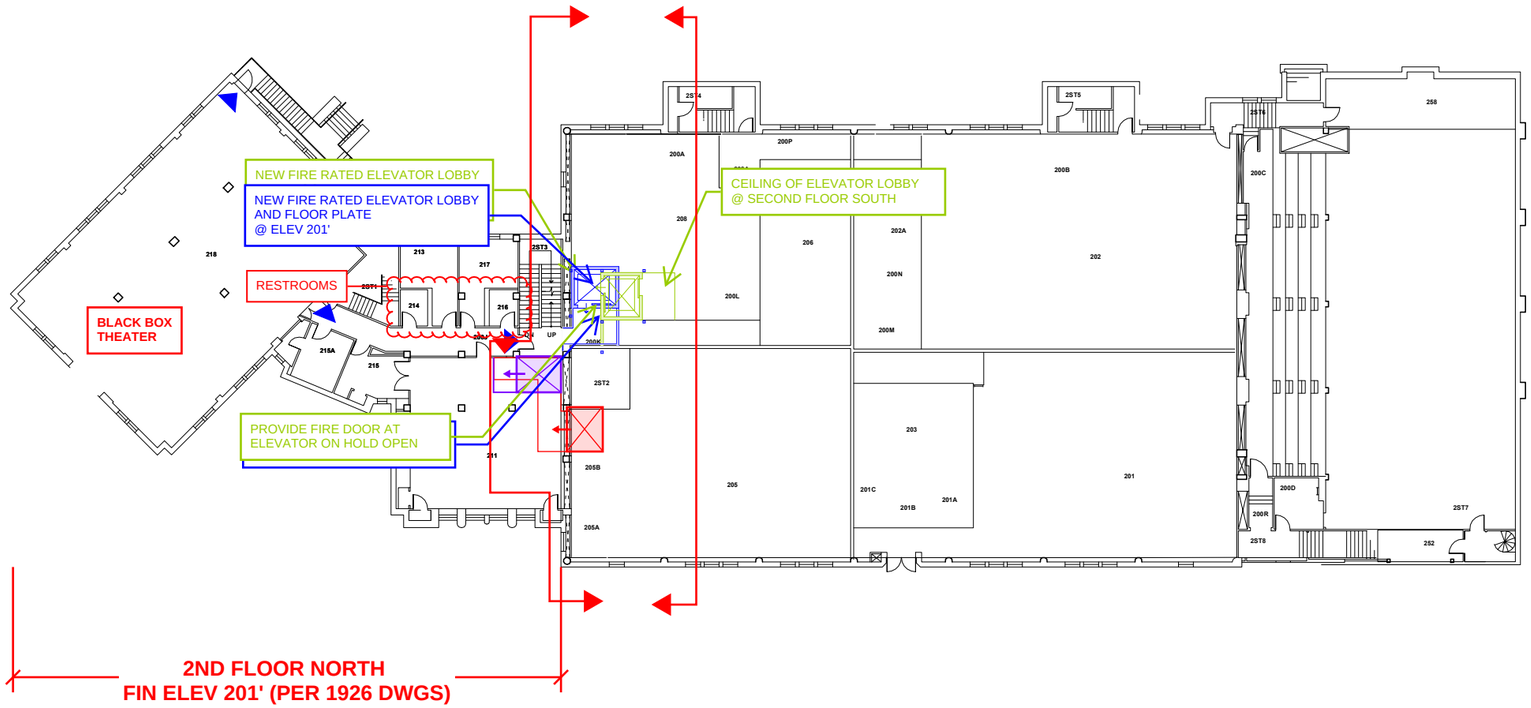
N

FIRST FLOOR NORTH, SECOND FLOOR SOUTH

0 8' 16' 32'

1/32" = 1'-0"

1

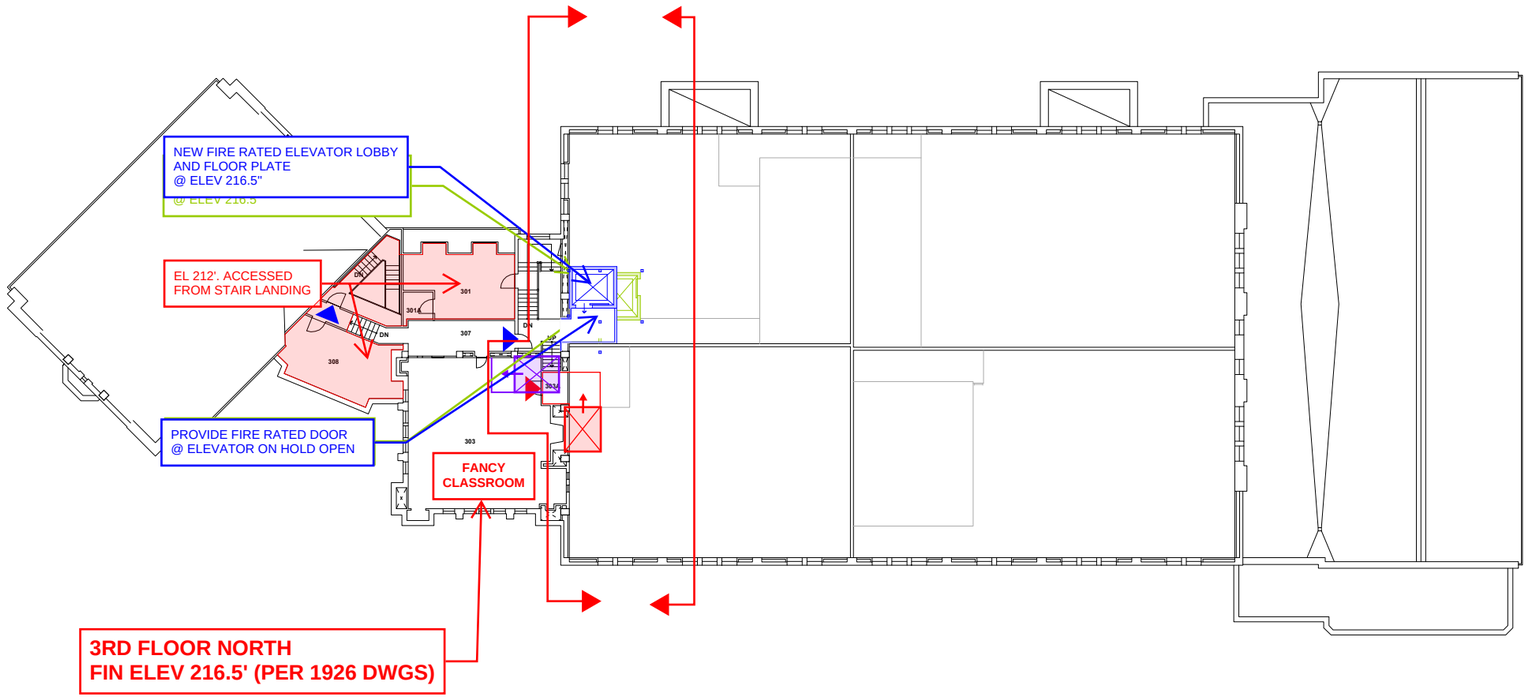


SECOND FLOOR NORTH

0 8' 16' 32'

1/32" = 1'-0"

1



N

THIRD FLOOR

0 8' 16' 32'

1/32" = 1'-0"

1

KONE EcoSpace™

Configurations and Dimensions

Max Travel
48' (14.6 m)

Max Landings
4

Speed
150 fpm
(.75 m/s)

Car Height F
8 or 10 ft.
(2438 or 3048 mm)

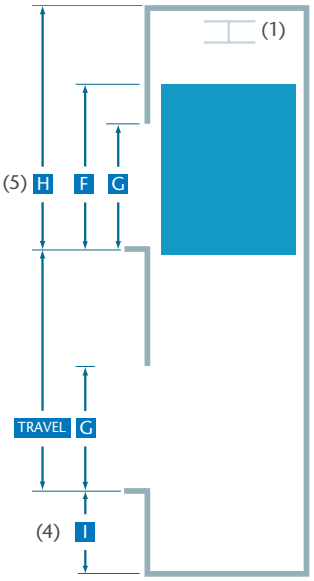
Entrance Height G
7, 8 or 9 ft.
(2134, 2438 or
2743 mm)

