General

Welcome

The Facilities Design Standard (FDS) is a collaboration between UW Facilities and various campus Process Partners, and it is intended for use by design, construction, and maintenance professionals to facilitate the design, construction, and maintenance of University facilities and assets. These standards represent proven systems that are based on life cycle cost analysis, and provide functional facilities and systems that satisfy the University's Best Practice requirements for efficient operation and maintenance.

These design standards and standard specifications are to be adhered to and incorporated into all project and maintenance contracts, for all types of contract delivery methods. Any deviations to these standards shall be vetted through a documented resolution process, prior to the completion of project design documents or maintenance contracts.

FDS Organization and Use

Each FDS section contains Design and Standard Drawing concepts; standard specifications are included when a specific system and/or product is preferred because of spare parts inventories, prior experiences of the University, staff training on sophisticated equipment and/or to match existing systems, just to name a few. Standard Detail Drawings are intended to be used as shown or with slight modifications, modifications should be reviewed with the University Representative or Engineering Services prior to implementing. Implementation of the FDS is a collaborative process where flexibility, openness, and forward thinking are encouraged.

FDS Disclaimer

These standards are not intended to replace codes, other design standards, the services of a professional design team, or professional design analyses. Consultants shall conduct their own independent evaluations and are liable for the final design.

Sustainability

The University of Washington is a leader in sustainability and committed to implementing best practices through environmentally responsible construction for every new building and major

capital renovation, projects greater than $5M. The UW Green Building Standard was established and the following performance requirements were developed for the facilities.

- LEED Gold certified is the minimum target using the most current LEED standard.
- Design to reduce energy use with a minimum threshold of 15% more efficient than local city code.
- Using current code as a baseline, design to achieve at least 50% reduction for indoor and outdoor potable water use.
- Additional energy performance criteria can be found under the Energy Conservation and other discipline sections of the Design Standard.

The University is committed to sustainability at a leadership and policy level as stated in the following -

- Climate Action Plan, 2009
- Executive Order No.13, 2012
- Campus Master Plan, 2019
- Sustainability Action Plan, 2020
- STARS Reporting Ongoing *(developed by the national Association for the Advancement of Sustainability in Higher Education)*

The State of Washington established greenhouse gas (GHG) emission reduction goals for state agencies, and requires GHG reduction by 15% from 2005 levels by 2020; and reduction by 45% from 2005 levels by 2030. The University also participates in, or is a member of a variety of organizations. Please refer to the following website for more information: https://green.uw.edu/dashboard/awards, which design should take into consideration. For more information about what organizations' designs should be in alignment, please contact UW Sustainability (sustainability@uw.edu), or a University Representative.

Record Drawings

The University maintains a record drawing system, the Facilities Information Library (F.I.L.), that documents the overall utilities, as-built drawings of the individual systems, and building connection points, just to name a few. This record drawing library can be accessed online, and access to this system is granted through the UW Project Manager for the duration of individual projects. The website has many helpful how-to documents, including a document contained in Section G4 of the online help system within F.I.L. that has hyperlinks to the most common and the most up-to-date record drawings.

Engineering Services can assist with navigation of F.I.L. once full access is granted. Contact the UW PM for access rights to the drawings needed.

Utility Locates

All projects are to include drawing and specification notes to indicate that the Contractor shall notify the Utility Notification Center (811) at least two (2) to ten (10) full working days before digging. Note

that the University maintains records online for designers to research the University utility system at their leisure and generally from their office. This is intended to limit the use of the 811 system for design purposes. See the "record drawings" section for an explanation of this system and how to gain access.

Coordination

The Design Standard has been organized by discipline and responsible department, to aid the Design Professionals in implementing the University's performance criteria into the project. There may be instances where the information one is seeking is not in the area one may suspect. Please review all sections.

To install anchor bolts or rebars into an existing reinforced concrete structure, contractor shall use scanner to locate the rebars in the existing structure, mark rebar locations on concrete and use core drill not jack hammer to make holes. Should the existing rebars be damaged, contractor shall repair the existing rebars at no cost to the University.

Closeout Documents

At the end of a project, ensure that the documents in the Project Closeout Documents Checklist are submitted within one month of substantial completion.

