UTAH SYSTEM OF HIGHER EDUCATION

Dedicated Capital Development Project Request

2023 General Session Authorization for Fiscal Year 2024

Weber State University
Engineering Technology Building Renovation – Phase II

New space	0
Remodeled space	34,866
Total Project space	34,866
Demolished space	0

Project Cost	$8,298,958
Anticipated Dedicated Funds	$8,298,958
Other Funds	0

Describe source and amount of other funds; attach letter(s) of commitment from donors that cite timing and amount of any donations

Institutional reserves, State Capital Improvement, and Energy Savings Reserves were used to cover the entire the first phase of this renovation. Dedicated development funding is needed to fund this critical second phase.

☐ **Letter(s) of commitment attached**

Threshold requirements for capital projects: refer to R741-4 for instructions; ensure criteria are fully addressed

1. Cost Effective and Efficient Use of Resources

The renovation will preserve the structure and exterior of the facility as well as the basic floor plan layout. This will save several million dollars over the cost of a new facility. It will also remove several million from our deffer maintenance program. The new systems currently planned for the space were also evaluated using the total cost of ownership. The systems will reduce the operating and maintenance cost and help the institution become carbon neutral.

2. Consistent with Institutional Role, Mission, and Master Plan

The Utah State Board of Regents has approved four new degrees that will be housed within thecollege:i. Masters Degree – Computer Science ii. Masters Degree – Electrical Engineering iii. Bachelor of Science – Mechanical Engineeringiv. Bachelor of Science – Manufacturing

Systems EngineeringScience, Technology, Engineering and Math (STEM) programs fuel the economic engine for much of northern Utah. With Hill AFB and its highly technical missions such as supporting the F-35 and ICBM programs, as well as other aerospace and scientifically related industrial giants like ATK, Boeing and other technical based firms increasing their presence in the area, the demand for engineers and engineering technicians can simply not be satisfied. This need forhighly trained technically qualified employees is particularly acute in electrical and computer engineering and in the technicians who support the engineers. Currently, Utah companies have to import people skilled in these areas because the entire higher education system in the state cannot support the demand. According to Department of Workforce Services analysis, the college satisfies the most critical industry needs of software engineering, electrical engineering,and mechanical engineering and technology. This project will help redress that deficiency and allow Weber State University to educate highly skilled people who can fill highly compensated positions in these technical areas. Keeping these jobs in Utah helps the economy, improves the tax base, raises the overall standard of living, and improves Utah's competitive position in the world. The newly added Electrical Engineering Program has already produced 120 graduates. 115 of those graduates are currently employed as EE's; 109 of them in Utah:i. 49 Employed at HAFBii. 12 Employed at BAE Systemsiii. 11 Employed at Northrop Grummaniv. 8 Employed at L-3

3. Fulfillment of a Critical Institutional Need

Converting our critical academic buildings into modern, carbon neutral ready, highly effective and efficient buildings is a core strategic goal of the university. Engineering Technology is one of the oldest facilities that has not seen a major renovation since it was constructed 45 years ago. This project meet two critical needs of the institution. First, it updates antiquated spaces for new and modern programs, bringing critical programs into the 21st century. Second, the building will be converted to a carbon neutral ready mechanical and electrical systems and connect to new ground source geothermal condenser loops. EAST is one of the largest colleges at Weber State University, both in terms of students enrolled and with declared majors, and in terms of the amount of building space required to support their programs. The college is laboratory intensive and is severely overcrowded in their existing laboratory spaces. There is no room remaining for adding equipment or faculty and staff. Enrollment in the electrical and computer engineering programs is growing rapidly, reflecting the high demand for these skills and the higher compensation that can be expected. Overall, declared majors in EAST have grown from 1809 FTE in 2007 to 2479 FTE in 2017. Computer Science has grown from 203 FTE in 2007 to 1176 FTE in 2017. The electrical engineering program, which was only started in 2010, had already grown to 82 FTE by 2017. Growth in all of these programs has been accelerating each year. Between 2014 and 2016 the college experienced the greatest growth of graduates by both amount and percentage of any engineering college in the state.

Clear Form

FY2024 Capital Development Project Request and Needs Statement

State agencies complete pages 1-10 (blue headings). Higher Education institutions complete entire document. Please keep answers brief.

1 - GENERAL PROJECT INFORMATION

Request Type:

- ☐ State Funded (Not Higher Ed)
- ☐ Non-state Funded
- ☐ Non-state Funded with O&M Request
- ☐ Land Bank
- ☑ Dedicated State Funded (Higher Ed ONLY)
- ☐ Non-dedicated State Funded (Higher Ed ONLY)

Agency/Institution: Weber State University

Project Name: Engineering Technology Building Renovation - Phase II

Agency/Institution Priority: 1

2 - PROJECT SCOPE

New Space Constructed (GSF): 0

Remodeled Space (GSF): 34,866

Total Project Space (Gross Square Feet):

Space to be Demolished (GSF): 0

Types of Space (describe the types and amounts of space proposed to meet the programmatic requirements)

Engineering Tech's mechanical and electrical inforstructure are in need of replacemnet. The engineering tech building was built in 19-- as we look to bring this building to cuurent campyus standards that will last the next 40 years. this remodel would include new water cooled VRF mechainical system. New updated electrical devices and conductors including panels and breakers. we will be updating the painting of coridors and windows to meet new energy codes.

3 - CAPITAL FUNDING

Preliminary Cost Estimate: $ 8,298,958

Previous State Funding: $ 0

(Funding previously provided for the project such as planning, land purchase, etc.)

Other Sources of Funding: $ 0

Is the Funding in-hand?

(Other sources of funding such as donations, federal grants, institutional funds, and debt. If debt is proposed for the project, identify the funding source for its repayment)

FY2024 Requested Funding: $ 8,298,958

Debt Repayment Source

Other buildings of similar size and function:

Name	Location	Ft^2	Year Built	Construction Cost	Cost per Ft^2
Phase 1 Engineering Technology renovation	Ogden Campus	40,000	2022	$ 9,339,840	$ 233
Stewart Library remodel	Ogden, Campus	159,062	2017	$ 21,800,000	$ 137
Miller Administration remodel	Ogden Campus	43,094	2015	$ 5,200,000	$ 121

Capital Development Project Capital Budget Estimate (CBE)

Project Name:	**ET Phase 2 MEP upgrade**		
Project Type:	**Mechanical Upgrades**		
Agency/Institution:	**Weber State University (WSU)**		**Print Date**
Project Manager:	**Tim Parkinson**		**9/8/22**
Delivery Method:	**CMGC - Development**	**Project Location: Weber County**	

Cost Summary	**$/SF**	**Cost $ Amount**	**Notes**
Facility Cost	$183.27/SF	$ 6,389,746	
Additional Construction Cost	$0.00/SF	$ -	
Site Cost	$0.00/SF	$ -	
High Performance Building	$1.83/SF	$ 63,897	
Total Construction Cost	**$185.10/SF**	**$ 6,453,644**	

Soft Costs:	**$/SF**	**$ Amount**	**Notes**
Hazardous Materials		$ 537,381	
Pre-Design/Planning		$ -	
Design		$ 428,522	
Property Acquisition		$ -	
Furnishings & Equipment		$ 149,079	
Utility Fee Cost		$ -	
Information Technology:		$ 100,031	
Utah Art (1% of Construction Budget)		$ -	
Testing & Inspection		$ 79,745	
Contingency	6.7%	$ 432,394	0.0% New @ 0% 100.0% Remodel @ 6.7%
Moving/Occupancy		$ 51,629	
Builder's Risk Insurance (0.15% of Construction Budget)		$ 9,680	
Legal Services (0.05% of Construction Budget)		$ 3,227	
DFCM Management		$ -	
User Fees		$ -	
Commissioning		$ 39,939	
Other Costs		$ 13,686	
Total Soft Costs	**$52.93/SF**	**$ 1,845,314**	
Total Project Cost	**$238.02/SF**	**$ 8,298,958**	
Previous State Funding		**$ -**	
Other Funding Sources (Identify in note)		$ -	
REQUEST FOR STATE FUNDING		**$ 8,298,957.77**	

Project Information

Base $/SF Cost Date - (Date Escalation Begins): 09/01/2022
Estimated Final Bid Date (Date Escalation Ends): 04/01/2023
Estimated Substantial Completion Date: 12/01/2023
Date Last Modified 08/31/2022

OFFICIAL UTAH DFCM CBE FORM V2.0 Last Revision: 07-27-2022

4 - ONGOING OPERATING BUDGET FUNDING

Existing State-funded O&M	$ 475,399
Increase in State-funded O&M	$ 339,721
New Total State-funded O&M	$ 815,120

1. If applicable, describe all alternate proposed sources of O&M funding (fees, tuition, usage charges, etc.).

N/A

2. Is the requestor seeking ongoing state funding such as O&M and future capital improvement funding? If so, please justify.

Yes, Weber State is seeking continued support of state O&M and capital improvement funding. The Engineering Technology building is one of the College of Engineering, Applied Science & Technology core academic buildings. Thousands of students take classes in this building everyday. This facility meets every definition for an E&G or Educational & General Use space. It has received state funding for O&M since it was first built in 1977. The increase in O&M proposed with this project will allow for additional personnel to maintain the advanced control, security, and AV systems that will be part of the renovation project.

3. Other than the state requirement to comply with the DFCM high performance building standard, describe any other strategies that you plan to employ in the facility that will make its operation more efficient.

The renovated building is being designed with the following elements or strategies in order to make the building as efficient as possible: existing windows will be removed and replaced with high efficient double or triple pane windows, all LED lighting throughout, demand based ventilation, occupancy sensors, heat pump based heating and cooling systems connected to the campus ground source thermal loop.

New Program Costs $ 0

4. Describe the **new or expanded programs and services** that will result if the project is funded and provide a brief description of the additional program costs, required FTEs, and anticipated funding sources below. This should include any operating budget increases required, other than O&M, in order to operate the programs that will be housed in the requested facility. If this request will make that existing state space available for alternate uses, the above estimate should also include the estimated cost of new or expanded programs and services that will be housed in the vacated space.

No new program costs are expected for this renovation. The academic programs supported in this facility are well established and stable. The intent of this project is to renovate the building, bring it up to current building code requirements, and assure its continued efficacy for the foreseeable future.

New FTEs Required for O&M Programs **O&M** 3 **Programs**

CALCULATION OF O&M FUNDING FOR FY 2024 STATE-FUNDED PROJECTS

Institution: Weber State University

Project Name: Engineering Technology Renovation, Phase I & II

GSF of Project	Sq. Ft.	Rate Per Sq. Ft.*	Total Amount
New Space to be Added			
Type of Space			
Classroom/Office		$ 8.33	$ -
Libraries/Student Centers		$ 7.72	$ -
Service/Shops		$ 6.13	$ -
Labs		$ 12.75	$ -
Physical Education		$ 7.70	$ -
Subtotal - New Space	-	#DIV/0!	$ -
Space to be Remodeled			
Type of Space			
Classroom/Office	47,022	$ 9.25	$ 434,954
Libraries/Student Centers		$ 8.58	$ -
Service/Shops	1,919	$ 6.81	$ 13,068
Labs	25,925	$ 14.16	$ 367,098
Physical Education		$ 8.55	$ -
Subtotal - Remodeled Space	74,866	10.89	$ 815,120
TOTAL GSF of Project	74,866	$ 10.89	$ 815,120
Less Current O&M for Space Remodeled/Deleted Where Applicable**	74,866	$ 6.35	$ 475,399
Net Funding Request			$ 339,721

Explanation/Description:

This project request is request updated O&M funding for the entire Engineering Technology Building while the project funding request is only asking for the second phase of the construction dollars. The fiirst phase was completed with state capital improvement dollars and institutional funding.

INSTRUCTIONS: Completion of this form is required for all state-funded projects to address questions raised by the Legislature and the O&M audit conducted by the Office of the Legislative Auditor General.

* Authorized Building Board Rates for FY 2023

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The rate to be used for deduction of the amount applicable to remodeled/deleted space is the FY 2020 calculated actual average cost per square foot reported on Budget Form S-2 of the FY 2021 Budget Request documents.

5 - EXISTING FACILITY

Existing Space (square feet) Currently Occupied 74,866

1. Is the existing facility owned or leased and why is it not able to meet your needs?

This facility is owned by the university. It is not able to meet our needs due to the age of the systems that support the academic mission. The mechanical, electrical, and life safety systems are original to the building and are now almost 45 years old, well past their expected life. The domestic water system in the building is galvanized and is failing. This causes many frequent leaks and brown, rusty water for the occupants. The teaching spaces are reflective of the late 70's era classroom and need to be updated to teach the current and future students. The labs in the building do not reflect current manufacturing or engineering technology that is critical for our student to learn before entering the workforce.

2. Describe the future use of the existing facility. Include functions to be served, costs of remodeling or expansions as well as the amount of deferred maintenance and code compliance that will need to take place in the existing facility to enable it for continued use. Additionally, describe how you intend to fund it.

The remodeled Engineering Technology Building will continue to house portions of the College of Engineering, Applied Science Technology. This college includes the departments of Electrical Engineering, and Building Sciences, Manufacturing & Systems Engineering, Mechanical engineering. Teh labs in the building will include plastic composites, welding, metal forming and forging, automation, and instrumentation labs. The renovated spaces will predominantly include improved classrooms, hands-on lab spaces, and faculty offices. All mechanical, electrical, and plumbing systems will be replace with new updated and energy efficient systems. This renovation will eliminate $1,893,000 in deferred maintenance that our current asset management program is tracking.
No donor funding has been identified for this project. The request to the state if for 100% of the cost of the project.

6 - PROJECT EXECUTIVE SUMMARY

Use this section to provide a detailed justification of why the project is needed. Please address the following questions:

1. Describe the purpose for and scope of the project in detail, including all programs and services to be offered in the proposed facility.

For close to 45 years, the Engineering Technology Building has been a heavily used classroom and lab building on the Ogden Campus. The building is in critical need of renovation and upgrade to meet industry demands for an educated workforce. The systems in the building, while meticulously maintained, are well past their expected life and starting to fail. The teaching spaces do not reflect modern teach or learning styles. WSU has already funding the first phase of this renovation and it will be complete by September of 2022. The remaining 46% of the building still needs to be funded and renovated.

The renovated Engineering Technology Building will continue to partially house the collage of EAST(Engineering, applied science technology). Additionally, space will be allocated to create a new home for our technology support teams. The renovated spaces will predominantly include improved classrooms, labs, and faculty and staff offices. These classrooms and labs will be "right-sized" in order increase building utilization and maximize the number of student and class section we can teach in the space. The renovated building will also include new student gathering and study spaces that the current building lacks.

The scope of the project will include demolishing all mechanical, electrical, and plumbing systems. A portion of the layout will be changed to accomodate update programming and higher utilization.
New high efficient mechanical, electrical, and life safety system can then be installed to create a building that will help the university towards its 2040 carbon neutral goal. The renovated spaces will also be equipped with modern AV and technology that allows for distance learning and socially distant interaction.

6 - PROJECT EXECUTIVE SUMMARY

2. Summarize specific numbers regarding the anticipated users of the building and square footage. How many years after the competion of the building would the building be at max space utilization capacity? The space utilization plan should account for 10 years of growth within the facility (not the campus as a whole). Once constructed, how many years until it reaches full utilization?

