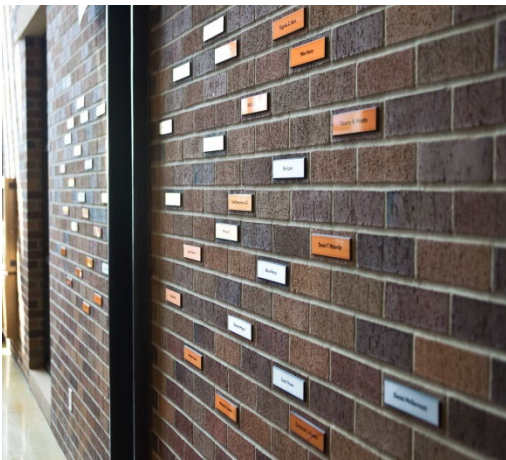
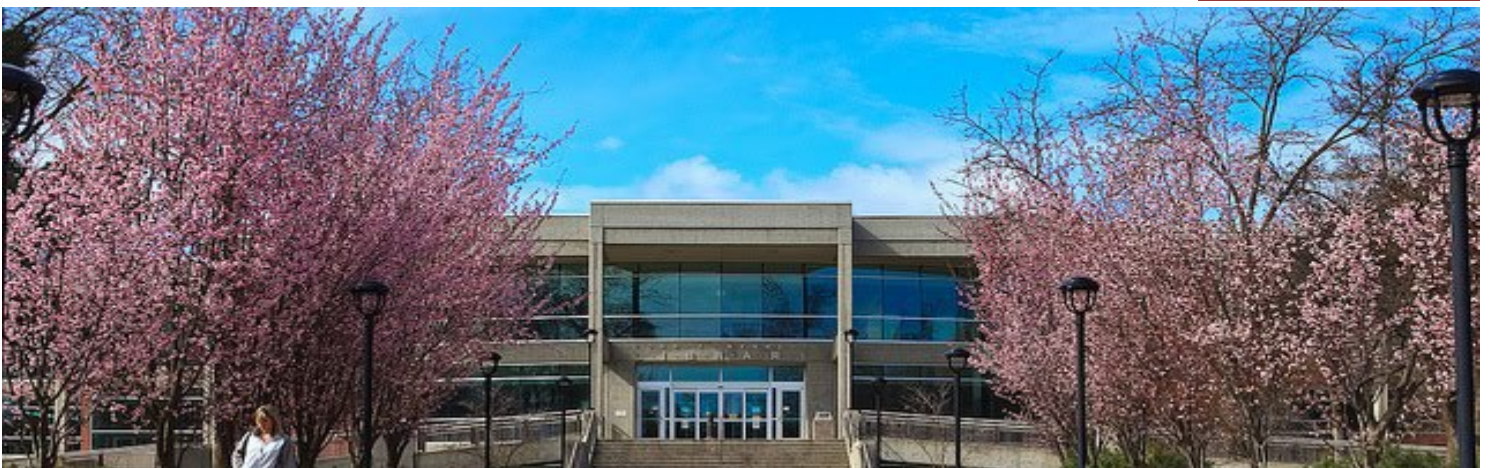




CAPITAL BUDGET REQUEST



2024 Supplemental



Eastern Washington University



September 13, 2023

The Honorable Governor Jay Inslee
Office of the Governor
PO Box 40002
Olympia, WA 98504

Dear Governor Inslee:

This letter transmits the 2024 Supplemental capital budget request for Eastern Washington University. Developed within the guidelines set by the Office of Financial Management, this request represents Eastern's efforts to focus on its mission to expand opportunities for personal transformation through excellence in learning.

SPORTS AND RECREATION CENTER ENERGY IMPROVEMENTS

Eastern is requesting funding to improve the operational efficiency and effectiveness of the Sports and Recreation Center (SRC). This is one of our largest buildings on campus and falls into the initial requirements of the Clean Buildings Performance Standard (HB 1257 & 1390), which require improvement of building energy use and reduction in carbon footprint. Based upon an investment grade audit of the facility, Eastern will address the highest priorities to bring the Energy Use Intensity and greenhouse gas emissions within the requirements of this legislation and EWU's Climate Action Plan. Modernization of this aging infrastructure will reduce annual building energy use and greenhouse gas emissions by 38 %. The SRC is located on the Cheney campus and houses a variety of academic and student activity functions. Developed in several "phases" throughout the 1970s, the SRC boasts over 280,000 square feet of recreational space. The SRC is a multi-use facility open to students, faculty, staff and community members.

I request your thoughtful consideration of this capital funding request. Thank you for your continued support.

Sincerely,

Shari McMahan, PhD
President

2024 Supplemental Capital Budget Request

Capital Request Transmittal

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370 - Eastern Washington University Ten Year Capital Plan by Project Class

2023-25 Biennium *

Version: S2 SR:Eastern Washington University

Report Number: CBS001
Date Run: 9/1/2023 1:48PM

Project Class: Preservation

Agency	Priority	Project by Account-EA Type	Estimated Total	Prior Expenditures	Current Expenditures	Reapprop	New Approp	Estimated 2025-27	Estimated 2027-29	Estimated 2029-31	Estimated 2031-33
	1	40000112 Sports and Recreation Center Energy Improvements	9,998,000				9,998,000				
		057-1 State Bldg Constr-State									

Total Account Summary

Account-Expenditure Authority Type	Estimated Total	Prior Expenditures	Current Expenditures	Reapprop	New Approp	Estimated 2025-27	Estimated 2027-29	Estimated 2029-31	Estimated 2031-33
057-1 State Bldg Constr-State	9,998,000				9,998,000				

370 - Eastern Washington University Capital Project Request

2023-25 Biennium

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Version: S2 SR:Eastern Washington University

Report Number: CBS002

Date Run: 9/1/2023 1:41PM

Project Number: 40000112

Project Title: Sports and Recreation Center Energy Improvements

Description

Starting Fiscal Year: 2025

Project Class: Preservation

Agency Priority: 1

Project Summary

Eastern is requesting funding to improve the operational efficiency and effectiveness of the Sports and Recreation Center. This is one of our largest buildings on campus and falls into the initial requirement of the Clean Buildings bill that requires improvement of building energy use. Based upon an investment grade audit of the facility Eastern will address the highest priorities to bring the Energy Intensity Units within the requirements of this legislation.

Project Description

What is the problem/opportunity? Identify: priority, underserved people/communities, operating budget savings, public safety improvements & clarifying details. Preservation projects: include information about the current condition of the facility/system.

Eastern Washington University's Sport and Recreation Center (SRC) is located on the Cheney campus and houses a variety of academic and student activity functions. Developed in several "phases" throughout the 1970's, the SRC boasts over 250,000 square feet of recreational space. The SRC is home to "Reese Court", the Aquatic Center, the Strength and Conditioning Center, the Fieldhouse, the Dance Studio, as well as many other activity gyms and spaces. The Sports and Recreational Center is a multi-use facility open to students, faculty staff and community members.

Eastern Washington University is requesting \$9,998,000 in the Category Stand Alone Renovation to upgrade systems in the SRC to meet the requirements and guidelines of the Clean Buildings bill (2019-20 HB 1257) and District Energy System (2023-24 HB 1390). It is the university's statement, that this project would align with CCA resources that are currently available through the Office of Financial Management and the Washington State Legislature.

The current building systems are at the end of their functional lifecycle and need major upgrades and renewals. These systems, due to their age and original design are not as energy efficient as they once were and certainly do not come close to the efficiencies available through current technologies. These aged systems include but are not limited to: Heating and Ventilation equipment and distribution systems, Temperature controls and Building Automation Systems (BAS), lighting upgrades and lighting controls. All systems listed are 1970s generation which are costly to operate primarily because of their lack of energy efficient equipment and methods of operation.

History of the Project or facility.

Early in 2022 Eastern contracted with KJH Engineering to develop an engineering grade energy audit for the SRC. As the complex ages and the systems continue to operate past their effective lifecycles the complex is the number 1 priority for energy upgrades under the Clean Buildings bill the Washington State Clean Buildings Act. The consultant provided base EUI (Energy Use Intensity) numbers for building that are a part of the SRC. The criterion for the Clean Buildings bill states that since the individual building in the SRC are connected they are one facility that is over 250,000 gross square feet. The criteria also states that buildings with shared walls need to be evaluated on the EUI of the least energy efficient building. The District Energy System bill requires the university to reduce carbon footprint and reliance on fossil fuel-based heating generation. Below is target information from WAC194-50-150 Table 7-2a Building Activity Site Energy Targets.

Physical Education Activities Built 1972, 87,828 gsf, EUI 158,061, Target EUI for College/University Buildings - 102, Target EUI for Public Buildings - Fitness Center/Gym - 73

Performing Art Pavilion, Built 1978, 107,920 gsf, EUI 83,045, College/University Target EUI - 102, Public Building

370 - Eastern Washington University
Capital Project Request
 2023-25 Biennium

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Version: S2 SR:Eastern Washington University

Report Number: CBS002

Date Run: 9/1/2023 1:41PM

Project Number: 40000112

Project Title: Sports and Recreation Center Energy Improvements

Description

Target EUI - Performing Arts - 55

Aquatics, Built 1980, 19,610 gsf, EUI -100, Target College/University Building EUI 102, Public Building Target EUI - Swimming Pool- 73

Jim Thorpe Fieldhouse, Built 1978, 49,926 gsf, EUI - 83,856, Target College/University EUI - 120, Target EUI Public Building Track - 67

Current Facilities Condition Assessment (FCA)

1 - Superior

2 - Adequate

3 - Fair; System approaching end of expected lifecycle

4 - Needs Improvement, Limited Functionality

5 - Needs Improvement, Marginal Functionality

Physical Education Activities FCA general - 2.5, FCA Services - 3.2, FCA HVAC -4.0, FCA Controls EMS – 4.0, FCA Plumbing - 4.0 FCA Electrical - 4.0

Performing Art Pavilion FCA general - 2.5, FCA Services - 3.1, FCA HVAC - 4.0,FCA Controls EMS – 4.0, FCA Plumbing - 4.0 FCA Electrical - 3.0

Aquatics FCA general - 2.3, FCA Services – 2.7, FCA HVAC – 3.5, FCA Controls EMS – 4.0, FCA Plumbing - 4.0 FCA Electrical - 3.0

Jim Thorpe Fieldhouse FCA general - 2.4, FCA Services - 3.2, FCA HVAC - 4.0,FCA Controls EMS – 4.0, FCA Plumbing - 4.0 FCA Electrical - 3.0

As stated above many of the facility's service systems need replacement or major upgrade while other building systems have lifecycle remaining that do not need to be addressed at this time.

Eastern Washington University's Core Themes include:

Access - EWU strives to provide the opportunity for traditional college-bound students, non-traditional students, and students from underserved populations in the Inland Northwest and beyond to obtain a high-quality education and earn a marketable degree.

Learning - EWU strives to equip students with the skills and knowledge needed for them to be informed citizens of the world and successful in their chosen careers.

Completion - EWU strives to support our students to earn undergraduate and graduate degrees. EWU provides a high-quality student-centered education to a diverse population of almost 11,000 students. Almost 30% of the student population is first-generation university students and almost 25% of students are from historically underrepresented ethnic backgrounds.

Eastern enhances access to higher education in the Inland Northwest and beyond by recruiting and supporting traditional college-bound students, non-traditional students and those from underserved populations; Delivering high-quality academic programs that undergo regular, rigorous review informed by data and assessment of student learning; Delivering a high-quality co-curriculum designed to develop the intellectual, cultural, personal and practical aspects of students' lives; and promoting student success by supporting student engagement and timely degree completion.

Facilities preservation projects contained in this request are developed and a designed to address reductions in energy

370 - Eastern Washington University Capital Project Request

2023-25 Biennium

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Date Run: 9/1/2023 1:41PM

Project Number: 40000112

Project Title: Sports and Recreation Center Energy Improvements

Description

and operation costs, bring systems to current building code compliance, reduce any pending safety and compliance issues, and improve the operation conditions of the systems and thereby provide high quality instructional, research and student engagement spaces on the university campus.

What will the request produce or construct (predesign/design of a building, additional space, etc.)? When will the project start/end? Identify if the project can be phased, and if so, which phase is included in the request. Provide detailed cost backup.

The results of approval of this project will be the design and construction of energy improvements to systems that need upgrades and replacements. In the university's Major Stand-Alone Renovation project request the results of our investment grade audit provided the most current priorities and cost estimates needed for implementation of this project.

How would the request address the problem or opportunity identified in question1? What would be the result of not taking action? These updates are focused on improving heating and cooling, lighting and electrical within these academic buildings and align with the requirement of HB 1257 and HB 1390. This will improve performance, energy efficiency and indoor air quality (IAQ). These improvements will also increase the lifecycle of the building at a lower cost than a full building remodel.

Retrofitting HVAC systems and equipment provides several other benefits:

- 1. Energy Savings** - Retrofitting HVAC equipment is one of the quickest ways to solve chronic problems with high energy consumption. On average, small offices and retail establishments reduce energy consumption by 35% when retrofitting HVAC systems and equipment. In cold weather climates, this number can jump to as high as 40%.
- 2. Increased HVAC Lifespan** - Replacing defective parts gives the HVAC equipment new life. In fact, sometimes this can even extend the life of a system by several years, spending far less money than a whole system replacement.
- 3. Flexibility** - Commercial spaces are constantly changing interiors are rearranged, occupants move in and out, and infrastructure requirements change. Retrofitting HVAC systems allows for continued adaption of the needs of occupants without huge investments.
- 4. Improved Comfort** - A retrofitted HVAC system will operate with more consistency than an older or poorly maintained system. This consistency leads to more control over temperature in humidity, resulting in improved comfort for occupants.
- 5. New Technology** - Not only do retrofitted systems operate more consistently, but they also operate more efficiently and independently. This adds to energy savings, as mentioned, but it also decreases to costs of maintenance and service because the new part will be more dependable.
- 6. Faster Return on Investment (ROI)** - Retrofitting equipment is much cheaper than investing in a whole commercial HVAC system replacement. Given the energy and service savings of retrofitted equipment, return on investment is achieved quicker than a full replacement.
- 7. Reduction in the use of carbon-based fuels** for heating and cooling, requirements mandated by HB 1390 for District Energy Systems.

Benefits of Lighting Control Systems

- 1. Increased Energy Efficiency** - Smart lamps can be 80% more efficient than standard lighting lamps, only use

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Project Title: Sports and Recreation Center Energy Improvements

Description

lighting when space is in use and if programmed properly lighting is turned off when space does not have a programmed activity scheduled.

2. Better programming of lighting needs to align with space usage -Lighting can be scheduled to align with space use. Spaces that are used less will be “asleep” saving on electricity and wear on lamps.

