

Facilities Services Design Guide

~ WHAT'S NEW ~

September 2008

- Eliminated the General Requirements section:
 - 1B Environmental – This section was consolidated with related and similar design information found on the EH&S website.
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July 2008

- Updated the following Facilities Services Design Guide Civil sections:
 - 2J Earthwork - Removed limitations on stockpiling excavated materials if Geotechnical Engineer determines the existing soils are suitable to be used as backfill and the Geotechnical Engineer inspects and approves it.
 - 2S Storm Drainage System - Reduced minimum cover over pipe from 36" to 24".
 - In General - Updated City of Seattle standard drawing references to current detail numbering.
- Updated Facilities Services Design Guide Structural sections:
 - 3F - Slab on Grade - Revised floor elevation tolerance.
 - 3H – Structured Floors - Revised floor elevation tolerance. Deleted requirement for offices to be designed for same live loads as labs.
 - 3I – Roofs - Revised roof elevation tolerance.
 - 3J – Concrete - Deleted requirement for maximum spacing of construction joints. Revised minimum concrete strength. Revised curing compound application rate. Deleted requirement for reinforcing cover over ACI minimums.
- Updated the following Facilities Services Design Guide Mechanical sections.
 - 15A General Requirements
 - 15B1 Potable and Nonpotable Water
 - 15B2 Waste and Drain
 - 15B4 Compressed Air, Vacuum, Natural Gas & Nitrogen
 - 15C3 Steam and Condensate
 - 15C4 Hydronic Heating
 - 15C5 Refrigeration
 - 15C6 Air Handlers and Ventilation Fans
 - 15C9 Ductwork and Duct Accessories
 - 15D Piping, Valves & Accessories
 - 15G Motors and VFDs
 - 15K Identification

- 15L Insulation
 - 15M Water Treatment and Flushing
 - 15N Noise and Vibration Control
 - 15P Cold/Environmental Rooms
 - 15Q Computer Server Rooms
 - Updated the following Facilities Services Design Guide Electrical sections.
 - 16E Building Power Distribution: Added statement to address owner-provided equipment in classrooms.
 - 16G Wire, Cable and Terminations: Made modifications in Medium Voltage and Low Voltage cable requirements.
 - 16W Power Quality: Deleted requirements for isolated ground provisions for branch circuit panelboards
 - 16U Lighting: Modified statements to coordinate with Classroom Services requirements.
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June 2008

- Completed the conversion from the former name Facilities Design Information Manual (FDI) to the Facilities Services Design Guide.
 - Completed separation of other departmental Design Guides to their respective websites. Individual departments were slowly migrating to this format subsequent to the hardcopy manual being discontinued with the move to a web-based format. This will greatly simplify the updating process by individual departments.
 - The Capital Projects Office will maintain a webpage with links to all the Design Guides.
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April 2008

- Added New EH&S Design Guide Architectural Section 11X - Laboratory Fume Hoods
 - Added a new design guide for fume hoods to help assure that consultants consistently specify approved products, have clear direction on performance criterion and how the hoods will be tested and commissioned. This design guide is very concise since hoods must be selected from the EH&S approved hood list. It isn't necessary to describe the construction of the hood in such detail. Consultants will still need to outline accessories and/or develop a schedule of hoods to call out sinks, gas connection, and other accessories.
- Updated Facilities Services Design Guide Electrical Section 16AA – Identification
 - Added sample drawing for an "Arc flash" label.