The college of EAST is the fastest growing college at the university and has seen The renovated space will provide updated classroom and labs. These classrooms and labs will be sized with appropriately for the the types of classes held in order maximize the use of space and minimize empty seats. Upper division classes with fewer students will be have spaces designed for more one on one interaction with faculty and more hands on learning in labs. These spaces are critical of learning and developing new modern technologies that will improve and migrate into the workplace.

The Engineering Technology building has been well utilized for many years. The classroom and lab usage averages were just below USHE targets. The utuilizatiion will increase with new and better space but all growth needs will be accommodated through new space in the Noorda Engineering Building.

3. Has this request been submitted in previous years? If so, describe any and all changes that have been made to this request since previously being submitted.

This is the first year that Weber State has submitted this project for dedicated development consideration. Phase 1 of this ET remodel project was funded by State CI and Institutional funds.

4. Describe the various populations or constituencies served and how they will benefit. Estimate any increases in program capacity that will result if this request is funded (e.g. number of FTE students taught, prisoners housed, court cases handled, etc.).

The primary programs users of this facility are Manufacturing & Systems Engineering and Electrical & Computer Engineering. Technology in each of thee departments has changed greatly in the past 45 years since the building was designed and built. The need to integrate and accommodate new technologies that more accurately reflect the needs of industry is vital to our students and our industry partners. The more relevant these programs become, the higher the demand on these programs.

EAST is one of the largest colleges at Weber State University, both in terms of students enrolled and with declared majors, and in terms of the amount of building space required to support their programs. The college is laboratory intensive and is severely overcrowded in their existing laboratory spaces. There is no room remaining for adding equipment or faculty and staff. Enrollment in the electrical and computer engineering programs is growing rapidly, reflecting the high demand for these skills and the higher compensation that can be expected. Overall, declared majors in EAST have grown from 1809 FTE in 2007 to 2479 FTE in 2017. Computer Science has grown from 203 FTE in 2007 to 1176 FTE in 2017. The electrical engineering program, which was only started in 2010, had already grown to 82 FTE by 2017. Growth in all of these programs has been accelerating each year. As shown in the graph below, between 2014 and 2016 the college experienced the greatest growth of graduates by both amount and percentage of any engineering college in the state.

The Utah State Board of Regents has approved four new degrees that will be housed within the college:
i. Masters Degree – Computer Science
ii. Masters Degree – Electrical Engineering
iii. Bachelor of Science – Mechanical Engineering
iv. Bachelor of Science – Manufacturing Systems Engineering
Science, Technology, Engineering and Math (STEM) programs fuel the economic engine for much of northern Utah. With Hill AFB and its highly technical missions such as supporting the F-35 and ICBM programs, as well as other aerospace and scientifically related industrial giants like ATK, Boeing and other technical based firms increasing their presence in the area, the demand for engineers and engineering technicians can simply not be satisfied. This need for highly trained technically qualified employees is particularly acute in electrical and computer engineering and in the technicians who support the engineers. Currently, Utah companies have to import people skilled in these areas because the entire higher education system in the state cannot support the demand. According to Department of Workforce Services analysis, the college satisfies the most critical industry needs of software engineering, electrical engineering, and mechanical engineering and technology. This project will help redress that deficiency and allow Weber State University to educate highly skilled people who can fill highly compensated positions in these technical areas. Keeping these jobs in Utah helps the economy, improves the tax base, raises the overall standard of living, and improves Utah's competitive position in the world. Increasing space will increase enrollment capacity. The newly added Electrical Engineering Program has already produced 120 graduates. 115 of those graduates are currently employed as EE's; 109 of them in Utah:
i. 49 Employed at HAFB
ii. 12 Employed at BAE Systems
iii. 11 Employed at Northrop Grumman
iv. 8 Employed at L-3

5. Summarize your decision-making process that has led to this project request (e.g., construction of a new facility versus remodeling an existing building or a combination of build new and remodel existing). Discuss economic, functional, and programmatic considerations involved in your proposal.

For this project, the decision to renovate was an easy one for several reasons. First, we have recently completed many very successful renovations of a very similar buildings converting old HVAC & electrical systems to water cooled VRF Mechanical systems and LED lighting upgrades. This aligns with our carbon neutral goal. Second, the project will bring the building up to current codes and standards while saving the valuable structure and skin of the building. The renovation will extending the life of the building another 40 years but cost less than. Classrooms and labs will be rightsized to better utilization and brought up support modern learning for the next generation. Select interior and exterior architectural elements will also be replaced to enhance energy efficiency efforts. The combined work is expected to extend the building's service life by decades, creating a reinvigorated and valuable asset for the College and University while spending less than a new facility.

6 - PROJECT EXECUTIVE SUMMARY

6. Explain the degree of urgency for the project and your options and strategies should this facility not be funded, both in the interim and in the long term.

Phase 1 of this renovation is in the final stages of completion. It is critical to complete the second phase of the project and provide usable space for the growing college. The second phase includes critical machining and manufacturing labs that are in poor condition and unable to support modern technologies. If funding is not allocated this year, the university will continue to pursue state dedicated funding.

7 - FEASIBIILTY / PLANNING

Submit feasibility study (as outlined below) as an attachment to this document. The feasibility study **MUST** be prepared by a third party. Below, please include page numbers where corresponding information can be found within the feasibility study.

Feasibility Study Requirements:	**Page Number**
1. Include a table of contents within the feasibility study that includes the below sections and their associated page numbers.	2
2. Describe the need for the proposed building and the appropriateness of its proposed scope and size.	3
3. Detailed scope of the project to included:	
a. Space list outlining in detail the proposed square footage by space type such as office, classroom, conference rooms, auditorium / large meeting rooms, kitchen, laboratory (research or teaching), circulation, warehouse, shop lab, or other	4
b. Adjacency diagrams	6
c. Proposed floor plans	7
d. Proposed building elevations	8
e. Site plan options	n/a
4. Provide the ratio of assignable and net square feet to gross square feet.	4
5. Provide a detailed list including the justification for any unique elements or features considered to be out of the ordinary.	n/a
6. Provide an assessment of the potential to re-use existing or expand existing facilities to meet this need.	n/a
7. Provide justification for replacement of the existing facilities (if applicable) including what will be done with the existing facility such as sale, repurpose for another need, or demolition.	n/a
8. Provide justification for a new facility (if applicable).	n/a
9. Provide a space utilization study of existing and proposed space. Include the efficiency of the new space as compared to the existing space (include 5 - 10 year growth projections).	n/a
10. Identify expected building capacity percentage for the following intervals along with corresponding projected FTEs and student attendance (online students and faculty are not included):	
a. Time of completion	n/a
b. Three years after completion	n/a
c. Five years after completion	n/a
d. Ten years after completion	n/a
11. Explain how this facility and its functions correspond with your agency or institution's Strategic Plan and campus Master Plan. Indicate when your Strategic Plan and Master Plan were last updated.	n/a
12. Summarize the primary priorities or growth at your agency or institution and describe how the proposed facility will serve those needs.	n/a
13. Where applicable, describe the potential positive and/or adverse economic and community impacts of the project	n/a
14. Describe any special transportation considerations for this facility including parking, transit, and pedestrian requirements	n/a
15. Describe your efforts to work with the surrounding communities should this facility be approved; including impacts to traffic, pedestrian safety, security, noise, excessive night time lighting, etc.	n/a
16. Describe the extent that you have evaluated facility siting, including alternative sites where applicable, to include:	
a. Identification of location, size, and characteristics of the site, and estimated costs of any required environmental remediation	n/a
b. If the site is not owned by the State, address the availability and cost of purchasing the site and the results of any appraisals that have been performed. Agencies should work with DFCM's real estate staff in addressing potential purchases.	n/a
c. Provide a geotechnical report with a minimum of three borings in the proposed building site location that identify the soil classification for the building type unless waived by the DFCM director.	n/a
d. Explain any special soils preparation requirements or seismic conditions that could increase site and structural costs beyond those considered standard for your area.	n/a

7 - FEASIBIILTY / PLANNING

17. Describe the availability and capacity of utility services including IT for the proposed facility. Specify whether the utility services will be provided by municipal, private, or local campus centralized services. — 14

18. Show how the FF&E budget was arrived at. Provide the logic behind it. If applicable, identify any furnishings or equipment that will be re-used and moved from the current facility to the new location. — n/a

8 - FIVE-YEAR PLAN

Please list below the anticipated State-funded Capital Development projects planned for your agency/institution over the next five years. Include a short description/justification of each project and the approximate cost of the project.

Project #1 Name	Engineering Technology Renovation - Phase II	**Approx. Cost**	$ 8,314,650
Funding Source	Dedicated State Development Funding		
Description	Renovate the north half of the existing Engineering Technology building. This renovation will include all new mechanical, electrical, plumbing, and life safety systems as well as minor programmatic changes to the space. Phase I on the project, the south half of the building, is being funding with agency funds and state capital improvement dollars.		
Project #2 Name	Nursing & Health Administration Building	Approx. Cost	$ 50,000,000
Funding Source	State Development Funding & Donor Funding		
Description	In order to expand the ability to provide qualified health care workers to the state, Weber State must expand the capacity of their current programs. This will include a new Nursing and Health Administration Building.		
Project #3 Name	Browning Center for Performing Art Renovation	Approx. Cost	$ 43,000,000
Funding Source	State Development Funding & Institutional Energy Funding		
Description	The Browning Center is in need of a full mechanical, electrical, and plumbing renovation.		
Project #4 Name		Approx. Cost	
Funding Source			
Description			
Project #5 Name		Approx. Cost	
Funding Source			
Description			

9 - STATE SYSTEM OF HIGHER EDUCATION ADDITIONAL STATUTORY REQUIRED INFORMATION

As required by Title 63A-5-104 (2) (d) that an institution described in section 53B-1-102 that submits a request for a capital development project address whether and how, as a result of the project, the institution will:

1. Offer courses or other resources that will help meet the demand for jobs, training, and employment in the current market and the projected market for the next three, five, and ten years;

EAST is one of the largest colleges at Weber State University, both in terms of students enrolled and with declared majors, and in terms of the amount of building space required to support their programs. The college is laboratory intensive and is severely overcrowded in their existing laboratory spaces. There is no room remaining for adding equipment or faculty and staff. Enrollment in the electrical and computer engineering programs is growing rapidly, reflecting the high demand for these skills and the higher compensation that can be expected. Overall, declared majors in EAST have grown from 1809 FTE in 2007 to 2479 FTE in 2017. Computer Science has grown from 203 FTE in 2007 to 1176 FTE in 2017. The electrical engineering program, which was only started in 2010, had already grown to 82 FTE by 2017. Growth in all of these programs has been accelerating each year. Between 2014 and 2016 the college experienced the greatest growth of graduates by both amount and percentage of any engineering college in the state.

The Utah State Board of Regents has approved four new degrees that will be housed within the
college:
i. Masters Degree – Computer Science
ii. Masters Degree – Electrical Engineering
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Science, Technology, Engineering and Math (STEM) programs fuel the economic engine for much of northern Utah. With Hill AFB and its highly technical missions such as supporting the F-35 and ICBM programs, as well as other aerospace and scientifically related industrial giants like ATK, Boeing and other technical based firms increasing their presence in the area, the demand for engineers and engineering technicians can simply not be satisfied. This need for highly trained technically qualified employees is particularly acute in electrical and computer engineering and in the technicians who support the engineers. Currently, Utah companies have to import people skilled in these areas because the entire higher education system in the state cannot support the demand. According to Department of Workforce Services analysis, the college satisfies the most critical industry needs of software engineering, electrical engineering, and mechanical engineering and technology. This project will help redress that deficiency and allow Weber State University to educate highly skilled people who can fill highly compensated positions in these technical areas. Keeping these jobs in Utah helps the economy, improves the tax base, raises the overall standard of living, and improves Utah's competitive position in the world. Increasing space will increase enrollment capacity.
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2. Help meet commitments made by the Governor's Office of Planning and Budget, including relating to training and incentives;

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The Utah State Board of Regents has approved four new degrees that will be housed within the
college:
i. Masters Degree – Computer Science
ii. Masters Degree – Electrical Engineering
iii. Bachelor of Science – Mechanical Engineering
iv. Bachelor of Science – Manufacturing Systems Engineering
Science, Technology, Engineering and Math (STEM) programs fuel the economic engine for much of northern Utah. With Hill AFB and its highly technical missions such as supporting the F-35 and ICBM programs, as well as other aerospace and scientifically related industrial giants like ATK, Boeing and more.

10 - SPACE UTILIZATION EFFORTS

The programming document shall include all of the minimum requirements of the Feasibility Study.

This section demonstrates compliance with the Board of Higher Education approved space utilization standards
(Include the classroom and laboratory for now and then any future requirements for office and common area spaces).

1. Provide projected enrollment and/or employee growth specific to the requested building as well as for the institution as a whole (i.e. if the request is for a science building, provide enrollment growth for students in the science fields using the building as well as FTE growth in general for the institution). What is the estimated time frame for the building to reach full utilization?

EAST is one of the largest colleges at Weber State University, both in terms of students enrolled and with declared majors, and in terms of the amount of building space required to support their programs. The college is laboratory intensive and is severely overcrowded in their existing laboratory spaces. There is no room remaining for adding equipment or faculty and staff. Enrollment in the electrical and computer engineering programs is growing rapidly, reflecting the high demand for these skills and the higher compensation that can be expected. Overall, declared majors in EAST have grown from 1809 FTE in 2007 to 2479 FTE in 2017. Computer Science has grown from 203 FTE in 2007 to 1176 FTE in 2017. The electrical engineering program, which was only started in 2010, had already grown to 82 FTE by 2017. Growth in all of these programs has been accelerating each year. Between 2014 and 2016 the college experienced the greatest growth of graduates by both amount and percentage of any engineering college in the state.

11 - LAND BANK ACQUISITION REQUESTS

Requests for purchase of land from funds to be appropriated by the State Legislature for future use by an agency or institution will be evaluated based upon approved programmatic planning and facilities master plan requirements of the institutions.

General Considerations

Provide detail for the following considerations that will be taken into account in evaluation of these requests:

1. Provide the location and description of the property including any existing permanent structures.

11 - LAND BANK ACQUISITION REQUESTS

2. Provide current availability of the land and "time sensitivity" of the window of opportunity for its purchase.

N/A

3. Provide the intended use of the land and its relative importance in the context of the agency or institution's role and mission assignment and strategic plan for the future.

N/A

4. Where applicable, provide the suitability of the property for the intended use (ingress/egress, proximity of utilities, percentage of buildable area, geo-technical, etc.)

N/A

5. Provide reasonableness of the cost as determined by an appraisal or other reasonable estimate of the value of the land.

11 - LAND BANK ACQUISITION REQUESTS

6. Provide the condition of the land, including the potential liability of the institution pertaining to clearing the property, potential existence of hazardous waste, greenhouse gas emissions, etc.

N/A

7. If applicable, provide the condition and potential use of existing structures and describe what actions and incurred costs would be necessary to utilize existing structures.

N/A

12 - TECHNICAL COLLEGE STATUTORY REQUIREMENTS

State statute specifies that the State Building Board must determine that the requirements of UCA 53B-2a-112 have been met before it may consider a funding request from the Board of Higher Education pertaining to new capital facilities and land purchases. Please describe how this project has met the requirements outlined in UCA 53B-2a-112.

N/A

13 - PHOTOGRAPHS AND MAPS

Any photographs, other graphics justifying the project, and/or maps showing where the facility will be located should be attached to the end of this document and submitted electronically. These should help explain the project and justify why it should be funded.