3. Enhanced Convenience - Users can make on the spot changes when needed and after that need is fulfilled system returns to standard programming processes.

4. Improved Safety - Allows for lighting to activate when needed for personal safety and property protection.

Improvement of the Building Envelop

The envelope serves to protect the interior while facilitating climate control. Building envelope arguably encompasses the entire exterior building system of the structure. This includes windows, doors, roof, floor, foundations, and insulation.

Improving Indoor Air Quality (IAQ)

Washington State Department of Health states indoor air quality can have a significant effect on your health. Studies show that people spend 65 to 90 percent of their time indoors, and indoor air can be two to five times more polluted than outdoor air. The young, elderly, chronically ill, and those with respiratory or cardiovascular disease are often the most impacted by poor indoor air quality.

Unfortunately, the result of taking no action will increase the potential for systems not to perform as needed in all situations. Without addressing the critical and key facilities issues, operation costs will continue to rise. This includes regular preventative actions, demand maintenance, and utility costs associated with lower performing equipment and systems. This impacts the ability to provide a safe, comfortable, and accessible campus for all that use it.

As is the case with reduction of approved funding, the university will prioritize the highest needed project and defer other as required. In many cases there will be an additional burden on our operation budgets. Currently, our estimates for this project are based upon cost per square foot or budgetary estimate provide by paid consultants or internal staff generated estimates. Once funding is approved, and design is underway, a more detailed cost estimate will be developed and reviewed to provide information for project implementation and good stewardship of state resources.

What alternatives were explored? Why was the recommended alternative chosen? Be prepared to provide detailed cost backup. If this project has an associated predesign, please summarize the alternatives the predesign considered.

Alternative 1) Renovation of the entire facility is a major project renovation. The goal of this Stand-Alone Renovation Project is to extend building and systems lifecycles so that major projects with major costs are not necessary. Also, if systems in the facilities have lifecycle left it is more cost effective to preserve the system with value rather than demolish them in a major renovation. This again is good stewardship of state assets and resources.

Alternative 2) Defer the work – Deferring the work can mitigate capital costs, but older less efficient system and facilities cost more to operate and maintain than newer more efficient facilities. There is also a risk of catastrophic breakdowns or failures that could cause other high-cost damage.

Alternative 3) Taking the space or system off-line until funding is available. – The spaces/system listed in this request are high priority in nature to the safety, security, and operations of this institute of higher education. In most cases shutting down parts of structures in not a viable alternative to the university.

Alternative 4) Do nothing – This alternative is the worst-case scenario because it combines the downside of items 2

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Project Title: Sports and Recreation Center Energy Improvements

Description

and 3. Space is not available, can become unusable, may be a safety and security issue or failure could cause more damage to other system and building operations.

Alternative 5) Renewal or replacement of a portion of the system or facility. This alternative is selected because it meets the short term needs of the students and the university, it will increase the life expectancy of systems and equipment in this facility, reduce cost of maintenance, reduce the cost of energy by replacing equipment with higher efficiency equipment. This alternative meets the needs and intent of minor works projects.

Alternative 5 is the best-case scenario to balance high costs, potential reduction in instructional delivery, reducing the risk of catastrophic failure and increasing the value and lifecycle of university facilities.

There is no Pre-Design required for this type of project.

Which clientele would be impacted by the budget request? Where and how many units would be added, people or communities served, etc.

This project serves the entire university community. That include our customers, students, as well as the faculty and staff that serve the students on their scholastic journey. Because Eastern is a public university our campus also supports the local and region community. As stated under the problem or opportunity to be addressed, the university's core themes are improved when we improve our facilities. Since these projects are improvements, replacements, and upgrades there would be no new units added but rather the opportunities for growth and potential to increase access for people.

Does this project or program leverage non-state funding? If yes, how much by source? If the other funding source requires cost share, also include the minimum state (or other) share OF project cost allowable and the supporting citation or documentation.

There is no, non-state funding involved in this project.

Describe how this project supports the agency's strategic master plan or would improve agency performance. Reference feasibility studies, master plans, space programming and other analyses as appropriate.

Projects of this size and nature respond to the needs of the building, requirement of legislation (HB 1257) and needs of our students without requesting a major capital project. The intent is to improve the systems in need and leave the other functioning systems alone. Many times, system like structure, interiors window and doors have longer life cycles than HVAC, Controls and Lighting. Good **cost-effective** planning like this project can improve overall operations, reduce costs, improve energy conservation and sustainability at a much lower cost per square feet than a comprehensive building remodel.

Strategic Plan – University strategic core themes are listed above.

Facilities Master Plan - Objectives

- 1) Represent the “DNA of EWU”—supporting student access, opportunity, and personal transformation
- 2) Be flexible—able to respond to changes in technology, pedagogy, and student demographics
- 3) Align facilities with academic purpose and need
- 4) Promote a campus environment that “feels like home” for EWU student
- 5) Coordinate with funding— “the plan must make sense”

370 - Eastern Washington University Capital Project Request

2023-25 Biennium
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Project Title: Sports and Recreation Center Energy Improvements

Description

Facilities Planning Principles

The analysis of the campus, past planning studies, and input from EWU students, faculty, and staff identified the following principles to guide the master plan:

- 1) Carefully evaluate each project regarding renovation vs. replacement opportunities.
- 2) Plan and implement to optimize utilization and efficiency of buildings/facilities square footage.
- 3) All projects, major or minor reflect Eastern's commitment to reduction of the campus carbon footprint, reducing energy costs, reducing maintenance and operations commitments, and increasing the lifecycle of related systems and of the facility in its entirety.
- 4) Improve the overall character of the campus with the implementation of each project.
- 5) Create and follow a framework that welcomes EWU's neighbors and accommodates future campus expansion beyond existing boundaries.
- 6) Reinforce and improve the overall cohesion of campus, specifically linkages across campus.

Does this project include IT related costs, including hardware, software, cloud-based services, contracts or staff? If yes, attach IT Addendum.

This project does not have any IT related costs as stated above.

If the project is linked to the Puget Sound Action Agenda, describe the impacts on the Action Agenda, including expenditure and FTE detail. See Chapter 12 (Puget Sound Recovery) in the 2021-23 Operating Budget Instructions.

This project is not linked to the Puget Sound Action Agenda.

How does this project contribute to meeting the greenhouse gas emissions limits established in RCW 70A.45.050, Clean Buildings performance standards in RCW 19.27A.210, or other statewide goals to reduce carbon pollution and/or improve energy efficiency? Please elaborate.

Eastern is dedicated to supporting sustainable and energy conscious design and operations. Our professional consultants use Eastern's standards when developing upgrades as well as new facilities. We engage our Office of Sustainability in all projects to make sure that we are meeting and exceeding our goals in this area. We also align our facilities with regulatory agencies requirement and legislative actions during the design and construction implementation process.

- > House Bill 1257 Clean Building Act
- > State of Washington Energy Code
- > RCW 39.35D High Performance Public Buildings – high efficiency components and systems
- > RCW 43.19.668; 669; 670; 682 Energy Conservation – high efficiency components and systems
- > EWU Energy Efficiency Sustainability Report
- > EWU Climate Action Plan
- > EWU Campus Infrastructure Renewal Plan

How does this project impact equity in the state? Which communities are impacted by this proposal? Include both demographic and geographic communities. How are disparities in communities impacted?

At Eastern Washington University, we are committed to a campus climate that welcomes and respects diversity. These efforts are championed by our campus leadership and the Office for Diversity and Inclusion. EWU is a

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Project Title: Sports and Recreation Center Energy Improvements

Description

microcosm of society reflecting diversity of people, ideas, beliefs, and philosophies.

Expanding opportunity for all students by providing critical access to first generation students, underserved populations, place-bound students, and other students who may not have the opportunity for higher education. We are especially committed to educating first-generation college students and those from underserved communities. One of our strategic planning initiatives is to work toward the federal designation of a Hispanic Serving Institution (HSI). For an institution to qualify as an HSI, it must have at least a 25%Latinx/Hispanic student population. Our strategic goal is to be designated an HSI by 2023/2024.

Is there additional information you would like decision makers to know when evaluating this request? Is there additional information you would like decision makers to know when evaluating this request?

The university under HB 1257 is required to update the energy performance of our campus facilities. While there is legislative requirement behind this project, the implementation will also reduce maintenance and energy costs and support the university's strategic sustainability goals. Buildings that perform better cost less to operate and maintain and are more desirable to our students, faculty, staff, and community members. These users are the reason why we are here, and proactive action is always more strategic than reactive action and has a higher return on investment and has overall less costs.

Eastern encourages student to explore their futures though experimental, multidisciplinary, impact-oriented learning. Student outcomes are clearly a response to the strategy of:

We ignite change

Eastern Washington University engages a diversity of students and ignites generational transformation. We inspire students through engaged learning experiences that encourage pathways to graduation. We collaborate with families, employers, and communities to solve complex issues and improve quality of life. Created as the public higher education institution for this region, EWU is committed to meeting current and emerging needs. We recognize the evolution of our communities, and we lead collaborative efforts for sustainable growth and development.

We embrace equity and social justice

We are recognized as a model diversity-serving institution. We embrace changing demographics and changing societal needs. Through culturally responsive curricula and campus activities, we work tirelessly to promote understanding and reduce disparity and inequity. Communities flourish when multiple perspectives converge to create a powerful vision for all. EWU fosters a campus life that is vibrant, welcoming, and supportive of all. We provide opportunities for open thought and dialogue. As the state's premier public diversity-serving institution, we are committed to catalyzing an equitable and inclusive climate on our campuses and in our communities.

We drive innovation

We invest in the faculty and staff—as well as the tools, resources, and opportunities—that promote inter disciplinary collaboration and innovative instruction. We celebrate faculty and staff who make extraordinary contributions to our students and our mission. EWU drives the change that promotes social and technological advancement, environmental and economic sustainability, and community health. Our curricula and our collaborations are designed strategically to create a prosperous future.

We transform our Region

**370 - Eastern Washington University
Capital Project Request**

2023-25 Biennium

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Version: S2 SR:Eastern Washington University

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Project Number: 40000112

Project Title: Sports and Recreation Center Energy Improvements

Description

We develop curricula that meet changing needs of students, employers, and communities. We commit to applied research and community partnerships that engage and inspire while preparing students for success after graduation. We develop the professional workforce and strengthen our economy through strategic and creative programming.

Eastern's facilities are in integral part of our education mission and the quality of these spaces directly enhance the student experience and subsequently their personal and professional success. Eastern's curricula and experiences inspire and engage. The facilities on the Cheney campus are a key component in preparing students, improving completion rates, and building community.

Location

City: Cheney

County: Spokane

Legislative District: 006

Project Type

Remodel/Renovate/Modernize (Major Projects)

Growth Management impacts

Not Applicable

Funding

Acct Code	Account Title	Estimated Total	Expenditures		2023-25 Fiscal Period	
			Prior Biennium	Current Biennium	Reappropriations	New Appropriations
057-1	State Bldg Constr-State	9,998,000				9,998,000
	Total	9,998,000	0	0	0	9,998,000
			Future Fiscal Periods			
			2025-27	2027-29	2029-31	2031-33
057-1	State Bldg Constr-State					
	Total	0	0	0	0	0

Operating Impacts

No Operating Impact

Narrative

This project is an upgrade to an existing facility that already has operating resources assigned.

STATE OF WASHINGTON
AGENCY / INSTITUTION PROJECT COST SUMMARY

Updated May 2023

Agency	Eastern Washington University	
Project Name	Sports and Recreation Center Energy Improvements	
OFM Project Number	40000112	

Contact Information

Name	Shawn King	
Phone Number	(509) 359-6878	
Email	sking@ewu.edu	

Statistics

Gross Square Feet	250,000	MACC per Gross Square Foot	\$29
Usable Square Feet	180,000	Escalated MACC per Gross Square Foot	\$30
Alt Gross Unit of Measure			
Space Efficiency	72.0%	A/E Fee Class	B
Construction Type	College classroom facility	A/E Fee Percentage	11.34%
Remodel	Yes	Projected Life of Asset (Years)	25

Additional Project Details

Procurement Approach	DBB	Art Requirement Applies	No
Inflation Rate	3.33%	Higher Ed Institution	Yes
Sales Tax Rate %	8.90%	Location Used for Tax Rate	Cheney, WA
Contingency Rate	5%		
Base Month (Estimate Date)	July-24	OFM UFI# (from FPMT, if available)	
Project Administered By	Agency		

Schedule

Predesign Start		Predesign End	
Design Start	July-24	Design End	January-25
Construction Start	March-25	Construction End	December-25
Construction Duration	9 Months		

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Project Cost Summary

Total Project	\$9,677,968	Total Project Escalated	\$9,998,027
		Rounded Escalated Total	\$9,998,000
Amount funded in Prior Biennia			\$0
Amount in current Biennium			\$9,998,000
Next Biennium			\$0
Out Years			\$0

Acquisition			
Acquisition Subtotal	\$0	Acquisition Subtotal Escalated	\$0

Consultant Services			
Predesign Services	\$0		
Design Phase Services	\$597,291		
Extra Services	\$0		
Other Services	\$268,348		
Design Services Contingency	\$43,282		
Consultant Services Subtotal	\$908,921	Consultant Services Subtotal Escalated	\$924,693

Construction			
Maximum Allowable Construction Cost (MACC)	\$7,270,000	Maximum Allowable Construction Cost (MACC) Escalated	\$7,522,269
DBB Risk Contingencies	\$0		
DBB Management	\$0		
Owner Construction Contingency	\$363,500		\$376,114
Non-Taxable Items	\$0		\$0
Sales Tax	\$679,382	Sales Tax Escalated	\$702,956
Construction Subtotal	\$8,312,882	Construction Subtotal Escalated	\$8,601,339

Equipment			
Equipment	\$0		
Sales Tax	\$0		
Non-Taxable Items	\$0		
Equipment Subtotal	\$0	Equipment Subtotal Escalated	\$0

Artwork			
Artwork Subtotal	\$0	Artwork Subtotal Escalated	\$0

Agency Project Administration			
Agency Project Administration Subtotal	\$456,165		
DES Additional Services Subtotal	\$0		
Other Project Admin Costs	\$0		
Project Administration Subtotal	\$456,165	Project Administration Subtotal Escalated	\$471,995

Other Costs			
Other Costs Subtotal	\$0	Other Costs Subtotal Escalated	\$0

Project Cost Estimate			
Total Project	\$9,677,968	Total Project Escalated	\$9,998,027
		Rounded Escalated Total	\$9,998,000

Funding Summary

	Project Cost (Escalated)	Funded in Prior Biennia	Current Biennium		
			2023-2025	2025-2027	Out Years
Acquisition					
Acquisition Subtotal	\$0		\$0		\$0
Consultant Services					
Consultant Services Subtotal	\$924,693		\$924,693		\$0
Construction					
Construction Subtotal	\$8,601,339		\$8,601,339		\$0
Equipment					
Equipment Subtotal	\$0				\$0
Artwork					
Artwork Subtotal	\$0				\$0
Agency Project Administration					
Project Administration Subtotal	\$471,995		\$471,995		\$0
Other Costs					
Other Costs Subtotal	\$0				\$0
Project Cost Estimate					
Total Project	\$9,998,027	\$0	\$9,998,027	\$0	\$0
	\$9,998,000	\$0	\$9,998,000	\$0	\$0
	Percentage requested as a new appropriation		100%		

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

Design and

Insert Row Here

What has been completed or is underway with a previous appropriation?

