



Procedure Statement

Per understanding with ODIC, Facilities Operations and Development's (FOD) Utilities group is the Authority Having Jurisdiction (AHJ) for Columbus campus utility infrastructure. FOD Utilities include chilled water plant equipment and pipelines for chilled water supply from and return to McCracken Power Plant, South Campus Central Chiller Plant, and the East Regional Chilled Water Plant; steam and condensate plant equipment and distribution pipelines for steam supply from and condensate return to McCracken Power Plant; associated utility tunnels and trench-boxes; domestic cold water distribution, fire hydrants; and natural gas distribution.

Campus electrical substations and primary electric service equipment are utility infrastructure covered in a separate document. Download the [Primary Electric Service Procedure](#).

As AHJ, FOD Utilities will inspect and authorize new or renovated utility services before start-up to verify systems comply with federal regulations, state codes, and university standards.

This procedure defines the internal FOD review and AHJ inspection procedures necessary to manage the risk associated with completed construction of new or renovated utility piping systems and connections. The goal of this procedure is to ensure that new or renovated utility service construction meets the safety and reliability requirements defined in the university Building Design Standards, AWWA, Gas Pipeline Safety, ASME Pressure Piping, and applicable state and national codes.

Compliance with this procedure is a required component of the mitigation strategy to the risks that improperly installed utility systems pose of injury or fatality to employees, contractors, students, or visitors and of utility service interruptions to critical Wexner Medical Center, research, animal care, student housing, and other university operations. Risks inherent to construction activities will be addressed in the FOD Construction Risk Assessment Process Guidelines. Risks associated with Building Operation or Utility outages after occupancy are addressed in the [What if Risk Assessment for Utility Changes](#).

Definitions

1. ASME - American Society of Mechanical Engineers
2. AWWA - American Water Works Association
3. AHJ - Authority Having Jurisdiction
4. BDS - Building Design Standards for The Ohio State University
5. Building service connection - The custody transfer point between FOD Utilities or other utility company and the building operator defining the responsibility limits for each party.
6. ODIC - Ohio Division of Industrial Compliance
7. FDC – Design and Construction group within FOD
8. FOD – Ohio State's Department of Facilities Operation and Development
9. OSU Distribution System - Pipelines and valves in the OSU utility distribution systems located:
 - a. downstream from the meter and tap into the City of Columbus Water System and upstream of building service connections
 - b. buried or tunnel/trench box installed 200 psig superheated steam piping between McCracken and the building service connection
 - c. buried or tunnel/trench box installed chilled water distribution system piping between central chilled water plants and the building service connection
10. OSU Master Meter System - The natural gas pipeline systems downstream from the Columbia Gas regulator, meter station that supply more than one building service connection.
11. Qualified Technical Personnel - An individual who by licensing, qualification, certification, or experience has been designated as an inspector.



12. Repair - A maintenance type repair in kind, and matching the original materials and design, described by work place procedures.
13. Renovation: A system repair or renovation that changes the design or equipment and requires qualified design oversight and inspection.

Requirements

This procedure applies to any facility-supplied utilities from the Columbus campus FOD Utilities distribution or master meter systems. Service connections that tie directly to City of Columbus or Columbia Gas of Ohio distribution systems shall comply with the service provider's requirements.

Utility systems shall conform to The Ohio State University Building Design Standards (BDS) as stipulated in Division 33 of that document (or in an approved Division 33 variance) and further clarified or defined in documents referenced therein. Utility Service to such facilities is under the control and at the discretion of FOD Utilities Division as AHJ for central utility systems.

The Architect/Engineer of Record (A/E) shall consult on the design intent with FOD Utilities regarding the sizing and configuration of the utility service. Download the [Utility Request – New or Change](#) form.

FOD Utilities, in consultation with the A/E, shall establish the connection point for each required service during schematic design and before design development, based upon a careful evaluation of building service requirements, capacity in the central plants and distribution systems, and what is appropriate for the campus systems.

Utility system installations are inspected against construction permit documents and for compliance with the BDS. For conventional Design/Bid/Build projects, the permit drawings are typically the Conform Set of construction documents. Design Build projects shall provide a permit set of utility construction documents for FOD Utilities' use and review, as early in the design build as possible and not less than four weeks before inspection and start-up is anticipated.

ODIC, as AHJ for building systems, performs inspections for new building construction. In general, FOD Utilities inspections are focused on utility distribution and interconnected piping systems within buildings. ODIC inspections are focused on building code compliance and life safety systems. Any new or renovated campus building mechanical systems that connect to utility infrastructure will require both FOD Utilities and ODIC inspections.

Utility Service Connections are subject to inspection and denial of services for any non-conforming or substandard installations in accordance with published requirements. Utilities shall place the security of the utility system, safety, and the long-term continuity and reliability of service for the entire university over the preferences or operational concerns of any one facility or complex.

Utility inspection checklists for chilled water, steam, domestic cold water, and natural gas service are part of this procedure.

- [Chilled Water Checklist](#)
- [Domestic Cold Water Checklist](#)
- [Natural Gas Checklist](#)
- [Steam Checklist](#)

If needed, see separate Primary Electric Service procedure and checklists.

