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INTRODUCTION

The University of Washington (UW) Environmental Health and Safety Department (EH&S) is allocated a specific amount of funds from the State of Washington to invest in capitalized safety improvements across the UW community. The Occupational Safety & Health Section (OSH) of EH&S is responsible for the management of the allocated funds. This program manual provides an overview of the management of the funds and the functioning of the EH&S Capital Safety Project Program.

PURPOSE

The Capital Safety Project Program manages the State of Washington minor capital funds allocated to support projects to mitigate occupational and environmental risks and/or ensure compliance with local, state, and federal applicable laws. The program aligns with the UW commitment to create, maintain, and enhance a safe and healthful environment for all individuals associated with the institution, including students, faculty, staff, patients, and visitors. This commitment is stated in UW Presidential Executive Order 55, which may be viewed at [UW Presidential Executive Order 55](www.washington.edu/admin/rules/policies/PO/EO55.html).

The two major components of the Capital Safety Project Program are to:

- Identify, select, prioritize, and communicate to UW Capital Planning specific projects that address fire and life safety issues related to deficiencies in existing facilities and equipment. Fire and life safety issues include risks or code compliance gaps related to the safety, health and welfare of the UW community and the surrounding environment.
- Manage funds allocated by UW Capital Planning to EH&S to manage safety projects that pose a safety or regulatory compliance risk and meet EH&S Capital Safety Project Program criteria. This does not include funds designated under capital funding for minor repairs and/or deficiencies.

SCOPE

The Capital Safety Project Program applies to UW owned properties, including facilities, land, systems, and equipment. It does not include facilities that UW leases from other owners and out of state facilities. The program scope covers the following:

- Identify and process safety projects
- Manage project funds
- Manage projects within budgeted funds
- Identify and facilitate projects that address safety issues that exceed the EH&S capital safety budget
EH&S capital safety funds may be allocated to UW departments, units, and organizations to address fire and life safety issues within the capital safety budget allocated to EH&S.

Examples of capital safety projects in this program include:

- Upgrades of fire alarm systems
- Installation of eyewash/shower systems for potential chemical exposures
- Fire sprinkler system upgrades
- Address potential fall hazards on roofs and fixed ladders
- Improve ventilation in chemical use areas and fume hoods
- Improve safe access to roof hatches to address potential fall hazard/muscle strain
- Address potential fall hazards at stairs and walkways with handrails and guardrails

Excluded from this scope are capital safety improvement projects identified for self-sustaining organizations and the UW Bothell and Tacoma campuses.
## ROLES AND RESPONSIBILITIES

<table>
<thead>
<tr>
<th>Roles</th>
<th>Responsibilities</th>
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| EH&S Management                    | • Designates personnel within the organization who have the necessary knowledge, skills, and training to anticipate, identify and analyze hazards, assess risks, and determine appropriate controls to manage risks and provide compliant designs for mitigation  
• Approves budget changes           |
| EH&S Capital Safety Project Program Owner | • Responsible for the Capital Safety Project Program implementation and sustainment  
• Track and manage expenditures for all projects  
• Provide re-appropriation estimates to EH&S Planning & Administration (P&A)  
• Collaborates with EH&S P&A to determine where capital safety funds should be transferred and/or allocated |
| Project Manager                    | Manages individual capital safety project. May be from EH&S, the subject project department/unit/organization, UW Facilities Project Delivery Group (PDG) or Facilities Maintenance and Construction (FMC).  
• Manages the project from project origination to project closure  
• Accountable for project meeting Owner Project Requirements (OPR) (see [Appendix A: Acronyms / Definitions](#)) timeline and budget  
• Qualified to identify hazards and have the knowledge to mitigate those hazards and assure compliance with all applicable laws, e.g., codes, regulations, standards.  
• Coordinate with Subject Matter Experts (SME) as needed  
• Track schedules and timeline  
• Coordinate with SME on design reviews and construction  
• Ensure contractors adhere to UW design and construction standards and specifications  
• Responsible for addressing any changes to OPR from the project department/owner/organization. |
<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
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<tbody>
<tr>
<td><strong>Project Lead</strong></td>
<td>Project Lead and Project Manager may be same person depending on project scope.</td>
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<tr>
<td></td>
<td>• Represents EH&amp;S as the client for the project.</td>
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<tr>
<td></td>
<td>• Tracks project status, including budget and schedule, from approval through completed status, updates the project tracking database, and provides updates to the Capital Safety Team.</td>
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<tr>
<td></td>
<td>• Approve invoices and other billing requests</td>
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<td></td>
<td>• Coordinates with Subject Matter Experts (SME) as needed</td>
</tr>
<tr>
<td></td>
<td>• Tracks project through phases, reviews changes to scope and funds, reviews submittals, troubleshoots issues as needed</td>
</tr>
<tr>
<td></td>
<td>• Reviews requests for changes to the budget and provides technical advice to EH&amp;S management</td>
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<tr>
<td><strong>Subject Matter Experts (SME)</strong></td>
<td>SME may also be the Project Manager and/or Project Lead of a project. SME may be EH&amp;S staff member or designated by EH&amp;S.</td>
</tr>
<tr>
<td></td>
<td>• Identify and evaluate safety issues</td>
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<td></td>
<td>• Provide technical requirements to establish the Owner Project Requirements (OPR)</td>
</tr>
<tr>
<td></td>
<td>• Verify that project requirements are met</td>
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<tr>
<td><strong>EH&amp;S Planning and Administration (P&amp;A)</strong></td>
<td>• Provides financial oversight for capital safety project funds</td>
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<td></td>
<td>• Reviews and evaluates monthly Financial Accounting System (FAS) reports</td>
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<td></td>
<td>• Coordinates management of capital safety funds with UW Facilities (UWF) Finance &amp; Administration, including:</td>
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<td>• Payments</td>
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<td>• Transfers</td>
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<td></td>
<td>• Re-appropriations</td>
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<td></td>
<td>• Approves budget changes as needed</td>
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<tr>
<td><strong>UW Facilities (UWF) Finance &amp; Administration</strong></td>
<td>• UWF Finance &amp; Administration provides EH&amp;S:</td>
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<tr>
<td></td>
<td>• Monthly FAS reports</td>
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<td>• Re-allocation of funds at EH&amp;S request</td>
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<tr>
<td></td>
<td>• Re-appropriation of capital safety funds</td>
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<td>• UWФ Finance &amp; Administration-Sourcing and Procurement maintains an approved supplier and vendor list.</td>
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<td>• Sourcing and Procurement facilitates a competitive bid for projects over $10K and not an approved supplier.</td>
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<tr>
<td><strong>UW Facilities (UWF) Real Estate</strong></td>
<td>• EH&amp;S must inform UWF Real Estate of projects that may impact buildings that they manage.</td>
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</table>
UW Facilities (UWF) Finance & Administration; Director's office, Campus Stewardship & Capital Budget,