Insert Row Here

What is planned with a future appropriation?

Insert Row Here

Cost Estimate Details

Acquisition Costs

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

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Cost Estimate Details

Consultant Services				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
1) Pre-Schematic Design Services				
Programming/Site Analysis				
Environmental Analysis				
Predesign Study				
Other				
Insert Row Here				
Sub TOTAL	\$0	1.0000	\$0	Escalated to Design Start
2) Construction Documents				
A/E Basic Design Services	\$597,291			69% of A/E Basic Services
Other				
Insert Row Here				
Sub TOTAL	\$597,291	1.0083	\$602,249	Escalated to Mid-Design
3) Extra Services				
Civil Design (Above Basic Svcs)				
Geotechnical Investigation				
Commissioning				
Site Survey				
Testing				
LEED Services				
Voice/Data Consultant				
Value Engineering				
Constructability Review				
Environmental Mitigation (EIS)				
Landscape Consultant				
Other				
Insert Row Here				
Sub TOTAL	\$0	1.0083	\$0	Escalated to Mid-Design
4) Other Services				
Bid/Construction/Closeout	\$268,348			31% of A/E Basic Services
HVAC Balancing				
Staffing				
Other				
Insert Row Here				
Sub TOTAL	\$268,348	1.0347	\$277,660	Escalated to Mid-Const.
5) Design Services Contingency				
Design Services Contingency	\$43,282			
Other				
Insert Row Here				
Sub TOTAL	\$43,282	1.0347	\$44,784	Escalated to Mid-Const.

CONSULTANT SERVICES TOTAL	\$908,921	\$924,693

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Cost Estimate Details

Construction Contracts				
Item	Base Amount	Escalation Factor	Escalated Cost	Notes
1) Site Work				
G10 - Site Preparation				
G20 - Site Improvements				
G30 - Site Mechanical Utilities				
G40 - Site Electrical Utilities				
G60 - Other Site Construction				
Other				
Insert Row Here				
Sub TOTAL	\$0	1.0220	\$0	
2) Related Project Costs				
Offsite Improvements				
City Utilities Relocation				
Parking Mitigation				
Stormwater Retention/Detention				
Other				
Insert Row Here				
Sub TOTAL	\$0	1.0220	\$0	
3) Facility Construction				
A10 - Foundations				
A20 - Basement Construction				
B10 - Superstructure				
B20 - Exterior Closure				
B30 - Roofing				
C10 - Interior Construction				
C20 - Stairs				
C30 - Interior Finishes				
D10 - Conveying				
D20 - Plumbing Systems				
D30 - HVAC Systems	\$6,100,000			
D40 - Fire Protection Systems				
D50 - Electrical Systems	\$600,000			
F10 - Special Construction	\$300,000			
F20 - Selective Demolition	\$100,000			
General Conditions	\$170,000			
Other Direct Cost				
Insert Row Here				
Sub TOTAL	\$7,270,000	1.0347	\$7,522,269	
4) Maximum Allowable Construction Cost				
MACC Sub TOTAL	\$7,270,000		\$7,522,269	
	\$29		\$30 per GSF	

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7) Owner Construction Contingency

Allowance for Change Orders	\$363,500		
Other			
Insert Row Here			
Sub TOTAL	\$363,500	1.0347	\$376,114

8) Non-Taxable Items

Other			
Insert Row Here			
Sub TOTAL	\$0	1.0347	\$0

9) Sales Tax

Sub TOTAL	\$679,382		\$702,956
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CONSTRUCTION CONTRACTS TOTAL	\$8,312,882		\$8,601,339
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Cost Estimate Details

Equipment

Item	Base Amount		Escalation Factor	Escalated Cost	Notes
1) Equipment					
E10 - Equipment					
E20 - Furnishings					
F10 - Special Construction					
Other					
Insert Row Here					
Sub TOTAL	\$0		1.0347	\$0	
2) Non Taxable Items					
Other					
Insert Row Here					
Sub TOTAL	\$0		1.0347	\$0	
3) Sales Tax					
Sub TOTAL	\$0			\$0	
EQUIPMENT TOTAL					
EQUIPMENT TOTAL	\$0			\$0	

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Cost Estimate Details

Artwork

Item	Base Amount		Escalation Factor	Escalated Cost	Notes
1) Artwork					
Project Artwork	\$0				0.5% of total project cost for new construction
Higher Ed Artwork	\$49,990				0.5% of total project cost for new and renewal construction
Other	-\$49,990				
Insert Row Here					
ARTWORK TOTAL	\$0		NA	\$0	

Green cells must be filled in by user

Cost Estimate Details

Project Management

Item	Base Amount		Escalation Factor	Escalated Cost	Notes
1) Agency Project Management					
Agency Project Management	\$456,165				
Additional Services					
Other - No Artwork Required					
Insert Row Here					
<i>Subtotal of Other</i>	<i>\$0</i>				
PROJECT MANAGEMENT TOTAL	\$456,165		1.0347	\$471,995	

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Cost Estimate Details

Other Costs					
Item	Base Amount		Escalation Factor	Escalated Cost	Notes
Mitigation Costs					
Hazardous Material Remediation/Removal					
Historic and Archeological Mitigation					
Other					
Insert Row Here					
OTHER COSTS TOTAL	\$0		1.0220	\$0	

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PREPARED BY: KELLY HARKINS PE

KJH ENGINEERING PLLC 610 EAST 3RD STREET MOSCOW, IDAHO 83843

EASTERN WASHINGTON UNIVERSITY SPORTS AND RECREATION CENTER ENERGY AUDIT REPORT JULY 21ST, 2022



KJH ENGINEERING PLLC LICENSES & CERTIFICATIONS

WA • PE LICENSE 47417 CERTIFICATE OF FORMATION UBI NUMBER 604-063-487

ID • PE LICENSE P-14951 CERTIFICATE OF AUTHORIZATION 3547

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KJH ENGINEERING – EASTERN WASHINGTON UNIVERSITY
SPORTS AND RECREATION CENTER ENERGY AUDIT REPORT

A. EXECUTIVE SUMMARY

KJH Engineering was contacted by Dave Walters of Eastern Washington University, Construction and Planning Department in December of 2021 requesting a proposal to provide an energy audit of the Athletic Facilities (Phase Buildings). The scope of work and terms were finalized in March of 2022 and KJH was placed under contract.

The final scope of work for the energy audit covered the Pavilion (Reese Court), Physical Education Activities Building (PEA) Gymnasium 270, and the Jim Thorpe Fieldhouse (JTF). The project involves performing an ASHRAE Level 2 Audit process that would meet the requirements of State of Washington House Bill 1257. This process involves the determination of each buildings energy utilization index (EUI) defined in units of BTU/Square Foot per year. Once the baseline EUI is determined, facility improvement measures (FIMS) are developed to lower the EUI to meet the ASHRAE targets identified within the Washington State Clean Buildings Performance Standard (ASHARE Standard 100-2018).

KJH subcontracted with Apollo Solutions Group in Spokane to perform the creation of a calibrated baseline energy model of each facility and to assist with the development of the facility improvement measures. KJH gathered all applicable architectural, electrical and mechanical drawings and utility consumption data that Apollo would require to build the energy models. KJH also gathered all of the applicable mechanical equipment submittals that identified the capacities of all equipment. KJH worked with Dustin Walters of EWU to collect and record all existing sequences of operation that are currently operating the mechanical equipment including set-points, reset schedules, equipment enable/disable basis and equipment scheduling. KJH located the submittals for the equipment that is operating with pneumatic controls and recorded the original reset schedules and operating parameters.

To calculate each building's EUI, we first collected data from the utility data meters for each building. Then using this utility data, field notes and drawings, we created the Trace 3D energy model for each building. This model is created by inputting all of the data that we have and calibrating the outputs to match the utility bills within 5%.

KJH ENGINEERING – EASTERN WASHINGTON UNIVERSITY
SPORTS AND RECREATION CENTER ENERGY AUDIT REPORT

When creating the model, we will sometimes find that some utility data doesn't make sense, and thus not usable, and in this case, we found a few meters that we didn't think that we could use.

First, we found some problems with the steam condensate data for all three buildings. When the data was used in our steam calculations to back calculate the Therms consumed at each building, we found that once we converted the gallons of condensate values to Therms, the values were much lower than we had anticipated for buildings of this size. Because of this, we used the annual Therms consumption that were calculated by the Trace 3D Model. We used these values to calculate the EUI for each building. Since the equipment information, occupancy schedules, equipment schedules, and all other available data was input into Trace, we believe that the calibrated Therm Consumption is accurate to the building's current HVAC Systems, operation, and usage.

Another problem that we ran into was that there was not a meter to measure electrical demand for the Jim Thorpe Fieldhouse. Because of this, we couldn't display electrical demand savings based on historical data, but we did show savings based on the Trace 3D model's calculated demand for JTF.

The cooling BTU/hr data only gave us a cooling load profile, which followed a typical load profile for cooling. The meter is based on the flow rate and supply and return temperatures. The data followed the cooling load profile that we believe we would typically see out of a building, but it didn't help us calibrate the baseline, but did allow us to make sure our cooling load profiles that the model calculated followed a similar profile.

The electrical data that was given to us does not include the cooling electrical load from Rozell. We feel that the model gave us a sufficient estimate of the cooling electrical load required for the respective buildings.

B. PE ACTIVITIES BUILDING (PEA)

I) Mechanical Equipment: This facility is served with central campus steam and chilled water. Zones and gymnasiums are served by air handling units that utilize various styles of units; multi-zones, heating and ventilating and heating, ventilating and cooling. Perimeter areas and some internal zones are heated with hot water generated by a steam shell in tube heat exchanger. The large domestic hot water load is served by (3) Aerco steam generators with accumulator storage tanks. EWU has replaced most all equipment due to normal wear and tear with the exception of (2) air handling units serving Gymnasium 270. These units are ceiling suspended heating and ventilating units served by pneumatic controls.

II) Controls: The majority of this facility is served by an Alerton DDC Control system with the exception of air handling units 3 and 4 which are served by a Delta system. The domestic hot water convertors are monitored by the Alerton system but are locally controlled with Robert Shaw pneumatics. As mentioned above, Gymnasium 270 is controlled by a Robert Shaw pneumatic system.

III) Lighting: This facility has a large quantity of fluorescent fixtures with a mixture of T8's and T5's. Resound Energy performed a lighting audit that will be discussed below in the

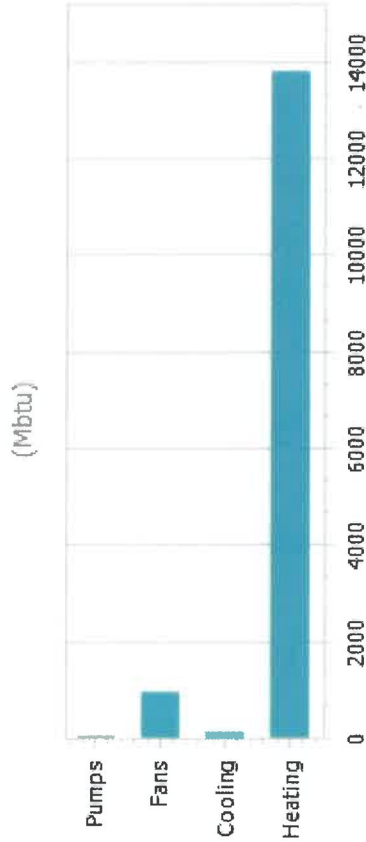
IV) ENERGY MODEL BUILDING/CONSUMPTION SUMMARY (BASELINE VS ALL NEW FIMS)

PEA BASELINE CONSUMPTION SUMMARY

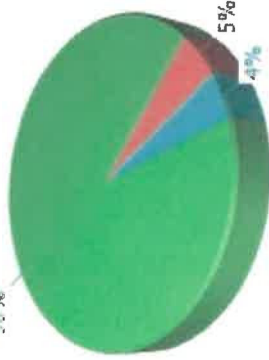
Site Consumption Summary

Energy Consumption

HVAC Energy Usage



Total Site Energy Breakdown



Component	Electricity (kWh)	Gas (Mbtu)	District Cooling (Mbtu)	District Heating (Mbtu)	Other Utilities (Mbtu)	Site Energy (kBtu)	Site Energy Use Intensity (kBtu/ft²)	Source Energy (kBtu)	Source Energy Use Intensity (kBtu/ft²)	Water (gal)
Heating	3	13,808	0	0	0	13,808,359	134.06	14,968,281	145.32	0
Cooling	47,006	0	0	0	0	160,390	1.56	507,954	4.93	0
Fans	279,853	0	0	0	0	954,897	9.27	3,024,160	29.36	0
Pumps	21,906	0	0	0	0	74,745	0.73	236,717	2.3	0
Heat Rejection	0	0	0	0	0	0	0	0	0	0
Humidification	0	0	0	0	0	0	0	0	0	0
Heat Recovery	0	0	0	0	0	0	0	0	0	0
HVAC	348,767	13,808	0	0	0	14,998,391	145.61	18,737,112	181.91	0
Water Systems	0	0	0	0	0	0	0	0	0	0
Interior Lighting	216,550	0	0	0	0	738,899	7.17	2,340,094	22.72	0
Exterior Lighting	0	0	0	0	0	0	0	0	0	0
Interior Equipment	248,208	0	0	0	0	846,922	8.22	2,682,202	26.04	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0
Refrigeration	0	0	0	0	0	0	0	0	0	0
Non-HVAC	464,758	0	0	0	0	1,585,821	15.4	5,022,296	48.76	0
Generators	0	0	0	0	0	0	0	0	0	0
Site Generation	0	0	0	0	0	0	0	0	0	0
Grand Total	813,525	13,808	0	0	0	16,584,212	161.01	23,759,408	230.66	0

Gross Floor Area: 102,973 ft²	Region: West	Building Type: Office	CBECS Survey Year: 2012	Benchmark EUI: 69.2 kBtu/ft²/yr
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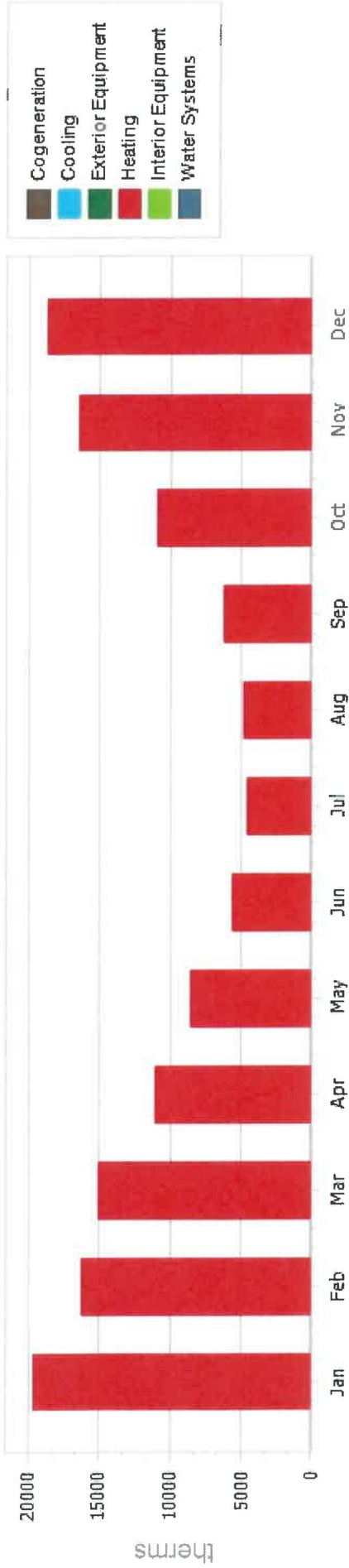
If the region reports as "All US" it means the data for the particular region was withheld because the Relative Standard Error was greater than 50 percent or fewer than 20 buildings were sampled.