14 - SCORING ANALYSIS FOR BOARD OF HIGHER EDUCATION CRITERIA

Please provide justification to aid the Board of Higher Education in applying Capital Development Priority Guidelines. See USHE policy R743 4.4 step 4 for detail requirements. This section only applies to state-funded project requests (dedicated or non-dedicated).

1. Cost-effectiveness and efficient use of resources

The renovation will preserve the structure and exterior of the facility as well as the basic floor plan layout. This will save several million dollars over the cost of a new facility. It will also remove several million from our deffer maintenance program.

The new systems currently planned for the space were also evaluated using the total cost of ownership. The systems will reduce the operating and maintenance cost and help the institution become carbon neutral.

2. Consistent with institutional role, mission, and master plan

Converting our critical academic buildings into modern, carbon neutral ready, highly effective and efficient buildings is a core strategic goal of the university. Engineering Technology is one of the oldest facilities that has not seen a major renovation since it was constructed 45 years ago. This project meet two critical needs of the institution. First, it updates antiquated spaces for new and modern programs, bringing critical programs into the 21st century. Second, the building will be converted to a carbon neutral ready mechanical and electrical systems and connect to new ground source geothermal condenser loops.

14 - SCORING ANALYSIS FOR BOARD OF HIGHER EDUCATION CRITERIA

3. Fulfillment of a critical institutional facility need

This project meet two critical needs of the institution. First, it updates antiquated spaces for new and modern programs, bringing critical programs into the 21st century. Second, the building will be converted to a carbon neutral ready mechanical and electrical systems and connect to new ground source geothermal condenser loops.

Engineering Technology Building Renovation

WSU Engineering Technology Building

Renovation Feasibility & Space Planning Report

April, 2021

WEBER STATE UNIVERSITY

GSBS ARCHITECTS

INDEX

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- Programming & Space Planning
- Building Plans – New & Comparison
- Architectural Narrative
- Structural Narrative
- Mechanical & Plumbing Narrative
- Electrical Narrative
- Cost Estimate
- Appendix – Electrical Drawings
- Appendix - WSU Owner Project Requirements

VISION

WSU's College of Engineering, Applied Science and Technology (EAST) is undergoing a physical transformation. Along with the design and construction of two new buildings, the Engineering Technology Building (ET) will be renovated to replace aged building systems and to reorganize space left vacant as the new buildings are occupied. The work is expected to improve the energy efficiency of the building by replacing the old and inefficient HVAC and lighting systems. Select interior and exterior architectural elements will also be replaced to enhance energy efficiency efforts. The combined work is expected to extend the building's service life by decades, creating a reinvigorated and valuable asset for the College and University.

SCOPE OF WORK

General

The renovation includes the complete replacement of HVAC systems, significant upgrades to electrical power distribution, limited envelope upgrades, and moderate interior renovation. Except for a few minor modifications, and the seismic restraint of new equipment, no structural work is included. Site work is also not generally anticipated.

Phasing

Two phases of construction are planned to reduce the project's impact on academic operations during the fall and spring semesters, and to allow for different funding options.

The building has two distinct mechanical rooms. The north mechanical room generally feeds both floors of the north side of the building and contains a tie-in to the campus-wide steam system. The south mechanical room services the south side of the building. The north-south division of systems, and the location of the steam system tie-in, dictate which areas are phased together and how the work is sequenced.

The first phase of work will address the south half of the building and will maintain the existing tie-in to the campus steam system. This will allow the north side to remain heated during the winter, between construction phases. The second phase will address the north half. In general, all mechanical, plumbing, electrical, and interior architectural elements on a side of the building will be addressed in the appropriate phase. The phasing of envelope improvements (aluminum storefront, overhead coiling shop doors, windows, etc.) is yet to be determined. Early phasing is preferred. The architectural plans, included in this report, visually articulate the division between phases of work.

Hazardous Materials Abatement

Assessments done for earlier work in the building confirm that lead and asbestos hazards are present. A more comprehensive study is currently underway through DFCM, but results are not yet available. Abatement operations will be required, and the cost and duration of this work should be considered in the next phase of planning and design.

SPACE PLANNING

A distinct planning effort was conducted with the following goals:

- Understand how vacated space in the building can be backfilled to enhance value to EAST and accommodate significant occupancy by WSU's Information Technology department.
- Improve classroom functionality.
- Enhance ADA compliance.

Since the initial programming effort in August 2019, WSU has further clarified who is expected to occupy the renovated space. Design of the two new buildings is also complete allowing full definition of the departments and spaces accommodated by those projects. The following space program reflects this new information. Dean Ferro and WSU's Information Technology leadership have provided input and validation of the results.

Floor plans of the existing and renovated ET building follow the space program. Many minor adjustments are made to existing components in order to accommodate new needs and improve the facility. The Architectural, Structural, Mechanical/Plumbing and Electrical sections include further discussion. The most significant changes in the plan, however, reflect a single, broad strategy to improve classroom functionality while enhancing ADA compliance. Areas with small, awkward, non-ADA compliant office groupings are renovated into larger and better proportioned classroom spaces. These larger classrooms better fit expected class sizes and allow for more efficient and flexible use of space. The displaced offices are relocated to better organized, ADA-compliant suites, primarily in the 1st floor south-east corner.

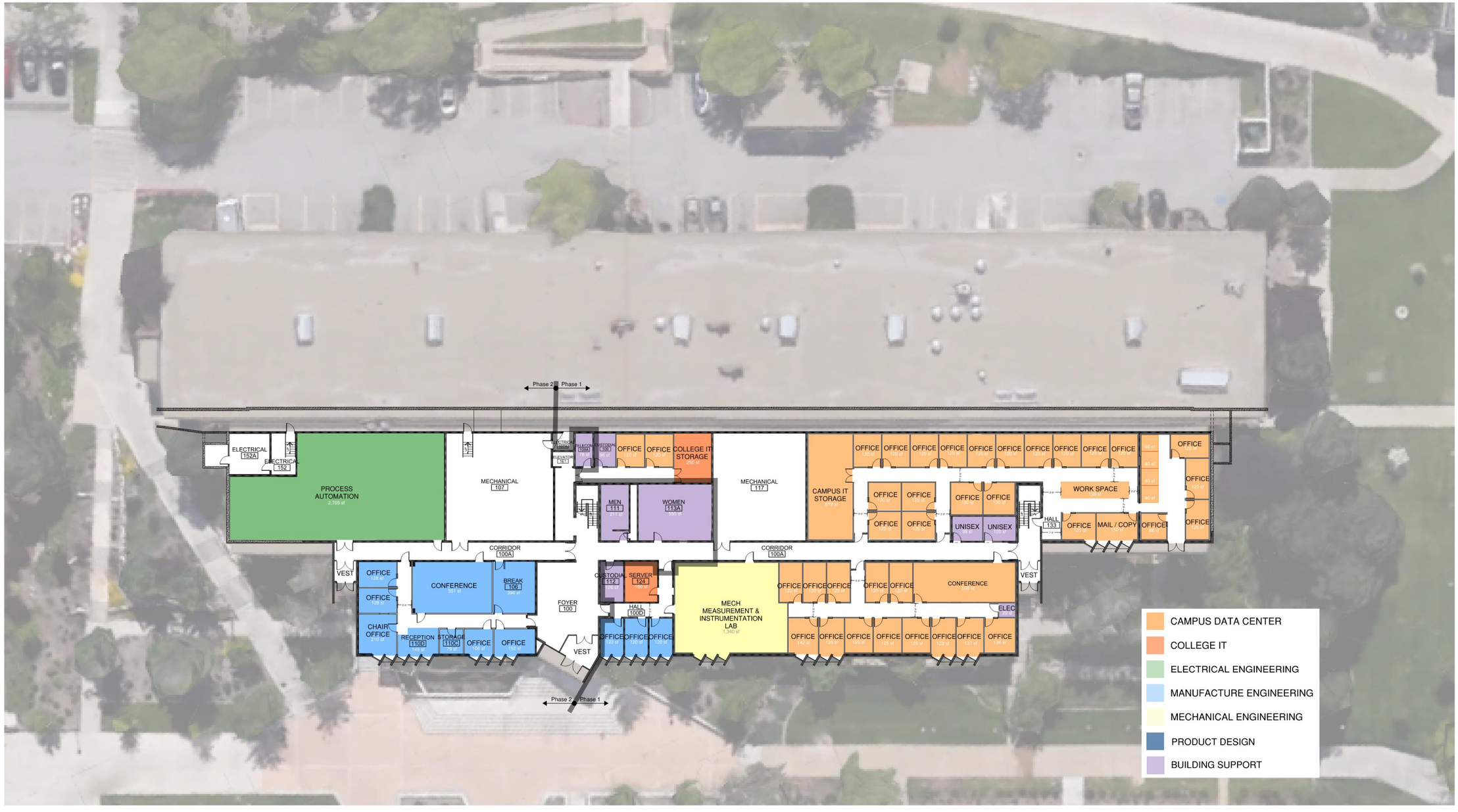
OFFICE & SUPPORT SPACES

(Colors coordinate to Floor Plans)

Dept.	Space Name	Sq. Ft.	Qty	Total Sq. Ft.
ET: MFET				
	Department Chair	150	1	150
	Faculty Offices	120	7	840
	Adjunct Faculty	40	2	80
	Reception / Admin	180	1	180
	Work Room	180	1	180
	Break Room	240	1	240
	Conference Room	250	1	250
		Department Total		1,920
ET: ELECTRICAL ENGINEERING TECH (EET)				
	Faculty Offices	120	10	1,200
	Adjunct Faculty	40	1	40
	Conference Room	250	1	250
		Department Total		1,490
CAMPUS DATA CENTER				
	Office	120	36	4,320
	Storage (Infrastructure)	600	1	600
	Work Space (Infrastructure	150	1	150
	Common Mail Room/copy room	120	1	120
	Dedicated Conference Room	500	1	500
		Department Total		5,690
		TOTAL OFFICE & SUPPORT		9,100

TECHNICAL & LEARNING SPACES
(Colors coordinate to Floor Plans)

Dept.	Space Name	Sq. Ft.	Qty	Total Sq. Ft.	Occup.	Existing Room #	Notes
ENG TECH: MFET SHOPS							
	Plastics and Composite Lab	4,620	1	3,617		235/239/245	
	Subtractive Manuf. Lab	7,260	1	7,260		201	
	Tool Crib	165	1	165		209	
	Flammable Storage	150	1	150		215	
	CNC Lab	1,320	1	1,320	18	203/243	
	Casting Lab	1,135	1	1,135		233	
	Metal Forming	2,475	1	2,475		231	
	Additive Manuf. Lab	990	1	817		207/235A/241	
	Industrial Controls Lab	660	1	660		230	
	Material Storage	330	1	330		213	
	Classroom	660	1	413	24	238	
	Senior Project Open Lab	263	1	263		211	
	Grinding	186	1	186		225	
	Control	118	1	118			
			Department Total	18,909			
ENG TECH: MFET LABS							
	Thermal Fluids / Hydraulics	1,320	1	1,320		230	MF has their robots in this space Includes Offices, tool room, grinding room, sen. Projects fab, rack& plasma cutting, CNC plasma cutting, welding
	Welding	4,500	1	4,500		219	booth area
	Welding Consumable Storage	330	1	183		221	
	Welding Storage Shed (ext)	1,320	0	-			Request New door
	Miller Electric Storage	330	1	330			
	Laser Welding Room	120	1	120		217	Secure room, two small pieces of equipment, shielded
	Gas Bottle / Manifold	330	1	330		229/227	
	Maintenance Shop	350	1	350		226	Includes Office, storage, work area
	Miller Welding Classroom	740	1	740	30	247	Tiered classroom, near welding
			Department Total	7,873			
ET: ELECTRICAL ENGINEERING TECH (EET)							
	Process Automation	2,640	1	2,640	24		Including Industrial Control Lab
	Electrical Circuit Lab	1,320	1	920	24	101A/101B	
			Department Total	3,560			
MECHANICAL ENGINEERING							
	Measurement & Instrumentation	1,320	1	1,320	24	120	EET Inst. Lab
	Classrooms	800	4	3,200	32	204/210	
			Department Total	4,520			
ENGINEERING: PRODUCT DESIGN							
	Computer Teaching Lab	1,320	2	2,640	30	126	
			Department Total	2,640			
COLLEGE IT							
	College IT Storage	250	1	250			
	College IT Work / Prep Space	200	1	200		124	
			Department Total	450			
			TOTAL OFFICE & SUPPORT	37,952			



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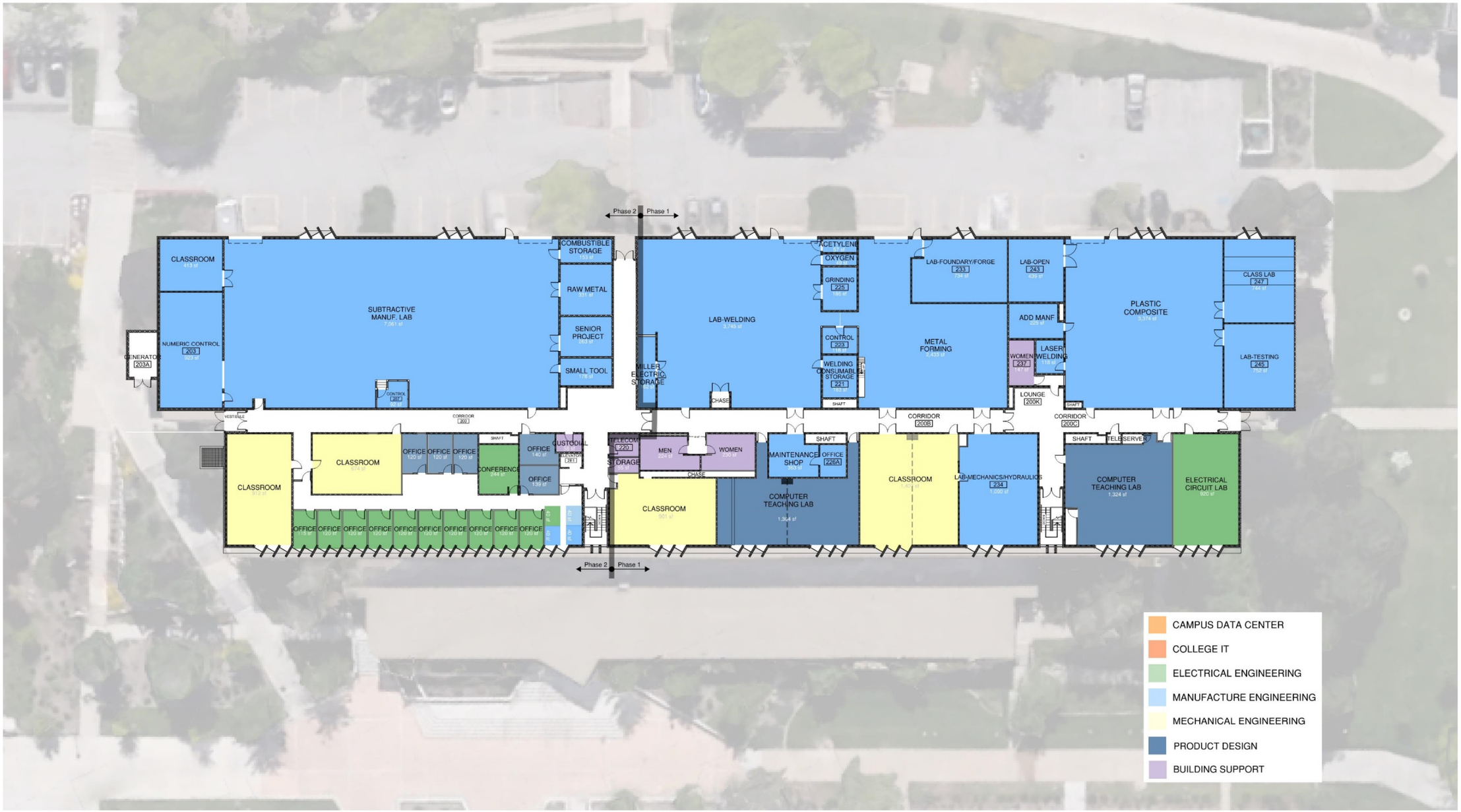
ENGINEERING TECHNOLOGY BUILDING RENOVATION | FLOOR PLAN - LEVEL 1

