



Facilities Maintenance Standards

Purpose

The purpose of these standards is to outline the minimum requirements for maintaining state-owned facilities and infrastructures in a manner that will maximize the usefulness and cost effectiveness of these facilities in enhancing the quality of life of Utah state employees, citizens, and visitors. Additional work may be required to satisfy code or judicial requirements.

All agencies and institutions shall comply and will be audited against these standards by the Division of Facilities Construction and Management (DFCM). Exempt agencies are to review their maintenance programs against these standards and to report the degree of compliance of each of their complexes to the legislature through DFCM.

1.0 Documentation and Reporting

1.1 Architectural and Mechanical

1.1.1 At least one copy of the operations and maintenance (O&M) manuals shall be maintained at the facility or complex. This can be maintained as a paper or electronic copy.

1.1.2 At least one copy of the architectural, mechanical, and electrical as-built drawings shall be maintained at the facility or complex. This can be maintained as a paper or electronic copy

1.1.3 When a facility is renovated such that code approval is required to complete the work, then as-builts and O&M manuals need to be provided to the agency's facility management team in relation to the renovation.

1.1.4 Reserve copies of all building documentation shall be archived in an appropriate and separate location from the facility. This can be an electronic archive.

1.2 The agency and institution shall report to DFCM the current and accurate O&M costs tracked to the individual building level for any facility measuring 3,000 GSF or greater. Locations consisting of multiple facilities that individually do not meet the minimum GSF requirement shall be required to report O&M costs at the campus/ complex level. Individual building O&M costs shall be reported between October 1 and December 31, of each year.

1.2.1 All O&M expenditure reports for both direct and indirect cost shall contain current and accurate costs including but not limited to: utilities (electrical, gas/fuel, and water/steam, high temp water, chilled water and sewer), labor, materials, custodial, landscape, and grounds services, insurance, travel, leasing and rent.

All buildings that receive state funding are required to have a Facility Condition Assessment (FCA) completed in no longer than a five-year rotation. DFCM manages this program for all State Facilities with the exception of Higher Education Facilities who have identified that they will manage this program internally for their institutions. If this is a self-managed (non-DFCM-managed) program for a Higher Education institution, the FCA data shall be reported to DFCM in September of each year.

1.3.1 In addition to the DFCM audit of the FCA data for each facility, DFCM shall also conduct physical audits of the facilities. **The checklist which will be used for the physical audits is Appendix B of this standard.**

1.3.1.1 For those facilities for which DFCM manages the FCA data, physical audits of each building will occur on an annual basis.

1.3.1.2 For those Higher Education Facilities that are self-managing their FCAs, DFCM will physically audit facilities on a random basis every year. Each building will not be physically audited each year. If, through the process of auditing the FCA data, DFCM identifies an anomaly, that building will be physically audited within 12 months.

2.0 Equipment Database and Tagging

2.1 An appropriate equipment numbering system that allows for the unique identification of each individual piece of equipment shall be utilized and metal, plastic tags or labels placed on all building equipment and electrical panels. If an agency does not have a functional equipment naming protocol they should use the one identified in the **DFCM's High Performance Building Standard**. <https://dfcm.utah.gov/energy-efficiency-program/high-performance-building-standard/>

2.2 All equipment nameplate data shall be collected, documented, and filed in a computerized data base/computerized maintenance management system (CMMS).

3.0 Computerized Maintenance Management Systems (CMMS)

3.1 Corrective Maintenance

3.1.1 Corrective or reactive maintenance problems shall be reported to and logged promptly by the maintenance department in the CMMS which shall create a digital record of the requests.

3.1.2 The CMMS system shall capture the following information in regards to maintenance requests and shall be able to create reports that clearly display this information by work order, by asset, or by property/building, by technician and where appropriate by campus.

3.1.2.1 Date of request

3.1.2.2 Category of repair: mechanical, plumbing, electrical, fire life safety, security, etc. This is not an inclusive list; each facilities team should create categories for their needs. Some agencies may also want sub-categories layered below the main categories.