Monthly Energy End Use

Electricity



Natural Gas



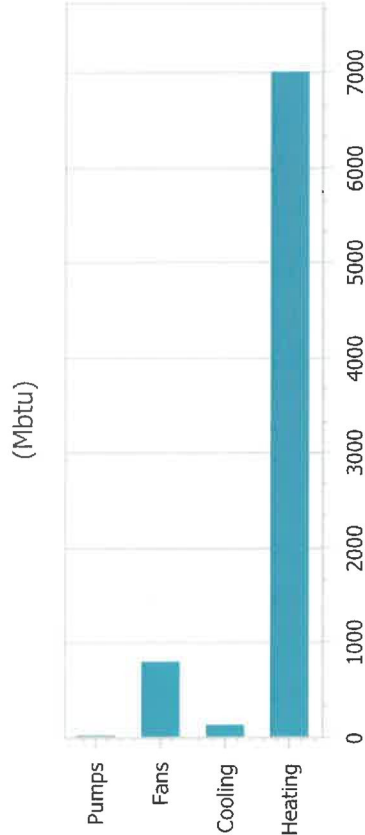
	January	February	March	April	May	June	July	August	September	October	November	December	Grand Total
Cogeneration	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Heating	19,689	16,287	15,100	11,058	8,632	5,653	4,558	4,777	6,262	10,896	16,486	18,721	138,118
Interior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Systems	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	19,689	16,287	15,100	11,058	8,632	5,653	4,558	4,777	6,262	10,896	16,486	18,721	138,118

PEA ALL NEW FIMS CONSUMPTION SUMMARY

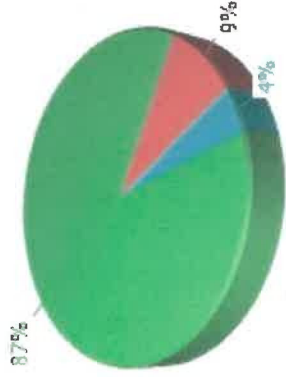
Site Consumption Summary

Energy Consumption

HVAC Energy Usage (Mbtu)



Total Site Energy Breakdown



Component	Electricity (kWh)	Gas (Mbtu)	District Cooling (Mbtu)	District Heating (Mbtu)	Other Utilities (Mbtu)	Site Energy (kBtu)	Site Energy Use Intensity (kBtu/ft²)	Source Energy (kBtu)	Source Energy Use Intensity (kBtu/ft²)	Water (gal)
Heating	2,731	7,012	0	0	0	7,021,278	68.16	7,630,472	74.08	0
Cooling	43,861	0	0	0	0	149,660	1.45	473,974	4.6	0
Fans	238,014	0	0	0	0	812,137	7.88	2,572,038	24.97	0
Pumps	11,453	0	0	0	0	39,079	0.38	123,762	1.2	0
Heat Rejection	0	0	0	0	0	0	0	0	0	0
Humidification	0	0	0	0	0	0	0	0	0	0
Heat Recovery	0	0	0	0	0	0	0	0	0	0
HVAC	296,058	7,012	0	0	0	8,022,153	77.88	10,800,246	104.85	0
Water Systems	0	0	0	0	0	0	0	0	0	0
Interior Lighting	116,764	0	0	0	0	398,415	3.87	1,261,780	12.25	0
Exterior Lighting	0	0	0	0	0	0	0	0	0	0
Interior Equipment	248,208	0	0	0	0	846,922	8.22	2,682,202	26.04	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0
Refrigeration	0	0	0	0	0	0	0	0	0	0
Non-HVAC	364,972	0	0	0	0	1,245,337	12.09	3,943,982	38.29	0
Generators	0	0	0	0	0	0	0	0	0	0
Site Generation	0	0	0	0	0	0	0	0	0	0
Grand Total	661,031	7,012	0	0	0	9,267,490	89.97	14,744,228	143.14	0

Gross Floor Area: 102,973 ft² Region: West Building Type: Office CBECs Survey Year: 2012 Benchmark EUI: 69.2 kBtu/ft²/yr

If the region reports as "All US" it means the data for the particular region was withheld because the Relative Standard Error was greater than 50 percent or fewer than 20 buildings were sampled.

Alternative: Demand Control Ventilation

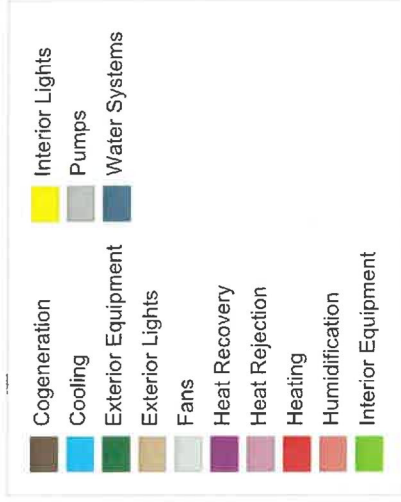
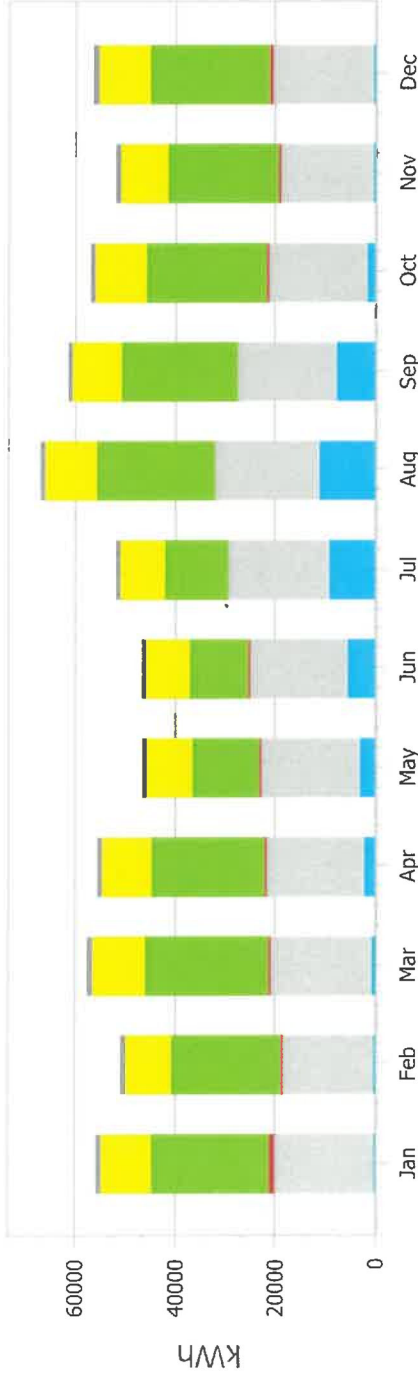
File name: EWU PE Buildings 7-5.mdf

TRACE™ 3D Plus 4.13.207

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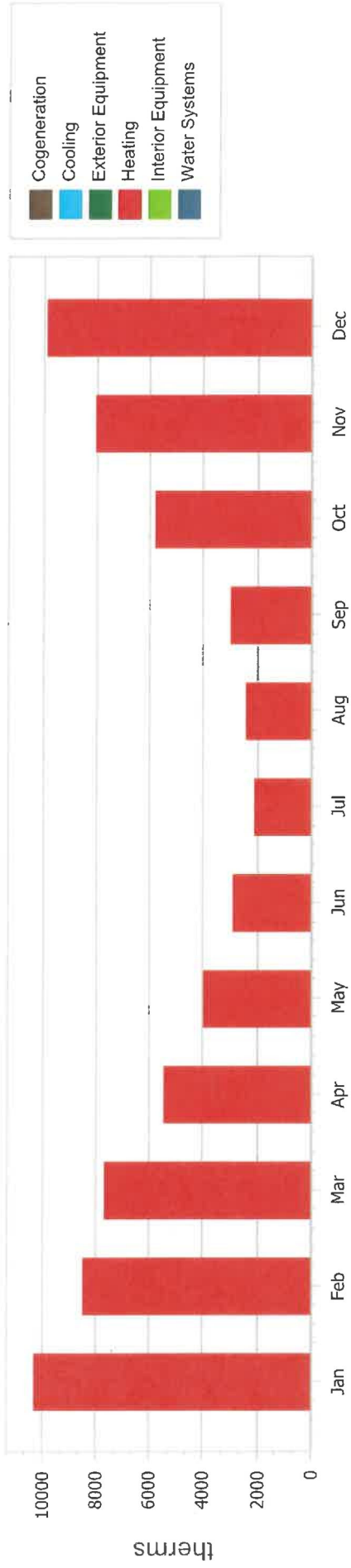
Monthly Energy End Use

Electricity



	January	February	March	April	May	June	July	August	September	October	November	December	Grand Total
Cogeneration	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling	430	423	766	2,322	3,193	5,616	9,302	11,299	7,868	1,714	452	475	43,860
Exterior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
Fans	19,837	18,153	20,516	19,851	20,103	19,851	20,201	20,893	19,728	20,104	18,651	20,127	238,014
Heat Recovery	0	0	0	0	0	0	0	0	0	0	0	0	0
Heat Rejection	0	0	0	0	0	0	0	0	0	0	0	0	0
Heating	1,093	488	145	10	5	1	0	0	0	20	392	576	2,730
Humidification	0	0	0	0	0	0	0	0	0	0	0	0	0
Interior Equipment	23,555	21,770	24,795	22,747	13,341	11,713	12,693	23,762	23,361	24,166	22,159	24,147	248,209
Interior Lights	10,011	9,224	10,502	9,902	9,158	8,856	8,962	10,381	9,872	10,227	9,502	10,167	116,764
Pumps	1,088	1,004	1,063	928	957	896	835	844	817	911	994	1,116	11,452
Water Systems	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	56,014	51,061	57,787	55,760	46,758	46,932	51,993	67,179	61,646	57,140	52,150	56,607	661,029

Natural Gas



	January	February	March	April	May	June	July	August	September	October	November	December	Grand Total
Cogeneration	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Heating	10,312	8,489	7,681	5,468	3,987	2,913	2,114	2,432	2,996	5,816	8,050	9,880	70,137
Interior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Systems	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	10,312	8,489	7,681	5,468	3,987	2,913	2,114	2,432	2,996	5,816	8,050	9,880	70,137

V) FIMS list for this building.

FIM #1 PEA: Retrofit existing T5 & T8 lighting fixtures with new LED fixtures

FIM #2 PEA: Remove and replace (2) existing constant volume variable temperature ceiling suspended heating and ventilating units with Haakon Custom units that will be mounted on the roof. Each unit will have new ductwork distribution systems and Alerton Controls installed. Add demand control ventilation to all (13) air handling units in the facility.

C. PAVILION (REESE COURT)

I) Mechanical Equipment: This facility is served by (5) air handling units that provide heating, cooling and ventilation. The heating and cooling systems are served by campus steam and chilled water. The (3) smaller units (AH-1, 2 & 3). Serve the lower-level locker rooms and storage areas. The (2) large units (AH-4 & 5) serve Reese Court and certain surrounding areas. Perimeter areas and some internal zones are heated and cooled with fan coil units, fin tubes and cabinet unit heaters. The heating hot water is generated by a steam shell in tube heat exchanger utilizing campus steam. The campus chilled water pressure is boosted by a 20 Horsepower chilled water pump (CP-2) that serves the entire facility. AH-4 & 5 are large “Joy Manufacturer 1000 Series” axial vane fans. Each system uses a 50,000 CFM supply Joy fan and a 34,000 CFM Joy return fan. The domestic hot water load is served by shell in tube heat exchanger and accumulator storage tank.

II) Controls: The majority of controls are Alerton DDC with some smaller fan coils, fin tubes and cabinet unit heaters served by Robert Shaw pneumatic controls.