- Oversees building renewal, minor works, programmatic renewal and resource conservation, and the annual five-year capital budget
- Supports EH&S in Capital Safety project program requirements regarding the finance and administration of capital safety projects
- Assists EH&S in identifying and allocating capital funds to support design and execution of safety projects outside of the scope of the capital safety project funds allocated to EH&S

PROGRAM PROCESS AND REQUIREMENTS

A process flow chart describing the basic elements of capital safety project development and management through to completion is given on page 10 showing the key roles involved throughout the process.

STRATEGIC PLANNING

1. Annual goals and objectives must align with the EH&S Department Strategic Plan, including specific objectives in:
   - Safety Culture – Develop risk management strategies (SC3)
   - Resources – Appropriately allocate resources to prioritized activities (R2)
   - Resources - Advocate for investments in university-wide health and safety (R3)
   - Compliance – Communicate compliance and safety information that promotes awareness and action (C3)

2. The capital projects list will be reviewed each biennium budget period and updated to ensure alignment with the strategic plan.

3. EH&S will partner with UWF Finance & Administration to identify and coordinate on capital safety projects to address fire and life safety risks identified by EH&S and which qualify for Capital Safety Project funds.

4. EH&S coordinates with UWF Finance & Administration on prioritizing proposed capital safety projects for funding through the Capital Safety Project Program.

5. EH&S P&A will assist UWF Finance & Administration in preparing proposals for joint venture projects between EH&S and UW Facilities, for capital safety projects which are beyond the ability of EH&S to fully fund.
6. The EH&S Capital Safety Project Program Owner shall participate in regularly scheduled meetings with UWF Finance & Administration to review fire and life safety and other risks identified by EH&S, the strategic plan and the proposed overall UWF campus minor works plan (which includes projects less than $5M).

7. The EH&S Capital Safety Project Program Owner will schedule regular program progress meetings with all Project Managers and EH&S Management. The purpose of meetings will be to evaluate project funding requests, obtain status updates on ongoing capital safety projects and to discuss any other items related to the program.
CAPITAL SAFETY PROJECT LIST MANAGEMENT

A proposed list of capital safety projects is maintained by the Capital Safety Project Program Owner. The proposed project list reflects projects in the EH&S strategic plan and includes fund requests for projects that have been submitted for review. The proposed project list is reviewed as new projects are identified or, at a minimum, once a month. Projects identified for the current funding biennium are moved from the proposed project list onto the current funding list for execution.

Projects are prioritized by assessing compliance and risk ranking. See details in the Prioritization Process section below.

EH&S shall provide the list of proposed projects to UWF, in a timely manner, per the UWF capital funding planning schedule.

The EH&S Capital Safety Project Program Owner shall participate in regularly scheduled progress meetings with UWF throughout the biennium.

PROJECT FUND REQUEST

Capital safety project fund requests can be submitted to EH&S for review and approval.

The Capital Safety Project Program Owner will coordinate the review process to determine project eligibility.

Capital safety projects shall meet the following UW Construction Capitalization Policy (UW Administrative Policy Statement 61.8) criteria listed below for capitalized expenditures and do not qualify if they meet the criteria for non-capitalized expenditures.

A. Capitalized Expenditures

   Expenditures should be capitalized if they:
   • Result in additional asset services (expanded facilities).
   • Result in more valuable asset services (upgraded facilities); or
   • Extend normal service life beyond one year.

B. Non-Capitalized Expenditures

   Expenditures should not be capitalized if they:
   • Are incurred to maintain assets in good operating condition; and/or
   • Do not meet the criteria for capitalization as stated in Section A. above.

   The following examples, although not all-inclusive and subject to varying circumstances, are considered to be current non-capitalized expenditures:
   • Roof repairs and replacements.
   • Repainting.
• Window replacements.
• Furniture refurbishing.
• Alterations and rearrangements which prepare existing space for new purposes.
• Replacement projects which cost less than $250,000 and are not equal to ten percent of the replacement value of the asset.
• Replacement floor and window coverings, such as: linoleum, tile, carpets, blinds, and drapes. Such costs associated with new construction, however, are capitalized.

Capital fund requests may be submitted via the Capital Safety Project Request Form (Appendix B) or can be communicated to EH&S by other means during the biennium. All projects follow the same review process described below.