		CAPACITY LBS. (kg)	OPENING TYPE	A HOISTWAY WIDTH (mm)	A SEISMIC HOISTWAY WIDTH (mm)	B HOISTWAY DEPTH (mm)	C INTERIOR WIDTH (mm)	D INTERIOR DEPTH (mm)	E DOOR WIDTH (mm)
Front Opening	PASSENGER	2000 (907)	SSP	7'-4" (2235)	7'-8" (2337)	5'-9" (1753)	5'-8" (1727)	4'-3" (1295)	3'-0" (914)
		2500 (1134)	SSP-CO	8'-4" (2540)	8'-8" (2642)	5'-9" (1753)	6'-8" (2032)	4'-3" (1295)	3'-6" (1067)
		3000 (1361)	SSP-CO	8'-6" (2591)	8'-8" (2642)	6'-3" (1905)	6'-8" (2032)	5'-0" (1524)	3'-6" (1067)
		3500 (1588)(7)	SSP-CO	8'-6" (2591)	8'-8" (2642)	6'-11" (2108)	6'-8" (2032)	5'-6 3/16" (1681)	3'-6" (1067)
Front & Reverse Opening	PASSENGER	2000 (907)	SSP	7'-4" (2235)	7'-8" (2337)	6'-3 1/4" (1911)	5'-8" (1727)	4'-3" (1295)	3'-0" (914)
		2500 (1134)	SSP-CO	8'-4" (2540)	8'-8" (2642)	6'-3 1/4" (1911)	6'-8" (2032)	4'-3" (1295)	3'-6" (1067)
		3000 (1361)	SSP-CO	8'-6" (2591)	8'-8" (2642)	6'-11" (2108)	6'-8" (2032)	5'-0" (1524)	3'-6" (1067)
		3500 (1588)(7)	SSP-CO	8'-6" (2591)	8'-8" (2642)	7'-5 1/4" (2267)	6'-8" (2032)	5'-6 3/16" (1681)	3'-6" (1067)

CLEAR OVERHEAD H AND PIT DEPTH I		
CAPACITY LBS. (kg)	150 FPM (.75 m/s)	
	Pit Depth (mm)	Clear Overhead (mm)
2000 to 3500 (907 to 1588)	5'-0" (1524)	13'-0" (3962)

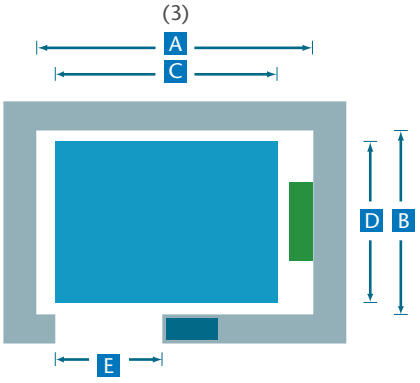
CONTROL SPACE(8)		J	K	L
CAPACITY LBS. (kg)	CONTROLLER SPACE	WIDTH (mm)	DEPTH (mm)	DOOR WIDTH (mm)
2000 to 3500 (907 to 1588)	integral or remote closet	3'-8" (1118)(8)	1'-8" (508)(8)	3'-0" (914)(8)
2000 to 3500 (907 to 1588)	adjacent room	5'-0" (1524)(8)	dimension (B)	3'-0" (914)(8)

Section View

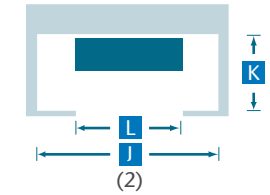


Visit kone.us for the latest project-specific details, CAD drawings, CSI specifications, electrical data, reaction loads and building access requirements.

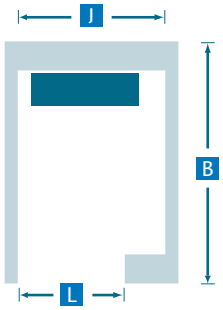
Plan Views



Integrated Control Solution 1.0 (standard)



Integral or Remote Control Closet (option 1)



Adjacent or Remote Control Room (option 2)

Notes

(1) A hoist beam (by KONE) is required for installation (by others). Dimension H reflects clear under hoist beam.

(2) If an EBD (Emergency Battery Device) is required please contact your KONE Sales Professional for further detail regarding dimensions J and I.

(3) The published hoistway A dimensions represent the minimum clear inside requirements. Construction efficiencies can be realized by increasing these dimensions by up to 2" (51 mm).

(4) For pit depths less than 5'-0" (1524 mm) please contact a KONE Sales Professional.

(5) All dimensions are based on an 8'-0" (2438 mm) cab with a 7'-0" (2134 mm) door. Alternate car and door heights are available, but will affect dimension H.

(6) Contact your local KONE Sales Representative regarding local code variations when utilizing the integrated, integral and remote closet options.

(7) Stretcher accessibility based on International and California Building Code specified 24 inch by 84 inch stretcher — with 5 degree radius corners. Elevator car must utilize a slide side door.

(8) If IBC 2018 or ASME A17.1-2019/CSA B44-19 code is applicable, contact your local sales professional for controller space configurations.

SF3056
Rev 1119

Project Summary

4.30.2021

Trade Code	Cost
01 00 00-General Requirements	$51,110
02 41 19-Selective Structure Demolition	$96,500
02 80 00-Hazardous Material Abatement	$25,000
03 21 00-Reinforcing Steel	$10,688
03 30 00-Cast-in-Place Concrete	$35,130
05 12 00-Structural Steel Framing	$369,650
05 50 00-Miscellaneous Metals	$20,000
07 13 00-Sheet Waterproofing	$11,550
08 14 00-Wood Doors	$7,250
08 34 00-Special Function Doors	$30,000
09 21 16-Gypsum Board Assemblies	$102,238
09 65 00-Resilient Flooring	$10,720
09 91 00-Painting	$4,493
10 14 00-Signage	$1,250
14 21 00-Electric Traction Elevators	$250,000
21 11 00-Facility Fire-Suppression Water-Service Piping	$12,500
22 00 00-Plumbing	$20,000
23 00 00-Heating, Ventilating, and Air-Conditioning (HVAC)	$12,500
26 00 00-Electrical	$141,232
31 00 00-Earthwork	$7,110
31 63 00-Bored Piles	$168,448
Subtotal Direct Cost	$1,387,367

General Conditions and Fees

GC Fee	% of Total	5.19%	$102,819.52
GC Bond	% of Total	0.66%	$13,075.31
General Liability	% of Total	1.05%	$20,801.64
Design Contingency	% of Direct	10.00%	$138,736.75
Subcontractor Bond	% of Direct	1.25%	$17,342.09
Construction Contingency	% of Direct	5.00%	$69,368.37
Gross Receipts Tax	% of Total	0.66%	$13,075.31
General Conditions	Lump Sum		$197,655.00
General Liability, GC Bond and B&O Tax on WSST	% of Direct	1.45%	$20,116.83

Fixed Retainage Bond	Lump Sum	$750.00

Subtotal Fees	$593,740.84
Total Project Cost:	$1,981,108.33

01 00 00-General Requirements

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
01 00 00-General Requirements					
Z10 GENERAL REQUIREMENTS				**$51,110**	
Job Site Safety	MO	12	$1,300.00	$15,600	
Job Site Cleanup (Dumpster & Final Clean - 12 Months)	LS	1	$12,110.00	$12,110	
Elevator Operator	HR	40	$85.00	$3,400	
Scaffolding	LS	1	$20,000.00	$20,000	
01 00 00-General Requirements				**$51,110**	

02 41 19-Selective Structure Demolition

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
02 41 19-Selective Structure Demolition					
F30 DEMOLITION				**$96,500**	
Demo Existing SOG for Elevator Pit (9.5' X 8.3')	SF	80	$100.00	$8,000	
Demo Slab on Grade for 5'X5'X2' Footings	SF	30	$100.00	$3,000	
Demo Floor Decks for SOMD	SF	310	$50.00	$15,500	
Demo of Existing Handrail Support for Chair Lift	LS	1	$10,000.00	$10,000	
Shoring (per Landing)	EA	4	$15,000.00	$60,000	
02 41 19-Selective Structure Demolition				**$96,500**	

02 80 00-Hazardous Material Abatement

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
02 80 00-Hazardous Material Abatement					
F20 FACILITY REMEDIATION				**$25,000**	
Allowance - Abatement - Asbestos Removal	LS	1	$25,000.00	$25,000	
02 80 00-Hazardous Material Abatement				**$25,000**	

03 21 00-Reinforcing Steel

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
03 21 00-Reinforcing Steel					
A10 FOUNDATIONS				**$5,238**	
Reinforcing For Footings 150 lb/CY	LBS	1,945	$2.50	$4,863	
Reinforcing for SOG (For Demo'd Footing Pour Back) 5lb/SF	LBS	150	$2.50	$375	
A20 SUBGRADE ENCLOSURES				**$4,210**	
Reinforcing For Elevator Pit Walls 6 lb/SF	LBS	1,284	$2.50	$3,210	
Reinforcing for Elevator Pit Slab 5lb/SF	LBS	400	$2.50	$1,000	
B10 SUPERSTRUCTURE				**$1,240**	
Reinforcing For Slab on Metal Deck 2lb/SF	LBS	620	$2.00	$1,240	
03 21 00-Reinforcing Steel				**$10,688**	

03 30 00-Cast-in-Place Concrete

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
03 30 00-Cast-in-Place Concrete					
A10 FOUNDATIONS				**$14,860**	
Spread Footings: 5' x 5' x 2'	CY	14	$1,000.00	$14,260	
Pour Back at Footing Locations	SF	30	$20.00	$600	
A20 SUBGRADE ENCLOSURES				**$18,720**	
12" Elevator Pit Slab (Includes Gravel/Vapor Barrier)	SF	80	$20.00	$1,600	
Elevator Pit Walls (Assume 10" Thick)	SF	214	$80.00	$17,120	
B10 SUPERSTRUCTURE				**$1,550**	
Slab On Metal Deck	SF	310	$5.00	$1,550	
03 30 00-Cast-in-Place Concrete				**$35,130**	