Organization of the UW Design Standard

Facilities

- Engineering Services working with Central Utilities and Operations
    - Civil
    - Architectural
    - Structural
    - Mechanical
    - Electrical
    - Conveyance
    - Tunnels
    - CAD and BIM Standards
- Building Maintenance Services
- Campus Automated Access System CAAMS
- Space Guidelines
- Sustainability
- Exterior Improvements
- Transportation

Additional University Design Standards

1. Academic Technologies Audiovisual Systems Integration
2. Classroom Support Services design guide
3. Environmental Health & Safety Facility design guides (including fire safety, lab safety, safe access, environmental protection, hazardous materials, and more)
4. Police Department Risk Mitigation & Security Services
5. Emergency classroom locking devices (ECLD)
6. UW-IT Design Guide

UW Locations

1. Bothell
2. Tacoma

Revision History

Design Information

1. Facilities Design Information 1970
2. Facilities Design Information 2007
3. Facilities Services Design Guide 2012-2018
4. Facilities Design Standard 2020

Requirements Common to All Disciplines

A. Equity

1. **Accessibility and ADA Compliance**

   Contact Engineering Services Architect

2. **IT Accessibility**
3. **Gender Neutral**

   Contact Engineering Services Architect

B. Coordination

The following are some common examples of coordination needs on a project. Please note that this list is not exhaustive, and Design and Construction Professionals shall evaluate what types of coordination may be needed on a project during the design and construction phases.

1. **Architectural with All Trades:** e.g. envelope details and repair/replacement strategy; curtain walls containing electrical / mechanical equipment; provide base line for the City of Seattle (COS) Building Tune-Up Ordinance
2. **Structural with All Trades:** e.g.: penetrations of structural components by other trades; fall protection; roof hoist for buildings without elevators; equipment ramps for curbs on roofs
3. **Civil and Mechanical:** e.g.: backwater valve required due to height of next upstream manhole; point of connection elevations for water, storm and fire protection testing
4. **Civil and Electrical:** e.g.: exterior gravity drainage for site features that may transmit water into a building or downstream devices
5. **Mechanical and Electrical:** e.g. short-circuit current ampacity rating of mechanical equipment; sizing of transformers serving devices commanded to start at the same time by building automation system; specialty fire protection systems; harmonic mitigation for systems with vfds; floor drainage/protection for electrical rooms that may be compromised by mechanical system leakage; permanent wiring labeling; metering system accuracy from field device to the Smart Metering cloud
6. **Internet of Things (IOT):** Record all systems that collect data. Evaluate: storage location; data collection devices; storage amount required; responsible party for maintenance.

C. Preferred Vendor List

The latest technologies generate numerous options, many levels of sophistication and life cycle limitations. In order to predict service expectations for equipment and continuing education, Engineering Services has summarized a Preferred Vendors and Products list. Refer to the sections below.

- Architectural
- Electrical
- Mechanical
- Exterior Improvements
- Environmental Health & Safety

D. On Which Systems Must You Train Us?

The following are some common examples of coordination needs on a project. Please note that this list is not exhaustive, and Design and Construction Professionals shall evaluate what types of coordination may be needed on a project during the design and construction phases.

1. Worker Safety

a. Access for equipment above fixed equipment/furniture – demonstrate with equipment used for installation.
b. Contractor Lockout Tagout Procedures
c. Removal of large or heavy equipment through designed pathways.
d. Sampling of structural design elements – e.g. removal of rooftop membrane and heavy equipment mounted on the roof; fall protection pull test; fall protection means for future PV installations.

2. Equipment

a. Demonstrate equipment location as-builts – fire dampers; room lighting controllers; critical BAS sensors
b. Demonstrate baseline Building Tune-Up verification.
c. Building Automation System
d. Lighting Control System

E. What We Expect for System Redundancies

1. Research Buildings

a. Redundant mechanical and electrical equipment
b. Redundant sources to meet UW lockout / tagout requirements

2. **Classroom / Office Buildings**
    a. Ability to meet mechanical and electrical programming needs for each department.
    b. Redundant sources to meet UW lockout / tagout requirements