EH&S OSH will review each Capital Safety Project Request form and determine if the project meets the criteria for a capital project.

EH&S Capital Safety Project Program Owner will review project requests with EH&S Management to determine if projects should be approved for funding, placed on the Capital Safety Project List for future funding or denied funding.

Once confirmed that the project meets the criteria, the project will be included in the list of approved projects and prioritized.

The project will be assigned to a Project Manager for tracking purposes.

The EH&S manager responsible for the Capital Safety Project Program shall communicate with the capital safety project requester on the status of the request (approved or not approved).

**Prioritization Process**

**General Risk Ranking**

Risk ranking uses a process to assign a numerical risk number to each proposed project for purposes of prioritizing projects. Risk is defined as the likelihood of an outcome multiplied by the severity of an outcome:

\[
\text{Risk} = \text{Likelihood} \times \text{Severity}
\]

The process used allows for the assignment of odd numbers from one to nine for both likelihood and severity. The numbers for likelihood and severity are defined in Appendix C, as is the risk ranking matrix.

The likelihood would ideally use a numerical probability based on literature; however, this is usually not available, and a subjective estimate based on actual failure scenario experience, internally or externally, is more commonly used.
The severity can be based on a worst-case credible outcome, without regard for controls in place, that results in personal injury, environmental impact, equipment loss or operations loss. The outcome category with the highest severity rating is used for risk ranking calculation.

The risk ranking results in risks ranked low, medium, and high. Based on risk alone, those in the high-risk category would have a high priority for funding.

The risk rank will be determined by the risk assessment matrix and definitions for severity and likelihood as shown in Appendix C.

**Fire Protection Project Risk Ranking**

Due to the number of UW owned buildings that require upgrades to the fire protection systems, a more detailed risk ranking tool has been developed to help prioritize investments to address these specific facility improvements that directly impact the life safety of the occupants related to fire risks.

To assist in comparing and ranking fire suppression and fire alarm projects, utilize the Fire and Life Safety Risk Ranking spreadsheet in Appendix D to analyze the buildings to determine relative overall risk for a particular building/area.

**Other Factors**

There are additional factors to risk ranking that need to be considered when prioritizing projects for funding. This includes regulatory compliance, estimated cost, likelihood of completing the project, and other factors:

- **Regulatory compliance:** federal, state, county or local
- **Estimated cost:** Is the estimated rough cost of the project in line with the budget managed by EH&S or should we recommend it be placed on the Project Delivery Group (PDG) list. Given that our annual budget is likely to be two to three million dollars, projects that are one half million dollars or more will likely be recommended for the PDG list.
- **Likelihood of completing the project:** Projects that are likely to be completed in the assigned biennium should be prioritized over projects that are less likely to be completed in the biennium. Factors that affect this include project complexity and project delivery options.
- **Difficulty of completing a project because of internal/external resources,** such as:
  - Projects that can be completed with less personnel resources should have a higher priority. This can include personnel internal or external to UW.
  - Projects that require design services may have a lower priority. Design services are costly and often of marginal quality now that UW no longer has an internal team to provide this service.
Projects that require less EH&S staff time to manage or provide technical support should have a higher priority.

- Any facility or programmatic change that would impact the short-term or long-term benefits of the project.
- Organizations that have a greater responsibility or greater ability to fund the project.
- Planned regulatory changes will impact the need for the project.

**Project Submittal Format and Timing**

A formal list of capital safety projects is submitted to UWF several months before the biennium.

**CAPITAL FUND MANAGEMENT**

EH&S P&A is responsible for the overall management of the capital safety project funds allocated from UWF Finance & Administration.

EH&S P&A will provide the Capital Safety Project Program Owner with the monthly spending for all capital safety projects.

EH&S P&A will meet monthly with UWF Finance & Administration to ensure capital safety project funds allocated reflect the actual status of the project.

**Tracking of Funds and Expenditures**

- A Capital Safety Project Tracking spreadsheet (Appendix E) is used to track the status of each capital safety project and the monthly expenditures.
- The Capital Safety Project Program Owner will review with each Project Manager the financial status of each project monthly.
- All capital safety project funding and expenditures are reviewed and audited by EH&S P&A.
- Project Lead will coordinate with other University and outside entities as needed (UWF Real Estate, vendors, facilities minor project group, FMC maintenance & construction and capital projects (PDG).
- Project Lead will review and authorize all funding and contractual agreements for all EH&S managed capital safety projects.

**Transfer of Funds**

- Fund transfers are done by EH&S P&A.
- Approval for the transfer of funds requires approval from the OSH Assistant Director.
- New projects identified during the biennium for funding shall follow these steps:
- EH&S P&A contacts UWF Finance & Administration to establish a project tracking number
- UWF Finance & Administration will create a budget number for project tracking (code 40)

**Fund Re-Appropriation**

- Funds may be re-appropriated at the end of the biennium.
- The amount re-appropriated will be based on the estimated spending assessed six months prior to the end of the biennium (preliminary estimate). All efforts should be made to reduce the amount of re-appropriation to the minimum possible as the re-appropriation amount could affect future biennium fund allowances to EH&S.
- EH&S P&A will provide the amount of funds required to be re-appropriated to UWF Finance & Administration during the legislative process. The goal is to get as close to the estimate and drive this value as low as reasonably achievable.

**Project Completion and Closure of Funds**

- The Project Manager will inform EH&S P&A when a project has been completed and all requirements of the OPR have been met.
- EH&S P&A will request that the project be closed and if there are any funds remaining, transfer those funds to the capital safety reserve budget (code 064).