05 12 00-Structural Steel Framing

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
05 12 00-Structural Steel Framing					
B10 SUPERSTRUCTURE				**$369,650**	
Steel Structure - Premium - Moment Frames_20% of Columns and Beams	TON	4	$20,000.00	$80,000	
Steel Structure - 7 Vertical Columns	TON	9	$15,000.00	$135,000	
Metal Deck - Composite - 3" - New Elevator Lobby Landings	SF	310	$15.00	$4,650	
Structural Steel Framing - Beams	TON	10	$15,000.00	$150,000	
05 12 00-Structural Steel Framing				**$369,650**	

05 50 00-Miscellaneous Metals

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
05 50 00-Miscellaneous Metals					
A20 SUBGRADE ENCLOSURES				**$5,000**	
Elevator Pit Grate & Frame	EA	1	$1,000.00	$1,000	
Elevator Pit Ladder	EA	1	$4,000.00	$4,000	
B20 EXTERIOR VERTICAL ENCLOSURES				**$15,000**	
Metal Railings	LS	1	$15,000.00	$15,000	
05 50 00-Miscellaneous Metals				**$20,000**	

07 13 00-Sheet Waterproofing

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
07 13 00-Sheet Waterproofing					
A20 SUBGRADE ENCLOSURES				**$11,550**	
Waterproofing - Elevator Pit/Pit Walls	SF	250	$35.00	$8,750	
Waterproofing - Under Elevator Pit Slab	SF	80	$35.00	$2,800	
07 13 00-Sheet Waterproofing				**$11,550**	

08 14 00-Wood Doors

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
08 14 00-Wood Doors					
C10 INTERIOR CONSTRUCTION				**$7,250**	
Wood Door w/Frame & HW - First Floor South to RM 125	LEAF	1	$1,750.00	$1,750	
Wood Door w/Frame & HW - Rated Door to Elevator Control Room	LEAF	1	$2,500.00	$2,500	
Wood Door w/Frame & HW - Fire Rated Exit Door at Second Floor South (Hold Open)	LEAF	1	$3,000.00	$3,000	
08 14 00-Wood Doors				**$7,250**	

08 34 00-Special Function Doors

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
08 34 00-Special Function Doors					
C10 INTERIOR CONSTRUCTION				**$30,000**	
Elevator Smoke Roll-Down Curtains - Second Floor North	EA	1	$15,000.00	$15,000	
Elevator Smoke Roll-Down Curtains - Third Floor North	EA	1	$15,000.00	$15,000	
08 34 00-Special Function Doors				**$30,000**	

09 21 16-Gypsum Board Assemblies

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
09 21 16-Gypsum Board Assemblies					
C10 INTERIOR CONSTRUCTION				**$102,238**	
Gyp. Board Elevator Shaft Walls	SF	1,213	$26.00	$31,538	
Gyp. Board Elevator Shaft Walls - Over Run	SF	420	$26.00	$10,920	
Gypsum Board Walls - First Floor South, Second Floor at 208, Third Floor	SF	743	$12.50	$9,288	
Gypsum Board Walls - Rated Lobby Walls	SF	1,632	$26.00	$42,432	
Gypsum Board - Ceilings - Lobbies	SF	310	$26.00	$8,060	
09 21 16-Gypsum Board Assemblies				**$102,238**	

09 65 00-Resilient Flooring

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
09 65 00-Resilient Flooring					
C20 INTERIOR FINISHES				**$10,720**	
Sheet Vinyl Flooring - New Elevator Lobbies	SF	310	$32.00	$9,920	
Resilient Base - Elevator Lobbies	LF	200	$4.00	$800	
09 65 00-Resilient Flooring				**$10,720**	

09 91 00-Painting

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
09 91 00-Painting					
C20 INTERIOR FINISHES				**$4,493**	
Paint Gyp. Board Walls - 2 Coats	SF	2,685	$1.50	$4,028	
Paint Gyp. Board Ceilings - 2 Coats	SF	310	$1.50	$465	
09 91 00-Painting				**$4,493**	

10 14 00-Signage

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
10 14 00-Signage					
C10 INTERIOR CONSTRUCTION				**$1,250**	
Interior Signage - Emergency Exit Map	EA	5	$250.00	$1,250	
10 14 00-Signage				**$1,250**	

14 21 00-Electric Traction Elevators

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
14 21 00-Electric Traction Elevators					
D10 CONVEYING				**$250,000**	
Traction Passenger Elevator	STOP	4	$62,500.00	$250,000	
14 21 00-Electric Traction Elevators				**$250,000**	

21 11 00-Facility Fire-Suppression Water-Service Piping

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
21 11 00-Facility Fire-Suppression Water-Service Piping					
D40 FIRE PROTECTION				**$12,500**	
Allowance For Potential Relocation of Sprinkler Systems	LS	1	$12,500.00	$12,500	
21 11 00-Facility Fire-Suppression Water-Service Piping				**$12,500**	

22 00 00-Plumbing

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
22 00 00-Plumbing					
D20 PLUMBING				**$20,000**	
Sump Pit Drain	EA	1	$20,000.00	$20,000	
22 00 00-Plumbing				**$20,000**	

23 00 00-Heating, Ventilating, and Air-Conditioning (HVAC)

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
23 00 00-Heating, Ventilating, and Air-Conditioning (HVAC)					
D30 HVAC				**$12,500**	
Allowance for Potential Relocation of Mechanical Systems	LS	1	$12,500.00	$12,500	
23 00 00-Heating, Ventilating, and Air-Conditioning (HVAC)				**$12,500**	

26 00 00-Electrical

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
26 00 00-Electrical					
D50 ELECTRICAL				**$141,232**	
Fire Alarm System (Elevator)	LS	1	$12,548.00	$12,548	
400A Feeder (120') (Elevator)	LS	1	$16,820.00	$16,820	
4000A Busman Power Module	LS	1	$9,794.00	$9,794	
Electrical Shutdown (120HRs)	LS	1	$11,400.00	$11,400	
Tele / Data Pathways (Elevator)	LS	1	$4,486.00	$4,486	
Light Fixtures - Elevator (Allowance)	LS	1	$6,440.00	$6,440	
Light Fixtures (Allowance - Elevator Lobbies)	LS	1	$16,070.40	$16,070	
Lighting Control Systems (Elevator)	LS	1	$1,740.00	$1,740	
Lighting Control Systems (Elevator Lobbies)	LS	1	$1,247.04	$1,247	
Lighting Control Branch/Install (Elevator)	LS	1	$6,736.00	$6,736	
Lighting Control Branch/Install (Elevator Lobbies)	LS	1	$3,260.16	$3,260	
Electrical Service (400A) Breaker	LS	1	$10,472.00	$10,472	
Elevator Lobbies - Emergency Circuit (Elevator Lobbies)	LS	1	$1,555.20	$1,555	
Devices (Elevator)	LS	1	$4,358.00	$4,358	
Devices (Elevator Lobbies)	LS	1	$2,571.84	$2,572	
Fire Alarm System (Elevator Lobbies)	LS	1	$10,022.40	$10,022	
Electrical for HVAC System (Elevator)	LS	1	$13,156.00	$13,156	
Electrical for HVAC System (Elevator Lobbies)	EA	1	$1,555.20	$1,555	
Temp Power	LS	1	$7,000.00	$7,000	
26 00 00-Electrical				**$141,232**	

31 00 00-Earthwork

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
31 00 00-Earthwork					
A90 SUBSTRUCTURE RELATED ACTIVITIES				**$1,640**	
Excavation - Elevator Pit	CY	17	$45.00	$765	
Excavation - Footings	CY	19	$45.00	$875	
G10 SITE PREPARATION				**$5,470**	
Site Earthwork - Haul-Off Spoils - Elevator Pit	CY	25	$65.00	$1,601	
Site Earthwork - Haul-Off Spoils - Footings	CY	17	$65.00	$1,112	
Site Earthwork - Backfill for Pile Caps	CY	5	$65.00	$337	
Site Earthwork - SOG Subgrade Prep	SF	110	$22.00	$2,420	
31 00 00-Earthwork				**$7,110**	

31 63 00-Bored Piles

Project Detail

4.30.2021

	Unit	Quantity	Unit Price	Total Cost	Notes
31 63 00-Bored Piles					
A10 FOUNDATIONS				**$168,448**	
Drilled Piles - Micropiles (14 total at 26' ea.)	LF	365	$461.50	$168,448	
31 63 00-Bored Piles				**$168,448**	

Hutchinson Elevator Feasibility Study Construction General Conditions Breakdown

Item	Unit	Qty	Price	Total
SUPERVISION/PROJECT MANAGEMENT				
Project Executive	MO	12	$ 1,517	$ 18,200
Project Management	MO	12	$ 12,067	$ 144,810
ADMINISTRATIVE FACILITIES & SUPPLIES				
Personnel Communications	MO	12	$ 822	$ 9,866
Motor Vehicle	MO	12	$ 1,665	$ 19,980
Travel	EA	4	$ 1,200	$ 4,800
TOTAL GENERAL CONDITIONS				**$ 197,655**

