

FACILITY STANDARDS (FS)² TABLE OF CONTENTS

FS² Orientation and Navigation

Volume I- Introduction and Principles

- A. Overview
 - 1. Guideline Compliance
 - 2. Process
- B. Economic Impact Program
 - 1. Economic Impact
 - 2. Procurement
- C. Civic Engagement
 - 1. The Community
- D. Stewardship and Heritage Resources
 - 1. Heritage Resources Strategy
 - 2. Historic and Cultural Significance
- E. Sustainability
 - 1. Sustainability Plan
 - 2. Guidelines
- F. Accessibility
 - 1. Intent
- G. Reference Documents
 - 1. Additional References

Volume II- Project Development Processes

- A. Consultant's Relationship to the University
 - 1. Facilities Services Role
 - 2. Consultant Role
 - 3. Related Roles
- B. Project Development Sequence
 - 1. Overview
 - 2. Project Development Phases
 - a. Program Planning and Project Initiation
 - b. Programming Phase
 - c. Schematic Design Phase
 - d. Design Development Phase
 - e. Construction Document Phase
 - f. Furniture, Fixtures, and Equipment
 - g. Bidding and Negotiation Phase
 - h. Construction Phase
 - i. Project Close-out
 - 3. Special Considerations
 - a. Alternate Project Delivery Methods
 - b. New Product/Manufacturer Process
 - 4. Payment Processes
- C. Reviews and Approvals
 - 1. Functional Design Reviews
 - a. User/Project Meetings
 - b. SD/DD/CD Phase Reviews
 - 2. University Design Reviews
 - a. FS Design Review
 - b. Steering Committee
 - c. Board of Trustees
 - 3. University Administrative Reviews
 - a. Accessibility Committee
 - b. Provost Space Committee
 - 4. External and Regulatory Reviews
 - a. Government and Regulatory Agency Reviews
 - b. Community Reviews
 - c. Other Resources and Entities
 - d. FS Compliance Guide Matrix
- D. Construction Delivery Methods
 - 1. Construction Management
 - a. Design /Assist Services
 - 2. General Contractor
 - 3. Design-Build

Volume III- General Design Requirements

- A. General Design and Construction Requirements
 - 1. Introduction
 - 2. General Design Requirements
 - a. Owners Project Requirements (OPR)
 - b. Basis of Design (BOD)
 - 3. Construction Requirements
 - a. General Conditions of the Construction Agreement
 - b. Site Logistics Plan
 - c. Working in Historic Spaces or Buildings
 - 4. References
 - a. Minimum Lactation Station Guidelines
- B. Stewardship and Heritage Resources
 - 1. Introduction
 - 2. HRS Process and Resources
 - a. HRS Database
 - b. Framework Matrix
 - 3. HRS Relationship to Facilities Services
 - 4. Project Requirements
 - 5. References
- C. Sustainability
 - 1. Introduction
 - 2. Sustainability Process
 - 3. Guidelines
 - a. Sustainable Sites
 - b. Water Efficiencies
 - c. Energy
 - d. Materials and Resources
 - e. Health, Comfort and Productivity
 - f. Education and Training Innovation
 - 4. Life Cycle Cost Analysis
 - a. Study Categories
 - b. LCCA Process
 - c. Guidelines
 - 5. References

D. Accessibility

1. Introduction
2. Accessibility Process
3. Guidelines
 - a. Walking Surface Requirements
 - b. Ramp Requirements
 - c. Stair Requirements
 - d. Door and Hardware Requirements
 - e. Drinking Fountain Requirements
 - f. Elevator Requirements
 - g. Wayfinding/Signage Requirements
 - h. Parking Requirements
 - i. Minimum Office Size Requirements
 - j. Construction and Manufacturing Tolerances
 - k. Performance Verification and Measurement
 - l. Mock-up Testing
 - m. Field Observation
 - n. Field Testing
4. References

E. Information Resources

1. Introduction
2. Resources and Deliverables Process
3. References

F. Site, Civil, and Grounds Requirements

1. Introduction
2. Guidelines
 - a. Building Entrances and Plazas
 - b. Parking Lots
 - c. Streets and Drives
 - d. Sidewalks and Pathways
 - e. Fences and Gates
 - f. Site Lighting
 - g. Site Accessories
 - h. Irrigation
 - i. Landscape and Plantings
 - j. Vines
 - k. Storm Drainage
 - l. Sanitary Sewers
 - m. Site Electric Distribution
 - n. Site Water Distribution
 - o. Site Clearing and Erosion Control
 - p. Earthwork
 - q. Geotechnical Investigation
 - r. Site Survey
3. References