LEVEL 1



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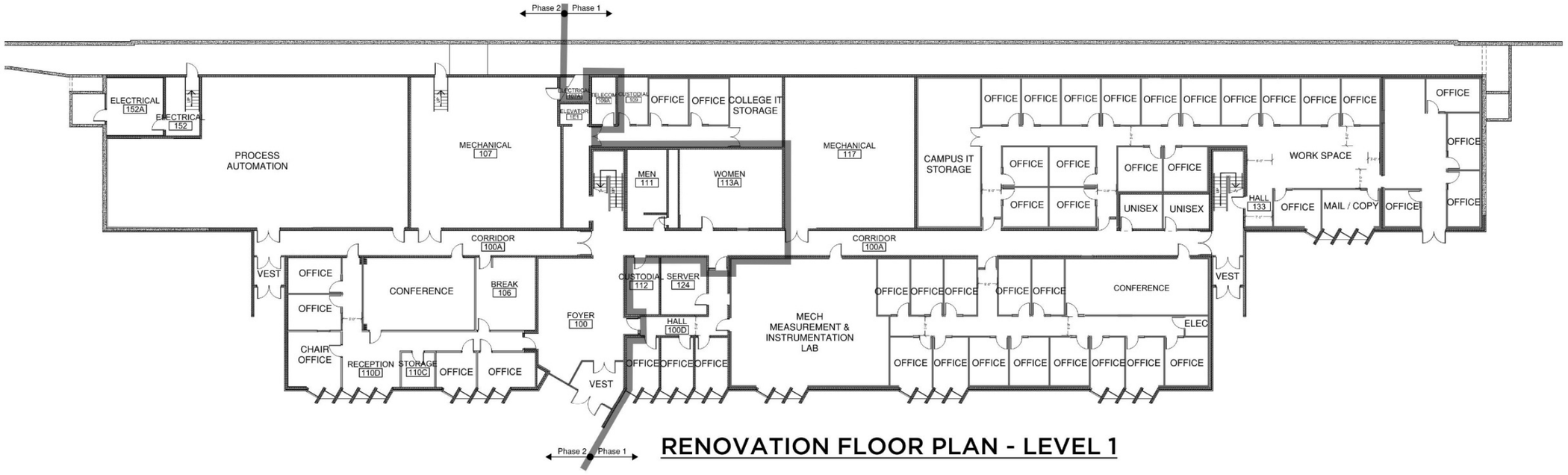
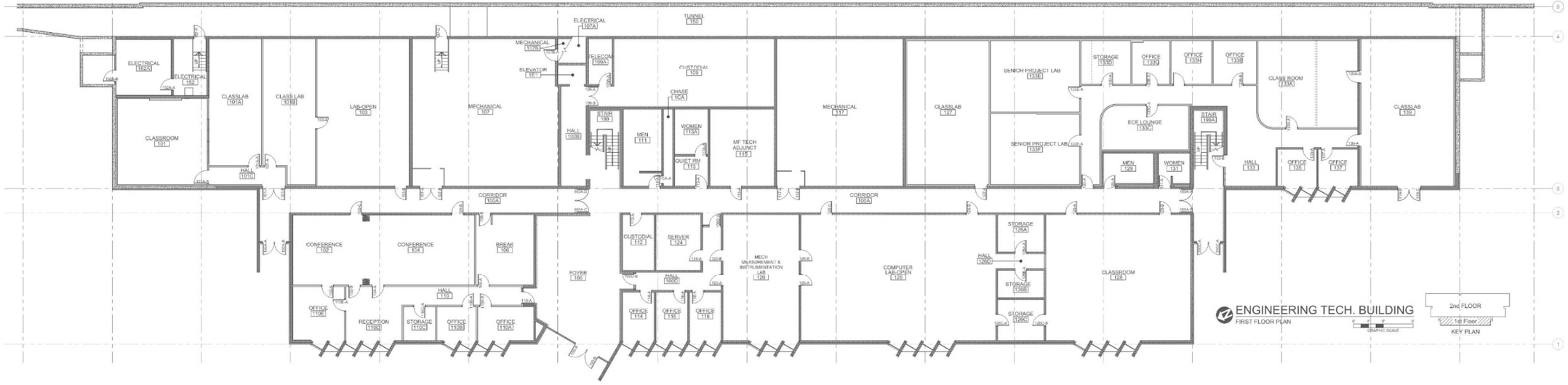
ENGINEERING TECHNOLOGY BUILDING RENOVATION | FLOOR PLAN - LEVEL 2

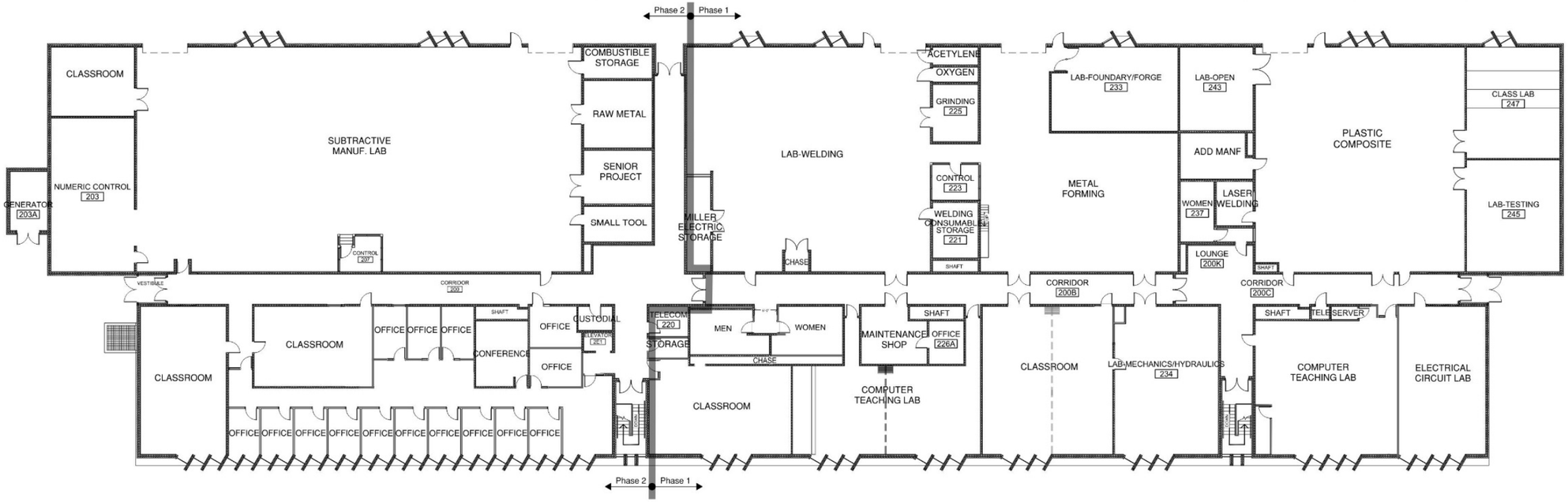
LEVEL 2



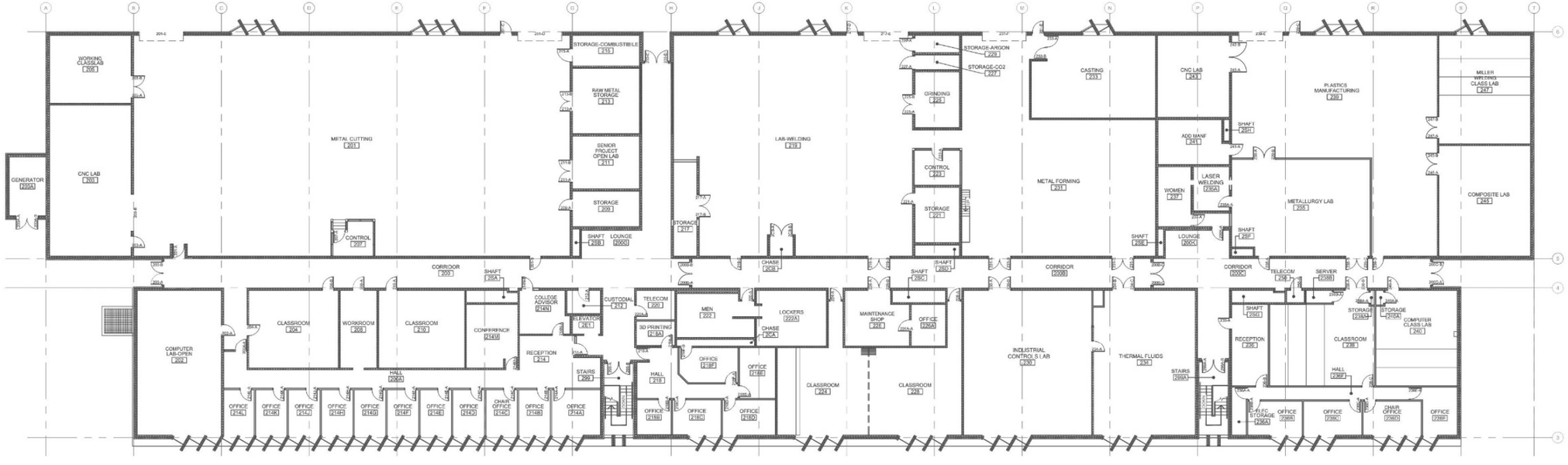
RENOVATION FLOOR PLAN - LEVEL 1



EXISTING FLOOR PLAN - LEVEL 1



RENOVATION FLOOR PLAN - LEVEL 2



EXISTING FLOOR PLAN - LEVEL 2

ENGINEERING TECH. BUILDING
SECOND FLOOR PLAN

ARCHITECTURE

The scope of the architectural renovation is driven in part by the disruption necessary to replace all HVAC equipment. As such, ceilings and lighting are replaced throughout the building. The renovation also strives to backfill space occupied by the people and departments that will move into the new Noorda Building, or have already moved to the College's new facility at the Davis Campus. To suit the new occupant's needs, significant sections of office and academic areas are reorganized. In these areas, all new finishes, mechanical, plumbing, and electrical elements are anticipated.

The table below articulates architectural renovations deemed to be mandatory and those that may be optional. Note that areas being reconfigured (moving walls / reorganizing space) will require all new elements regardless of indications in this table. For this reason, the cost estimate covers the replacement of all floor coverings and painting all walls. It also considers the cost to create vestibules at all major entrances, not just the three noted entrances.

For each element of work, the anticipated work phase is also indicated (Phase 1-South / Phase 2 North).

Renovation Element	Mandatory	Optional	Phase	Notes
Ceilings	X		Both	
Existing Bathrooms	X		Both	Includes all finishes, fixtures, partitions, etc.
Locker Room 222 to Women's Restroom	X		1	
Restroom expansion into Office 115	X		2	
150 Lockers – Distributed within Shops	X		1	222C lockers removed. New lockers in shops
Flooring (Public Areas)	X		Both	Lobbies, Corridors, Classrooms
Concrete Slab @ Existing 109 Custodial	X		1	
Flooring (Non-Public)		X	Both	Offices, Service Areas
Painting (Public Areas)	X		Both	
Painting (Non-Public)		X	Both	Includes Shops
Wall Base (Public Areas)	X		Both	
Interior door slabs	X		Both	
Door hardware	X		Both	
Interior Stair Railing	X		Both	Square handrail replaced and guardrail added
Drinking Fountains	X		Both	
Exterior Storefront Entrances & Windows	X		Both	Coordinated with radiant heaters at perimeter
Add Vestibules	X		Both	Main, 2nd floor North and South Entrances
Add Vestibules		X	Both	All other exterior entrances
Exterior Man Doors at Shops	X		1	Also includes hardware
Overhead shop doors	X		1	Includes electric operators and controls
Main West Entrance Enhancement		X	2	Soffit and lighting above storefront
Exterior Mechanical Louvers	X		1	Most are badly rusted
Exterior Railing at south-west entrance	X		1	Badly corroded
Abandon roof curbs / equipment	X		Both	Remove curbs, new deck, insulate, flat roof
Asbestos Abatement			Pre	Assessment and Work by WSU

Ceilings

Existing acoustical panel and hard-lid ceilings will be replaced in-kind with new assemblies matching WSU standards. An exception is existing Custodial Room109 where there is currently no ceiling. This space will have a new acoustical panel ceiling.

Note that high-bay shops on the east side of the 2nd level do not have ceilings and none will be added.

Interior Doors and Door Hardware

All interior door slabs and hardware are expected to be replaced. Hollow metal door frames will remain and be used in new construction.

Interior Stair Railings

The railing at the two primary stars is not code compliant. The existing handrail shall be removed and a new compliant hand and guardrail installed.

Drinking Fountains

2 existing drinking found shall be removed and replaced with a fixture similar to Elkay model EDFP19C. It is non-filtered, non-refrigerated, and is shallower than conventional fixtures. This fixture is expected to reduce its protrusion into the corridor and remove the ADA violation. Refrigerated units with a bottle filler are preferred, but the non-refrigerated unit has been approved by WSU in order to achieve ADA compliance.

Toilet Rooms

The building does not have enough water fountains or water closets and lavatories available to female occupants. The plumbing fixture code review below illustrates the deficiencies (Shown in Red). To meet code requirements, the project expects to create two additional women's restrooms (7 toilets minimum) and add 4 drinking fountains. The new restrooms will be located at existing rooms 222 and 115.

PLUMBING FIXTURE SUMMARY

OCCUPANCY CLASS	OCCUPANCY	AREA	OCCUPANT LOAD	WATER CLOSETS				LAVATORIES				DRINKING FOUNTAINS		OTHER REQUIREMENTS
				MALE		FEMALE		MALE		FEMALE		DF		
				REQ	PROV	REQ	PROV	REQ	PROV	REQ	PROV	REQ	PROV	
		9,948 SF	0											
Assembly	A-3	3,155 SF	158	1	17	2	5	1	7	1	3	1	*7	1 Service Sink
Business	B	50,427 SF	1059	12	17	12	5	8	7	8	3	11	*7	1 Service Sink

* Including 2 Break Rooms.

Existing toilet rooms will be renovated to create ADA compliant, contemporary facilities. All finishes, plumbing fixtures, lighting, toilet partitions and counters will be removed and replaced.

Exterior Storefront windows and entrances

All existing aluminum doors and windows will be replaced with high performance, thermally broken storefront systems and new double-pane glass assemblies. The phasing of this work is still to be determined and is dependent on funding and construction methods related to the removal of heating units below many windows.