Hutchinson Elevator Feasbility Study Construction General Requirements Breakdown

Item		Unit	Qty	Price	Total
JOBSITE SAFETY					
Safety Material	GR COW	MO	12	$ 500	$ 6,000
HazMat/Temporary Protection	GR COW	MO	12	$ 600	$ 7,200
Temporary Lighting	GR COW	MO	12	$ 200	$ 2,400
JOBSITE CLEANUP					
Dumpster Service	GR COW	LD	18	$ 395	$ 7,110
Final Cleanup	GR COW	LS	1	$ 5,000	$ 5,000
JOBSITE WORK REQUIREMENTS					
Scaffolding	GR COW	LS	1	$ 20,000	$ 20,000
Elevator Operator	GR COW	HRS	40	$ 85	$ 3,400
TOTAL GENERAL REQUIREMENTS					**$ 51,110**

***General Requirements are included in the cost of work total on Page 2**

Hutchinson Elevator Feasbility Study Construction Staff Breakdown

Name	Weeks X Hrs /Wk	Staff Cost July 2022 - July 2023					May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23
		Total Cost	Labor $	% Use	Technology	Car																		
Project Executive																								
MEP Executive	58 x 1	**$ 19,450**	$ 18,200	5%	$ 470	$ 780			4	6	4	6	4	4	4	4	6	4	4	4	4			
Project Management																								
MEP Engineer	58 x 40	**$ 154,206**	$ 144,810	100%	$ 9,396	$ -			4	6	4	6	4	4	4	4	6	4	4	4	4			
	TOTALS	**$ 173,655**	$ 163,010		$ 9,866	$ 780																		

Assumptions and Clarifications

	DESCRIPTION	INCLUDED? YES	NO
DOCUMENTS			
	This proposal is based on the following documents:		
	Studio Pacifica memo dated April 21, 2021	X	
	BOD Specification - 14 21 23 Electric Traction Elevator	X	
	Mithun Memorandum dated March 24, 2021	X	
	UW Hutchinson Elevator - Mithun Plans dated April 21, 2021	X	
	Degenkolb Memorandum dated April 21, 2021	X	
	Degenkolb Structural Plans dated April 21, 2021	X	
OWNER			
	Design of off-site improvements		X
	Preparation of ALTA survey for loan and due diligence		X
	Material testing and special inspections for construction		X
	LEED registration / certification		X
	Cost of Building Permit(s)		X
	Cost of Trade Permit(s)	X	
	Utility service charges / fees from local utilities for power use during construction at Hutchinson Hall.		X
	Utility service charges / fees from local utilities.		X
	Cost of any off-site utility extensions or modifications		X
	Cost of any off-site landscaping, hardscape, paving, striping, etc. and/or intersection modifications and/or improvements outside the scope highlighted in the design documents or the detailed estimate.		X
	Cost of paving, striping and upgrading any ADA parking spots.		X
	Cost of any City required bonds, park dedication, watershed, development fees		X
	Cost of required environmental studies (including CEQA, EIR, etc.)		X
	Cost of easement or encroachment agreements		X
	Cost of any underground methane mitigation measures		X
	Builder's Risk insurance inclusive of Earthquake Difference in Coverage.		X
	Escalation.		X
Z10 GENERAL REQUIREMENTS			
Z10 GENERAL REQUIREMENTS	The scope of work outlined in the referenced documents is based on the University of Washington's pre-design report, minimal selective investigation of the building and the referenced scope documents reviewed and approved by the Owner.	X	
Z10 GENERAL REQUIREMENTS	Our proposed cost and schedule doesn't include any delays or impacts due to the current COVID-19 Pandemic. The impacts may include one or more of the following: unavailability or delayed availability of manpower and/or materials, decreased efficiency in performing in accordance with governmental guidelines (e.g., CDC social distancing), or increased costs of materials and/or labor beyond the current measures in place. Any increased costs or delays resulting from such events will result in an equitable adjustment to the GMP and/or adjustment to the schedule as appropriate.		X
Z10 GENERAL REQUIREMENTS	General Contractor Bond, General Liability Insurance and Builder's Risk Insurance at the stated rates; these rates are not auditable.	X	
Z10 GENERAL REQUIREMENTS	Subcontractor Bonds, per Clark Construction's requirement, for all subcontracts greater than one hundred thousand dollars ($100,000).	X	
Z10 GENERAL REQUIREMENTS	Notice to Proceed will be issued by owner after the later of SDCI permit issuance or execution of contract.	X	
Z10 GENERAL REQUIREMENTS	Design construction administration costs for the specific scope associated with this work. Excludes design costs beyond the scope of work.	X	
Z10 GENERAL REQUIREMENTS	Clark assumes the pre-construction and design services associated with this scope of work can be reasonably covered by the Preliminary Agreement Hutchinson Fees as long as direction to proceed with this scope is provided at same time as Notice to Proceed with Hutchinson Design and Preconstruction Preliminary Agreement dated April 27,2021. Clark assumes this Notice to Proceed will be provided no later than July 1, 2021.		X
Z10 GENERAL REQUIREMENTS	Clark assumes this scope of work can be accomplished within the overall Hutchinson Project Schedule, as long as we are provided a Notice to Proceed with design no later than July 1, 2021.	X	
Z10 GENERAL REQUIREMENTS	Clark assumes that our staff will begin working on Seismic Improvements Phase 3.b either on or before June 2022, as indicated in the GC staff chart.	X	
Z10 GENERAL REQUIREMENTS	Clark assumes Design Construction Administrations will begin once approved permits have been received from SDCI and NTP received from owner.	X	
Z10 GENERAL REQUIREMENTS	Clark assumes the building can be utilized for 2 staff office desks after construction for Closeout during the months of June and July of 2023.	X	
Z10 GENERAL REQUIREMENTS	Changes to current or implementation of future national, state or local laws, statutes, codes or ordinances. Clark assumes any changes resulting from governmental acts which affect the Contract Time or the GMP will result in a time and cost change with the Owner.		X
Z10 GENERAL REQUIREMENTS	Costs for work outside of investigated areas.		X
Z10 GENERAL REQUIREMENTS	Upgrades that might be required by codes, regulations, or authorities having jurisdiction of existing building systems to remain (i.e. Fire Protection, HVAC, plumbing and electrical systems) above and beyond what is shown in the contract documents and/or budget.		X
Z10 GENERAL REQUIREMENTS	Two (2) trailers and one (1) jobsite shed within reasonable proximity of the project for Clark staff will be available for use from June 2022 - June 2023. Cost for these General Requirements will be included in Hutchinson GMP.		X
Z10 GENERAL REQUIREMENTS	Additional ADA upgrades beyond new elevator installation and demolition of existing chair lift.		X
Z10 GENERAL REQUIREMENTS	Final clean-up of elevator area only within Hutchinson Hall at the end of construction only. Clark assumes full building final clean to be included in Hutchinson GMP.	X	