- Updated Facilities Services Design Guide Electrical Section 16BB - Power Systems Studies
 - Clarified the type of software to be used for Study.
 - Clarified requirements for Arc flash labeling.
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March 2008

- Updated Facilities Services Design Guide Civil Section 2G - General Requirements
 - Revised Design Criteria for coordination with Campus Engineering.
 - Added requirements to verify connections with dye testing.
 - Miscellaneous minor updates and revisions.
- Updated Facilities Services Design Guide Civil Section 2H - Topographical Survey
 - Revised UW Monument Plug Marker detail and installation requirements.
- Updated Facilities Services Design Guide Civil Section 2K - Irrigation
 - Updated design, product and installation guidelines, including new automatic zone control valves.
- Updated Facilities Services Design Guide Structural Section 3F - Slab on Grade
 - Revised capillary break to clarify use of gravel.
- Updated Facilities Services Design Guide Structural Section 3J - Concrete
 - Revised the Mechanical sections listed in Related Sections.
- Updated Facilities Services Design Guide Structural Section 3P - Nonstructural Component Structural Design
 - Deleted Mechanical out of Basis of Design paragraph. Mechanical section of the Facilities Services design guides has the nonstructural seismic requirements covered independently.
- Updated Facilities Services Design Guide Architectural Section 7A - Roofing
 - This section was updated to make clarifications for PVC membrane systems, "hot applied bitumen" systems, and adhesives.
- Updated Facilities Services Design Guide Architectural Section 10B - Toilet Rooms
 - Revised the Mechanical sections listed in Related Sections.
- Updated Facilities Services Design Guide Architectural Section 13A - Access Control
 - Revised the Mechanical sections listed in Related Sections.
- Complete rewrite and reorganization of the Facilities Services Design Guide Mechanical Section. Refer to the following 3 bullets:

- Added the following new Mechanical Sections:
 - 15B1 Potable and Nonpotable Water
 - 15B4 Compressed Air, Vacuum, Natural Gas & Nitrogen
 - 15B5 RO/DI
 - 15B6 Plumbing Pressure Testing
 - 15C1 Process and Environmental Chilled Water
 - 15C3 Steam and Condensate
 - 15C4 Hydronic Heating
 - 15C6 Air Handlers and Ventilation Fans
 - 15C7 Filters
 - 15C8 Coils
 - 15C9 Ductwork and Duct Accessories
 - 15C10 HVAC and HVAC Piping Pressure Testing
 - 15D Piping, Valves & Accessories
 - 15E Hangers and Supports
 - 15G Motors and VFDs0
 - 15H Metering and Gauges
 - 15J Nonstructural Component Seismic Design
 - 15M Water Treatment and Flushing
 - 15N Noise and Vibration Control
 - 15P Cold/Environmental Rooms
 - 15Q Computer Server Rooms

- Revised the following existing Facilities Services Design Guide Mechanical Sections into a new format:
 - 15B2 Waste and Drains 15B3 Acid and Laboratory Wastes
 - 15C2 Central Cooling Water
 - 15C5 Refrigeration
 - 15F Pumps
 - 15K Identification
 - 15L Insulation
 - 15R Environmental Control Systems
 - 15S Sprinkler Protection and Standpipes
 - 15T Testing, Adjusting and Balancing
 - 15U Commissioning

- Eliminated the following existing facilities Services Design Guide Mechanical Sections. Content from sections was incorporated into the new and revised mechanical sections:
 - 15B Basis Mechanical Materials and Methods
 - 15C Piping
 - 15G Plumbing
 - 15K Process Chilled Water
 - 15L Heating, Ventilation and Air Conditioning
 - 15P Air Distribution
 - 15U Metering and Monitoring

- Updated Facilities Services Design Guide Electrical Section 16G - Wire, Cable and Terminations
 - This section was updated to make clarifications in medium voltage cable requirements.
 - Updated Facilities Services Design Guide Electrical Section 16R - Motor Control Centers
 - Revised the mechanical sections listed in Related Sections.
 - Updated Facilities Services Design Guide Electrical Section 16S - Variable Frequency Drive Installations
 - Revised the mechanical sections listed in related sections.
 - Updated EH&S Design Guide Electrical Section 16X - Fire Alarm Systems
 - Minor changes in this section include; ceiling strobe and speaker/strobes are now allowed, duct detectors report as supervisory alarms consistent with code, new guidance on refrigeration machinery room leak detection and alarm, and revision to raceway requirements to reduce cost.
 - Updated Facilities Services Design Guide Electrical Section 16G - Wire, Cable and Terminations
 - This section was updated to make clarifications in medium voltage cable requirements.
 - Updated Facilities Services Design Guide Electrical Section 16CC - Inspection, Calibration and Testing
 - This section was updated to make clarifications to testing requirements.
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May 2007