III) Lighting: This facility has a large quantity of fluorescent fixtures with a mixture of T8's and T5's. Resound Energy performed a lighting audit that will be discussed below in the

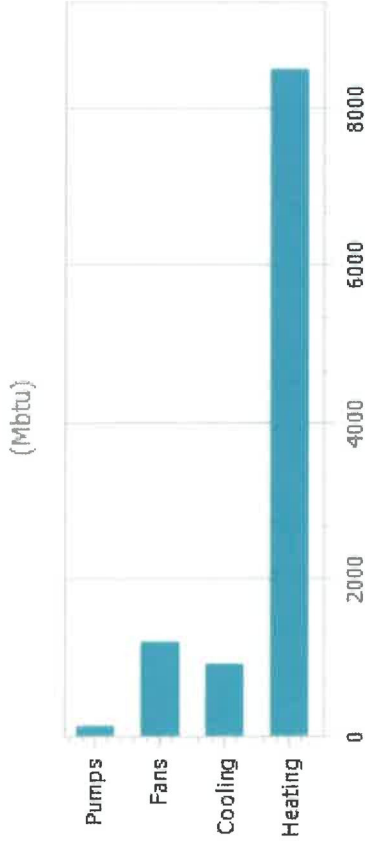
IV) ENERGY MODEL BUILDING/CONSUMPTION SUMMARY (BASELINE VS ALL NEW FIMS)

PAVILION BASELINE SITE CONSUMPTION SUMMARY

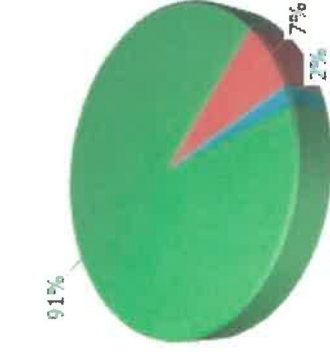
Site Consumption Summary

Energy Consumption

HVAC Energy Usage (Mbtu)



Total Site Energy Breakdown



Interior Lighting: 2%
Interior Equipment: 7%
HVAC Energy: 91%

Component	Electricity (kWh)	Gas (Mbtu)	District Cooling (Mbtu)	District Heating (Mbtu)	Other Utilities (Mbtu)	Site Energy (kBtu)	Site Energy Use Intensity (kBtu/ft ²)	Source Energy (kBtu)	Source Energy Use Intensity (kBtu/ft ²)	Water (gal)
Heating	219	8,498	0	0	0	8,498,261	92.16	9,213,674	99.92	0
Cooling	270,675	0	0	0	0	923,581	10.02	2,924,982	31.72	0
Fans	355,522	0	0	0	0	1,213,092	13.16	3,841,863	41.66	0
Pumps	37,706	0	0	0	0	128,657	1.4	407,456	4.42	0
Heat Rejection	0	0	0	0	0	0	0	0	0	0
Humidification	0	0	0	0	0	0	0	0	0	0
Heat Recovery	0	0	0	0	0	0	0	0	0	0
HVAC	664,122	8,498	0	0	0	10,763,591	116.72	16,387,976	177.72	0
Water Systems	0	0	0	0	0	0	0	0	0	0
Interior Lighting	63,808	0	0	0	0	217,723	2.36	689,529	7.48	0
Exterior Lighting	0	0	0	0	0	0	0	0	0	0
Interior Equipment	236,014	22	0	0	0	826,885	8.97	2,573,810	27.91	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0
Refrigeration	0	0	0	0	0	0	0	0	0	0
Non-HVAC	299,822	22	0	0	0	1,044,608	11.33	3,263,339	35.39	0
Generators	0	0	0	0	0	0	0	0	0	0
Site Generation	0	0	0	0	0	0	0	0	0	0
Grand Total	963,944	8,519	0	0	0	11,808,199	128.05	19,651,315	213.11	0

Gross Floor Area: 92,185 ft² Region: West Building Type: Office CBCECS Survey Year: 2012 Benchmark EUI: 69.2 kBtu/ft²/yr

If the region reports as "All US" it means the data for the particular region was withheld because the Relative Standard Error was greater than 50 percent or fewer than 20 buildings were sampled.

Alternative: Upper AHU Retrofit

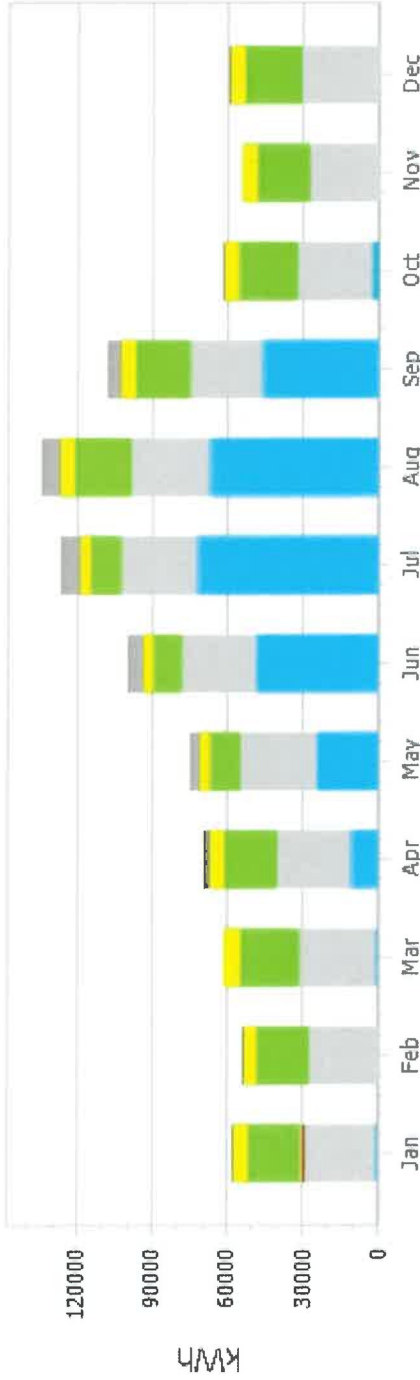
File name: EWU Pavilion 7-5.mdf

TRACE™ 3D Plus 4.01.97

Calculated at: Jul 06, 2022 - 03:05 PM

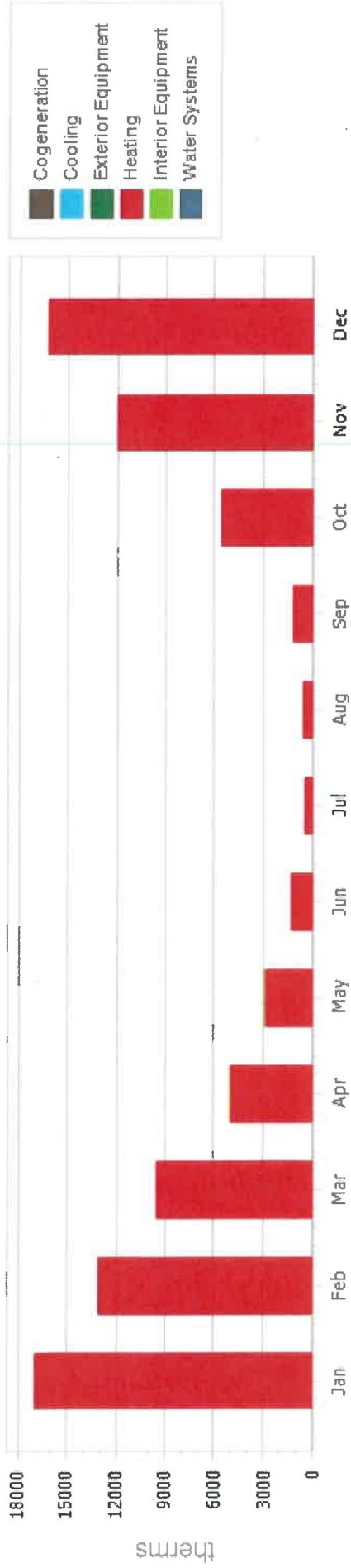
Monthly Energy End Use

Electricity



	January	February	March	April	May	June	July	August	September	October	November	December	Grand Total
Cogeneration	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling	118	109	493	9,884	24,378	48,206	72,201	67,226	45,625	2,249	76	111	270,676
Exterior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
Fans	29,151	27,120	31,111	30,107	30,131	30,107	30,131	31,111	29,127	30,131	27,167	30,131	355,522
Heat Recovery	0	0	0	0	0	0	0	0	0	0	0	0	0
Heat Rejection	0	0	0	0	0	0	0	0	0	0	0	0	0
Heating	29	23	21	17	16	13	10	10	12	18	24	27	220
Humidification	0	0	0	0	0	0	0	0	0	0	0	0	0
Interior Equipment	22,384	20,678	23,526	21,610	12,544	11,199	12,159	22,755	22,196	22,955	21,054	22,955	236,015
Interior Lights	5,670	5,262	6,020	5,654	4,301	4,110	4,244	5,906	5,651	5,845	5,301	5,845	63,809
Pumps	515	466	466	1,795	3,868	6,453	8,331	7,879	6,007	1,060	376	492	37,706
Water Systems	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	57,867	53,659	61,636	69,067	75,237	100,088	127,075	134,886	108,617	62,257	53,998	59,560	963,948

Natural Gas



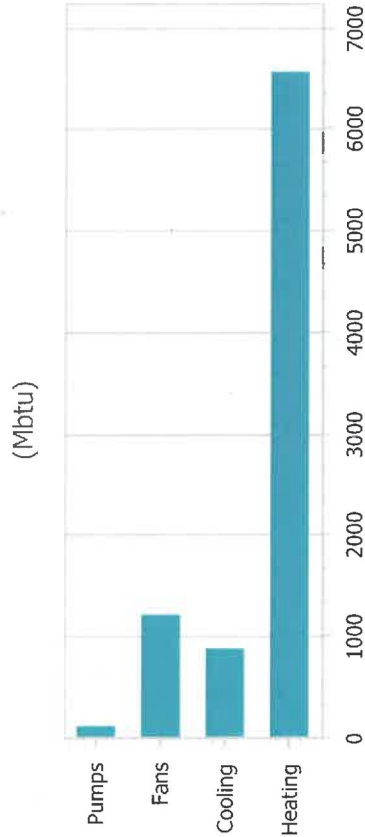
	January	February	March	April	May	June	July	August	September	October	November	December	Grand Total
Cogeneration	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Heating	17,005	13,174	9,577	5,014	2,863	1,298	446	533	1,186	5,595	12,020	16,284	84,997
Interior Equipment	19	18	20	19	20	15	15	16	19	19	18	19	216
Water Systems	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	17,024	13,192	9,598	5,033	2,883	1,313	461	549	1,205	5,614	12,038	16,303	85,212

PAVILION ALL NEW FIMS SITE CONSUMPTION SUMMARY

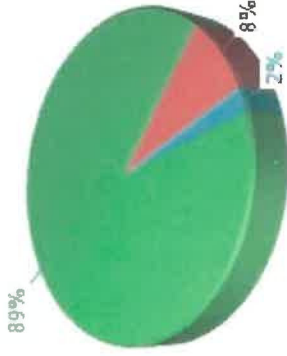
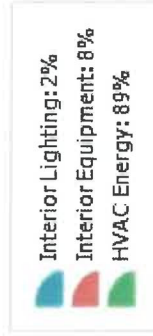
Site Consumption Summary

Energy Consumption

HVAC Energy Usage (Mbtu)



Total Site Energy Breakdown



Component	Electricity (kWh)	Gas (Mbtu)	District Cooling (Mbtu)	District Heating (Mbtu)	Other Utilities (Mbtu)	Site Energy (kBtu)	Site Energy Intensity (kBtu/ft²)	Source Energy (kBtu)	Source Energy Use Intensity (kBtu/ft²)	Water (gal)
Heating	219	6,571	0	0	0	6,571,813	71.27	7,125,405	77.27	0
Cooling	260,969	0	0	0	0	890,465	9.66	2,820,102	30.58	0
Fans	359,872	0	0	0	0	1,227,935	13.32	3,888,871	42.17	0
Pumps	37,972	0	0	0	0	129,567	1.41	410,337	4.45	0
Heat Rejection	0	0	0	0	0	0	0	0	0	0
Humidification	0	0	0	0	0	0	0	0	0	0
Heat Recovery	0	0	0	0	0	0	0	0	0	0
HVAC	659,033	6,571	0	0	0	8,819,780	95.65	14,244,715	154.48	0
Water Systems	0	0	0	0	0	0	0	0	0	0
Interior Lighting	63,808	0	0	0	0	217,723	2.36	689,529	7.48	0
Exterior Lighting	0	0	0	0	0	0	0	0	0	0
Interior Equipment	236,014	22	0	0	0	826,885	8.97	2,573,810	27.91	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0
Refrigeration	0	0	0	0	0	0	0	0	0	0
Non-HVAC	299,822	22	0	0	0	1,044,608	11.33	3,263,339	35.39	0
Generators	0	0	0	0	0	0	0	0	0	0
Site Generation	0	0	0	0	0	0	0	0	0	0
Grand Total	958,856	6,593	0	0	0	9,864,388	106.97	17,508,054	189.86	0

Gross Floor Area: 92,185 ft² Region: West Building Type: Office CBECs Survey Year: 2012 Benchmark EUI: 69.2 kBtu/ft²/yr

If the region reports as "All US" it means the data for the particular region was withheld because the Relative Standard Error was greater than 50 percent or fewer than 20 buildings were sampled.