Z10 GENERAL REQUIREMENTS	Performance of construction activities outside of normal business hours i.e. Monday through Friday from 7:00am to 5:00pm.		X
Z10 GENERAL REQUIREMENTS	Overtime and Shift Premiums due to accelerated schedules.		X
Z10 GENERAL REQUIREMENTS	Clark assumes spaces required for access to the work will be cleared of occupants including but not limited to furniture, personal and UW items prior to the scheduled start of the work.	X	
Z10 GENERAL REQUIREMENTS	Debris bins can be staged within a reasonable proximity from the work area at all times.	X	
Z10 GENERAL REQUIREMENTS	All work shall be reached by a combination of lifts and/or scaffold. We do not include the use of a crane outside the possible use for hoisting structural steel.	X	
Z10 GENERAL REQUIREMENTS	We assume any MEP or Fire Protection system can be made safe to perform our work.	X	
Z10 GENERAL REQUIREMENTS	Warranty, repair or maintenance of existing equipment.		X
Z10 GENERAL REQUIREMENTS	Existing maintenance issues with the existing building that would affect our work including but not limited to roof leaks, mold issues, missing fireproofing, faulty equipment, repair of adjacent finishes, etc.		X
Z10 GENERAL REQUIREMENTS	Temporary support of existing structure to support typical construction live loads imposed by industry standard means and methods.		X
Z10 GENERAL REQUIREMENTS	Unforeseen conditions.		X
Z10 GENERAL REQUIREMENTS	B&O Tax is calculated at the current state and local rates. Clark does not include increases to B&O tax rates and assumes if increases to tax rates occur this will be reconciled with the Owner through a Change Order.	X	
Z10 GENERAL REQUIREMENTS	Weather day allowance per the National Oceanic and Atmospheric Administration's average for Seattle, WA to be included in Hutchinson GMP.		X
Z10 GENERAL REQUIREMENTS	General conditions cost for future phases of the Seismic Improvement Program.		X
Z10 GENERAL REQUIREMENTS	Supervision, Project Management and Miscellaneous Support costs are based on the Staff Chart included with this proposal.	X	
Z10 GENERAL REQUIREMENTS	Costs for staff labor associated with changes to the contract time. Clark assumes this can be negotiated in the change order process.		X
Z10 GENERAL REQUIREMENTS	Motor vehicle cost is based on $1,200 per vehicle per month for eligible employees. This per month costs is prorated for part-time eligible employees and covers the vehicle, insurance, gas and maintenance.	X	
Z10 GENERAL REQUIREMENTS	Parking for the Clark team members within reasonable proximity to the project at no cost to Clark.		X
Z10 GENERAL REQUIREMENTS	Jobsite Technology includes personnel computers, iPads, cell phones, and jobsite IT. Technology is $4.05 per hour worked for each team member for the duration of the project.	X	
Z10 GENERAL REQUIREMENTS	Full time Safety Supervisor. Clark assumes it is acceptable to the Owner for part-time Safety Supervisor for the project.		X
Z10 GENERAL REQUIREMENTS	Digital as-built drawings.	X	
Z10 GENERAL REQUIREMENTS	Printed drawings, blueprints, printed as-built documents, reproduction services, etc. Clark assumes the Owner has a reprographic service for the Contractor's use.		X
Z10 GENERAL REQUIREMENTS	Clark assumes temporary power utilities for construction activities will be metered for the duration of the project. Meter to be added by Clark's Trade Partner. Monthly power usage is included in Hutchinson GMP General Requirements.		X
Z10 GENERAL REQUIREMENTS	Temporary power with power skid, spider boxes and temporary lighting by MEP Subcontractor.	X	
Z10 GENERAL REQUIREMENTS	General Liability, B&O Taxes, and Fee will be billed on a monthly basis by percentage of overall completed cost of work performed that month. Bond will be billed in full the first payment application of the project.	X	
Z10 GENERAL REQUIREMENTS	Any labor, materials, staffing costs, etc. to assist with future phases in any capacity.		X
Z10 GENERAL REQUIREMENTS	Mutually agreed upon start-up costs can be billed in the first payment application.	X	
Z10 GENERAL REQUIREMENTS	Tracking individual hours for staff for payment applications. Clark assumes costs for staff can be billed reflective of percent complete based on a schedule of values and reconcile final costs at the end of the project.		X
Z10 GENERAL REQUIREMENTS	A mutually agreed upon set of reimbursables can be billed to the project.	X	
Z10 GENERAL REQUIREMENTS	Material escalation costs due to government tariffs posed after signing GMP.		X
A10 FOUNDATIONS			
A10 FOUNDATIONS	Two (2) Micropiles per every footing at the seven (7) steel vertical elements.	X	
B10 SUPERSTRUCTURE			
B10 SUPERSTRUCTURE	Patching of existing fireproofing.		X
B10 SUPERSTRUCTURE	Leveling, resurfacing or repairing of the existing concrete for new installations.		X
B10 SUPERSTRUCTURE	We assume the quality of existing structure is acceptable for new installations.	X	
B10 SUPERSTRUCTURE	Any repairing, modifying or working on existing expansion joints.		X
B10 SUPERSTRUCTURE	New footings assumed able to be neat cut.	X	
B10 SUPERSTRUCTURE	Metal deck assumed as 3" flute.	X	
B10 SUPERSTRUCTURE	Normal weight concrete assumed at 3" fill on metal deck.	X	
C10 INTERIOR CONSTRUCTION			
C10 INTERIOR CONSTRUCTION	Level four (4) finish for new drywall.	X	
C10 INTERIOR CONSTRUCTION	New ceilings at lobbies assumed as gypsum hardlids.	X	
C10 INTERIOR CONSTRUCTION	All locations calling for a fire rating assumed as two hour rated gypsum wall board.	X	
C20 INTERIOR FINISHES			
C20 INTERIOR FINISHES	New floor finish at new lobbies assumed as vinyl flooring with rubber base.	X	
C20 INTERIOR FINISHES	Evacuation map signage included. All other signage assumed to be captured in Hutchinson GMP.	X	
C20 INTERIOR FINISHES	Flooring at basement assumed as finished concrete.	X	
C20 INTERIOR FINISHES	New doors at First Floor South, Elevator Control Room, and Second Floor South assumed as solid core wood doors.	X	
C20 INTERIOR FINISHES	Two coats of paint provided at all new gypsum walls and hardlids.	X	
D10 CONVEYING			
D10 CONVEYING	Four stop, 3500 lb capacity electric traction elevator included.	X	
D10 CONVEYING	Elevator smoke roll-down curtains assumed at Second and Third Floor North.	X	
D10 CONVEYING	Demolition of existing stair wheelchair lift.		X

D20 PLUMBING			
D20 PLUMBING	Correcting any existing plumbing code violations.		X
D20 PLUMBING	A sump pump has not been included at the elevator pit.		X
D30 HVAC			
D30 HVAC	Entirely new mechanical systems triggered by meeting current building codes.		X
D30 HVAC	Upgrades to existing mechanical equipment including and not limited to ducts, pipes and HVAC systems.		X
D30 HVAC	Ability to move around existing ductwork and put back in place.	X	
D30 HVAC	Cleaning of existing ductwork.		X
D30 HVAC	Pre-Construction Testing and Balancing of HVAC and hydronics.		X
D30 HVAC	Post Construction cleaning, Test and Balance, and/or Commissioning of Mechanical and Plumbing systems		X
D30 HVAC	Permits and drawings for the HVAC.		X
D30 HVAC	Correcting any existing mechanical code violations.		X
D30 HVAC	No temperature zone control will be installed. Existing zone control valves have been disconnected. We assume all pneumatic control valves are not to be replaced.		X
D30 HVAC	Mechanical and HVAC controls.		X
D30 HVAC	All mechanical equipment is assumed to be in good working order. Clark is not held liable for any equipment failure before, during or after the removal and reinstallation of duct work and radiators.		X
D30 HVAC	Clark assumes there are no know deficiencies in the HVAC and Mechanical system. Clark will not be held liable for any system deficiencies including but not limited to equipment issues, leaks, temperature control etc. found after flushing the HVAC and hydronic systems.		X
D40 FIRE SUPRESSION			
D40 FIRE SUPRESSION	Hydraulic calculations for the fire suppression system.		X
D40 FIRE SUPRESSION	Correcting any existing fire suppression code violations.		X
D40 FIRE SUPRESSION	All fire suppression equipment and system is assumed to be in good working order. Clark is not held liable for any equipment failure before, during or after the removal of electrical components.		X
D50 ELECTRICAL			
D50 ELECTRICAL	Updated fixture branch.	X	
D50 ELECTRICAL	Update to code compliant fire alarm.	X	
D50 ELECTRICAL	Cleaning, Test and Balance, and/or Commissioning of Electrical systems.		X
D50 ELECTRICAL	Modifications and upgrades to existing electrical systems including but not limited to equipment, transformers, wiring, light fixtures(outside scope listed in drawings).		X
D50 ELECTRICAL	Clark cannot guarantee the reliability or performance of the existing Electrical Distribution System. Failure of existing Switchboard, Panelboards, circuit breakers, transformers, motor starters, or any other piece of electrical equipment during construction will need to be repaired or replaced at an additional cost to the owner."		X
D50 ELECTRICAL	3rd Party NETA Certified Electrical Equipment Testing and inspection of the existing Main Switchboard, Infrared scan, clean and torque all conductor terminations, test all circuit breakers over 100 Amps and existing 30 KVA 480:120/208 Volt dry transformer tested per NETA standards.		X
D50 ELECTRICAL	Refurbishing existing lighting (cleaning, re-lamping, re-trimming, repair, restoration) unless specifically noted otherwise.		X
D50 ELECTRICAL	Moving, placing and (re)-calibrating owner equipment		X
D50 ELECTRICAL	Correcting any existing electrical code violations.		X
D50 ELECTRICAL	All electrical equipment is assumed to be in good working order. Clark is not held liable for any equipment failure before, during or after the removal of electrical components.		X
F10 SPECIAL CONSTRUCTION			
F10 SPECIAL CONSTRUCTION	Furnishing and/or installing any permanent signage. We assume existing signage to remain and any other new signage other than Evacuation Map described above to be included in Hutchinson GMP.		X
F10 SPECIAL CONSTRUCTION	Provide and install new furniture and furnishings. This cost to be carried by Owner.		X
F10 SPECIAL CONSTRUCTION	New IT Equipment (Clark assumes UW will decommission, remove and re-commission any IT equipment to complete the work).		X
F20 SELECTIVE BUILDING DEMOLITION			
F20 SELECTIVE BUILDING DEMOLITION	An Owner allowance of $25,000 for the abatement of hazardous materials. Clark assumes a Good Faith Survey will be provided prior to bidding of the work.	X	
F20 SELECTIVE BUILDING DEMOLITION	Discovery of any regulated materials including but not limiting to asbestos products, lead paint, mercury, etc. Clark assumes this is to be provided by the owner.		X
F20 SELECTIVE BUILDING DEMOLITION	Demolition or disposal of building furniture, equipment, etc.		X
F20 SELECTIVE BUILDING DEMOLITION	ACM Materials are not specifically quantified since there is no Good Faith Survey for Hutchinson.		X
G10 SITE PREPARATION			
G10 SITE PREPARATION	Moving of University equipment in way of exterior access to perform the work including but not limited to instruments, faculty/staff/student personal items, IT equipment, computers, servers, phones, etc.		X
G10 SITE PREPARATION	Temporary signage and fencing to be placed to re-route building occupants around entrances/exits under construction. Clark assumes this cost will be included in Hutchinson GMP.		X
G10 SITE PREPARATION	Any temporary entrances/exits or ADA pathways/ramps to re-route building occupants. We assume ADA access to either remain open or be temporarily closed as discussed with and agreed upon by UW.		X
G10 SITE PREPARATION	Traffic control for closed roads and sidewalks for material deliveries.	X	
G10 SITE PREPARATION	Adjacent walk ways, service roads and/or landscaping can be used for lifts or scaffolding to access work; we assume cost for temporary protection of these spaces to be included in Hutchinson GMP.		X
G20 SITE IMPROVEMENTS			
G20 SITE IMPROVEMENTS	Site improvements.		X
G30 Liquid, Gas, & Site Utilities			
G30 Liquid, Gas, & Site Utilities	Re-route of existing underground utilities.		X