3.1.2.3 Priority of request: as an example, an emergency (fire/flood/ major security issue), some time that day, within three days, within a week, as time allows. This is an example of a priority system and each facilities team should work within their CMMS to create a clear prioritization structure.

3.1.2.4 Description of the work being requested. Each agency should determine what pertinent information needs to be gathered at the initial request to support an efficient work process for the facilities team.

- 3.1.2.5 The shop and/or technician to which the work is assigned. The assignment of technician may happen after the shop assignment at the initial request, but the information should be captured in the CMMS.
- 3.1.2.6 The cost of the work once completed, including the time the technician spent on the work order.
- 3.1.2.7 The date the work was completed.
- 3.1.2.8 All notes added to the work as it moved through to completion.

3.1.3 Maintenance backlogs on the facility/infrastructure shall be tracked on a 30 day, 60 day, 90 day and older basis. Work orders older than 30 days will require a note or description as to why it is not complete, such as waiting for materials. It is at the discretion of the facilities team how much detail is required to be added, but there should be enough information on why the work is being delayed.

3.1.4 A priority system, as noted in 3.1.2.3, for corrective maintenance shall be established so that maintenance work is accomplished in a way that maximizes resources and minimizes wear or damage to the assets, and minimizes disruption to the building users.

3.2 Preventive Maintenance

3.2.1. State facilities managers shall automate preventive maintenance scheduling and equipment databases. The CMMS shall be the tool to automate preventive maintenance. The specific maintenance items required in this standard and defined on the Physical Facility Audit checklist (Appendix B) shall be recorded as PMs. This will be the documentation of work completed at physical audits.

3.2.2 All equipment (e.g. chillers, boilers, air handlers and associated controls, air compressors, restroom exhaust fans, domestic hot water circulating pumps, automatic door operators, temperature control devices, etc.) shall be on a computer based preventive maintenance schedule. The frequency of preventive maintenance procedures shall be determined by manufacturer's recommendations and local craft expertise and site specific conditions, to include the specific maintenance items required in this standard and defined on the Physical Facility Audit Checklist (Appendix B).

3.3 Maintenance work completed by contractors needs to be recorded, either through the CMMS with a work order creation, or through a contracting process that can be reviewed by the building auditor if requested. Invoices may be requested.

4.0 Life Safety

4.1 Elevators. See Appendix B - Physical Facility Audit Checklist for specific documentation requirements for compliance for the following items.

4.1.1 Regular inspections and maintenance logs from service contracts

4.1.2 Telephones within elevators shall be checked monthly or monitored externally for proper operation.

4.1.3 Permit to Operate

4.2 Fire Protection Equipment

4.2.1 Fire protection equipment has to comply with State Fire Code and R7-10 Rules.

4.2.2 See Appendix B - Physical Facility Audit Checklist for specific documentation requirements for compliance for the following items.

4.2.2.1 Detection and notification systems

4.2.2.2 Halon/Ansul or pre-action systems

4.2.2.3 Fire extinguishers

4.2.2.4 Automatic fire sprinkler systems, standpipes and fire pumps

4.2.2.5 Kitchen hoods

4.2.2.6 Uninterruptible power supply systems

4.2.2.7 Emergency directional and exit devices

5.0 Mechanical, Electrical and Plumbing

5.1 Hot Water and Steam Boilers

5.1.1 Steam Boilers. See Appendix B - Physical Facility Audit Checklist for specific documentation requirements for compliance for the following items.

5.1.1.1 Daily operations

5.1.1.2 Low water cut off devices

5.1.1.3 Boiler relief valves

5.1.1.4 Inspections and certifications

5.1.1.5 Water treatment programs

5.2 Chillers

5.2.1 Chillers. See Appendix B - Physical Facility Audit Checklist for specific documentation requirements for compliance for the following items.

