

SCOPE

This section applies to the design and installation of the building fire sprinkler and standpipe systems.

BACKGROUND

The University is largely self-insured and believes fire protection significantly reduces its risk and provides significant operation benefits. In some cases as outlined herein new and renovated buildings should be protected, exceeding minimum code requirements.

The International Building Code requires protection in many occupancies but fire protection is not required in Group B occupancy buildings. Class B occupancies include laboratory, libraries, classroom, office and similar space. Design consultants often specify fire protection for these projects regardless of code because of the code tradeoffs (i.e., increased building height and area, less fire resistant construction, increased travel distance to exits, and higher limits on hazardous chemicals used in research).

APPROVALS

For purposes of code compliance, the Authority Having Jurisdiction (AHJ) for fire protection will be the Local Authority (typically the Fire Department) and the University's Fire Protection Engineer from Environmental Health and Safety. Additional approvals may be required for insured properties and licensed facilities.

DESIGN CRITERIA

General

Fire Protection shall be provided in all new and renovated building when required by code and as follows. Consult with the University's Fire Protection Engineers (Environmental Health and Safety) concerning the sprinkler system design:

- All Group B Laboratory Buildings
- All Group B non laboratory buildings (office, classroom, etc) greater than two stories or 24,000 square feet

Building Fire Service/Utilities

- Obtain water supply information for the Seattle campus from the University's Fire Protection Engineer
- Provide a 10 psi cushion for all hydraulic designs

Fire Sprinkler Systems/Standpipes

- Avoid provision of a fire pump if system demand can be met without a pump
- Provide floor control valves and drains on each floor within a stair enclosure in multi-story buildings
- The design criteria for the fire sprinkler system shall be in accordance with NFPA 13 or 13R whichever is applicable. Consult with the University of Washington's Fire Protection Engineer for assistance in establishing design parameters. Area reduction for quick response heads is acceptable.

- Grid systems are discouraged as they provide less long term flexibility
- Provide an electronic bell in lieu of a water motor gong for exterior audible alarm for fire sprinkler systems
- Do not show sprinkler head locations except where the head layout in the ceiling is critical for coordination and/or for architectural reasons
- Where lab benches, library stacks, shelving systems and other permanent furniture, equipment, fixtures or partitions extend within 18 inches of the ceiling, design the sprinkler head layout specifically to coordinate with the layout, lighting, ventilation, and other building features
- Where partial ceilings “clouds” are provided for architectural reasons, designers must pay special attention to the design of the sprinkler system. Heads both above and below the ceiling may be required where the ceiling is not continuous.

PRODUCTS AND MATERIALS

General

Materials and equipment: All materials and equipment in the system shall be new.

All products shall be Underwriters Laboratory listed.

Manufacturer of sprinkler specialties shall be Globe, Grinnell, Reliable, Tyco, Victaulic, Viking or approved equal. Confer with UW Fire Protection Engineer for substitutes.

Pipe and Couplings

Pipe: All pipes shall be steel and meet the requirements of NFPA 13. Plastic pipe is acceptable for residential wood frame buildings. Steel pipe shall be Schedule 40 for threaded and cut groove pipe and Schedule 10 for roll groove application; no exceptions.

Galvanized pipe: Dry pipe systems, non-pressurized fire department pumper connection piping, and pipe located in corrosive environments shall meet the requirements of NFPA 13, be schedule 40 pipe, ferrous, and galvanized; no exceptions.

Underground pipe: All piping upstream of the double backflow preventer shall be ductile iron class 52 and cement-mortar lined whether inside or outside of the building. Other pipe types may be used only with the approval of the UW Fire Protection Engineer.

Plain end couplings: No plain end couplings (Roust-A-Bouts, Plainloks or similar couplings) may be used on either new or existing sprinkler systems.

Hole cut outlets: Hole cut bolted branch outlets couplings may be used only in isolated locations as approved by owner. Coupons created by hole cut outlets shall be secured to the fittings via zip-tie or wire.

Flexible Drops: Flexible drops are allowed on a case by case basis when approved by UW Fire Protection Engineer. If flexible drops are used, they must include ceiling system modifications for a complete system.

SHUTDOWN OF EXISTING SYSTEMS

Any shutdowns of existing water distribution systems, fire sprinkler systems, domestic water systems or fire alarm systems shall be approved by the University Construction Coordinator. Provide advance written notice at least 14 days prior to the shutdown to the Construction Coordinator.

SUBMITTALS

Shop drawings, hydraulic calculations and materials submittals shall be approved by the A/E and Owner's representative (UW Fire Protection Engineer) and the City of Seattle prior to fabrication and installation of the system.

INSPECTION, PUNCH LIST AND HYDROSTATIC TESTS

All inspections and acceptance testing involving the fire department shall be scheduled through the UW Fire Protection Engineer. The contractor shall conduct all tests and the UW Fire Protection Engineer and a representative of the Fire Department shall witness flushing, hydrostatic, pump, coverage, final and all other inspections and tests.