APPENDIX H

SOME PAGES HAVE BEEN REMOVED TO REDUCE FILE SIZE

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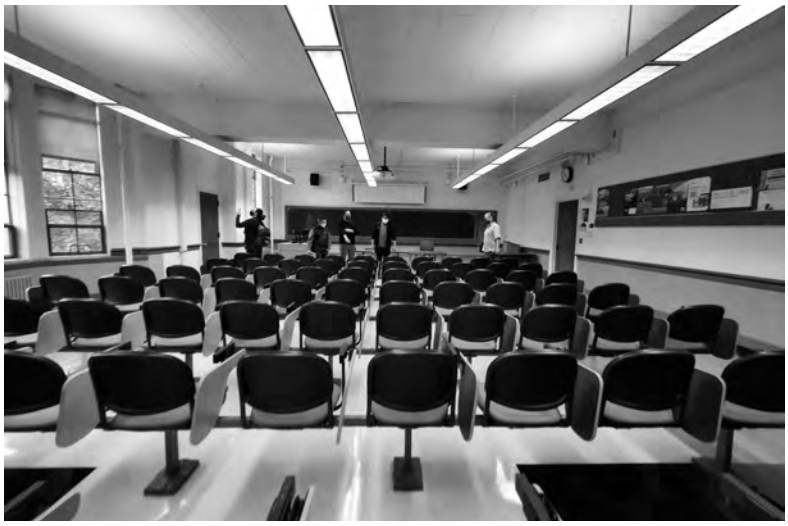


University of Washington

2021 Classroom Renewal Study

11 March 2021

UW Project No. 207367

3.
Project Costs + Phasing Options

3.1 Project Costs

Estimated Construction Cost (ECC)

Separate construction cost estimates were developed for each classroom based on the test-to fit plans found in the Appendix. These estimates can be used independantly or combined to create project phases or classroom groups when forming project funding requests. Approached as a menu of options, the resulting cost table is intended as a tool to building future funding requests.

The estimated construction costs for each classroom and sub-area were developed using measured quantities and the appropriate unit costs. A 20% design contingency is included to account for the concept level of design development and potential unknown or latent conditions. The assumed delivery method for these projects is traditional Design-Bid-Build (DBB). Each estimate includes appropriate contractor markups and profit values corresponding with the selected delivery method.

Total Project Cost (TPC)

The Total Project Cost (TPC) includes the estimated construction cost along with other soft costs required to complete the construction projects proposed. These soft costs include the design fees, taxes, permitting fees, construction contingency, project management fees, and the furniture and audio-visual system purchase costs associated with each project. Using historical data for similiar projects recently completed, the team determined that a construction cost multipler of 1.65 (165%) was appropriate at a planning level to account for these soft costs. This multiplier was used to generate the TPC associated with each classroom or phase.

BUILDING	NO. OF CLASSROOMS	RENOVATED SF	ECC	AVERAGE COST PER SF	TPC
Smith Hall	16	13,793	$ 4,286,300	$ 305	$7,072,000
Raitt Hall	4	2,388	$ 672,750	$ 282	$1,110,000
Art Building	4	3,280	$ 980,841	$ 299	$1,618,000
Music Building	4	851	$ 650,462	$ 335	$1,073,000
			$ 6,590,353		**$10,874,000**

Figure 3-1 Overall Construction Cost showing soft costs multiplier

CLASSROOM	AREA (SF)	CONSTRUCTION COST	COST PER SF	FURNITURE COST	AV COST	PROJECT COST
SEMINAR						
SMI 109	346	$ 119,035	$344	$11,132	$ 6,000	$ 196,000
SMI 111	364	$ 114,624	$315	$11,132	$ 6,000	$ 189,000
CLASSROOM						
SMI 105	671	$ 174,281	$257	$28,304	$12,000	$288,000
SMI 107	582	$ 161,955	$268	$22,296	$12,000	$ 267,000
SMI 115	812	$ 217,552	$268	$35,894	$12,000	$ 359,000
SMI 305	601	$ 157,231	$262	$25,300	$12,000	$ 259,000
SMI 307	529	$ 178,699	$338	$22,296	$12,000	$ 295,000
SMI 309	476	$ 155,617	$327	$22,296	$12,000	$ 257,000
SMI 311	543	$ 143,433	$266	$22,296	$12,000	$ 237,000
SMI 313	526	$ 150,585	$286	$22,296	$12,000	$ 248,000
SMI 404	762	$ 153,843	$202	$32,068	$12,000	$ 254,000
SMI 405	633	$ 168,732	$267	$28,304	$12,000	$ 278,000
SMI 407	691	$ 169,714	$246	$25,300	$12,000	$ 280,000
LECTURE HALL						
SMI 102	1130	$ 347,888	$308	$6,798	$30,000	$ 574,000
SMI 304	1088	$ 319,287	$294	$6,515	$30,000	$ 527,000
SMI 120	2731	$ 1,259,089	$459	$8,316	$90,000	$ 2,368,000

Figure 3-2 Smith Hall detailed construction cost table. *IT Rooms and Restrooms are not shown on detail sheet, but are included in total cost

CLASSROOM	AREA (SF)	CONSTRUCTION COST	COST PER SF	FURNITURE COST	AV COST	PROJECT COST
SEMINAR						
MUS 212	388	$141,590	$365	$15,939	-	$ 234,000
CLASSROOM						
RAI 107	467	$ 121,779	$261	$17,204	$12,000	$ 201,000
RAI 109	459	$ 128,805	$281	$17,204	$12,000	$ 216,000
RAI 116	502	$ 127,863	$255	$17,204	$12,000	$ 211,000
ART 004/006	1090	$ 309,935	$284	$36,147	$30,000	$ 511,000
ART 317	700	$ 166,932	$238	$28,304	$12,000	$275,000
MUS 216	450	$ 157,720	$351	$17,204	-	$ 260,000
MUS 219	445	$ 157,107	$353	$17,204	-	$ 259,000
MUS 223	661	$ 194,036	$294	$28,304	-	$ 320,000
LECTURE HALL						
RAI 121	955	$ 294,303	$307	$6,798	$30,000	$ 468,000
ART 003	1480	$ 503,973	$338	$6,798	$30,000	$ 932,000

Figure 3-3 Art, Music, and Raitt Hall detailed construction cost table.

The estimated construction cost and total project costs by building for the rooms included in the study is shown in Figure 3-1. Individual classroom construction costs, estimated furniture and AV costs, and total project cost are shown in Figures 3-2 & 3-3.

Escalation

Cost escalation, including inflation, and fluctuations in the construction climate due to demand or other factors are difficult to predict and are not included in the estimated constuction cost or project budgets in this study. The impact of COVID on the economy in particular has significantly added to this uncertainty. As a result all costs are in 2021 dollars, and do not include escalation. When this study is revisited for funding allocation, an appropriate escalation factor must be added by the Owner to account for escalation relative to the estimate baseline.

Furniture Fixtures and Equipment

Furniture, fixtures and equipment (FF&E) costs were also evaluated by the study team, and are included in Figure 3-2, 3-3, and in the Appendix. Like the construction cost estimates, these costs were developed using the actual planned room layout, capacity and AV systems. These soft costs are assumed to be within the 1.65 TPC multiplier, but are included here for future use in the development of individual project or phase project budgets. Note that fixed furniture is assumed to be procured by the general contractor, and is included in the construction cost estimate for the lecture halls.