**PROJECT INITIATION**

**Project Initiation**

- Projects approved at the start of the new biennium will automatically be assigned budget and project tracking numbers along with an initial budget amount by UWF Finance & Administration.
- Emerging projects identified during the biennium and approved for funding will require a request by the EH&S Capital Safety Project Program Owner to EH&S P&A to establish budget and project tracking numbers along with an initial budget.
- Once a budget number has been established and the project becomes active, the Project Manager will be responsible for entering the project into the project tracking database.

**Project Assignment**

- EH&S Capital Safety Project Program Owner along with EH&S Management will evaluate each approved project to determine assignment of Project Manager, Project Lead and SME.
• Project Manager and Project Lead will be assigned based on schedule availability, previous similar project management experience, familiarity with the project delivery method and other, pertinent subject matter expertise. The Project Manager and Project Lead do not necessarily need to be a SME for the assigned project.

• A formal notice to the project delivery in UW Facilities or outside contractor to proceed is granted.

PROJECT REQUIREMENTS

A project charter or project definition document that outlines the basic requirements for the project and the need that is being met, risk or compliance, is required to proceed forward with developing the project estimate.

The Project Manager is responsible for putting together the basic description and driver for the project, and developing the Owner Project Requirements (OPR) document (see OPR document template in Appendix F).

The party requesting the project along with SME (EH&S or designee) should be consulted to verify that the information is accurate and complete.

A project cost estimate is required when submitting the capital safety project list to UWF or when requesting a new project tracking number. Depending on the complexity of the project, the estimate should include:

• The narrative of the scope of work
• The estimated cost to deliver the project from initial design through completion, including:
  o Equipment costs
  o Design costs
  o Installation costs
  o Regulated building material testing and abatement costs
  o Project management costs
• Critical activities included in the scoping document, e.g., regulated building materials, crane lifts, environmental permitting.
• Design schematics or preliminary drawings
• Expected project delivery method

EH&S will not typically have the resources to generate an accurate estimate and may utilize past projects or UWF to provide an estimated project cost. The OPR document can be utilized to collect information necessary to generate an estimate.

The project delivery method can be determined when the capital safety project list is submitted to the UWF for the biennium, or it can be determined during the project scoping phase.

The assigned Project Manager, with support from the EH&S Capital Safety Project Program Owner, is responsible for assisting in determining the delivery method and verifying that it fits with the needs of the project and with the project budget.

**DELIVERY METHODS**

There are three project delivery methods:

**Vendor and/or Purchase Order (approved supplier less than 10K)**

Projects that are managed by EH&S, typically less than $90,000; involve a third-party vendor or equipment supplier or involve less than two trades can be managed using the UW Purchasing Request system. These projects may involve Facilities shops.

Exception: Some projects provided by a third-party vendor can exceed $90,000.

Projects with total costs less than $10,000 with an approved supplier and a 40 budget can be sent to UWF.

Purchases that are less than $10,000 associated with approved suppliers can be invoiced and paid with the 40 budget or can be submitted via ARIBA.

Projects with a total cost greater than $10,000 must go through a competitive bid process unless there is an approved Master Service Agreement (MSA) with the vendor/supplier.

**UW Facilities Maintenance & Construction (FMC) Project Management**

Projects that are less than $90,000, excluding project management fees and involve more than two trades are recommended to be managed by UW FMC. These projects may involve UW shops.

**UW Facilities Project Delivery Group (PDG) Project Management**

Projects with values greater than $150,000 that require management of sub-contractors or multiple trades are managed by the UW Project Delivery Group (PDG) as Job Order Contract, Minor or Major Capital projects.
PROJECT DESIGN

Project Lead is responsible for the development and coordination of the Owner Project Requirements document.

Owner Project Requirements Document (OPR)

- An Owner Project Requirements (OPR) document (See template in Appendix F) shall be used to help develop the design requirements for the project.
- The OPR will be developed in coordination between the Requester, SMEs, and the Project Lead.
- The OPR will be utilized by the project management team to develop the design documents for the project.
- The OPR can be a simple to complex document that outlines the basis of safety for the project. Permits and registrations are identified and verified at project closure.
- At each phase of the design process, the Project Lead will ensure that the design documents meet the OPR requirements.
- Changes to the OPR requirements must be approved by the Project Lead prior to any changes to the design documents are approved.
- Information in the OPR document may be used to support a cost estimate for the project.

Basis of Concept / Basis of Design

EH&S partners with the design team and participates in design development during the Scope Definition and early Design Phase of the project to ensure:

- EH&S requirements are properly integrated into the conceptual design and Basis of Design (BOD) document
- EH&S requirements align with the project scope per the UW project support program requirements
- This will require attending meetings with the project team.
- Approval of the BOD document is required prior to notice to proceed with construction.

Detailed Design

During the Detailed Design phase, Project Lead confirms that EH&S Design Standards and Requirements identified in OPR and BOD are documented in the detailed design packages. Design packages can include:

- Electrical, fire protection, fire alarms, security, plumbing, structural
- Piping and instrumentation diagrams
- Abatement plan
- Commissioning plan
• Contractor safety plan
• Building permits from authorities having jurisdiction (AHJ)
• Contractor pre-qualification scorecard
• Process hazard analysis reports
• Project Lead shall verify EH&S related permits and approvals have been submitted and/or received.
• Project SME shall identify requirements to conduct detailed risk assessments where other risk assessment tools must be utilized.
• Project Lead shall approve any changes to the design that impact the OPR and BOD.