G. Utilities Systems

1. Introduction
2. System Guidelines
 - a. Chilled Water
 - b. Steam and Condensate
 - c. Compressed Air
 - d. Utility Piping Identification
 - e. Vaults for Campus Utilities
3. Component Matrix and Guidelines
 - a. PS-1 Direct Buried Steam and Condensate Piping
 - b. PS-2 Steam and Condensate Piping in Tunnels/Vaults
 - c. PS-3 Direct Buried Chilled Water Piping
 - d. PS-4 Chilled Water Piping in Tunnels/Vaults
 - e. CAS-1 Compressed Air System
 - f. VS-1 Valves for Steam and Condensate Piping in Tunnels/Vaults
 - g. VS-2 Valves for Chilled Water Piping in Tunnels/Vaults
 - h. VS-3 Valves for Direct Buried Chilled Water Piping
 - i. TCS-1 Chilled Water Piping Testing and Flushing Guideline
 - j. TS-2 Pressure Test for Compressed Air Piping
 - k. TS-3 Testing of Steam and Condensate Piping
 - l. CS-2 Gas Piping Blow-out and Cleaning
 - m. CS-4 Steam and Condensate Piping Flushing and Cleaning
 - n. IS-1 Steam and Condensate Piping Insulation in Tunnels/Vaults
 - o. IS-2 Chilled Water Piping Insulation in Tunnels/Vaults

H. Building Envelope

1. Introduction
2. Guidelines
 - a. Function
 - b. Performance Criteria
 - c. Material and Assembly Requirements
 - d. Renovations/Alterations
 - e. Design Documentation
 - f. Performance Verification and Measurement
 - g. Mock-up Testing
 - h. Field Observation
 - i. Field Testing
3. References

I. Interior Finishes and Accessories

1. Introduction
2. Guidelines
 - a. Interior Finish Considerations
 - b. Interior Finish Matrix
 - c. Hardware Standards
 - d. Accessory Standards

- J. Vertical Transportation
 - 1. Introduction
 - 2. System Guidelines
 - a. Traction Elevators
 - b. Hydraulic Elevators
 - c. Machine Roomless Elevators
 - 3. Component Guidelines
 - a. Pushbutton Fixtures
 - b. Power Door Operator Equipment
 - c. Traveling Cable Requirements
 - d. Elevator Equipment Room
 - e. Pit and Hoistway
 - f. Cab Interiors
 - g. Emergency Power Operation
 - h. Warranty
 - 4. References
- K. Mechanical Systems
 - Preamble
 - 1. Purpose
 - 2. Principles
 - 3. Conclusion
 - Mechanical System Standards
 - 1. Introduction
 - 2. System Guidelines
 - a. Air Handling Systems
 - b. Power Ventilation Fans
 - c. Chilled Water Systems
 - d. Ductwork Systems
 - e. Hydronic Piping Systems
 - f. Steam Piping Systems
 - g. Insulation Systems
 - h. Pumps
 - i. Domestic Water Systems
 - j. Drainage and Vent Systems
 - k. Plumbing Fixtures
 - 3. References
- L. Building Automation Systems
 - 1. Introduction
 - 2. BAS Process
 - 3. System Guidelines
 - a. Communications and Interface
 - b. Equipment
 - 4. References

M. Electrical Systems

1. Introduction
2. System Guidelines
 - a. New Construction- Temp. Power and Building Service Considerations
 - b. Low-Voltage Electrical Power Conductors And Cables
 - c. Grounding And Bonding For Electrical Systems
 - d. Raceway And Boxes For Electrical Systems
 - e. Identification For Electrical Systems
 - f. Overcurrent Protective Device Coordination
 - g. Electrical Power Monitoring And Control
 - h. Lighting Control Devices
 - i. Low-Voltage Transformers
 - j. Switchgear
 - k. Switchboards
 - l. Panelboards
 - m. Motor Control Centers
 - n. Enclosed Bus Assemblies
 - o. Wiring Devices
 - p. Enclosed Switches And Circuit Breakers
 - q. Variable-Frequency Motor Controllers
 - r. Variable Frequency Driven Motors – Induced Voltage Bearing Current Mitigation Strategies
 - s. Engine Generators
 - t. Static Uninterruptible Power Supply
 - u. Transfer Switches
 - v. Transient-Voltage Suppression for Low-Voltage Electrical Power
 - w. Interior Lighting
 - x. Exterior Lighting
 - y. Emergency Lighting
3. References