Alternative: Upper AHU Retrofit & DCV

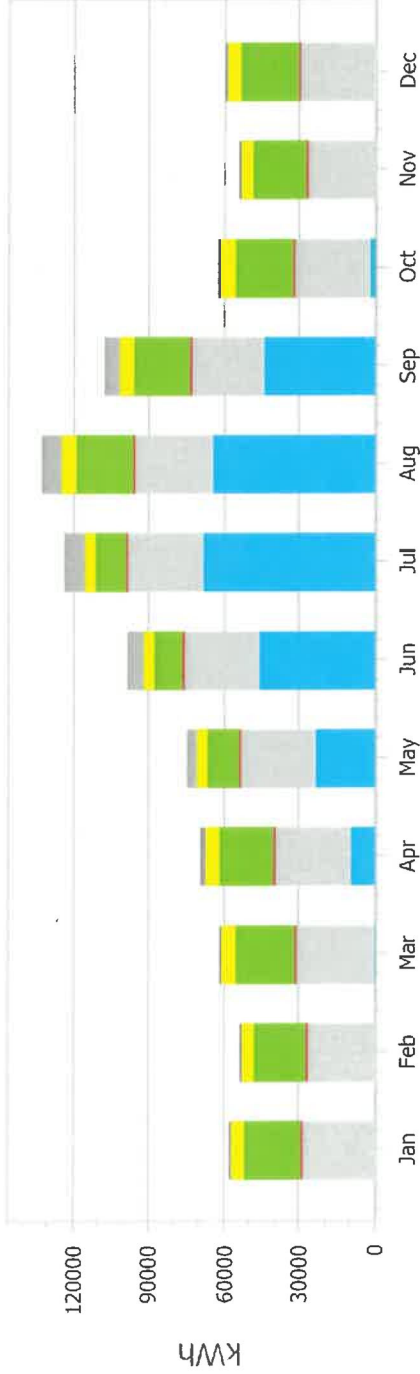
File name: EWU Pavilion 7-5.mdf

TRACE™ 3D Plus 4.13.207

Calculated at: Jul 12, 2022 - 08:36 AM

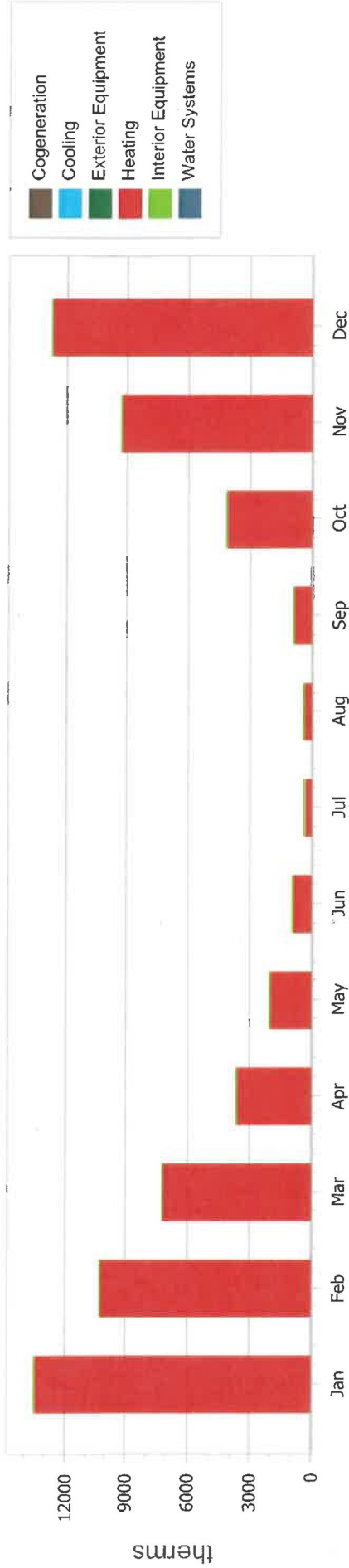
Monthly Energy End Use

Electricity



	January	February	March	April	May	June	July	August	September	October	November	December	Grand Total
Cogeneration	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling	104	96	524	9,893	23,743	46,338	68,601	64,822	44,391	2,283	90	85	260,970
Exterior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
Fans	29,507	27,452	31,492	30,476	30,499	30,476	30,499	31,492	29,483	30,499	27,499	30,499	359,873
Heat Recovery	0	0	0	0	0	0	0	0	0	0	0	0	0
Heat Rejection	0	0	0	0	0	0	0	0	0	0	0	0	0
Heating	29	24	21	17	16	13	10	10	12	18	24	27	220
Humidification	0	0	0	0	0	0	0	0	0	0	0	0	0
Interior Equipment	22,384	20,678	23,526	21,610	12,544	11,199	12,159	22,755	22,196	22,955	21,054	22,955	236,015
Interior Lights	5,670	5,262	6,020	5,654	4,301	4,110	4,244	5,906	5,651	5,845	5,301	5,845	63,809
Pumps	463	420	542	1,918	3,859	6,467	8,376	7,908	6,091	1,112	406	408	37,971
Water Systems	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	58,157	53,933	62,125	69,568	74,962	98,603	123,888	132,892	107,824	62,713	54,373	59,820	958,859

Natural Gas



	January	February	March	April	May	June	July	August	September	October	November	December	Grand Total
Cogeneration	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Heating	13,523	10,289	7,260	3,675	2,063	956	384	424	908	4,176	9,324	12,745	65,727
Interior Equipment	19	18	20	19	20	15	15	16	19	19	18	19	216
Water Systems	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	13,542	10,306	7,281	3,694	2,083	971	398	440	927	4,196	9,342	12,764	65,943

V) FIMS list for this building.

FIM #6: Retrofit existing T5 & T8 lighting fixtures with new LED fixtures

FIM #7: Lower-Level Air Handling Units: Remove the existing (3) air handling units with (4) new air handling units. The single multi-zone unit will be broken up into (2) separate zones served by (2) new air handling units. The existing ductwork will be modified to accommodate the (2) new units. Each new air handling unit will have new Alerton Controls.

FIM #8: Reese Court (Upper Air Handling Units): Remove and replace the supply and return axial "Joy" fans serving air handling units 4 & 5 with fan wall arrays with variable frequency drives. Remove the sound attenuators on either side of the fans and install new ductwork. Each air handling unit will have new Alerton Controls. Add demand control ventilation to AHU-4 & AHU-5.

D. JIM THORPE FIELDHOUSE

I) Mechanical Equipment: The fieldhouse floor is served by (2) rooftop mounted heating and ventilating units. Steam is supplied to these units from the central campus steam plant. Each unit is rated at 24,000 CFM. The discharge of each unit is served by a rotating discharge air nozzle. The handball courts are served by a multi-zone air handling unit. Campus steam and chilled water are supplied to this unit. The hallway adjacent to the handball courts is served by a steam air handling unit. There is supplemental heat provided by hydronic baseboard and fan coil units. This heating hot water is supplied from a shell and tube heat exchanger supplied with campus steam. The storage area is heated with (4) steam unit heaters.

II) Controls: The entire facility is served by the original Honeywell pneumatic control system.

III) Lighting: This facility has a large quantity of fluorescent fixtures. Resound Energy performed a lighting audit that will be discussed below in the FIMS list for this building.

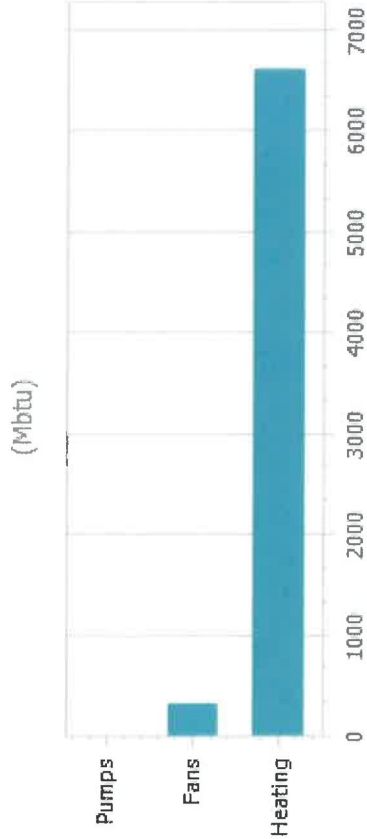
IV) ENERGY MODEL BUILDING/CONSUMPTION SUMMARY (BASELINE VS ALL NEW FIMS)

JTF BASELINE SITE CONSUMPTION SUMMARY

Site Consumption Summary

Energy Consumption

HVAC Energy Usage (Mbtu)



Total Site Energy Breakdown



Component	Electricity (kWh)	Gas (Mbtu)	District Cooling (Mbtu)	District Heating (Mbtu)	Other Utilities (Mbtu)	Site Energy (kBtu)	Site Energy Use Intensity (kBtu/ft²)	Source Energy (kBtu)	Source Energy Use Intensity (kBtu/ft²)	Water (gal)
Heating	0	6,610	0	0	0	6,609,859	131.8	7,165,087	142.87	0
Cooling	0	0	0	0	0	0	0	0	0	0
Fans	98,861	0	0	0	0	337,328	6.73	1,068,318	21.3	0
Pumps	256	0	0	0	0	872	0.02	2,762	0.06	0
Heat Rejection	0	0	0	0	0	0	0	0	0	0
Humidification	0	0	0	0	0	0	0	0	0	0
Heat Recovery	0	0	0	0	0	0	0	0	0	0
HVAC	99,117	6,610	0	0	0	6,948,059	138.54	8,236,167	164.23	0
Water Systems	0	0	0	0	0	0	0	0	0	0
Interior Lighting	56,222	0	0	0	0	191,838	3.83	607,552	12.11	0
Exterior Lighting	0	0	0	0	0	0	0	0	0	0
Interior Equipment	68,886	0	0	0	0	235,049	4.69	744,401	14.84	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0
Refrigeration	0	0	0	0	0	0	0	0	0	0
Non-HVAC	125,108	0	0	0	0	426,887	8.51	1,351,952	26.96	0
Generators	0	0	0	0	0	0	0	0	0	0
Site Generation	0	0	0	0	0	0	0	0	0	0
Grand Total	224,225	6,610	0	0	0	7,374,946	147.05	9,588,119	191.18	0

Gross Floor Area: 50,136 ft² Region: West Building Type: Office CBECS Survey Year: 2012 Benchmark EUI: 69.2 kBtu/ft²/yr

If the region reports as "All US" it means the data for the particular region was withheld because the Relative Standard Error was greater than 50 percent or fewer than 20 buildings were sampled.

Alternative: Primary

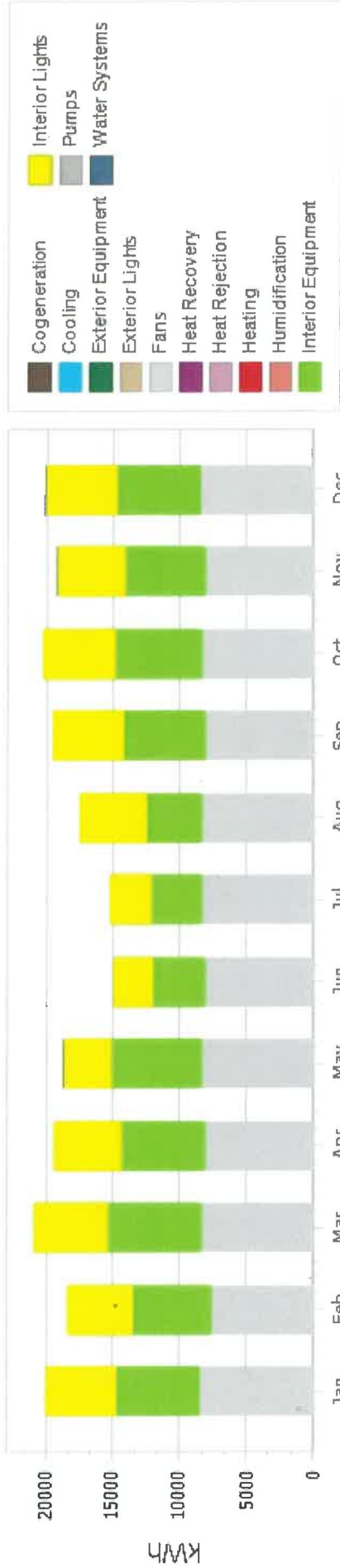
File name: EWU Jim Thorpe Fieldhouse 6-29 Test.mdf

TRACE™ 3D Plus 4.01.97

Calculated at: Jul 05, 2022 - 08:50 AM

Monthly Energy End Use

Electricity



	January	February	March	April	May	June	July	August	September	October	November	December	Grand Total
Cogeneration	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
Fans	8,485	7,631	8,406	8,104	8,359	8,087	8,356	8,356	8,087	8,366	8,165	8,458	98,861
Heat Recovery	0	0	0	0	0	0	0	0	0	0	0	0	0
Heat Rejection	0	0	0	0	0	0	0	0	0	0	0	0	0
Heating	0	0	0	0	0	0	0	0	0	0	0	0	0
Humidification	0	0	0	0	0	0	0	0	0	0	0	0	0
Interior Equipment	6,274	5,882	6,964	6,220	6,734	3,898	3,744	4,182	6,220	6,504	5,990	6,274	68,887
Interior Lights	5,266	4,832	5,479	5,022	3,594	2,974	3,162	5,022	5,169	5,355	5,027	5,319	56,221
Pumps	37	31	30	24	22	0	0	0	17	26	32	36	256
Water Systems	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	20,062	18,376	20,880	19,370	18,709	14,959	15,263	17,561	19,493	20,251	19,214	20,086	224,225

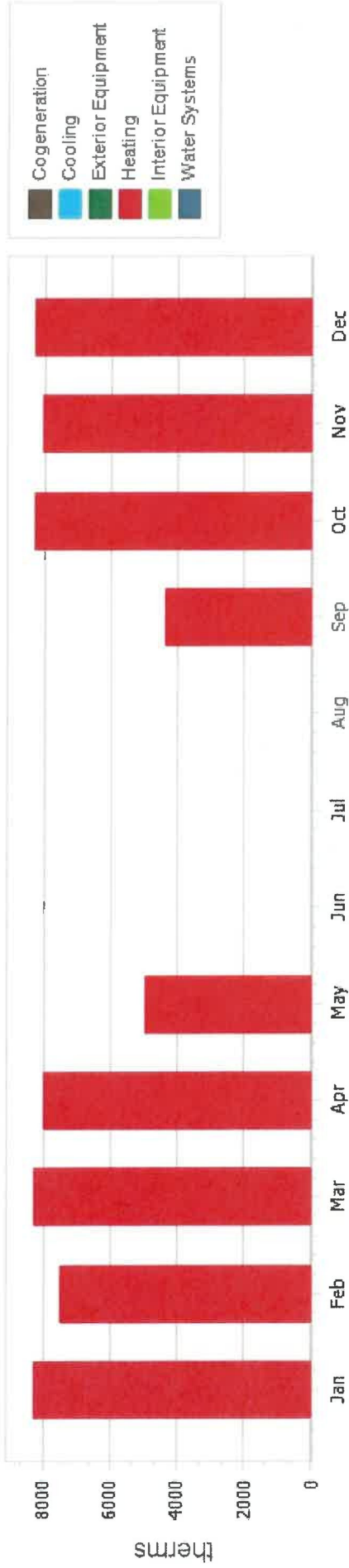
Alternative: Primary

File name: EWU Jim Thorpe Fieldhouse 6-29 Test.mdf

TRACE™ 3D Plus 4.01.97

Calculated at: Jul 05, 2022 - 08:50 AM

Natural Gas



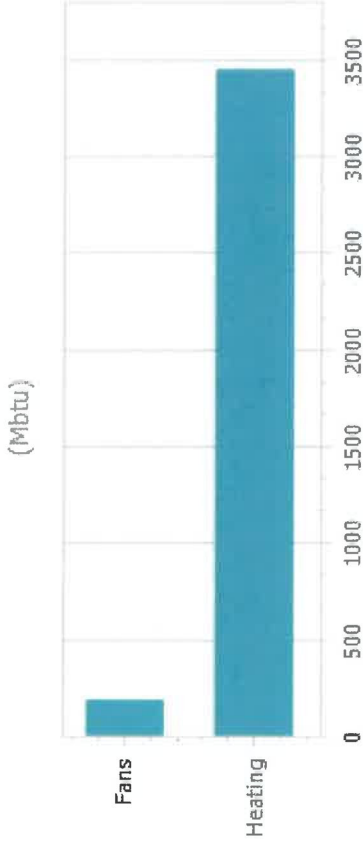
	January	February	March	April	May	June	July	August	September	October	November	December	Grand Total
Cogeneration	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Heating	8,310	7,506	8,310	8,016	4,962	0	0	4,351	8,310	8,042	8,310	8,310	66,115
Interior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Systems	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	8,310	7,506	8,310	8,016	4,962	0	0	4,351	8,310	8,042	8,310	8,310	66,115