Submittal & Design Review Oversight

• Project Manager is responsible for determining submittal and design review process on their project.
• Project Lead shall review project submittals, Requests for Information (RFI), design changes, and other relevant construction documents.
• Project Lead shall assign review of project submittals, RFI’s, design changes and other relevant construction documents to project SME.
• Project Lead will approve detailed design documents prior to construction. This can occur in a phased approach as long as the detailed design drawings have been reviewed and EH&S comments addressed prior to construction.
• Project Lead will give notice to proceed with construction.
PROJECT OVERSIGHT

The Project Manager shall monitor the project execution to ensure the EH&S OPR requirements, cost and timeline are being met.

The Project Manager shall track project status in the project tracking database. See the Project Tracking Database Section for further details.

Any changes to the cost of a project shall be reviewed with EH&S P&A and the EH&S Capital Safety Project Program Owner.

Projects that exceed the estimated costs shall be reviewed by EH&S P&A and the EH&S Capital Safety Project Program Owner to determine if funds can be transferred to the project to cover the additional costs. See the Capital Fund Management Section for further details.

- Changes to the OPR requirements during execution must be approved by the Project Manager and the original requester.
- The Project Manager shall monitor the project schedule and will provide regular updates to the EH&S Capital Safety Project Program Owner.
- Projects which may not be completed during the biennium to be reviewed by EH&S P&A to verify that funds can be re-appropriated or carried over into the next biennium. See the Capital Fund Management Section for further details.

CONSTRUCTION OVERSIGHT

The Project Manager shall provide limited construction oversight for shops direct and vendor projects where Project Manager is directly managing work without a UW construction manager. The limited oversight shall include:

- Project safety review for all projects other than a Purchase Order- Vendor supplied project.
- SME’s inside or outside EH&S (as appropriate) shall be engaged by the Project Manager to provide safety reviews.

Project Lead shall conduct project site visits during the construction phase.

FINAL ACCEPTANCE / AUTHORITY HAVING JURISDICTION (AHJ) INSPECTIONS

Project Manager is responsible for directly conducting acceptance testing of projects without AHJ oversite or arranging for a SME to conduct the acceptance testing.

For projects which require acceptance testing by the AHJ, EH&S Project Manager will verify that such tests are scheduled by FMC or PDG assigned construction managers or by the responsible contractor.
Project Manager will receive copies of all final acceptance and/or AHJ inspection records for retention with project closeout documents.

**COMMISSIONING / TRANSITION TO OCCUPANCY (T2O)**

Requirements for Commissioning/T2O shall be outlined in the OPR, including:

- Functional performance testing will be conducted on all new equipment.
- Where applicable, integrated testing of new and existing equipment will be performed.
- Applicable lockout/tagout procedures will be provided.
- Applicable maintenance requirements and schedules will be provided.

Project Manager is responsible for ensuring commissioning has been conducted in accordance with the commissioning plan.

Issues identified during the commissioning will be documented and corrections tracked until closure unless accepted by Project Manager and Owner.

**PROJECT CLOSEOUT**

- Project Manager shall notify EH&S P&A and EH&S Capital Safety Project Program Owner when a project has been completed.
- EH&S P&A will notify UWF Finance & Administration that project is ready for closeout.
- EH&S P&A and EH&S Capital Safety Project Program Owner will review and approve requests from UWF Finance & Administration regarding final billing and retainage release (if applicable).
When the project is completed for a Capital Safety Project Request, the Project Lead or Project Manager is required to send completion notices (email) to the capital safety project requester and copy the EH&S manager responsible for the Capital Safety Project Program.

PROJECT TRACKING DATABASE
A Capital Safety Project Tracking Database (Appendix G) is used to track the project lifecycle activities for each project. Entries shall be made in the tracking database for each project to track progress during the lifecycle of the project.

The Project Lead is responsible for entering a new project into the tracking database once a project number is established for a project.

The Project Lead is responsible for updating the tracking database on a regular basis.

PROJECT BILLING
The Project Manager shall ensure that time spent on the project is billed at the person's hourly rate. Unless otherwise directed, all project hours will be tracked in the Capital Projects Log Database (Appendix H).

Each month the number of hours expended by the Project Manager, Project Lead, and SME shall be submitted via the Capital Project billing process.

Project Lead is responsible for notifying the manager of Building & Fire Safety (BFS unit within EH&S) to enter the project number into the Capital Projects Log Database.

LESSON LEARNED
Following the closure of a project, EH&S shall conduct a project “lessons learned” meeting to review the project for its successes, failures and areas where improvements could be made.

Information gained from the “lessons learned” review shall be integrated into the program and process documents, design standards, and other vehicles utilized to capture information that can be used in subsequent projects.

TRAINING
Project Managers and Project Leads must be qualified to perform their responsibilities which include the following:

- Project Management, including financial aspects
- Project Design Review Process

Qualifications can be met through the following:

- Education, Bachelors or MS degree in engineering, industrial hygiene, specific subject for SME or,
• Work experience; conducting design review for construction projects, engineering design, safety system risk assessments, project management, or
• Specific training in related subjects; certifications, and
• Reading and understanding the UW policies, procedures and guidelines for project management, design review and billing.

The Capital Safety Project Program Owner and Supervisor shall determine if the personnel designated for each role are qualified.

METRICS

Metrics shall be developed to reflect program productivity.