CLASSROOM	DESCRIPTION	CONSTRUCTION COST	COST DELTA
Smith Hall Level 1	Combine rooms for 14 classrooms at 820 capacity	$ 469,769	$ 14,000
Smith Hall Level 3	Combining rooms 14 classrooms at 820 capacity	$ 832,991	$ 47,000
Smith Hall 120	Deduct dedicated cooling, insulation, and equipment (SMI 120 only)	$ 176,000	$ (176,000)
Raitt Hall Room 107/109	Combining rooms for 3 classrooms at 135 capacity	$ 247,604	$ (3,000)
Art Building, Alternate Room 004	Two separate rooms for 4 classrooms at 140 capacity	$ 174,285	$ 19,000
Art Building, Alternate Room 006	Two separate rooms for 4 classrooms at 140 capacity	$ 174,366	$ 19,000

Figure 4-1 Design alternate cost impacts

PROJECT	YEAR	CONSTRUCTION COST	AREA	COST PER SF
Smith Hall 205 & 211	2020	1,240,700	2,630sf	$470/sf
Bagley Classrooms (all)	2020	1,364,900	2800sf	$487/sf
Loew Hall Classrooms 2	2019	$443,240	2,262sf	$196/sf
Bagley 131	2017	$1,502,720	3,235sf	$464/sf
Loew Hall Classrooms 1	2017	$226,230	2,250sf	$100/sf
Mary Gates Hall 295	2017	$180,600	1,185sf	$152/sf

Figure 4-2 Construction cost comparison of previous classroom TI's at the UW, including change orders

Alternates

Several alternates were developed as described above and as shown in the attached project documents. These alternates included evaluation of combining classrooms in some areas to increase capacity, and looking at cooling system costs for SMI 120. Construction costs for each alternate were developed using the same method and unit prices used for the base construction costs. Figure 4-1 summarizes the construction cost difference for each additive or deductive alternate.

3.2 Project Phasing

Project Groupings

It is unlikely that all of the classroom upgrade projects will be undertaken simultaneously. Classroom upgrade projects can be grouped together in a logical manner to align with the allocated funding, to streamline design, construction and permitting efforts, and to minimize consruction impacts on other adjacent occupied spaces. The study team evaluate the projects using these factors and developed five project groupings based on proximity, priority and an assumed annual capital budget allocation of $2-3 million for classroom upgrades. Figure 3-4 shows one potential order and annual outlay cost schedule. Figure 3-5 shows the project groupings in relation to each other and the construction mpact area associated with each grouping. Note that these costs are in 2021 dollars and do not include escalation.

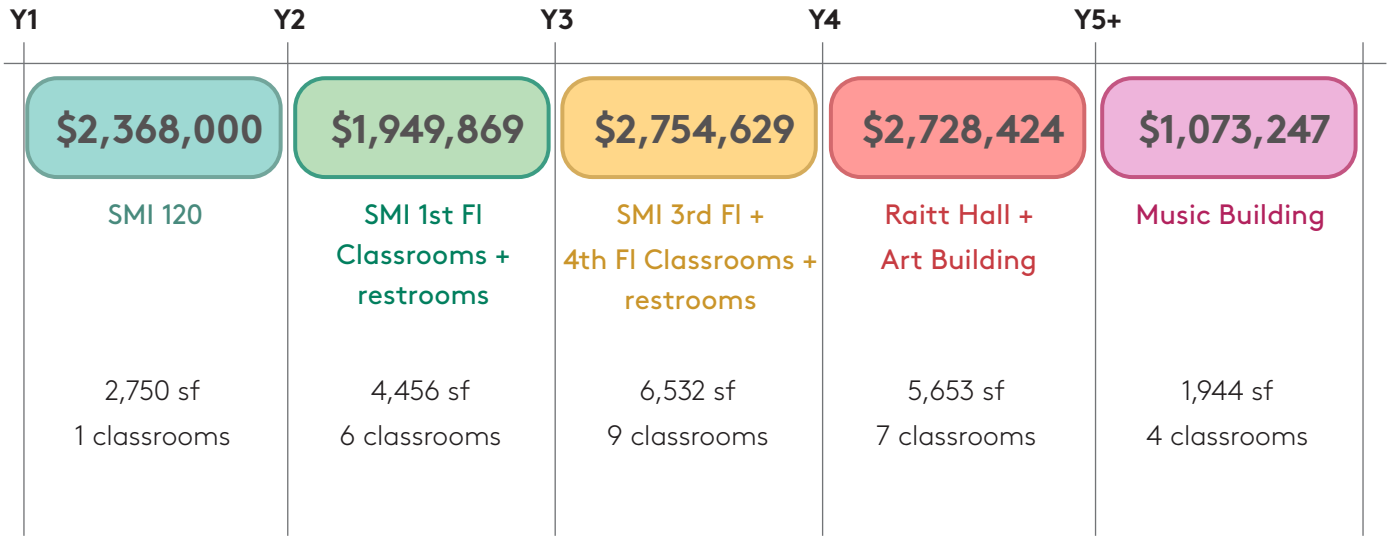
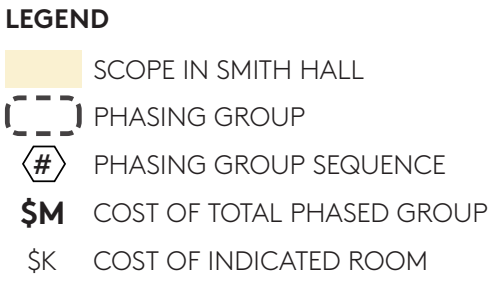