Public entrances to the building do not currently have vestibules. Per the plans, space for new vestibules is available, and new aluminum storefront systems will be constructed to create vestibules at each entrance.

Exterior Man-Doors at Shops

4 exterior grade hollow metal doors, frames, and related hardware will be replaced.

Overhead Coiling Shop Doors

5 high-R value metal coiling doors will replace all existing coiling doors. Seals and electric operators also require replacement.

Main West Entrance Enhancements

In addition to replacing the existing storefront and creating an interior vestibule, the soffit and lighting at the entrance will be replaced and a new custom entrance canopy installed.

Exterior Stair Railing

A deteriorated railing at the south-west corner of the building will be replaced with a stainless-steel railing.

Interior Walls

CMU, metal stud and wood stud walls are being demolished. All new walls will be standard metal stud construction. Walls between offices and around classrooms will require sound insulation. There are no instances of structural sheer walls or bearing walls being removed. However, the Structural narrative articulates work required to create door or passageway openings in existing CMU walls at 5 locations on level 1.

STRUCTURAL

General Design Criteria:

Risk Category: III
Dead Loads: As required
Floor Live Loads:

- 80 psf at offices, classrooms, labs, corridors above first floor
- 2500 pound concentrated load

Flat Roof Snow Load:

- Pg: 46 psf
- Pf: 36 psf
  *Use owner requested Pf:40 psf with consideration for drifting snow

There are five locations on level one where it has been proposed to either add wall openings or increase the size of existing openings;

- The entrance to the unisex restroom on gridline 3, between N and P needs to be relocated to the north.
- The two corridor entrances on gridline 3 at approximately gridline N and L.5, respectively, need to be enlarged to accommodate sidelights.
- The corridor entrance on gridline 2 at approximately gridline 3 needs to be enlarged to accommodate a sidelight.
- The east-west wall on approximately gridline M.5, between gridlines 1 and 2 is proposed to be modified by infilling the existing two openings with masonry and creating one new opening for a new north-south corridor.

These modifications are allowed and can be structurally justified using the provisions of the 2018 International Existing Building Code; Section 806.3; where the alterations will not decrease the capacity of existing elements by more than 10 percent.

MECHANICAL & PLUMBING

Project Description

The existing Engineering Technology building is intended to undergo a major renovation of mechanical systems. Plumbing changes will be made to accommodate the remodel work, and fire protection systems will be updated. The goal is to bring the building mechanical systems up to date and to extend its life by another 30 years.

MECHANICAL SYSTEMS

Water Source VRF:

The HVAC system shall be designed in conformance with the Campus Master Plan, which mandates that buildings are served by the existing central cooling tower loop that is the source for all cooling and heating demand.

This will be achieved with a water-cooled Variable Refrigerant Flow (VRF) system.

- Manufacturer will be Mitsubishi supplied by Applied Product Solutions.
- The system will be capable of simultaneous heating and cooling.
- Each office, classroom, lab, and shop space will be zoned independently.
- Performance requirements of the VRF system are as follows:

Mode	ECWT	Performance
Cooling	77	12.0 EER
Heating	50	3.6 COP

Construction Phase 1

- The south portion of the building includes offices, classrooms, labs, manufacturing shop spaces, and space for the campus IT center.
- There are approximately 55 temperature control zones in Phase 1. Each temperature control zone will have a ceiling cassette fan coil unit. Ducted fan coil units will only be used when the ceiling height is not appropriate for a cassette fan coil.
- Make-up air and ventilation air will be provided in the metal forming, plastics manufacturing, and welding shop spaces using dedicated make-up air units located in the mechanical mezzanines. Space conditioning will be provided by ducted VRF fan coil units.
- Phase 1 will include 12 twinned heat pumps.
  - Heat Pumps 1-4: 96 MBH each to provide a total of 348 MBH for offices, classrooms, labs, and campus IT.
  - Heat Pump 5-6: 336 MBH each to provide a total of 672 MBH for MAU-1.
  - Heat Pump 7-8: 168 MBH each to provide a total of 336 MBH for MAU-2.
  - Heat Pump 9-10: 144 MBH each to provide a total of 288 MBH for MAU-3.
  - Heat Pumps 11-12: 240 MBH each to provide a total of 480 MBH for DOAS-1.

Construction Phase 2

- The north portion of the building includes offices, classrooms, labs, and manufacturing shop spaces.

- There are approximately 40 temperature control zones in phase 2. Each temperature control zone will have a ceiling cassette fan coil unit. Ducted fan coil units will only be used when the ceiling height is not appropriate for a cassette fan coil.
- Phase 2 will include 6 twinned heat pumps.
  - Heat Pumps 13-16: 72 MBH each to provide a total of 288 MBH for offices, classrooms, and labs.
  - Heat Pumps 17-18: 312 MBH each to provide a total of 624 MBH for ERV-1.

Ventilation Equipment:

Existing main ductwork will be reused as much as possible for new ventilation and exhaust air streams. New branch ductwork will need to be routed to individual fan coils in each zone.

Construction Phase 1

- DOAS-1 will be installed in the South Mechanical Room 117 to provide outdoor air to the classrooms and offices in this phase. This unit will provide some of the make-up air for baseline shop exhaust rates. The existing air handler, AC-2, and the associated relief fan will be demolished.
- The existing air handlers (AH-2, 3 & 4) that serve the Welding, Metal Forming and Plastic Shops will be demolished and replaced with make-up air units (MAU-1, 2 & 3). These units will be sized to make-up air as point use exhaust is turned on throughout each shop. The existing air handlers are not sized to make-up the total exhaust rate for each shop due to equipment diversity. The new make-up air units will be sized similarly.
  - Standard 36” x 80” doors provide access to these mezzanine equipment rooms. Based on preliminary MAU shipping split dimensions, a larger opening will need to be made to move units into rooms.
- The existing gas fired rooftop unit that serves Miller Welding Class Lab 247 will be demolished and the ventilation requirement will be served by DOAS-1.
- The existing gas fired make-up air unit that serves Composite Lab 245 paint booths will be demolished.
- Equipment Models
  - DOAS-1 - 7,000 cfm - Swegon SD 40 with refrigerant coil section
  - MAU-1 (Welding Shop) – 10,000 cfm – Swegon SD 50 with refrigerant coil section
  - MAU-2 (Metal Forming Shop) – 5,000 cfm – Swegon SD 30 with refrigerant coil section
  - MAU-3 (Plastics Shop) – 4,000 cfm – Swegon SD 25 with refrigerant coil section

Construction Phase 2

- ERV-1 will be installed in the North Mechanical Room 107 to provide outdoor air to North part of the building, including shop spaces. This unit will serve the general exhaust requirement for the North part of the building, including restroom group 222. This unit will serve the constant exhaust requirement for the shop spaces in this phase. The existing air handler, AC-1, and the associated relief fan will be demolished.
- The existing air handler (AH-1) that serves the Subtractive Manufacturing Lab 201 will be demolished.
- Equipment Models
  - ERV-1 - 9,000 cfm - Swegon RX 60 with refrigerant coil section

Exhaust Equipment:

In both phases there will be some existing fans that will be demolished and some will be replaced with new fans. There will be fans added in phase 1. See below for the summary and quantities:

Construction Phase 1

- Demolished: 7
- Demolished/Replaced: 13
  - (2) 5 HP
  - (6) 1 HP
  - (5) Fractional HP
- Added: 6
  - (1) 5 HP
  - (1) 1 HP
  - (4) Fraction HP

Construction Phase 2

- Demolished: 2
- Demolished/Replaced: 1 (fractional HP)

The Plastic Manufacturing Lab dust collection fan has been described as not having enough capacity for dust collection. (3) devices will be removed from the system and the ductwork will be cut and capped for future use. A VFD and duct pressure controls will be added to the dust collection system to all fan to modulate as the demand changes. A duct will be extended into CNC Lab 243 for future connection.

Condenser Water in Tunnel:

The chilled water piping that currently serves the building will be utilized for condenser water for the water-source VRF system. Ultimately, the section of pipe that runs through this tunnel will serve large areas of campus and will need to be replaced. All new piping will be polypropylene, manufactured by Niron.

Construction Phase 1

- Use existing chilled water piping in the tunnel that runs past the north half of the building. South of where the steam piping enters the north mechanical room and where there is more space in the tunnel, transition piping to 18” supply and return piping. Terminate piping after the connection to the south mechanical room with a double-offset butterfly valve and blind flange.

Construction Phase 2

- Demolish existing chilled water piping between phase 1 piping and the connections installed as work of the Noorda Engineering project in 2020 and install 18” supply and return piping.

Piping Demolition in Tunnel

In addition to the phased demolition of the existing chilled water piping, the existing steam, condensate return and natural gas piping will be demolished back to the tunnel junction to the north in phase 2 of this project.

PLUMBING SYSTEMS

Restroom Modifications:

The size and designation of all restrooms in the building will be modified. Existing plumbing fixtures and piping will be decommissioned and demolished to accommodate new restroom layouts. See architectural section for fixture quantity requirements.

Construction Phase 1

- The existing level 1 men's restroom on the south end of the building will be converted into two gender neutral restrooms.
- The existing level 2 toilet room will be converted into a larger women's restroom.
- The existing level 2 men's restroom and locker room will be converted and expanded into a men's and women's restroom.

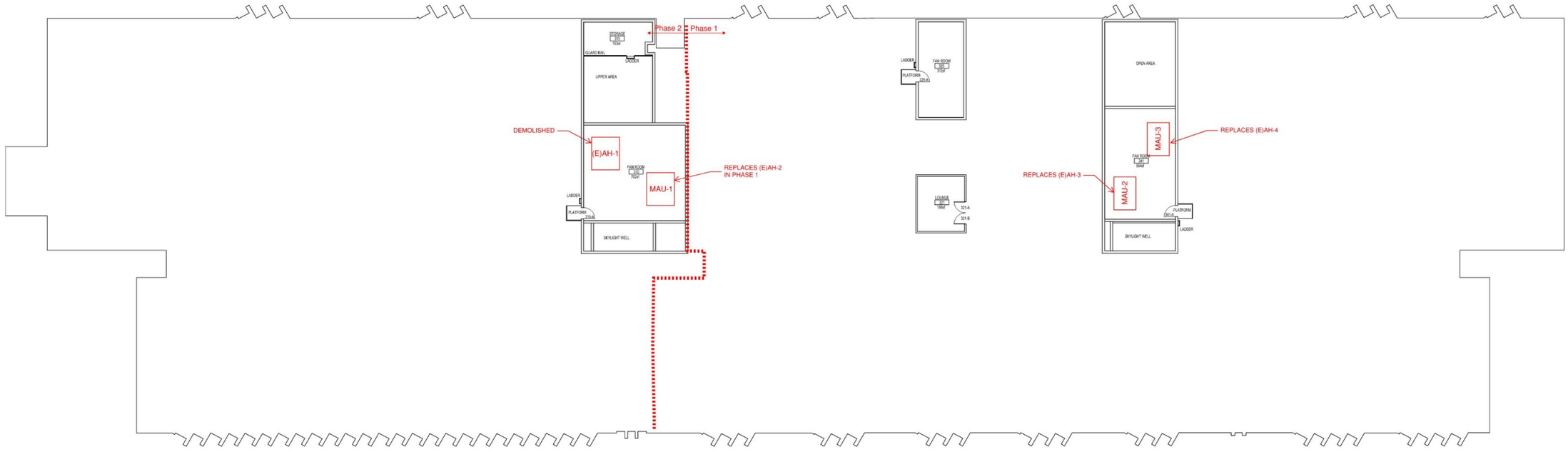
Construction Phase 2

- The existing level 1 north restrooms will be expanded.

The Plastics Manufacturing Lab currently has a single low-capacity water cooled chiller that serves to cool a mold machine. The chiller is served by the domestic water and the leaving water is discharged into a nearby roof drain line. An additional similar chiller is planned to be added soon. A domestic water line will be provided to serve this chiller and the new and existing drain will be routed to an appropriate location. During design it will be investigated if condenser water could be used to connect to the chillers as an alternative.


Phase 2
Phase 1
REPLACES (E)AC-1, (E)RELIEF FAN TO BE DEMOLISHED
REPLACES (E)AC-2 (E)RELIEF FAN TO BE DEMOLISHED
ERV-1
DOAS-1
HP 1 & 2
HP 3 & 4
HP 5 & 6
HP 7 & 8
HP 9 & 10
HP 11 & 12
HP 13 & 14
HP 15 & 16
HP 17 & 18
ELECTRICAL 102A
ELECTRICAL 102
PROCESS AUTOMATION 2,708 sf
MECHANICAL 107B
ELECTRICAL 107A
TUNNEL 150
ELECOM 109A
CUSTODIAL 105
96 sf
ELEVATOR 1ET
CHASE 1CA
COLLEGE IT STORAGE 201 sf
MECHANICAL 107
STAIR 199
HALL 108B
MEN 111
WOMEN
MECHANICAL 117
CAMPUS IT STORAGE
STAIR 199A
WORK SPACE
UNISEX
UNISEX
MAIL / COPY
CORRIDOR 100A
CONFERENCE 311 sf
BREAK 106 295 sf
128 sf
128 sf
OFFICE 115E 219 sf
RECEPTION 110D 141 sf
STORAGE 110C
OFFICE 110B 104 sf
OFFICE 110A 127 sf
HALL 110
FOYER 100
CUSTODIAL 112
SERVER 124 160 sf
HALL 109D
OFFICE 114 120 sf
OFFICE 116 120 sf
OFFICE 118 120 sf
MECH MEASUREMENT & INSTRUMENTATION LAB 1,345 sf
CONFERENCE
ELEC
MFET
Existing restroom expansion
CAMPUS DATA CENTER
Existing restrooms converted to unisex
ENGINEERING TECH. BUILDING
FIRST FLOOR PLAN
GRAPHIC SCALE
2nd FLOOR
1st Floor
KEY PLAN
CAMPUS DATA CENTER
COLLEGE IT
ELECTRICAL ENGINEERING
MANUFACTURE ENGINEERING
MECHANICAL ENGINEERING
PRODUCT DESIGN
UNASSINGED