N. Fire Protection Systems

1. Introduction
2. Fire Protection Design Process
3. System Guidelines
 - a. Fire Alarm System
 - b. Fire Sprinkler System
 - c. Testing and Acceptance
4. References

O. Maintenance & Operations Standards

(To be developed)

P. FF & E

([Hyperlink](#))

Q. Information Technology Services

1. Structured Cabling Specifications
2. Audio Visual Standards

([Hyperlink](#))

([Hyperlink](#))

R. Energy and Commissioning

S. Safety & Security

([Hyperlink](#))

T. Environmental Health & Safety

([Hyperlink](#))

U. Risk Management, Audit & Safety

([Hyperlink](#))

Volume IV- Technical Details and Forms

FS² Volume II Process Schedule

- A. General Design and Construction Requirements
 - 1. OPR Guidelines
 - 2. OPR Example
 - 3. OPR Worksheet
 - 4. BOD Example
 - 5. Exhibit A, General Conditions of the Construction Agreement
 - 6. Guidance for Design Teams
 - 7. Off-Cycle Approval Process
- B. Stewardship and Heritage Resources
 - 1. Resource Sheet Example
 - 2. Significant Space Sheet Example
- C. Sustainability
 - 1. LEED Checklist
 - 2. Life Cycle Cost Analysis
 - 3. Component Useful Life Schedule
- D. Accessibility
 - 1. Minimum Office Size Detail
 - 2. Accessibility Plan for Construction Sites Example
 - 3. Campus Accessible Route ([Hyperlink to University of Chicago's map](#))
 - 4. Handrail Details
 - 5. Accessibility Plan Example
- E. Information Resources
 - Space Measurement*
 - 1. Room Number Assignment Guidelines
 - 2. Building Measurement Standards Policy
 - Signage*
 - 3. Interior Signage Manual
 - 4. Exterior Signage Manual
 - a. Construction Fence Graphics
 - 5. Interior/Exterior Signage Approval Process
 - Closeout, CAD, & BIM*
 - 6. Closeout Documents Guide
 - 7. CAD Disclaimer Form
 - 8. BIM Standards
 - a. BIM Standards Appendix
 - 9. Sample Space Plan
 - 10. Space Plan Layer Names
- F. Site, Civil, and Grounds Requirements
 - 1. Shrub Planting Detail
 - 2. Groundcover and Perennial Planting Detail
 - 3. Deciduous Tree Planting Detail
 - 4. Tree Protection Fence Detail

- 5. Project Site Appearance SOP
- G. Utilities Systems
 - 1. Excavation Approval Form
 - 2. Guidelines for Utility Meters and Control Wiring Installation
 - 3. Metering Responsibility Matrix
 - 4. Campus Utilities Metering Diagram
 - 5. Metering Schedule
 - 6. Building Utilities Change Authorization
- H. Building Envelope
 - 1. Bird Safe Building Standards – Project Checklist
 - 2. Building Envelope Commissioning BECx Matrix
- I. Interior Finishes and Accessories
 - 1. Accessories Matrix
- J. Vertical Transportation
 - 1. Hydraulic Elevator Performance Chart
 - 2. Traction Elevator Performance Chart
 - 3. Elevator Door Performance Chart
 - 4. Elevator Cab Interior Finishes
- K. Mechanical Systems
 - 1. Building Design Criteria Matrix
 - 2. Building Chilled Water Control Valve Detail
 - 3. 2-Way Water Coil Piping Detail
 - 4. 3-Way Heating Water Coil Piping Detail
 - 5. Pipe Penetration Details
 - 6. Steam Trap Detail
 - 7. Heat Exchanger Piping Detail
 - 8. Medium Pressure Reducing Station (PRV-2) Detail
 - 9. 2-Way Multiple Water Coil Piping Detail
- L. Building Automation Systems
 - 1. Instrumentation and Control for HVAC specifications
- M. Electrical Systems
 - 1. Electrical Overcurrent Studies
- N. Fire Protection Systems
- O. Maintenance & Operations Standards (To be developed)