5.2.1.1 Daily operations

5.2.1.2 Leak checks

5.2.1.3 Annual service inspection

5.2.1.4 Refrigerant

5.2.1.5 Cooling towers

5.3 Roof Top, Package Units, Air Handling Units

5.3.1 RTUs, Package Units, AHU. See Appendix B - Physical Facility Audit Checklist for specific documentation requirements for compliance for the following items.

5.3.1.1 Annual PMs

5.3.1.2 Filter maintenance

5.4 Small Refrigerated Equipment

5.4.1 Small refrigerated equipment. See Appendix B - Physical Facility Audit Checklist for specific documentation requirements for compliance for the following items

5.4.1.1 Condenser coil

5.4.1.2 General equipment

5.5 Other Plumbing

5.5.1 OTH Plumbing. See Appendix B - Physical Facility Audit Checklist for specific documentation requirements for compliance for the following items.

5.5.1.1 Backflow preventers

5.5.1.2 Cross-connection controls

5.5.1.3 Water system containing storage water heating equipment

5.5.1.4 Pressure vessels, including but not limited to air compressors, heat exchangers, expansion tanks.

5.6 Electrical Systems

5.6.1 All electrical systems and equipment must comply with National Electrical Code (NEC). See Appendix B - Physical Facility Audit Checklist for specific documentation requirements for compliance.

5.6.1.1 Emergency generators

5.6.1.2 Electrical panels

5.6.1.3 Electrical rooms

5.6.1.4 Pull boxes, junction boxes, electrical termination boxes

5.6.1.5 Breakers and disconnects

5.6.1.6 Arc Flash analysis as applicable for project work

6.0 Indoor Air Quality and Energy Management

6.1 Indoor Air Quality. See Appendix B - Physical Facility Audit Checklist for specific documentation requirements for compliance.

6.2 Energy Management. See Appendix B - Physical Facility Audit Checklist for specific documentation requirements for compliance.

6.2.1 Utility metering to include electrical, gas, culinary water and irrigation. All outdoor consumptive water use shall be separately metered and data reported annually to DFCM.

6.2.2 Utility data: DFCM maintains a building utility data base that can be used to meet the requirements for access to utility data.

6.2.3 Utility costs savings project completion

7.0 Additional Resources

7.1 DFCM stores all project documentation for construction projects they manage in Project Wise. Any O&Ms or construction documents that an agency is missing can be requested.

- 7.2 DFCM maintains a utility data base called Building OS for state buildings that are not already included in a utility data management system, such as on a Higher Education Campus. Access to this database can be given by DFCM to any user.
- 7.3 This standard and the resulting auditing program are not intended to replicate the Risk Management Inspection program. Information about that inspection can be found on the Risk Management website. It should be noted that the Risk Management Inspection requires any State facility to have the following training programs in place and validated. In addition, the DFCM P.M. Audit will require confirmation for the Hot Works Training requirement.
 - 7.3.1 Hazardous Materials Management Plan
 - 7.3.2 Asbestos Control and Management Plan
 - 7.3.3 Laboratory Hygiene Plan
 - 7.3.4 Lockout/TagOut Procedure for Performing Maintenance
 - 7.3.5 Blood Borne Pathogen Program
 - 7.3.6 Emergency Management Plan / Evacuation Mapping / Protocols
 - 7.3.7 Respirator Program
 - 7.3.8 Hearing Conservation Program
 - 7.3.9 Confined Space Permit Program
 - 7.3.10 Lead Exposure Program
 - 7.3.11 Trenching Standard
 - 7.3.12 Hot Work Policy

8.0 Available DFCM Maintenance Management Services

- 8.1 DFCM can provide certain maintenance management, energy management, and preventive maintenance services to agencies at cost. The following services are available:
 - 8.1.1 Maintenance management consulting
 - 8.1.2 Additional maintenance audits of facilities
 - 8.1.3 Energy management audits and energy management consulting