Phase 2
Phase 1
CLASSROOM 206 413 sf
CNC LAB 203 925 sf
GENERATOR 203A
SUBTRACTIVE MANUF. LAB 201 7,060 sf
CONTROL 207 92 sf
STORAGE-COMBUSTIBLE 215 153 sf
RAW METAL STORAGE 213 331 sf
SENIOR PROJECT OPEN LAB 211 253 sf
SMALL TOOL STORAGE 209 178 sf
SHAFT 218
LOUNGE 200D
MILLER ELECTRIC STORAGE 217 162 sf
LAB-WELDING 219 3,745 sf
57 sf
STORAGE-ARGON 229
STORAGE-CO2 227
GRINDING 225 168 sf
CONTROL 223 117 sf
WELDING CONSUMABLE STORAGE 221 121 sf
CASTING 233 734 sf
METAL FORMING 231 2,433 sf
CNC LAB 243 409 sf
ADD MANF 241 225 sf
WOMEN 237
LASER WELDING 235A 118 sf
SHAFT 238
LOUNGE 200C
SHAFT 25H
PLASTICS MANUFACTURING 286 2,852 sf
ADD MANF METALLURGY MAT. TESTING 2,000 sf
PLASTIC COMPOSITE
SHAFT 25F
MILLER WELDING CLASS LAB 247 744 sf
COMPOSITE LAB 245 752 sf
CORRIDOR 200
SHAFT 26A
CHASE 20B
SHAFT 26C
SHAFT 26D
CORRIDOR 200B
CORRIDOR 200C
TELECOM 25E
SERVER 238
CLASSROOM 202 812 sf
CLASSROOM 204 674 sf
PRODUCT DESIGN 120 sf 120 sf 120 sf
CONFERENCE 224 sf
140 sf
139 sf
CUSTODIAN 212
ELEVATOR 214
TELECOM 220
55 sf
STAIRS 266
HALL 206A
OFFICE 214E 115 sf
OFFICE 214K 120 sf
OFFICE 214F 120 sf
OFFICE 214H 120 sf
OFFICE 214G 120 sf
OFFICE 214I 120 sf
OFFICE 214J 120 sf
OFFICE 214L 120 sf
CHAIR OFFICE 214M 120 sf
OFFICE 214N 120 sf
ELECTRICAL ENGINEERING TECH
MEN 222
WOMEN 222A
CHASE 20A
CLASSROOM 901 sf
MAINTENANCE SHOP 228 363 sf
OFFICE 226A
224
COMPUTER TEACHING LAB 1,300 sf
229
CLASSROOM 230 1,000 sf
THERMAL FLUIDS 234 1,090 sf
STAIRS 265A
COMPUTER TEACHING LAB 1,324 sf
ELECTRICAL CIRCUIT LAB 920 sf
Existing restroom expanded to include men's and women's restroom
Existing toilet room expanded and converted to women's restoom
ENGINEERING TECH. BUILDING
SECOND FLOOR PLAN
CAMPUS DATA CENTER
COLLEGE IT
ELECTRICAL ENGINEERING
MANUFACTURE ENGINEERING
MECHANICAL ENGINEERING
PRODUCT DESIGN
UNASSINGED



ENGINEERING TECHNOLOGY BUILDING

THIRD FLOOR PLAN

ELECTRICAL

CONSTRUCTION PHASE I - SOUTH PORTION OF BUILDING

Power Distribution System

- Existing 750KVA medium voltage transformer will remain in place.
- A new 1200-amp., 277/480-volt main distribution switchboard will be installed in the north part of the building to provide power to the new distribution panelboards in the north and south portions of the building.
- New main distribution panelboards will be installed in the old mechanical room to distribute power to all 277/480-volt branch panelboards and to 120/208-volt panelboards through dry type, stepdown transformers.
- A new dry type transformer will be installed to step the voltage down from 480-volt to 120/208-volt.
- A new 120/208-volt main distribution panelboard will be installed on south part of the building to provide power to all 120/208-volt branch panelboards.
- All existing branch panelboards 277/480-volt and 120/208-volt will be replaced with new.
- Surge protective devices will be provided for new main distribution switchboard and main distribution panelboards.
- 277/480-volt panelboard will be installed in south mechanical room to provide power to new large mechanical equipment.
- A 120/208-volt panelboard will be installed to provide power to all new fan coil units and small mechanical equipment.
- All feeder conductors to branch panelboards will be replaced with new ones.
- Bus ducts and branch circuits in the shops and labs will remain.
- New devices will be installed in all new rooms and circuited to nearest branch panelboards.
- All devices on exterior walls, which are being furred out, will be removed and new devices will be installed in the new walls and circuited to nearest branch panelboards.
- Existing electrical power metering will need to be moved to new switchboard and tied to campus network.
- Minimum of 25% spare capacity will be provided in all electrical panelboards.
- Existing grounding electrode from old electrical switchboard needs to be removed and tied to new main distribution switchboard. Neutral and ground strap in existing switchboard needs to be removed.
- Ground fault protective receptacles will be installed within proximity of sinks, mechanical room, etc. to meet requirement of National Electrical Code (NEC).
- Power will be provided to irrigation system.
- Existing emergency panelboards are to remain and utilized for new emergency circuits.

Exterior Lighting

- Power shall be maintained to all exterior light poles and canopy lights. Provide temporary power to keep these lights on during construction, as necessary.
- All under canopy light fixtures will be replaced with new LED light fixtures.
- Emergency lights will be provided by all exterior stairs, ramps, etc. to meet NFPA code.

Interior Lighting and Control

- All interior light fixtures are to be removed including j-boxes, conduit, conductors, etc. Home runs can be utilized for new LED light fixtures.
- New LED light fixtures to meet WSU standards.

- Light level in all areas will be in accordance with IESNA recommendations except in a few labs that require a higher illumination light level.
- Color temperature of all light fixtures will be 5000K.
- Lighting energy load shall be less than .5 watts/sf.
- Emergency light will be provided in all the corridors, restrooms, large shops, labs, classrooms, electrical rooms, MDF and IDF rooms, etc. All emergency lights will be tied to existing emergency/life safety panelboard such as when commercial power fails the come on automatically.
- All interior room's light fixtures will be controlled either with wall occupancy sensors or ceiling occupancy sensors to maximize on energy saving.
- Daylight harvesting will be provided for large rooms with windows as required by energy code.
- Dimmer capability will be provided for all the rooms except corridors, restrooms, mechanical rooms, electrical rooms, MDF and IDF rooms, etc.
- The entire building lighting load will be controlled by occupancy sensors.
- This building will be totally black when it is not occupied.

Fire Alarm System

- New addressable fire alarm system will be installed in the entire building to meet NFPA.
- Speaker/strobes will be installed throughout the building.
- All magnetic door holders will be tied to fire alarm control panel for automatic release during fire alarm.
- Duct detectors will be installed for air handling units with 2000 cfm and above. Duct detectors shall be tied to fire alarm control panel for automatic shut down during fire alarm.
- All fire/smoke dampers will be tied to fire alarm control panel for automatic closing during detection of fire.
- New fire alarm system will be tied to the WSU campus fire alarm network.

Radio Communication Enhancement System (BDA System)

- Study needs to be done to see if BDA system is needed for this building. We recommend this system to be installed to cover the lower level of the building as a minimum.
- BDA system will be tied to FACP.

Communication System

- Existing MDF room under phase I needs to be operational to keep the network system to phase II devices.
- All existing data cables will be removed. New data cables will be installed for all data jacks.
- Raceways, boxes, and cable trays will be installed throughout the building to accommodate the installation of network cabling, jacks, equipment, etc.
- New ground bus bar will be installed in the MDF room and will be tied to main grounding system for the building with #2 THHN ground cable.
- New WAP's will be installed on exterior walls and locations will be coordinated with WSU IT groups. #6 AWG grounding will be provided for all exterior WAP's.

Security System

- Conduit, boxes will be provided for security devices throughout the building. WSU will install all security devices, card readers, cabling, equipment, etc.
- Communication cable tray will be utilized for all security cables.

- All labs exterior doors will be protected with security card access system.
- New cameras will be installed by entrances and other spaces as directed by WSU. Conduit will be provided for cameras and will run to nearest cable tray.

A/V System

- A/V system will be provided in all classrooms, conference rooms, labs, etc.
- All cabling, connectors, jacks, boxes, touch panels, etc. will be coordinated with WSU A/V group.

CONSTRUCTION PHASE 2 - NORTH PORTION OF BUILDING

Power Distribution System

- The new 1200-amp., 277/480-volt main distribution switchboard which was installed under phase I will be utilized to provide power to the new distribution panelboards in the north portion of the building.
- New main distribution panelboards will be installed in the old mechanical room to distribute power to all 277/480-volt branch panelboards and to 120/208-volt panelboards through dry type, stepdown transformers.
- A new dry type transformer will be installed to step the voltage down from 480-volt to 120/208-volt.
- A new 120/208-volt main distribution panelboard will be installed on north part of the building to provide power to all 120/208-volt branch panelboards.
- All existing branch panelboards 277/480-volt and 120/208-volt will be replaced with new.
- Surge protective devices will be provided for new main distribution switchboard and main distribution panelboards.
- 277/480-volt panelboard will be installed in north mechanical room to provide power to new large mechanical equipment.
- A 120/208-volt panelboard will be installed to provide power to all new fan coil units and small mechanical equipment.
- All feeder conductors to branch panelboards will be replaced with new ones.
- Bus ducts and branch circuits in the shops and labs will remain.
- New devices will be installed in all new rooms and circuited to nearest branch panelboards.
- All devices on exterior walls, which are being furred out, will be removed and new devices will be installed in the new walls and circuited to nearest branch panelboards.
- Minimum of 25% spare capacity will be provided in all electrical panelboards.
- Ground fault protective receptacles will be installed within proximity of sinks, mechanical room, etc. to meet requirement of National Electrical Code (NEC).
- Existing emergency panelboards are to remain and utilized for new emergency circuits.
- 30-amp. receptacles will be provided in MDF room and will be tied to emergency and normal power per WSU IT requirements.

Exterior Lighting

- Power shall be maintained to all exterior light poles and canopy lights. Provide temporary power to keep these lights on during construction, as necessary.
- All under canopy light fixtures will be replaced with new LED light fixtures.
- Emergency lights will be provided by all exterior stairs, ramps, etc. to meet NFPA code.

Interior Lighting and Control

- All interior light fixtures are to be removed including j-boxes, conduit, conductors, etc. Home runs can be utilized for new LED light fixtures.
- New LED light fixtures to meet WSU standards.
- Light level in all areas will be in accordance with IESNA recommendations except in a few labs that require a higher illumination light level.
- Color temperature of all light fixtures will be 5000K.
- Lighting energy load shall be less than .5 watts/sf.
- Emergency light will be provided in all the corridors, restrooms, large shops, labs, classrooms, electrical rooms, MDF and IDF rooms, etc. All emergency lights will be tied to existing emergency/life safety panelboard such as when commercial power fails the come on automatically.
- All interior room's light fixtures will be controlled either with wall occupancy sensors or ceiling occupancy sensors to maximize on energy saving.
- Daylight harvesting will be provided for large rooms with windows as required by energy code.
- Dimmer capability will be provided for all the rooms except corridors, restrooms, mechanical rooms, electrical rooms, MDF and IDF rooms, etc.
- The entire building lighting load will be controlled by occupancy sensors.
- This building will be totally black when it is not occupied.

Fire Alarm System

- New addressable fire alarm system will be installed in the entire building to meet NFPA.
- Speaker/strobes will be installed throughout the building.
- All magnetic door holders will be tied to fire alarm control panel for automatic release during fire alarm.
- Duct detectors will be installed for air handling units with 2000 cfm and above. Duct detectors shall be tied to fire alarm control panel for automatic shut down during fire alarm.
- All fire/smoke dampers will be tied to fire alarm control panel for automatic closing during detection of fire.

Radio Communication Enhancement System (BDA System)

- BDA system will be installed in north part portion of the building and will be tied to new system which was installed under phase I.

Communication System

- New power will be provided for new racks in the MDF room.
- All existing data cables on north portion of the building will be removed. New data cables will be installed for all data jacks.
- Raceways, boxes, and cable trays will be installed in north part of the building to accommodate the installation of network cabling, jacks, equipment, etc.
- New WAP's will be installed on exterior walls and locations will be coordinated with WSU IT groups. #6 AWG grounding will be provided for all exterior WAP's.

Security System

- Conduit, boxes will be provided for security devices throughout the building. WSU will install all security devices, card readers, cabling, equipment, etc.
- Communication cable tray will be utilized for all security cables.
- All labs exterior doors will be protected with security card access system.
- New cameras will be installed by entrances and other spaces as directed by WSU. Conduit will be provided for cameras and will run to nearest cable tray.

A/V System

- A/V system will be provided in all classrooms, conference rooms, labs, etc.
- All cabling, connectors, jacks, boxes, touch panels, etc. will be coordinated with WSU A/V group.

Drawings are included as an appendix to this report.

WSU ET TAKT SCHEDULE

OKLAND

APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER | OCTOBER

5 12 19 26 3 10 17 24 31 7 14 21 28 5 12 19 26 2 9 16 23 30 6 13 20 27 4 11 18 25

Construction Start — **Substantial Completion**

Interiors

South — L1 Phase 1: 1 1 2 2 3 3 4 5 5 6 6 7 7 8 8 9 9 10 11 12 13 13
L2 Phase 1: 1 1 2 2 3 3 4 5 5 6 6 7 7 8 8 9 9 10 11 12 13 13

Concrete

P Q — 10

M M M N N O

Class in Session

Exterior

Phase 1 — Area 1: W W
Area 2: W W

Assumptions
3,000 sf of slab
30% walls to be demo'd
Phase 1 : 48.7k sf
Phase 2 : 28k sf

INTERIORS LEGEND	
1	Demolition
2	Overhead MEPS
3	Framing & Door Frames
4	In-Wall Rough
5	Electrical & Lighting
6	Drywall
7	Tape/Finish
8	Ceiling Tile
9	Paint
10	MEP Trim/Flooring
11	Doors & Hardware
12	Accessories/Partitions
13	Clean & Punchlist

EXTERIOR SKIN LEGEND	
W	Windows

Controls/ Testing/ Punchlist	
M	New Controls
N	Commissioning & Testing
O	Punchlist

CONCRETE LEGEND	
P	Form & Reinforce
Q	Pour / Cure

Year Gap

APRIL | MAY | JUNE | JULY | AUGUST | SEPTEMBER | OCTOBER

5 12 19 26 3 10 17 24 31 7 14 21 28 5 12 19 26 2 9 16 23 30 6 13 20 27 4 11 18 25

Substantial Completion

North — L1 Phase 2: 1 1 2 2 3 3 4 5 5 6 6 7 7 8 8 9 9 10 11 12 13 13
1 1 2 2 3 3 4 5 5 6 6 7 7 8 8 9 9 10 11 12 13 13

10

M M M N N O

Phase 2 — Area 1: W W
Area 2: W W

INTERIORS LEGEND	
1	Demolition
2	Overhead MEPS
3	Framing & Door Frames
4	In-Wall Rough
5	Electrical & Lighting
6	Drywall
7	Tape/Finish
8	Ceiling Tile
9	Paint
10	MEP Trim/Flooring
11	Doors & Hardware
12	Accessories/Partitions
13	Clean & Punchlist

EXTERIOR SKIN LEGEND	
W	Windows

Controls/ Testing/ Punchlist	
M	New Controls
N	Commissioning & Testing
O	Punchlist

CONCRETE LEGEND	
P	Form & Reinforce
Q	Pour / Cure

REFERENCE NOTES:
L X

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www.gsbsarchitects.com

N

FIRST FLOOR PLAN NORTH – PANELS
SCALE: 1/8" = 1'-0"

P2 Painted Ceilings	4982.1 SQ FT
P2 ACT	4597.4 SQ FT
P2 Hard Lid Ceilings	884.5 SQ FT

WEBER STATE UNIVERSITY
OGDEN, UTAH
ENGINEERING TECHNOLOGY BUILDING - FEASIBILITY STUDY

30 YEARS IN BUSINESS

ECE
939 S. West Temple SLC, UT 84101
Phone : 801.521.8007
Email : Admin@ecconline.com
ECE Project # 5613

ECE PROJECT NO. 5613

ISSUED:

NO.	DATE	DESCRIPTION
1	2021.03.09	FEASIBILITY STUDY

REVISIONS:

NO.	DATE	DESCRIPTION

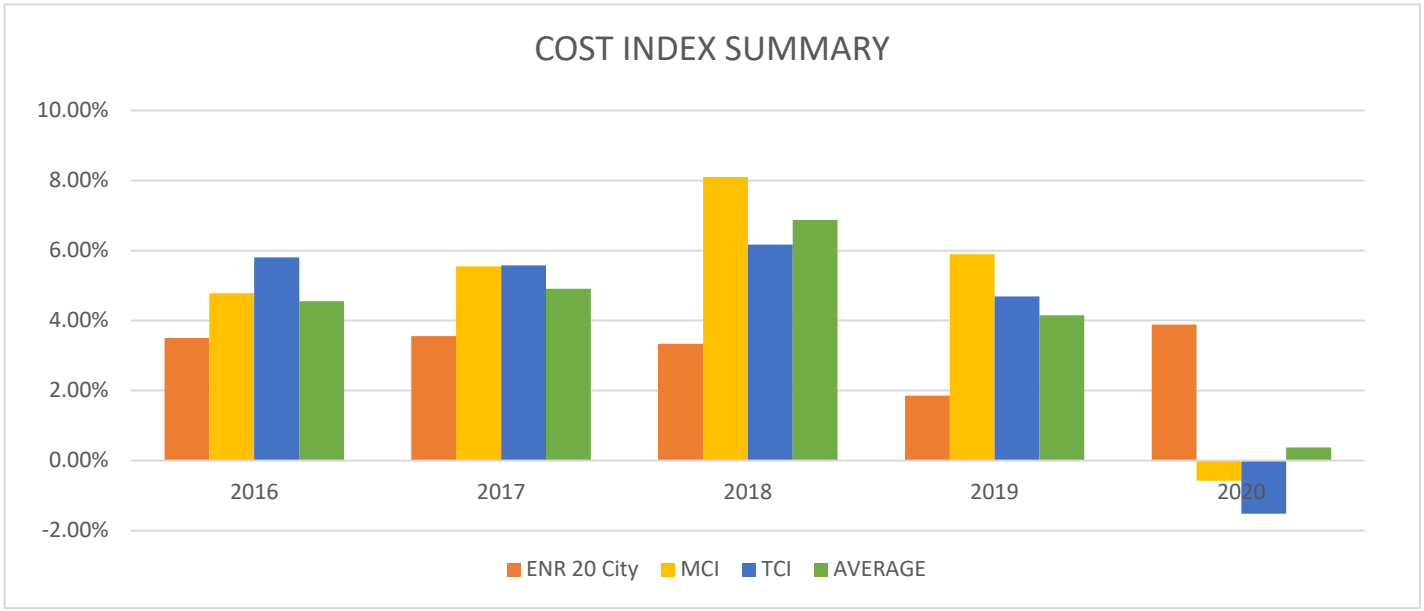
FIRST FLOOR PLAN NORTH - PANELS

PHASE II

SHEET NUMBER

EP1.1

COST ESCALATION AVERAGE FOR 2021



	ENR 20 City	RLB SLC	MCI	TCI	AVERAGE
2016	3.50%	4.41%	4.78%	5.81%	4.56%
2017	3.56%	5.00%	5.55%	5.58%	4.91%
2018	3.34%	8.50%	8.10%	6.17%	6.87%
2019	1.86%	4.21%	5.89%	4.69%	4.15%
2020	3.89%	0.03%	-0.57%	-1.51%	0.37%
5 YEAR AVERAGE	3.23%	4.43%	4.75%	4.14%	4.17%

Weber State University – Standard OPR

Site Selection

1. Building orientation needs to have a detailed discussion early in programming and design.

Alternative Transportation

1. All new construction should have new electric vehicle charging stations.
    a. One dual-port station shall be installed per new building; in addition, capacity for up to 6 stalls (3 dual port charging stations) shall be installed. This will include conduit out to ground box locations. Conduit shall be a minimum of 2 inch. This shall be included in the base bid of construction.
2. All new construction should look at options for bike racks near the facility. (consider the option for covered bike racks)
3. Bollards and signage for EV charging station should be considered and designed for the site.

Stormwater

1. Consider the use of bio-swells and maximize stormwater detention/filtration at building site.
2. Become familiar with and follow guidelines outlined in WSU's SWMP (latest is located at EH&S website)
3. Consider the use of Low Impact Development (LID) and maximize stormwater detention/filtration at buildings on sites over an acre. LID's must retain one inch of water of footprint of disturbed construction area, this will be mandatory from state starting 2020
4. Connect all storm water lines to retention pond.
5. Verify if site will be over, or under an acre. If site is over an acre, obtain a SWPPP.

Heat Island

1. Roof shall be a white membrane roof with a minimum 25 year warranty and an albedo > 0.65.
2. Discuss strategies to reduce heat island effect given site conditions.

Light Pollution

1. No – uplighting.
2. All parking lot lighting and athletic lighting will be full cut off LED.

Water Use Reduction

1. 0.5 gpm lavatories. Basis of design Moen 8211 faucet and All lavatories, toilets urinals, and shower heads need to be EPA WaterSense certified.
2. Dual flush toilets (1.1 and 1.6 gpf) or 1.28 gpf flush valve
3. Low flow urinals and flush valves (0.125 gpf).
4. No sensor or automated operation flush valves.
5. Low flow shower heads (1.5 gpm)
6. Auto shut off valve for domestic water tied to meter.

7. Non-filtered bottle filling stations. Elkay EZ H2O
8. Design consideration for water running down faucet neck to prevent water on floor.

Water Efficient Landscaping

1. Discuss xeriscaping and the use of native plants.
2. Automated Rainmaster system.
3. Install Auto flush filter Amiad Filtamat, or equivalent.
4. Use Pedestal Rainmaster DX3 controller.
5. Low flow heads, Hunter MP's preferred
6. DU of 70%, or better tested by WSU before N.O.T is obtained.
7. Drip in all non-turf areas with operational indicator flags. Netafim, or point source drip irrigation to be used. Netafim preferred with flags
8. No turf in areas with less than 6 feet
9. On steep grades used terraced planter beds.
10. Plan for snow removal, where snow will be plowed to for the roads and parking lots as well as sidewalks. Install salt tolerant plants in these areas.
11. Become familiar with and follow WSU's Division 2 Standards.
12. Electromagneting, or ultrasonic Meter installed after filter

Metering

1. Domestic Water Meter shall be installed on main water feed to building.
2. Electric meter shall be installed on or near MDP. Generally speaking, a single meter for the entire building shall be sufficient; however, sometimes in certain applications it may make sense to sub-meter mechanical and lighting. This shall be determined during sustainability charrette for the project.
3. BTU meter shall be installed for chilled/condenser water.
4. All meters shall be connected to BuildingOS system (LUCID). Specification and drawings need to clearly indicate who is responsible for this and how it shall be done.

Energy – Lighting

1. 5000K color interior and exterior.
2. All LED lighting.
3. Efficacy of 110 or greater on all light fixtures.
4. 0.5 watts/sqft target.
5. Minimize types of light fixtures (we want a small list on the lighting fixture schedule)
6. Occupancy sensors throughout the building (programmed for vacancy sensing)
7. Dark building – All emergency lights are connected to occupancy sensors through a GTD.
8. No lighting control panels.
9. Exterior lighting controlled by photocell at building site.
10. Recommended Illumination Levels
    1. 10 – 20 Foot Candles – Corridors, Vesitbules, Stairwells, Common Areas, Locker Rooms, Lounges.
    2. 20 – 40 Foot Candles – Classrooms, Offices, Conference Rooms, Computer Labs.
    3. 30 – 50 Foot Candles – Kitchens, Shops, Labs, Art Studios

11. No photocells (daylight harvesting) in classrooms or offices. Only in large open public spaces.
12. All offices and classrooms will have dimmers.
13. Lighting control is the Wattstopper DLM series as basis of design.
14. Classrooms shall have lighting control at entrance and at teaching console. Lighting controls are not connected to the AV system.

Electrical

1. Buildings are to be looped into campus.
2. Oakenite armored or Prysmiam cable as basis of design for medium voltage.
3. Cooper switchgear with VFI as basis of design.
4. Fault indicators on all medium voltage lines.
5. Discuss options for battery backup vs generator and minimizing loads on e-power.
6. Power factor to be above .90.
7. Document (high POT or VLF) to be provided in Cx record.
8. Verify all gaskets sealings on transformers and medium voltage switches are at factory torch rating.

Mechanical System

1. Water cooled VRF – Mitsubishi with 10 year warranty.
2. Oversized pipes serving compressors (manifold style) – eliminate need for balancing if possible.
3. Booster pumps shall be 20% oversized for total gpm requirement.
4. ERV system with no excess ventilation.
5. ERV will have a duct heater.
6. Every room gets its own T-stat.
7. Hybrid heatpump water heater for domestic hot water – Rheem basis of design.
8. Twinned condenser units.
9. No return air systems.
10. Only exhaust fan is in the ERV – duct all exhaust to ERV.
11. AE-200 devices will be included.
12. Pressure Testing
13. All motors over 2 HP are to be on VFDs
14. VFDs will be Mitsubishi (APS has a special WSU pricing – we will only pay the price they quote)
15. VFDs will be specified electrical engineer and provided by electrical contractor.
16. Filter sizes 24” x 24” x 2” on ERVs.
17. Extra set of washable filters for all cassette units.
18. Utilize ceiling cassette VRF units wherever possible.
19. Ducted VRF units shall have filters in the return grill that fit in the ceiling grid and are accessible from the space side of the return grill.
20. VRF refrigerant piping shall be coordinated with manufacturer, so that piping can/shall be installed as drawn. Pre-determine port locations.

21. At least 2 extra ports shall be included on branch controllers. Extra ports shall not just be at the end of the branch controller, shall be spaced intermittently.
22. Maximize energy recover of VRF branch controllers by having either south and east exposures or north and west exposures on the same branch.
23. All domestic hot water recirculation must be located within 6 feet of point of use. Every point use will have its own mixing valve, no central mixing valves.
24. Pipe chases shall be 3 feet width or greater.
25. Non-filtered bottle filling stations. Elkay EZ H2O
26. Extra space in mechanical room for building growth.
27. Epoxy coating of all mechanical room floors.
28. Temperature display and control for VRF shall be done from T-stat, no return air controlling.
29. Filter changes at substantial completion, and post occupancy (after cleaning).
30. Primary, and Secondary backflow protection devices shall be of the RP type.
31. All chemical mixing stations shall be piped.
32. Provide secondary water feed for all custodial chemical stations.

Structural/Architectural

1. 2x2 ceiling grid. Minimize use of hard lid ceilings.
2. Solarban 70 XL Atlantica – basis of design for glass.
3. Minimize use of storefront systems.
4. Maximum of 30% glass on building envelope. 25% or less preferred if possible.
5. Orientation of the glass to be primarily on the north and east sides of the building. Minimize west facing glass.
6. Building roof shall be prepped for solar installation.
7. Balconies or roof paver areas must be physcially restricted from access to the rest of the roof.
8. Roof shall have walkoff pads for anticipated solar layout and equipment. Walk off mats shall be white diamond pattern.
9. All paints and stains to be semi-gloss water based zero-VOC.
10. Standard is 5 paint colors (this includes Weber purple and white)
11. Rollers shades shall be manual if control mechanism is accessible.
12. Permanently attached ladder access to all roofs of the building. Ladders shall have ladder cages if possible. Hoist point and grab bar. No ship's ladders!!
13. Epoxy coated mechanical room floors.
14. Door closers
    a. ADA Door closers must be electromechanical, (full cast iron closer, all weather fluid, meets ANSI grade)
    b. A schedule shall be in the drawings showing door closers matched to door type and weight.
    c. No in-ground door closers.
    d. No concealed door closers.

Owner's Documentation

1. Fill in online file tree provided
2. Installation manuals will be in the Maintenance folder for each system/equipment.

Materials

1. Discuss use of recycled, locally-sourced and third party green verified materials.
2. Carpet tile with loc-dot technology as basis of design. Preferred 2x2 tile.
3. A waste management plan must be included in the design drawings. (including recycling and waste container locations)
4. Discussion shall be had regarding composting opportunities.
5. 75% of construction waste shall be diverted from the landfill.
6. Low-VOC sealants and caulks.
7. Low-VOC product discussion.

WSU Deferred Assets

Report Date 9/16/2021

02240

02240 ENGINEERING TECHNOLOGY (ET)

09082 HVAC **$1,267,858.00**

09087 HVAC Piping System **$74,886.00**

09107 HVAC Piping **$74,886.00**

20412 ET HVAC PIPING BLACK IRON PIPE $74,886.00

Service Life 40.00 Install Year 1977 Replacement Year 2017 Remaining Life -4.44

Asset Group Remaining Life -4.44

Tier 2 - Remaining Life -4.44

09088 Controls System **$262,101.00**

09108 Controls **$262,101.00**

20415 ET CONTROLS SYSTEM PNEUMATIC I $262,101.00

Service Life 15.00 Install Year 1985 Replacement Year 2000 Remaining Life -21.44

Asset Group Remaining Life -21.44

Tier 2 - Remaining Life -21.44

09089 Air Distribution **$274,571.00**

09110 Duct System **$274,571.00**

20420 ET DUCT SYSTEM LOW PRESSURE S' $74,886.00

Service Life 30.00 Install Year 1977 Replacement Year 2007 Remaining Life -14.44

20419 ET DUCT SYSTEM HIGH PRESSURE S $199,685.00

Service Life 30.00 Install Year 1977 Replacement Year 2007 Remaining Life -14.44

Asset Group Remaining Life -14.44

Tier 2 - Remaining Life -14.44

09090 HVACR Equipment **$656,300.00**

09111 AHU **$563,200.00**

AH0127 AIR HANDLER COMPUTER ROOM $60,000.00

Service Life 40.00 Install Year 1977 Replacement Year 2017 Remaining Life -4.24

AH0132 AMERICAN AIR FILTER, AIR HANDLER $137,500.00

Service Life 30.00 Install Year 1977 Replacement Year 2007 Remaining Life -14.43

AH0131 AMERICAN AIR FILTER, AIR HANDLER $54,000.00

Service Life 30.00 Install Year 1977 Replacement Year 2007 Remaining Life -14.43

AH0129 AMERICAN AIR FILTER, AIR HANDLER $72,000.00

Service Life 30.00 Install Year 1977 Replacement Year 2007 Remaining Life -14.43

AH0128 AMERICAN AIR FILTER, AIR HANDLER $63,000.00

Service Life 30.00 Install Year 1977 Replacement Year 2007 Remaining Life -14.43

AH0130 AMERICAN AIR FILTER, AIR HANDLER $31,200.00

Service Life 30.00 Install Year 1977 Replacement Year 2007 Remaining Life -14.43

AH0133 AIR HANDLER S. DUAL DUCT $127,500.00

Service Life 30.00 Install Year 1977 Replacement Year 2007 Remaining Life -14.43

AH0126 AIR HANDLER COMPUTER ROOM $18,000.00

Service Life 30.00 Install Year 1990 Replacement Year 2020 Remaining Life -1.42

Asset Group Remaining Life -12.93

09112 Fans **$26,000.00**

FA0110	JENN AIR, EXHAUST FAN 23			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0092	EXHAUST FAN 2			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0100	JENN AIR, EXHAUST FAN 13			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0105	JENN AIR, EXHAUST FAN			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0107	JENN AIR, EXHAUST FAN 20			$2,500.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0109	A.O. SMITH, EXHAUST FAN 22			$500.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0113	JENN AIR, EXHAUST FAN 26			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0114	EXHAUST FAN 27			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0103	JENN AIR, EXHAUST FAN 16			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0098	JENN AIR, EXHAUST FAN 11			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0096	JENN AIR, EXHAUST FAN 7			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0099	JENN AIREXHAUST FAN 12			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0111	EXHAUST FAN 24			$2,500.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0090	RETURN FAN			$2,500.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0093	EXHAUST FAN 4			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0102	EXHAUST FAN 15			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0112	JENN AIR, EXHAUST FAN 25			$7,000.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0106	JENN AIRE, EXHAUST FAN 19			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0089	CHAMPION, RETURN FAN			$2,500.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0097	JENN AIR, EXHAUST FAN 8			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0104	JENN AIR, EXHAUST FAN 17			$400.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
FA0108	JENN AIR, EXHAUST FAN 21			$2,500.00				
	Service Life 30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
				Asset Group Remaining Life			-14.74	
09114	Air Compressors				**$2,000.00**			
CP0025	CONTROL AIR COMPRESSOR			$2,000.00				
	Service Life 20.00	Install Year	1977	Replacement Year	1997	Remaining Life	-24.43	
				Asset Group Remaining Life			-24.43	