- Updated the entire Facilities Services Design Guide
 - Updated the design guides to reflect Engineering Services name change to Campus Engineering
 - Added copyright notation to each page.
- Updated Facilities Services Design Guide Structural Section 3B - Seismic Analysis & Upgrades
 - This section was updated to include an ASCE/SEI 31 Study for the Seismic Evaluation of Existing Buildings.
 - This section updated the design basis change from FEMA 356 to ASCE 41.
 - This section updated the Design Evaluation requirements for the programming phase.

- Updated Facilities Services Design Guide Structural Section 3J - Concrete
 - This section was updated to include a minimum curing time for post-tensioned slabs.
- Updated Facilities Services Design Guide Architectural Section 9B - Finishes
 - This section was updated to include additional design criteria for extra materials.
 - This section was updated to include additional design criteria for finish floors.
- Updated Facilities Services Design Guide Architectural Section 10B - Toilet Rooms
 - This section was updated to including requirements for coordination with UW Custodial Services.
- Updated Facilities Services Design Guide Architectural Section 14A - Conveying Systems
 - This section was updated to restrict elevator motor controllers to DC Systems only.
 - This section was updated to modify the THD testing procedures.
- Updated Facilities Services Design Guide Mechanical Section 15G - Plumbing
 - This section was updated to eliminate the requirement for waterless urinals.
 - This section was updated to add the requirement for low flow, 0.5 gallon per flush urinals.
- Updated Facilities Services Design Guide Mechanical Section 15T - Commissioning
 - This section was updated to add a requirement that that the commissioning agent develop the functional performance test criteria in conjunction with the design consultant that will be implemented in the design documents.
- Added Facilities Services Design Guide Mechanical Section 15U - Metering and Monitoring
 - This section was added to consolidate all mechanical metering and monitoring requirements into a separate section.
- Updated Facilities Services Design Guide Electrical Section 16F - Raceways
 - This section was updated to clarify where MC and AC cable can be used.
 - This sections was updated to include references to UW Technology Design Guide sections for communication conduit requirements.

- Updated Facilities Services Design Guide Electrical Section 16M - Metering and Monitoring
 - This section was substantially revised to allow the University to benefit from emerging metering and monitoring technology .
 - Updated Facilities Services Design Guide Electrical Section 16U - Lighting
 - This section was updated to clarify lighting and lighting control requirements.
 - Updated Facilities Services Design Guide Electrical Section 16BB - Power System Studies
 - This section was updated to add Arc/Flash analysis and calculations.
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September 2005

- General updates and corrections, most sections.
 - Incorporated sustainability concepts improvements, most sections.
 - Major revision to the structure section.
 - Eliminated the following Facilities Services Design Guide sections and added a link to the EH&S Laboratory Design Guide:
 - 11A Laboratory Design - General
 - 11B Fume Hood Exhaust Systems
 - 11C Biological Laboratories
 - 11D Biological Safety Cabinets
 - Inserted Facilities Services Design Guide Civil Section 2G General Requirements - Existing Civil chapters incremented up one alpha letter.
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February 2004

- Updated Facilities Services Design Guide General Requirements Section 1A - Record Documents & Submittals REV:01 - AUG2002 to 1A Project and Records Documents REV:02 - FEB2004.
(Note the section title change.)
 - This section was reorganized to better indicate the deliverables from the contractors and consultants.
- *This log of changes to the Facilities Services Design Guides, and is a record of the sections that have been update subsequent to the initial release of the Facilities Services Design Guides 2003, REV01. The explanation of the changes are mere highlights of the changes and do not indicate all changes within the section.*