JTF ALL NEW FIMS SITE CONSUMPTION SUMMARY

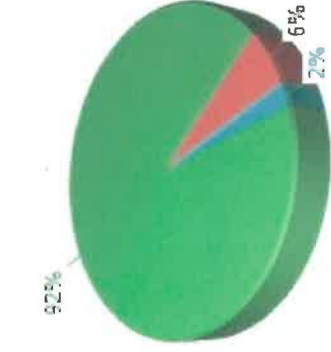
Site Consumption Summary

Energy Consumption

HVAC Energy Usage (Mbtu)



Total Site Energy Breakdown



Interior Lighting: 2%
Interior Equipment: 6%
HVAC Energy: 92%

Component	Electricity (kWh)	Gas (Mbtu)	District Cooling (Mbtu)	District Heating (Mbtu)	Other Utilities (Mbtu)	Site Energy (kBtu)	Site Energy Use Intensity (kBtu/ft²)	Source Energy (kBtu)	Source Energy Use Intensity (kBtu/ft²)	Water (gal)
Heating	0	3,451	0	0	0	3,450,670	68.8	3,740,527	74.58	0
Cooling	0	0	0	0	0	0	0	0	0	0
Fans	56,100	0	0	0	0	191,421	3.82	606,231	12.09	0
Pumps	106	0	0	0	0	360	0.01	1,141	0.02	0
Heat Rejection	0	0	0	0	0	0	0	0	0	0
Humidification	0	0	0	0	0	0	0	0	0	0
Heat Recovery	0	0	0	0	0	0	0	0	0	0
HVAC	56,206	3,451	0	0	0	3,642,452	72.63	4,347,898	86.7	0
Water Systems	0	0	0	0	0	0	0	0	0	0
Interior Lighting	25,661	0	0	0	0	87,559	1.75	277,300	5.53	0
Exterior Lighting	0	0	0	0	0	0	0	0	0	0
Interior Equipment	68,886	0	0	0	0	235,049	4.69	744,401	14.84	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0
Refrigeration	0	0	0	0	0	0	0	0	0	0
Non-HVAC	94,547	0	0	0	0	322,609	6.43	1,021,701	20.37	0
Generators	0	0	0	0	0	0	0	0	0	0
Site Generation	0	0	0	0	0	0	0	0	0	0
Grand Total	150,753	3,451	0	0	0	3,965,060	79.06	5,369,599	107.07	0

Gross Floor Area: 50,136 ft² Region: West Building Type: Office CBECS Survey Year: 2012 Benchmark EUI: 69.2 kBtu/ft²/yr

If the region reports as "All US" it means the data for the particular region was withheld because the Relative Standard Error was greater than 50 percent or fewer than 20 buildings were sampled.

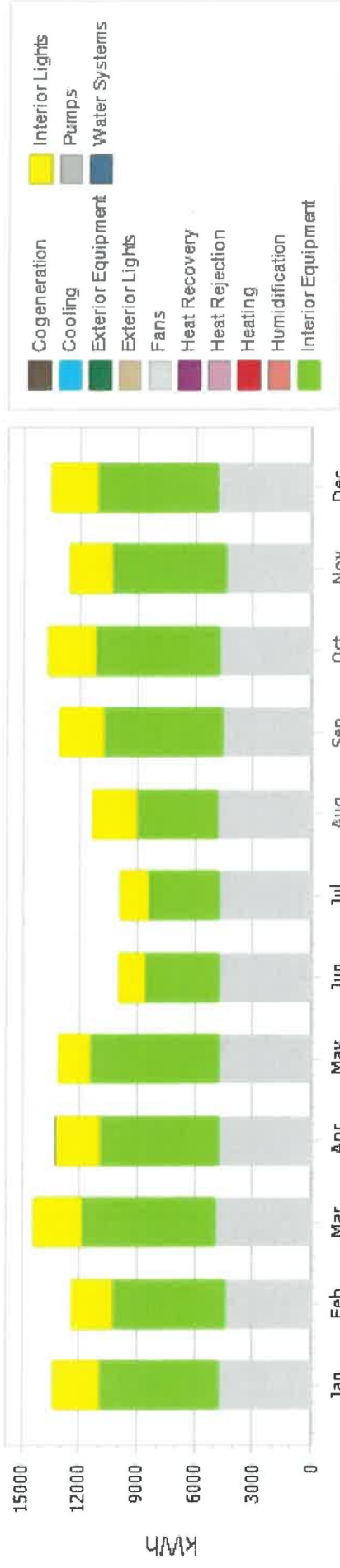
Alternative: AHU Replacement
File name: EWU Jim Thorpe Fieldhouse 7-5.mdf

TRACE™ 3D Plus 4.01.97

Calculated at: Jul 05, 2022 - 11:26 AM

Monthly Energy End Use

Electricity



	January	February	March	April	May	June	July	August	September	October	November	December	Grand Total
Cogeneration	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Lights	0	0	0	0	0	0	0	0	0	0	0	0	0
Fans	4,697	4,337	4,931	4,735	4,723	4,692	4,692	4,848	4,543	4,742	4,336	4,826	56,100
Heat Recovery	0	0	0	0	0	0	0	0	0	0	0	0	0
Heat Rejection	0	0	0	0	0	0	0	0	0	0	0	0	0
Heating	0	0	0	0	0	0	0	0	0	0	0	0	0
Humidification	0	0	0	0	0	0	0	0	0	0	0	0	0
Interior Equipment	6,274	5,882	6,964	6,220	6,734	3,898	3,744	4,182	6,220	6,504	5,990	6,274	68,887
Interior Lights	2,387	2,191	2,483	2,276	1,627	1,408	1,488	2,339	2,343	2,427	2,279	2,411	25,660
Pumps	21	16	13	7	3	1	0	0	1	8	15	20	106
Water Systems	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	13,379	12,426	14,391	13,238	13,087	9,999	9,925	11,369	13,107	13,681	12,620	13,531	150,753

Natural Gas



	January	February	March	April	May	June	July	August	September	October	November	December	Grand Total
Cogeneration	0	0	0	0	0	0	0	0	0	0	0	0	0
Cooling	0	0	0	0	0	0	0	0	0	0	0	0	0
Exterior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Heating	4,907	4,541	4,760	3,312	1,835	788	122	276	756	3,637	4,535	5,047	34,515
Interior Equipment	0	0	0	0	0	0	0	0	0	0	0	0	0
Water Systems	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	4,907	4,541	4,760	3,312	1,835	788	122	276	756	3,637	4,535	5,047	34,515

KJH ENGINEERING – EASTERN WASHINGTON UNIVERSITY
SPORTS AND RECREATION CENTER ENERGY AUDIT REPORT

V) FIMS list for this building.

FIM #3: retrofit existing T5 fluorescent fixtures with energy efficient LED high bays that will correct existing low level lighting issues.

FIM #4: Heating and Ventilating Units: Remove and replace (2) existing H & V units serving the fieldhouse with (2) new air handling units mounted on the roof. New supply air ductwork distribution systems will be installed to eliminate the areas of high velocity air flows that inhibit tennis ball travel. Each unit will have new piping installed. Each unit will also have new Alerton Controls.

FIM #5: Remove and replace (2) smaller air handling units with (2) new units. Each unit will reuse as much of the existing ductwork systems as possible. Each unit will have new Alerton Controls.

FACILITY IMPROVEMENT MEASURES SUMMARY

Eastern Washington University
GMAX

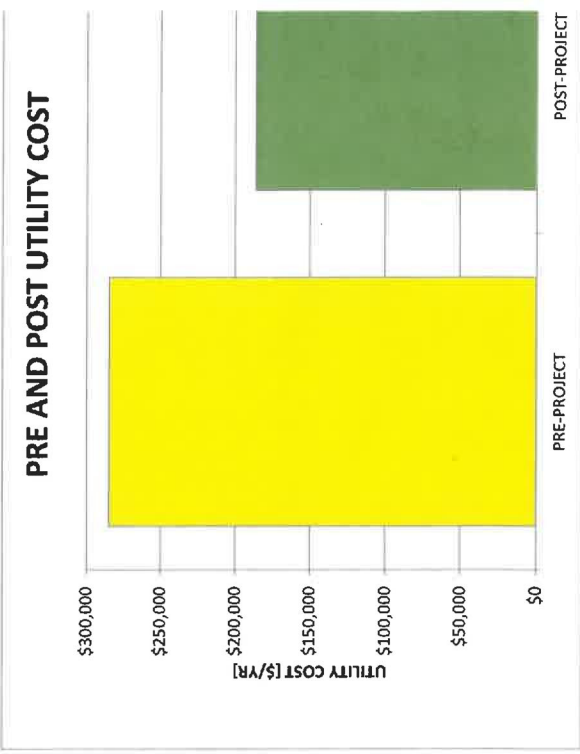
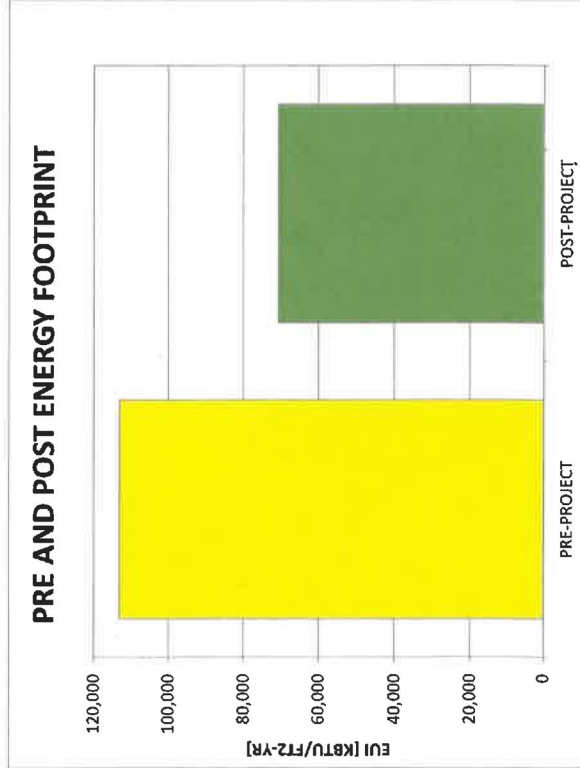
E) FIMS COSTS-ENERGY SAVINGS-PAYBACK

ROW	FIM ID	FIM DESCRIPTION	PROJECT PRICE	UTILITY INCENTIVES (\$)	TOTAL ANNUAL COST SAVINGS	SIMPLE PAYBACK BEFORE INCENTIVES	MODIFIED PAYBACK AFTER INCENTIVES	ANNUAL ELECTRICITY SAVINGS [KWH/YR]	ANNUAL NATURAL GAS SAVINGS (Therms/Year)
1	1	PEA LED Lighting (Physical Education Activities)	\$201,022	\$869	\$6,712	32.6	29.8	106,178	0
2	2	PEA Gym 270 AHUs & DCV (Physical Education Activities)	\$1,289,863	\$0	\$47,503	30.3	27.2	46,335	67,964
3	3	JTF LED Lighting (Jim Thorpe Fieldhouse)	\$131,812	\$221	\$1,773	74.3	74.2	30,528	0
4	4	JTF HV Units (Jim Thorpe Fieldhouse)	\$1,892,161	\$0	\$30,191	94.8	62.7	32,097	30,801
5	5	JTF AHUs (Jim Thorpe Fieldhouse)	\$1,158,590	\$0	\$7,541	1057.3	153.6	10,854	792
6	6	PAV LED Lighting (Pavilion)	\$169,350	\$626	\$13,678	12.6	12.3	230,725	0
7	7	PAV Lower AHUs (Pavilion)	\$2,165,979	\$0	\$6,054	--	357.8	-11,123	-3,708
8	8	PAV Upper AHUs & DCV (Pavilion)	\$1,380,777	\$0	\$19,562	102.2	70.6	4,984	22,495
			\$8,389,556	\$1,716	\$133,013	63.1	63.1	450,578	118,344

Costs include Construction, Performance Bond, IGA Fee, Design, Construction and Project Administration, OH&P, Client Contingency, M&V, WSST, & DES Fees.

UTILITY SAVINGS SUMMARY FOR ALL FACILITIES INCLUDED IN THE PROJECT

	FLOOR AREA [FT ²]	ELECTRICITY USAGE [kWh/yr]	FUEL 1 USAGE [Therm/yr]	FUEL 2 USAGE	WATER USAGE [CCF/yr]	UTILITY COST [\$ / YR]
PRE-PROJECT	315,101	1,981,140	288,897	0	0	\$284,821
POST-PROJECT	315,101	1,530,562	170,553	0	0	\$186,287
PERCENT SAVINGS		22.7%	41.0%	#DIV/0!	#DIV/0!	34.6%



EUI'S EXISTING, UPDATED & TARGET

Facility	Existing EUI	Updated EUI	Target EUI
Jim Thorpe Fieldhouse	143,722	77,270	102,000
Physical Education Activities Pavilion	176,695	98,740	102,000

G. REPORT CERTIFICATION

SUBMITTED BY:

PROFESSIONAL ENGINEERING FIRM NAME:

KJH Engineering PLLC

WASHINGTON STATE PE LICENSE: 47417



PROFESSIONAL ENGINEER NAME: KELLY J. HARKINS

PROFESSIONAL ENGINEER SIGNATURE:

Kelly J Harkins

Sports and Recreation Center Energy Improvements



Stand Alone Renovation



2023-2025 Capital Budget

Stand-Alone Renovation

2023-25 Biennium Project

2020 Higher Education Project Proposal Form

INSTITUTION	CAMPUS
Eastern Washington University	Cheney, Washington
PROJECT TITLE	
Sports and Recreation Center Energy Improvements	

Summary Narrative

▪ Problem Statement

Eastern Washington University’s Sport and Recreation Center (SRC) is located on the Cheney campus and houses a variety of academic and student activity functions. Developed in several "phases" throughout the 1970's, the SRC boasts over 250,000 square feet of recreational space. The SRC is home to the Pavilion; "Reese Court", the Aquatic Center, the PE Activities Building; housing the Strength and Conditioning Center, the Dance Studio, as well as many other activity gyms and spaces and the Fieldhouse. The Sports and Recreational Center is a multi-use facility open to students, faculty staff and community members.

Clean and highly efficient buildings are essential to meeting our state energy goals. In 2019 the Clean Buildings bill, HB 1257, was signed into law and later expanded in 2022. The objective is to lower costs and pollution from fossil fuel consumption in the state’s existing buildings and reduce our carbon footprint.