09115	Air Conditioning Units					**$18,000.00**			
20434	ET AIR CONDITIONING UNITS CONDEI				$18,000.00				
	Service Life	20.00	Install Year	1999	Replacement Year	2019	Remaining Life	-2.42	
					Asset Group Remaining Life		-2.42		
09124	Heat Exchangers					**$17,100.00**			
20435	ET HEAT EXCHANGERS STEAM TO HE				$17,100.00				
	Service Life	30.00	Install Year	1977	Replacement Year	2007	Remaining Life	-14.43	
					Asset Group Remaining Life		-14.43		
09126	Fan Coil/Terminal Units					**$30,000.00**			
FCU0051	NELSON, FAN COIL UNIT				$2,000.00				
	Service Life	20.00	Install Year	1977	Replacement Year	1996	Remaining Life	-24.74	
FCU0046	NELSON AIRE, FAN COIL UNIT				$2,000.00				
	Service Life	20.00	Install Year	1977	Replacement Year	1997	Remaining Life	-24.44	
FCU0050	NELSON, FAN COIL UNIT				$2,000.00				
	Service Life	20.00	Install Year	1977	Replacement Year	1996	Remaining Life	-24.74	
20437	ET TERMINAL UNITS				$20,000.00				
	Service Life	20.00	Install Year	1977	Replacement Year	1997	Remaining Life	-24.43	
FCU0047	NELSON, FAN COIL UNIT				$2,000.00				
	Service Life	20.00	Install Year	1977	Replacement Year	1996	Remaining Life	-24.74	
FCU0049	NELSON, FAN COIL UNIT				$2,000.00				
	Service Life	20.00	Install Year	1977	Replacement Year	1996	Remaining Life	-24.74	
					Asset Group Remaining Life		-24.51		
					Tier 2 - Remaining Life		-13.32		
					Tier 1 - Remaining Life		-14.72		
09083	Plumbing			**$139,000.00**					
09091	Plumbing Point-of-Use			**$26,000.00**					
09127	Plumbing Fixtures					**$26,000.00**			
20438	ET PLUMBING FIXTURES POINT OF U				$26,000.00				
	Service Life	25.00	Install Year	1977	Replacement Year	2002	Remaining Life	-19.43	
					Asset Group Remaining Life		-19.43		
					Tier 2 - Remaining Life		-19.43		
09092	Hot Water Generation			**$3,000.00**					
09128	Hot Water Heater					**$3,000.00**			
20439	ET HOT WATER HEATER DOMESTIC W				$3,000.00				
	Service Life	15.00	Install Year	2005	Replacement Year	2020	Remaining Life	-1.41	
					Asset Group Remaining Life		-1.41		
					Tier 2 - Remaining Life		-1.41		
09093	Plumbing Piping			**$95,000.00**					
09132	Domestic Water Piping					**$54,000.00**			
20440	ET DOMESTIC WATER PIPING SYSTEI				$54,000.00				
	Service Life	30.00	Install Year	1977	Replacement Year	2007	Remaining Life	-14.43	
					Asset Group Remaining Life		-14.43		
09134	DWV Piping					**$41,000.00**			
20442	ET DWV PIPING SYSTEM				$41,000.00				
	Service Life	30.00	Install Year	1977	Replacement Year	2007	Remaining Life	-14.43	
					Asset Group Remaining Life		-14.43		
					Tier 2 - Remaining Life		-14.43		
09094	Plumbing Equipment			**$15,000.00**					
09139	Water Coolers					**$15,000.00**			

DF0022	SUNROC WALL HUNG HIGH - LOWDRI			$2,500.00					
	Service Life	15.00	Install Year	1977	Replacement Year	1991	Remaining Life	-29.74	
DF0023	SUNROC WALL HUNG HIGH - LOWDRI			$2,500.00					
	Service Life	15.00	Install Year	1977	Replacement Year	1991	Remaining Life	-29.74	
ETDF001	ELKAY BI-LEVEL BOTTLE FILLER			$2,500.00					
	Service Life	15.00	Install Year	2004	Replacement Year	2018	Remaining Life	-2.72	
DF0021	ELKAY WALL HUNG DRINKING FOUNT			$2,500.00					
	Service Life	15.00	Install Year	1977	Replacement Year	1991	Remaining Life	-29.74	
DF0024	SUNROC WALL HUNG DRINKING FOU			$2,500.00					
	Service Life	15.00	Install Year	2004	Replacement Year	2018	Remaining Life	-2.72	
ETDF002	ELKAY BI-LEVEL NO FILTERS			$2,500.00					
	Service Life	15.00	Install Year	2004	Replacement Year	2018	Remaining Life	-2.72	
					Asset Group Remaining Life			-16.23	
					Tier 2 - Remaining Life			-16.23	
					Tier 1 - Remaining Life			-15.28	
09084	Electrical		**$597,630.00**						
09095	Primary Service		**$180,400.00**						
09141	Transformers					**$80,400.00**			
23428	CUTLER HAMMER TRANSFORMER - C			$15,400.00					
	Service Life	40.00	Install Year	1977	Replacement Year	2016	Remaining Life	-4.74	
23408	ITE TRANSFORMER			$37,000.00					
	Service Life	40.00	Install Year	1977	Replacement Year	2016	Remaining Life	-4.74	
23426	ITE TRANSFORMER			$28,000.00					
	Service Life	40.00	Install Year	1977	Replacement Year	2016	Remaining Life	-4.74	
					Asset Group Remaining Life			-4.74	
09143	MDP (Main Distributior					**$100,000.00**			
20311	ET - MDP - 277/480V, 2000A, 3PH, 4WI			$100,000.00					
	Service Life	40.00	Install Year	1979	Replacement Year	2018	Remaining Life	-2.74	
					Asset Group Remaining Life			-2.74	
					Tier 2 - Remaining Life			-3.63	
09096	Building Electrical Dist		**$417,230.00**						
09146	Electical Wiring					**$374,430.00**			
20313	ET - BUILDING ELECTRICAL DISTRIBU			$374,430.00					
	Service Life	40.00	Install Year	1979	Replacement Year	2018	Remaining Life	-2.74	
					Asset Group Remaining Life			-2.74	
09148	Electrical Panels					**$42,800.00**			
23430	CUTLER HAMMER PANEL			$4,000.00					
	Service Life	40.00	Install Year	1977	Replacement Year	2016	Remaining Life	-4.74	
EP0023	LOAD CENTER PANEL BOARD J			$3,400.00					
	Service Life	40.00	Install Year	1975	Replacement Year	2014	Remaining Life	-6.74	
EP0029	LOAD CENTER PANEL BOARD HH			$5,600.00					
	Service Life	40.00	Install Year	1979	Replacement Year	2018	Remaining Life	-2.74	
EP0025	LOAD CENTER PANEL BOARD W			$6,200.00					
	Service Life	40.00	Install Year	1979	Replacement Year	2018	Remaining Life	-2.74	
EP0022	LOAD CENTER PANEL BOARD V			$6,200.00					
	Service Life	40.00	Install Year	1979	Replacement Year	2018	Remaining Life	-2.74	
EP0021	LOAD CENTER PANEL BOARD EMERG			$6,200.00					
	Service Life	40.00	Install Year	1979	Replacement Year	2018	Remaining Life	-2.74	

EP0024	LOAD CENTER PANEL BOARD H				$6,200.00				
	Service Life	40.00	Install Year	1979	Replacement Year	2018	Remaining Life	-2.74	
EP0030	LOAD CENTER PANEL BOARD AA				$5,000.00				
	Service Life	40.00	Install Year	1979	Replacement Year	2018	Remaining Life	-2.74	
					Asset Group Remaining Life		-3.24		
					Tier 2 - Remaining Life		-2.79		
					Tier 1 - Remaining Life		-3.04		

09085	Building Interior		**$2,668,307.00**						
09098	Ceiling Systems		**$50,206.00**						
09153	Ceilings					**$50,206.00**			
20139	CEILINGS, DROP-IN, 1991				$5,634.00				
	Service Life	30.00	Install Year	1991	Replacement Year	2020	Remaining Life	-0.73	
20153	CEILINGS, SKYLIGHT, 1977				$26,100.00				
	Service Life	30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
20149	CEILINGS, HARDLID, 1977				$18,472.00				
	Service Life	30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
					Asset Group Remaining Life		-13.17		
					Tier 2 - Remaining Life		-13.17		
09099	Interior Openings		**$60,175.00**						
09154	Hollow Metal Frame					**$3,675.00**			
22357	ET INTERIOR HOLLOW METAL FRAME				$3,675.00				
	Service Life	17.00	Install Year	1977	Replacement Year	1993	Remaining Life	-27.74	
					Asset Group Remaining Life		-27.74		
09156	Storefront					**$37,500.00**			
22358	ET INTERIOR STOREFRONT WALLS				$37,500.00				
	Service Life	17.00	Install Year	1977	Replacement Year	1993	Remaining Life	-27.74	
					Asset Group Remaining Life		-27.74		
09157	Doors					**$19,000.00**			
22359	ET ROLLUP DOOR				$15,000.00				
	Service Life	-3.00	Install Year	1977	Replacement Year	1974	Remaining Life	-47.74	
22360	ET INTERIOR STOREFRONT DOORS				$4,000.00				
	Service Life	17.00	Install Year	1977	Replacement Year	1993	Remaining Life	-27.74	
					Asset Group Remaining Life		-43.53		
					Tier 2 - Remaining Life		-32.72		
09100	Flooring Systems		**$158,040.00**						
09158	Floors					**$158,040.00**			
20171	FLOORS, CARPET, 2014				$8,631.00				
	Service Life	10.00	Install Year	1977	Replacement Year	1986	Remaining Life	-34.74	
20158	FLOORS, CARPET, 1987				$4,362.00				
	Service Life	35.00	Install Year	1977	Replacement Year	2011	Remaining Life	-9.74	
20179	FLOORS, VCT, 2004				$21,490.00				
	Service Life	30.00	Install Year	1977	Replacement Year	2006	Remaining Life	-14.74	
20166	FLOORS, CARPET, 2001				$6,978.00				
	Service Life	25.00	Install Year	1977	Replacement Year	2001	Remaining Life	-19.74	
20175	FLOORS, VCT, 1977				$48,524.00				
	Service Life	40.00	Install Year	1977	Replacement Year	2016	Remaining Life	-4.74	
20163	FLOORS, CARPET, 1992				$6,120.00				
	Service Life	36.00	Install Year	1977	Replacement Year	2012	Remaining Life	-8.74	

20193	FLOORS, BRICK, 1977			$53,235.00					
	Service Life	40.00	Install Year	1977	Replacement Year	2016	Remaining Life		-4.74
20169	FLOORS, CARPET, 2004			$3,735.00					
	Service Life	20.00	Install Year	1977	Replacement Year	1996	Remaining Life		-24.74
20159	FLOORS, CARPET, 1991			$2,817.00					
	Service Life	35.00	Install Year	1977	Replacement Year	2011	Remaining Life		-9.74
20155	FLOORS, CARPET, 1985			$2,148.00					
	Service Life	37.00	Install Year	1977	Replacement Year	2013	Remaining Life		-7.74
					Asset Group Remaining Life			-9.29	
					Tier 2 - Remaining Life			-9.29	
09101	Walls			**$2,240,000.00**					
09159	Wall Surface					**$2,240,000.00**			
22070	ET WALL SURFACE			$2,240,000.00					
	Service Life	12.00	Install Year	1977	Replacement Year	1988	Remaining Life		-32.74
					Asset Group Remaining Life			-32.74	
					Tier 2 - Remaining Life			-32.74	
09102	Attached Furnishings			**$85,000.00**					
09161	Millwork					**$85,000.00**			
20215	MILLWORK, 1977			$85,000.00					
	Service Life	42.00	Install Year	1977	Replacement Year	2018	Remaining Life		-2.74
					Asset Group Remaining Life			-2.74	
					Tier 2 - Remaining Life			-2.74	
09103	Signage			**$74,886.00**					
09162	Interior Signage					**$74,886.00**			
22072	ET BUILDING SIGNAGE			$74,886.00					
	Service Life	15.00	Install Year	1977	Replacement Year	1991	Remaining Life		-29.74
					Asset Group Remaining Life			-29.74	
					Tier 2 - Remaining Life			-29.74	
					Tier 1 - Remaining Life			-29.94	
09086	Building Structure			**$355,700.00**					
09105	Envelope			**$355,700.00**					
09164	Exterior Doors					**$165,000.00**			
21636	EXTERIOR STOREFRONT DOORS 197			$54,000.00					
	Service Life	35.00	Install Year	1977	Replacement Year	2011	Remaining Life		-9.74
21638	EXTERIOR HOLLOW METAL DOORS 1			$36,000.00					
	Service Life	42.00	Install Year	1977	Replacement Year	2018	Remaining Life		-2.74
21640	EXTERIOR ROLLUP DOORS 1977			$75,000.00					
	Service Life	30.00	Install Year	1977	Replacement Year	2006	Remaining Life		-14.74
					Asset Group Remaining Life			-10.48	
09166	Glazing/Openings					**$190,700.00**			
21643	EXTERIOR WINDOWS 1977			$183,000.00					
	Service Life	38.00	Install Year	1977	Replacement Year	2014	Remaining Life		-6.74
21642	EXTERIOR STOREFRONT 1977			$7,700.00					
	Service Life	38.00	Install Year	1977	Replacement Year	2014	Remaining Life		-6.74
					Asset Group Remaining Life			-6.74	
					Tier 2 - Remaining Life			-8.47	
					Tier 1 - Remaining Life			-8.47	
				$157,000.00					
				$157,000.00					

						$157,000.00			
23446	DOVER HYDRAULIC PASSENGER ELE			$120,000.00					
	Service Life	25.00	Install Year	1977	Replacement Year	2001	Remaining Life	-19.74	
23427	XFMR TP1			$37,000.00					
	Service Life	40.00	Install Year	1977	Replacement Year	2016	Remaining Life	-4.74	
					Asset Group Remaining Life		-16.20		
					Tier 2 - Remaining Life		-16.20		
					Tier 1 - Remaining Life		-16.20		

	Replacement Cost	**$5,185,495.00**	Expected Life	23.03	Effective Building Age	43.86	
BLDG SQFT	74,886.00	Replacement Cost/SQFT	$69.25		Building Deferred Maintenance	$5,185,495.00	
	Average Building Remaining Life	-20.84					
					Total Deferred Maintenance	$5,185,495.00	