Figure 3-4 Chart showing phasing options over five years



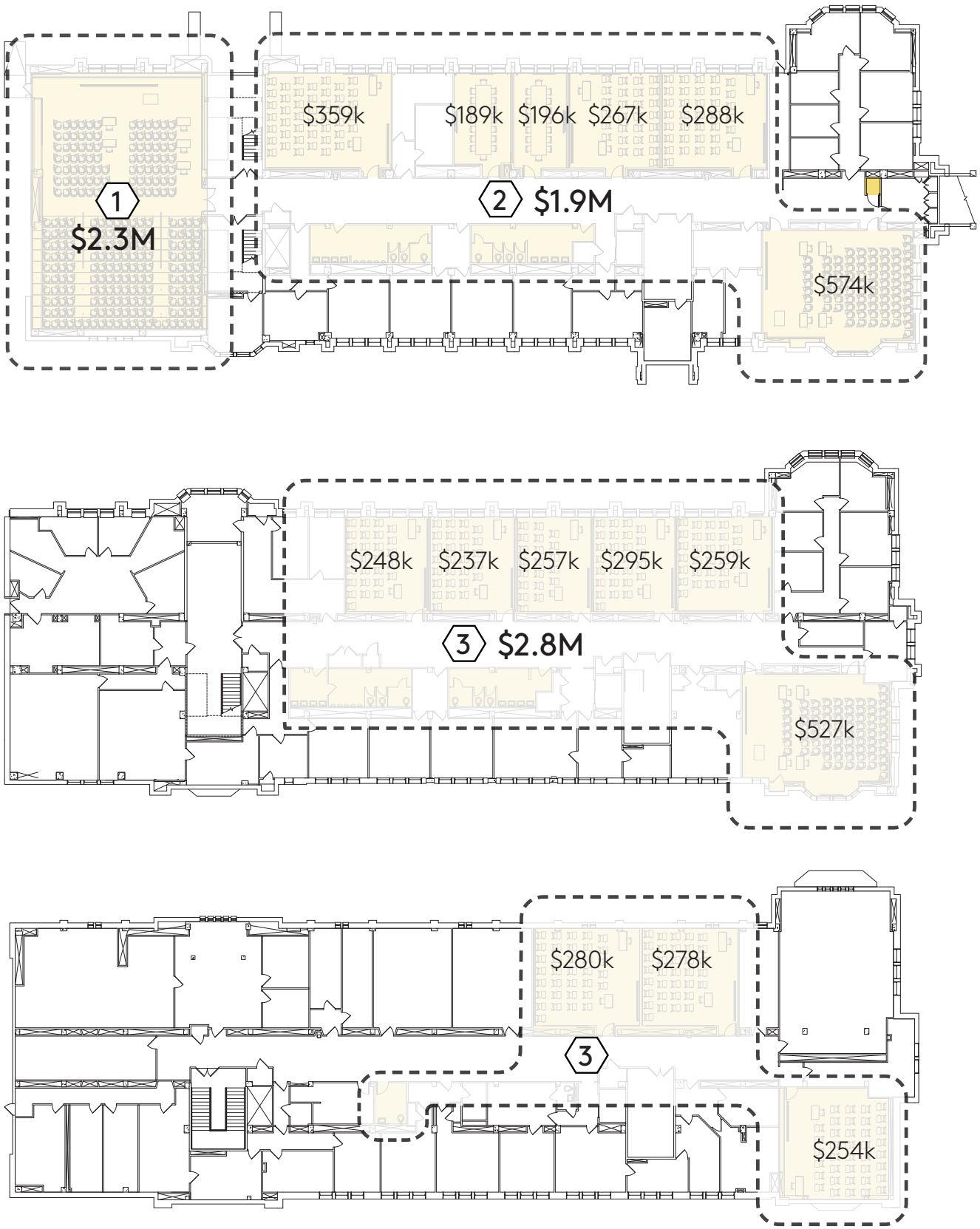


Figure 3-5 Phasing options overlaid on Smith Hall floor plans

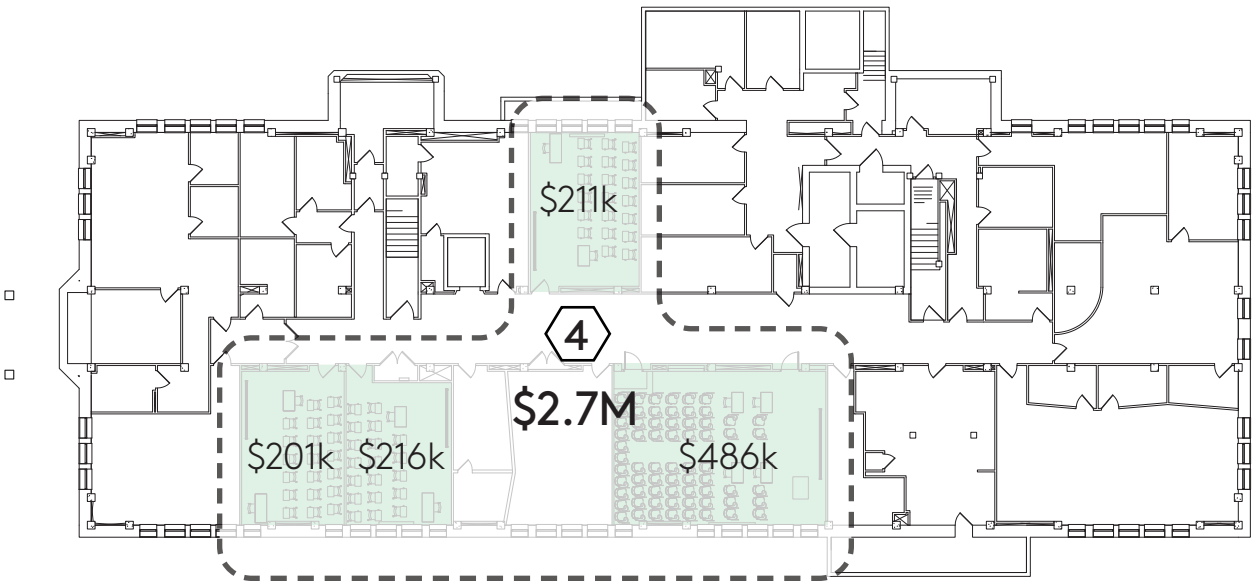


Figure 3-6 Phasing options overlaid on Raitt Hall floor plans

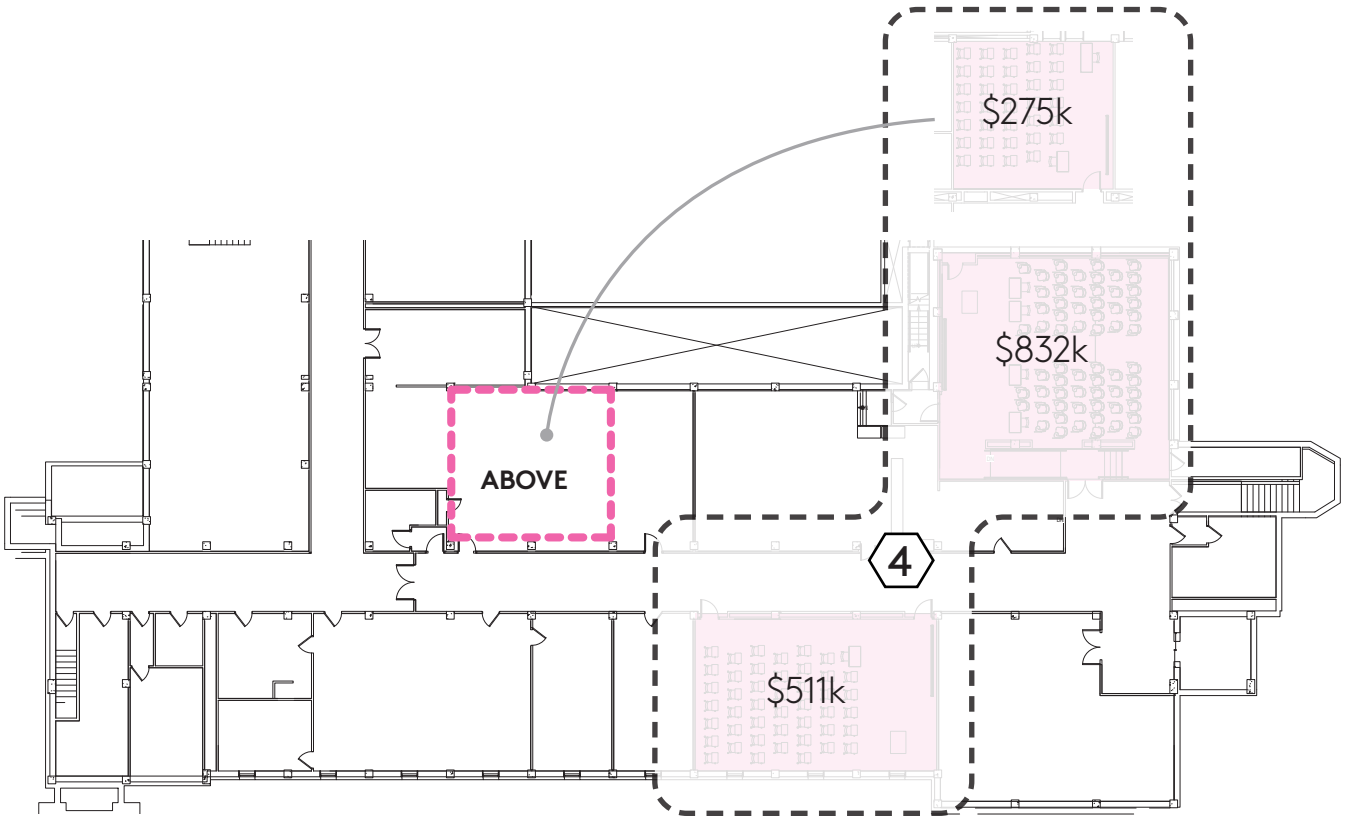


Figure 3-7 Phasing options overlaid on Art Building floor plans

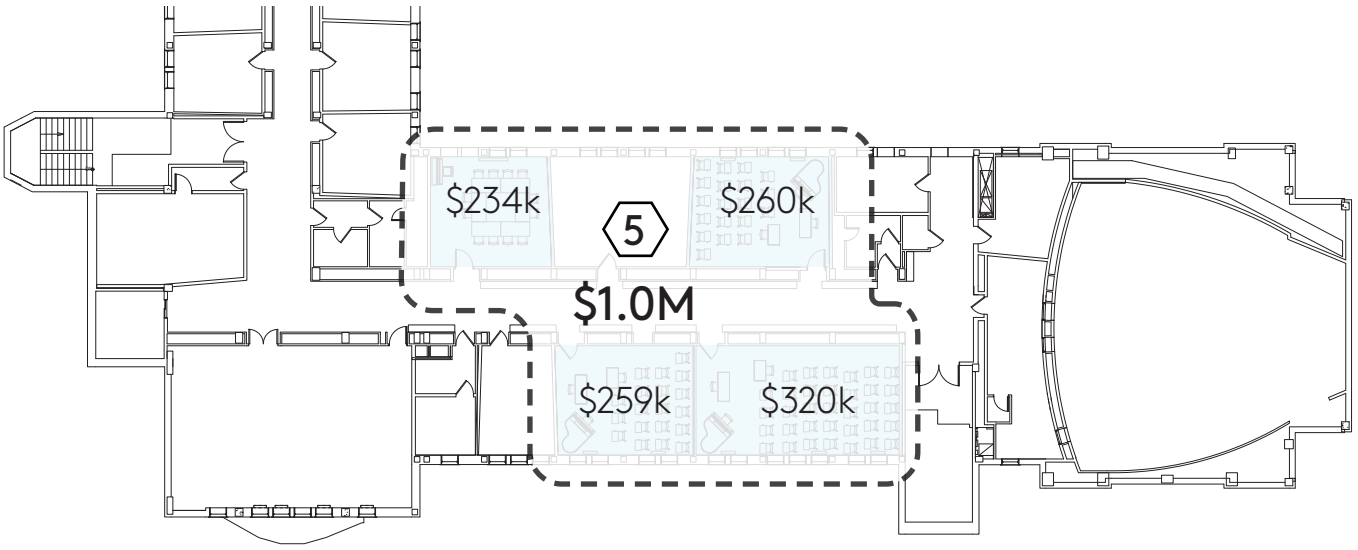


Figure 3-8 Phasing options overlaid on Music Building floor plans

LEGEND

- SCOPE IN RAITT HALL
- SCOPE IN THE ART BUILDING
- SCOPE IN THE MUSIC BUILDING
- PHASING GROUP
- (#) PHASING GROUP SEQUENCE
- **$M** COST OF TOTAL PHASED GROUP
- $K COST OF INDICATED ROOM