- [Primary Electric Service Procedure](#)
- [Construction Power Checklist](#)
- [Permanent Power Checklist](#)



- [Utilities Distributed Generation Checklist](#)

The existence of an approved checklist and service authorization shall not relieve the equipment manufacturer or installation contractor of their warranty responsibilities, nor shall it relieve the Architect/Engineer of their design responsibilities as Engineer of Record.

Responsibilities

A. FOD Utilities

1. Oversee system maintenance repairs and renovations; determine when repair work becomes a renovation that requires qualified design oversight and inspection.
2. Maintain mechanical distribution system models (natural gas, domestic cold water, chilled water, high pressure steam, and condensate).
3. Perform all valve operations on the Ohio State distribution system to isolate for new service connections or installation of any new distribution system components.
4. Respond within minimum inspection timelines in Section D below.
5. Review and/or inspect shop fabricator and installer qualifications, procedures and quality assurance processes and maintain associated documentation.
6. Review construction records and documentation, e.g., weld maps.
7. Inspect per inspection checklists and referencing published design standards, regulations, codes and project construction documents.
8. Review the inspection results, and any required ODIC permit inspections, complete documentation, sign off inspection form and authorize service and if the installation meets the appropriate standards and no substandard practices, workmanship or non-conformant conditions are discovered.
9. Complete system in-service operating inspections to determine if system operation and building controls are within standards after startup.

B. Design and Construction (FDC)

1. FDC shall communicate this procedure and the requirements herein to the A/E and the Construction Contractors for FDC-managed projects.
2. FDC shall coordinate design requirements with the customer(s), A/E, Contractors, Construction Managers at Risk, and FOD Utilities. FDC shall coordinate and document planned Utility construction outages in accordance with the [Utility Outage Procedures](#).

C. Architect/Engineer of Record

1. Complete the [Utility Request – New or Change](#) form for new or renovated utility services.
2. Submit a permit set of drawings and specifications to FOD Utilities for use in AHJ inspections and startup service approvals.
 - i. Design bid build and Construction Manager at Risk projects shall provide a construction conform set.
 - ii. Design build projects shall provide a permit set of construction documents for Utilities review. The documents shall be made available at least four weeks before anticipated service start-up.
3. Include design of temporary utility services for construction site facilities in design/permit documents.
4. Complete stress analysis for steam and steam condensate systems over 15 psig in accordance with ASME and pressure piping codes.
5. Complete stress analysis for main chilled water supply and return headers.
6. Specify system testing requirements for a new or renovated facility to demonstrate that the installation and disinfection of domestic water systems meets requirements and are within accepted standards before placing in service.



7. Specify hydrant and fire pump flow testing and acceptance criteria.
8. Provide equipment submittals on utility equipment to FOD Utilities for review.
9. Perform site inspections and other Construction Administration duties as contracted.

D. Construction Contractors

1. Maintain and make available up-to date documentation, including equipment specifications, purchase requisitions, bills of lading, and manufacturers' drawings adequate to demonstrate to university representatives that all materials and supplies used on the utility systems installation meet Building Design Standards.
2. Maintain and make available to university representatives the required certifications and qualifications of all contractor personnel involved in performing construction work:
 - i. Pressure piping welds
 - ii. Gas pipeline work
 - iii. Others as specified in contract documents
3. Obtain and post in a conspicuous and safe place on the job site, all required State of Ohio certificates of final plan approval (building permits).
4. Maintain and make available during construction progress, the AS-BUILT documentation to reflect the actual installed conditions of the project.
5. Provide installation and testing schedules and site access for FOD Utilities to inspect utility systems and equipment during the construction and testing process.
6. When required, and with at least two week notice, provide procedure for pipeline flushing to FOD Utilities for review and approval. Provide notice and access to FOD Utilities to witness flushing activities.
7. Remove and replace, at the Contractor's expense, any work done or materials used that inspection identifies to be in violation of construction documents and specifications, except for buried equipment as described in Item #8.
8. Provide advance notice of at least 5 days and an inspection window of at least 4 hours before covering buried equipment and pipelines with fill. If this notice is not given and if FOD Utilities requests, based on a lack of other documentation or approved inspections, the contractor shall remove or uncover such portions of the work as directed to allow FOD Utilities to complete inspection. The uncovering or removing of fill and the replacing of the covering and restoration of the parts removed shall be at the Contractor's expense.
9. Provide a minimum 2-week advance notification of their intention to make tie-ins and follow the utility outage procedure.
10. Provide a minimum notice of at least two weeks before a request for final inspection and initiation of utility service.
11. Have the temporary construction service or permanent facility service inspected by the ODIC Inspector.
12. Make ODIC inspection results, signed Certificates of Final Plan Approval and records related to utility infrastructure available to FOD Utilities.
13. Correct building operating control issues identified in operating system inspections that are in conflict with the design or sequence of operations that cause unstable or excessive demands on utility systems.

Resources

For questions and consultation, contact the Senior Director of Utilities (614-292-4509) or Utilities Technical Director (614-247-2489).