Examples of metrics can include, but are not limited to:

• Project Milestones met/planned
• Amount spent/budgeted
• Number of projects completed/planned
• Project Safety Metrics (leading and lagging)

REFERENCES

UW Executive Order 55
APS 10.1
APS 16.1

ANSI/ASSE Z590.3 Prevention through Design Guidelines for Addressing Occupational Hazards and Risks in Design and Redesign Processes

ISO 31000 Standard: Risk management: principles and guidelines
APPENDIX A: ACRONYMS / DEFINITIONS

ACRONYMS

<table>
<thead>
<tr>
<th>ACRONYM</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHJ</td>
<td>Authority Having Jurisdiction</td>
</tr>
<tr>
<td>BOD</td>
<td>Basis of Design</td>
</tr>
<tr>
<td>EH&amp;S</td>
<td>Environmental Health &amp; Safety Department</td>
</tr>
<tr>
<td>EH&amp;S BFS</td>
<td>EH&amp;S Building &amp; Fire Safety</td>
</tr>
<tr>
<td>EH&amp;S OSH</td>
<td>EH&amp;S Occupational Safety &amp; Health</td>
</tr>
<tr>
<td>EH&amp;S P&amp;A</td>
<td>Planning &amp; Administration</td>
</tr>
<tr>
<td>FMC</td>
<td>Facilities Maintenance &amp; Construction</td>
</tr>
<tr>
<td>MSA</td>
<td>Master Service Agreement</td>
</tr>
<tr>
<td>OPR</td>
<td>Owner Project Requirements</td>
</tr>
<tr>
<td>PDG</td>
<td>UWF Project Delivery Group</td>
</tr>
<tr>
<td>RFI</td>
<td>Requests for Information</td>
</tr>
<tr>
<td>SME</td>
<td>Subject Matter Expert</td>
</tr>
<tr>
<td>UW</td>
<td>University of Washington</td>
</tr>
<tr>
<td>UWF</td>
<td>UW Facilities</td>
</tr>
</tbody>
</table>

DEFINITIONS

**ARIBA** – Procurement service used by UW

**Authority Having Jurisdiction (AHJ)** – the organization, office, or individual responsible for issuing permits, approving layout drawings, enforcing the requirements of a code or standard or approving materials, an installation, or a procedure. Usually, the AHJ is the building or fire official of the city or county in which the job site is located. In certain cases, such as health care facilities, transient accommodations, and day care facilities, the AHJ is the city or county building or fire official and the director.

**Basis of Design (BOD)** – The BOD is a document that records the general expectations, performance criteria and special requirements as they relate to the equipment, processes, facility and technical design elements. The BOD is not intended to be a substitute for the OPR or the design professional’s project design drawings and specifications. The BOD includes both narrative descriptions and specific key lists of required equipment, processes, or facilities and documents the assumptions behind design decisions that were made to meet the OPR, specifically the basis of safety for the project. In some cases, e.g., small projects, the OPR can represent the BOD.

**Biennium** – At UW, a biennium is a two-year budgeting period that begins on July 1 of odd-numbered years and ends on June 30 of odd-numbered years.
Capital Project – Construction project of size and cost typically performed by outside contractors supervised by UW Facilities project managers

Capital Safety Project Program Owner – EH&S staff member responsible for the Capital Safety Project Program implementation and sustainment

Capital Safety Project Lead – Tracks individual capital safety project status, including budget and schedule, from approval through completion, updates project tracking database, provides updates to the Capital Safety Team. Project Lead and Project Manager may be same person depending on project scope

Capital Safety Project Manager – Manages individual capital safety project from beginning to completion. This person may be from EH&S, the subject project department/unit/organization, UW Facilities Project Delivery Group (PDG) or Facilities Maintenance and Construction (FMC).

Capital Safety Project Requester – Individual who submits a capital safety project request to EH&S on behalf of their department, unit, or organization

Capital Safety Team – Individuals involved in a capital safety project

Facilities Maintenance & Construction (FMC) - is dedicated to the stewardship of the University's buildings and grounds by providing maintenance, repair, and construction services to the University community.

Owner Project Requirements (OPR) – Document that details requirements for a capital safety project

Project Delivery Group (PDG) – The Project Delivery Group (PDG) is responsible for the delivery of capital projects that help fulfill the University's teaching, research, health care and innovation mission. From concept to completion to transition to occupancy, PDG leads the planning, design and construction required to execute and successfully complete projects ranging from small remodels to new buildings.

Subject Matter Expert (SME) – EH&S staff member or designated by EH&S to identify and evaluate safety issues, and provide technical requirements for the project

UW Capital Planning – works across schools, colleges, and campuses with executive stakeholders, academic and administration leadership, and within UW Facilities to support a portfolio management approach that guides the development of the campus built environment in a strategic manner, supporting institutional priorities and long-term financial and ecological sustainability.
APPENDIX B: CAPITAL SAFETY PROJECT REQUEST

The Capital Safety Project Request Form, shown on next page, is available on the EH&S website. It is a fillable form that a requester can submit electronically.
Capital Safety Project Request Form

Return completed form to Scott D. Nelson, PE, EH&S, Box 354400

Date: _______________________
Request Completed by: _______________________
Name: _______________________
Dept: _______________________
Box #: _______________________
Phone: _______________________
Fax: _______________________
Email: _______________________

I. PROJECT DESCRIPTION

A. Problem: ____________________________________________________________
   ____________________________________________________________
   ____________________________________________________________

B. Possible Capital Safety Solution: ______________________________________
   ____________________________________________________________
   ____________________________________________________________

C. Location: (Building, room area, etc.) __________________________________
   ____________________________________________________________
   ____________________________________________________________

D. Estimated Cost: _____________________________________________________
E. Estimate Based on: __________________________________________________

F. Have you done any design or planning work on this project? 
   [ ] Yes [ ] No

II. PROJECT DATA

A. Has an accident or injury incident occurred at this location? 
   [ ] Yes [ ] No 
   If yes, provide date and brief description: ________________________________
   ____________________________________________________________