Eastern Washington University is requesting funds in the amount of \$10,000,000 in the category of Stand-Alone Renovation to improve the building efficiency and performance to meet and exceed the requirements of HB 1257 and respond to the requirements of HB 1390 for District Energy Systems and Climate Commitment Act, and WAC 173-446 Climate Commitment Act Program.

The university sees this request aligning with the goals of the Climate Condition Act and related CCA funding that is available from the Washington State Legislature.

The phases of the SRC building were built in the late 1970s and early 1980s and only the Physical Education Classroom Building has building improvements since originally constructed. The balance of the facility has an average age of 45.8 years old. The building systems are at the end of their functional lifecycle and need major upgrades and renewals. These systems, due to their age and original design are not as energy efficient as they once were and certainly not as efficient as the current design and construction technologies allow. These systems include but are not limited to: Heating and Ventilation equipment and distribution systems, Temperature controls and Building Automation Systems (BAS), lighting upgrades and lighting controls. These systems have high repair cost and low efficiency and need be improved to save energy and meet the requirements of HB 1257.

▪ History of the Project or Facility

Early in 2022 Eastern contracted with KJH Engineering to develop an engineering grade energy audit for the SRC. As the complex ages and the systems continue to operate past their effective lifecycles, the complex is the number 1 priority for energy upgrades under HB 1257 the Washington State Clean Buildings Act. Our consultant provided base EUI (Energy Use Intensity) numbers for buildings that are a part of the SRC. The criteria for HB 1257 states that since the individual buildings in the SRC are connected they are one facility that is over 250,000 gross square feet. The criteria also states that buildings with shared walls need to be

evaluated on the EUI of the least energy efficient building. Under HB 1390 District Energy Systems the reduction of energy and fossil fuel use will contribute to the university meeting the intention of this legislation.

Building	Year Built	Size	EUI	EUI Target for Colleges and Universities	EUI Target for Public Building	Project EUI Expectation
Physical Education Activities (Fitness Center)	1972	87,828 gsf	176,695	102,000	73,000	98,740
Pavilion (Performing Arts)	1978	107,920 gsf	73,617	70,000	55,000	58,051
Aquatics (Pool)	1980	19,610 gsf	100,000	102,000	73,000	73,000
Jim Thorpe Fieldhouse (Indoor Track)	1978	49,926 gsf	143,722	102,000	67,000	77,720

University Programs addressed or encompassed by the project
As stated above, the SRC is a multi-use facility. Programs that are housed in this facility are academic, athletic, intramurals, Club Sports Federation, and community recreation opportunities. This facility is highly used by students and staff and is open from early in the morning until late in the evening for the functions that it houses.

Academic Programs – Eastern’s College of Health Science and Public Health (CHSPH) are co-located in Spokane and Cheney. Many degree options are housed on the Cheney Campus in the SRC facility. They are:

- Coaching (minor)
- Experiential Education and Group Facilitation (minor)
- Exercise Science
- Gerokinesiology (certificate)
- Health and Physical Education/Elementary (BAE)
- Health and Physical Education/Secondary (BAE)
- Outdoor Recreation Leadership (BA)
- Personal Trainer (Minor)
- Public Health (BS)
- Sports Management (minor)
- Therapeutic Recreation (BA)
- Athletic Training (MS)
- Wellness and Movement (MS)

Club Sports – The Club Sport Federation (CSF) was created in 1999 when EWU Campus Recreation and a group of student leaders saw the need for a program that would allow our students to participate in club level competition. Starting with 12 clubs and growing to the present 33 CSF organizations, the CSF quickly became a program that recognizes teams in many traditional and non-traditional sports offerings.

Intramural Sports – The Intramural Sports program is the largest on-campus program for students to connect, make new friends, and be active in competitive sports. Each year over 1,500 students compete in officiated flag football, basketball, volleyball, and soccer leagues.

Category – Specific Scoring Criteria

1. Age of the building since the last major remodel

- a. Physical Education Activities – 1972 – 87,828 gsf – 50 years old
- b. Pavilion – 1978 – 107,920 gsf – 44 years old
- c. Aquatics – 1980 – 19,610 gsf – 42 years old
- d. Jim Thorpe Fieldhouse – 1978 – 49,926 gsf – 44 years old

Aggregate Weighted Age – 45.8 years

The focus of this project would be to improve the systems that are reaching the end of their lifecycles prior their failure while realizing that other systems of the building have longer lifecycles and are still reliable for many more years. This is a cost-effective way to extend the building functionality without a major building renovation that would cost many more millions of dollars

2. Condition of the Building

- a. FCS – Facility Condition Score.

Building	FCA Building	FCA Services	FCA HVAC	FCA Control/EMS	FCA Plumbing	FCA Electrical
Physical Education Activities	2.5	3.2	4.0	4.0	4.0	3.0
Pavilion	2.5	3.1	3.0	4.0	4.0	3.0
Aquatics	2.3	2.7	3.5	4.0	4.0	3.0
Jim Thorpe Fieldhouse	2.4	3.2	4.0	4.0	4.0	3.0

Condition Score	Condition Class	Description
1	Superior	A building with major systems that are in good condition.
2	Adequate	A building with major systems in good condition, functioning adequately, and within their expected lifecycles.
3	Fair; Systems approaching end of expected life cycle	A building with some older major systems that, though are still functional, are approaching the end of their expected life cycles.
4	Needs Improvement; Limited functionality	A building with some major systems that are in poor condition, exceed life cycles, and require immediate attention to prevent or mitigate impacts on functions.
5	Needs Improvement; Marginal Functionality	A building with some systems that are failing and significantly restrict continued use of the building.

b. This building is not on the state historical register

3. Significant health, safety, and code compliance issues

The SRC was designed and built in the mid to late 1970s, designed to then, current ventilation and fresh air standards. At that time studies and standards related to the percentage of outside air. Return air mixing ratios and building filtration standards have increased based upon research and data gathered over the past five decades. The effect of Indoor Air Quality (IAQ) on the learning environment as well as maintaining healthy environments. Recent research suggests that a school's physical environment plays a major role in academic performance. The potential effects of contaminants in building air have also become predominant in the past few years, especially during the COVID-19 pandemic and beyond.

ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) is a professional association that seeks to advance heating, ventilation, air conditioning and refrigeration systems design and construction. In conjunction with national and regional health and safety organizations ASRHAE provides standards for air quality for the Heating Ventilation and Air Conditioning industry. Washington State Department of Health states indoor air quality can have a significant effect on your health. Studies show that people spend 65 to 90 percent of their time indoors, and indoor air can be two to five times more polluted than outdoor air. The young, elderly, chronically ill, and those with respiratory or cardiovascular disease are often the most impacted by poor indoor air quality.

The current heating, cooling and ventilation information is part of the current building audit; the report can be found in Appendix A. Requirement for major renovations require the review of current building codes and regulatory requirements with the jurisdictions having authority. This may require some upgrades of peripheral systems that are out of compliance. Below are minimum levels of code compliance review items. The intent of this project is to bring this major complex into compliance with House Bill 1257 and increase the overall efficiency of the SRC which has an average age of Forty-Five years.

- House Bill 1257 Clean Building Act
- State of Washington Energy Code
- RCW 39.35D High Performance Public Buildings – high efficiency components and systems
- RCW 43.19.668; 669; 670; 682 Energy Conservation – high efficiency components and systems
- WAC 194-50-150 Normative Annex Z – Washington State Reporting requirements
- EWU Energy Efficiency Sustainability Report
- EWU Climate Action Plan
- EWU Campus Infrastructure Renewal/Backlog Maintenance Plan

4. Reasonableness of costs

Below is a summary of costs estimated for this project. The full audit of the SRC is attached in Appendix A. This includes the cost/benefit analysis of each of the FIM. Since this is a system upgrade and not a full building upgrade the OFM cost guide does not apply. This is improvements to Heating Ventilation and Air Conditioning, Temperature Controls and Lighting upgrades.

FIM	Building	Description	Project Estimated Cost
1	Physical Education Activities	LED Lighting Upgrade	\$202,022
2	Physical Education Activities	Gym 270 Air Handler replacement and DDC control upgrade	\$1,289,863
3	Jim Thorpe Fieldhouse	LED Lighting Upgrade	\$131,812
4	Jim Thorpe Fieldhouse	Heating/Ventilation Unit Replacement	\$1,892,161
5	Jim Thorpe Fieldhouse	Air Handling Unit Replacement	\$1,158,580
6	Pavilion	LED Lighting Ungraded	\$169,350
7	Pavilion	Lower-Level Air Handling Unit and DCC Controls Replacement	\$2,165,979
8	Pavilion	Upper-Level Air Handling Unit and DDC Controls Replacement	\$1,380,777
Total			\$8,389,566

Estimated Costs above include MACC, Bonds and Insurance, IFA Fees, Design, Construction and Project Administration, CH&P, Owner Contingency, M&V, and WSST.

Appendix A includes a cost/benefit analysis and return on investment for this requested project. The C-100 (Appendix C) calculates MACC costs of \$27 per square foot., escalated MACC \$30 per square foot.

5. Availability of space/utilization on campus

See Appendix B Space Utilization.

6. Efficiency of space allocation

- a. For each major function in the proposed facility (classroom, instructional lab, offices), identify whether space allocation will be consistent with FEPG assignable square feet standards.

This project will not change or affect the current space allocations and efficiencies. The scope of work will not change the current floor plan or building footprint. The building spaces were designed based upon the standards that were in place in the 1970s.

- b. Identify the following from the C-100 (Appendix C)
 1. Usable square feet (USF) in the proposed facility
 2. Gross square feet (GSF)
 3. Building efficiency (USF divided GSF)

Building	Assignable/Usable Space	Gross Square Feet	Efficiency
Physical Education Activities	86,172	93,859	92%
Pavilion	102,617	169,926	60%
Jim Thorpe Fieldhouse	49,926	51,316	97%
Aquatics	19,610	21,237	92%

7. Adequacy of space

Providing a high-quality instruction environment for activities is critical to supporting our student's outcomes and degree production. The building age and condition current do not lend themselves to providing those environments. This is an obstruction to sustaining and growing these programs.

Air Flows throughout the building do not meet current ASHRAE requirements for fresh air for building occupancy. Since the original equipment was designed and constructed in the mid to late 1970s the primary and secondary distributions systems are well past the end of their anticipated lifecycle.

Upgrades will include direct digital control (DDC) tied into the university's energy management (BACnet) system. DDC is a control process in which a microprocessor controller **constantly updates an internal information database by monitoring information from a controlled environment and continuously produces corrective output commands in response to changing control conditions.** Benefits are:

1. Increased occupant comfort
2. Decreasing operating costs and faster response time.
3. Controls Sequence for energy savings
4. Digital interface
5. Less Maintenance costs

A comprehensive process of capturing data and responding to the dynamics of outside conditions with building and user needs can greatly increase the efficiency of systems and manage energy costs in real time. As the university expands and upgrades our energy management systems the benefits reflected better space environments and lower costs.

1. Actively manage real life energy use.
2. Actively manage what is measurable
3. Actively manage energy consumption
4. Have a holistic plan
5. Partner with those who can supplement in-house knowledge
6. Establish and Occupant behavior awareness program

Retrofitting/Replacing HVAC systems and equipment provides several other benefits:

1. **Energy Savings** - Retrofitting HVAC equipment is one of the quickest ways to solve chronic problems with high energy consumption. On average, small offices and retail establishments reduce energy consumption by 35% when retrofitting HVAC systems and equipment. In cold weather climates, this number can jump to as high as 40%.

2. **Increased HVAC Lifespan** - Replacing a defective part gives your HVAC equipment new life. In fact, sometimes you can even extend the life of your system by several years, spending far less money than a whole system replacement.
3. **Flexibility** - Educational spaces are constantly changing interiors are rearranged, occupants move in and out, and infrastructure requirements change. Retrofitting HVAC systems allows you to continue adapting to the needs of occupants without huge investments.
4. **Improved Comfort** - A retrofitted HVAC system will operate with more consistency than an older or poorly maintained system. This consistency leads to more control over temperature and humidity, resulting in improved comfort for occupants.
5. **New Technology** - Not only do retrofitted systems operate more consistently, but they also operate more efficiently and independently. This adds to energy savings, as mentioned, but it also decreases to costs of maintenance and service because the new part will be more dependable.
6. **Faster ROI** - Retrofitting equipment is much cheaper than investing in a whole commercial HVAC system replacement. Given the energy and service savings of retrofitted equipment, return on your investment is achieved much more quickly than a full replacement.
7. **Meets state requirements** – HB 1257 Clean Building; HB 1390 District Energy Systems and WAC 173-446.Climate Commitment Act Program

Benefits of Lighting Control Systems

1. **Increased Energy Efficiency**
 - a. Smart lamps can be 80% more efficient than standard lighting lamps
 - b. Only use lighting when space is in use.
 - c. If programmed properly lighting is turned off when space does not have a programed activity scheduled.
2. **Better programming of lighting needs to align with space usage**
 - a. Lighting can be scheduled to align with space use. Spaces that are used less will be “asleep” saving on electricity and wear on lamps.
3. **Enhanced Convenience**
 - a. Users can make on the spot changes when needed and after that need is fulfilled the system returns to standard programming processes
4. **Improved Safety**
 - a. Allows for lighting to activate when needed for personal safety and property protection.

On May 7, 2019, the Clean Buildings bill ([HB 1257, 2019](#)) was signed into law. The objective is to lower costs and pollution from fossil fuel consumption in the state’s existing buildings, especially large commercial buildings. The law requires the Washington State Department of Commerce to develop and implement an energy performance standard for these buildings and provide incentives to encourage efficiency improvements. With new legislation HB 1390 District Energy Systems, Eastern will use this funding to reduce campus wide energy consumption and as well reduction in greenhouse gas inventory.

Buildings are the most rapidly growing source of greenhouse gas emissions in Washington state. As our population continues to grow, so does the number of business spaces being constructed. Each time we construct a new building or remodel one, we either lock in inefficient energy use or we embrace materials and technologies that will save energy and reduce emissions for decades to come.

The buildings sector is the state's second-biggest carbon polluter behind transportation. Investment in building energy efficiency is also the most cost-efficient way to significantly reduce greenhouse gas emissions. The solution to cutting building emissions lies in energy efficiency – the fastest, cheapest way to cut carbon emissions and other harmful pollution.

Washington state's new Commercial Clean Buildings Performance Standard is designed to secure this energy efficiency opportunity. Through the university's audit and analysis, we believe that this project will meet and exceed the intentions of HB 1257 as enacted. Secondly and as important, this project will update systems in the Sports and Recreation Center to increase efficiency, extend systems lifecycles, improve user's comfort levels in the facility and improve maintenance and operations. The return on investment will pay dividends for many years to come.