B. Is this project necessary to meet a regulatory requirement? 
   [ ] Yes [ ] No 
   If yes, identify: ____________________________________________________

C. Have any citations been received because of this problem? 
   [ ] Yes [ ] No

D. Have any efforts been made to correct this problem to date? 
   [ ] Yes [ ] No 

E. Are any other sources of funds available to partially fund this project? 
   [ ] Yes [ ] No 
   Explain: __________________________________________________________

F. Approximately how many students, faculty, staff and/or volunteers are impacted by this situation on a daily basis? ________

Capital Safety Project Request Form | www.ehs.washington.edu | January 15, 2019
APPENDIX C: GENERAL RISK ASSESSMENT PROCESS AND MATRIX

The risk ranking assigned to each project request is an attempt to rank the risk to the University if the project is not completed. The risk ranking is based on an evaluation of the severity and likelihood of the outcome. Outcomes include injury or other health effects as well as financial and productivity costs to the University.

Severity risk ranking estimates are based on factors shown below in Table C-1. Likelihood risk ranking estimates are based on factors shown in Table C-2. The values are usually estimated based on professional judgement but include a review of the relevant literature if necessary.

The severity of an outcome is multiplied by the likelihood of the outcome resulting in a risk ranking. This ranking is then compared with a matrix to assign the risk of each outcome as a low, medium, or high-level risk. The risk ranking matrix is shown in Table C-3 below.
Table C-1 Risk Ranking – Severity Grouping

<table>
<thead>
<tr>
<th>Category Description</th>
<th>Personnel Injury or Illness</th>
<th>Environmental Impact</th>
<th>Equipment Loss And Product Loss</th>
<th>Operations Down-time</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 – Severe</td>
<td>Fatality</td>
<td>Long term (5 years or more) environmental damage; clean up requiring &gt;$1 million dollars to correct or in penalties</td>
<td>Greater than $1 million in damages</td>
<td>Greater than four months</td>
</tr>
<tr>
<td>7 - Major</td>
<td>One or more injuries or illnesses requiring hospitalization or more than one OSHA recordable injury</td>
<td>Long term (1-5 years or more) environmental damage; clean up requiring &gt;$250K-$1 million to correct or in penalties</td>
<td>$250K to $1 million in damages</td>
<td>One month to four months</td>
</tr>
<tr>
<td>6 – Moderate</td>
<td>One OSHA recordable injury or illness</td>
<td>Short term (up to 1 year) environmental damage; clean up requiring &gt;$100K to $250K to correct or in penalties</td>
<td>$100K to $250K in damages</td>
<td>Two weeks to one month</td>
</tr>
<tr>
<td>3 - Minor</td>
<td>One minor (first aid classification) injury or illness</td>
<td>Minor environmental damage readily restored or requiring $1K - $100K to correct or in penalties</td>
<td>$1K to $100K in damages</td>
<td>One day to two weeks</td>
</tr>
<tr>
<td>1 - Insignificant</td>
<td>No injury or illness</td>
<td>Minor environmental damage readily restored or requiring &lt;$1K to correct or in penalties</td>
<td>Less than $1K in damages</td>
<td>Less than one day</td>
</tr>
</tbody>
</table>
Table C-2 Risk Ranking – Likelihood Grouping

<table>
<thead>
<tr>
<th>Level</th>
<th>Definition</th>
<th>Numerical Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 Frequent</td>
<td>Failure is almost inevitable. Consistent failure observed.</td>
<td>1 out of 1 - 10</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10^0 to -1)</td>
</tr>
<tr>
<td>7 Likely</td>
<td>Failure is likely and will occur in most circumstances. Repeated failures observed.</td>
<td>1 out of 10 - 1000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10^-1 to -3)</td>
</tr>
<tr>
<td>5 Occasional</td>
<td>Failure is probable at some time and has been observed.</td>
<td>1 out of 1000 – 10,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10^-3 to -5)</td>
</tr>
<tr>
<td>3 Unlikely</td>
<td>Failure could occur at some time. Only isolated incidents observed.</td>
<td>1 out of 10,000 – 10,000,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10^-5 to -7)</td>
</tr>
<tr>
<td>1 Remote</td>
<td>Failure is extremely unlikely, no history of failure.</td>
<td>1 out of 10,000,000 – 1,000,000,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(10^-7 to -9)</td>
</tr>
</tbody>
</table>

* System life cycle to be determined by project team.
Table C-3 Risk Ranking Matrix

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Insignificant</th>
<th>Minor</th>
<th>Moderate</th>
<th>Major</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequent</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Likely</td>
<td>7</td>
<td>7</td>
<td>21</td>
<td>35</td>
<td>49</td>
</tr>
<tr>
<td>Occasional</td>
<td>5</td>
<td>5</td>
<td>15</td>
<td>25</td>
<td>35</td>
</tr>
<tr>
<td>Unlikely</td>
<td>3</td>
<td>3</td>
<td>9</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>Remote</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

Relative Risk (RR) = Severity x Likelihood

Risk Acceptance Zones:

- **Low**: No action required, although controls may be deemed appropriate by the project team and/or site management.
- **Medium**: Implementation of controls to minimize, mitigate or eliminate risk is not required, but may be deemed appropriate by the process owner or by site management, especially for higher severity risks.
- **High**: Implementation of controls to minimize, mitigate or eliminate the risk is required. Approval by corporate executive management or site head is required to accept the risk without further action.
# APPENDIX D: FIRE AND LIFE SAFETY RISK RANKING

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>A</td>
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<td>5</td>
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<td>5</td>
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<tr>
<td>B</td>
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<td>1</td>
<td>3</td>
<td>5</td>
<td>5</td>
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<td></td>
</tr>
<tr>
<td>C</td>
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<td>5</td>
<td>1</td>
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</tr>
<tr>
<td>D</td>
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<td>5</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>24</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td>31</td>
<td></td>
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</tr>
</tbody>
</table>

Unprotected high fire storage

High rise Bldg

Medical clinic
### APPENDIX E: CAPITAL SAFETY PROJECT TRACKING

This is a spreadsheet that Capital Safety Project Owner, Project Managers, and Project Leads use to monitor monthly spending for all capital safety projects.

<table>
<thead>
<tr>
<th>Project Number</th>
<th>P/C Budget Code Number</th>
<th>Fund</th>
<th>Project Name</th>
<th>Budget Accurate?</th>
<th>Anticipated Deficit or Surplus?</th>
<th>Phase?</th>
<th>Comments</th>
<th>Anticipated Completion Date?</th>
<th>Original Project Allotment</th>
<th>Current Budget Amount</th>
<th>Estimated Monthly Spending Amount</th>
<th>Estimated Total</th>
<th>Deficit/Surplus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>
APPENDIX F: OWNER PROJECT REQUIREMENTS (OPR) TEMPLATE

The Owner Project Requirements (OPR) template document is shown below. A Word document of the template is available on the EH&S website at www.ehs.washington.edu/resource/owner-project-requirements-template-capital-safety-project-1198.
## Owner Project Requirements (OPR) for Capital Safety Project

**[Name of Project]**

(Month Year)

<table>
<thead>
<tr>
<th>Owner Project Requirements (OPR) for Capital Safety Project</th>
<th>[Project name]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project number</td>
<td>[n/a]</td>
</tr>
<tr>
<td>Budget number</td>
<td>[n/a]</td>
</tr>
<tr>
<td>Data prepared</td>
<td>[date]</td>
</tr>
<tr>
<td>Prepared by</td>
<td>[name]</td>
</tr>
<tr>
<td>Project Owner (requester and/or requesting department/unit/organization representative)</td>
<td>[name]</td>
</tr>
<tr>
<td>Project Manager</td>
<td>[name]</td>
</tr>
<tr>
<td>Project Lead</td>
<td>[name]</td>
</tr>
<tr>
<td>Project Subject Matter Expert(s)</td>
<td>[name(s)]</td>
</tr>
<tr>
<td>Revisions</td>
<td>[date]</td>
</tr>
<tr>
<td></td>
<td>[date]</td>
</tr>
<tr>
<td>Approved</td>
<td>[name]</td>
</tr>
<tr>
<td></td>
<td>[date]</td>
</tr>
</tbody>
</table>

**Overview and Instructions:** The purpose of the UW EHS Owner Project Requirements (OPR) document is to provide clear and concise documentation of the Project Owner’s goals, expectations and requirements for the capital safety project. It shall detail:

- Functional requirements of the project
- Expectations of the project’s use and operation
- Regulatory requirements related to the project
- UW EHS and UW Facilities design requirements
- Facility and utility requirements

This template contains basic recommended components and can be adapted as needed to suit the project. The OPR document should be completed before start of design and given to the design team.
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PROJECT PURPOSE AND SCOPE

[What is the primary purpose and use of this project? Describe general size and scope of the project. Specify project location(s), building(s), campus(es). What safety hazard(s) is addressed? Describe related project history, and list reference documents if applicable.]

PURPOSE

SCOPE

PROJECT FUNDAMENTALS

[Is this project needed to comply with existing or upcoming specific local, state, or federal regulatory requirements? Is the project needed to comply with UW EH&S or UW Facilities requirements?]

BUSINESS DRIVERS

KEY OBJECTIVES

KEY ASSUMPTIONS

EXCLUSIONS
REGULATORY REQUIREMENTS AND GUIDELINES
[What regulatory agencies and regulations apply for the project? What assumptions made to ensure compliance? List and link to specific regulations/guidelines.]

REGULATORY AGENCIES

ASSUMPTIONS

REGULATIONS AND GUIDELINES

UTILITY REQUIREMENTS
[Are there utility requirements, such as electrical and water, needed for this project?]

COMMISSIONING
[Are there functional tests and commissioning on the project?]

UW EH&S AND UW FACILITIES REQUIREMENTS
[Are there specific UW EH&S and/or UW Facilities requirements to follow to complete this project, such as project safety plan, fall protection work plan if working at heights, etc? List and link.
When building or modifying safety systems refer to UW Facilities Design Standard which includes UW EH&S Design Standards, such as specifications for fire and life safety systems, laboratory safety and ventilation systems, etc.]

UW GUIDELINES, STANDARDS AND SPECIFICATIONS

TRAINING
[When the project is completed do employees in the department/unit/organization need to be trained on the system or its use? Do Facilities operations and maintenance staff need training on the new system O&M requirements?]

RECORDKEEPING
[Provide information on as-built drawings, photos, O&M instructions on the project.]

AS-BUILT DRAWINGS

OPERATIONS AND MAINTENANCE (O&M)
APPENDIX G: CAPITAL SAFETY PROJECT TRACKING DATABASE

Below are screenshots of the login page of the Capital Safety Project Tracking Database and a page for entering data.

Login page:

Data entry page:
APPENDIX H: CAPITAL PROJECTS LOG DATABASE

Below are screenshots of the login page of the Capital Projects Log Database and a page for entering data.

Login page:

Data entry page: