

21 10 01 FIRE PROTECTION

Coordination Requirements

1. Coordinate with the University of Victoria (UVic) Facilities Management – Plumbing Shop.
2. Contact UVic Facilities Management for water supply information from the UVic water model.
3. Coordinate verification of the sprinkler system with UVic Plumbing Shop. Contact UVic Facilities Management in advance of verification to provide opportunity for Plumbing Shop personnel to be present during verification. If a Code Consultant has been retained, coordinate design with their recommendations.

General

1. Submit to UVic, Facilities Management a design philosophy for the proposed building fire protection systems. Major components of the philosophy must be accepted in principle by Facilities before the project can proceed to construction. Consultants are expected to produce designs that meet user needs and allow Facilities Management to continue to meet those needs in the future in a safe efficient manner.
2. New buildings shall be fully sprinklered regardless of code requirements. Renovated facilities in fire sprinklered buildings shall be designed to maintain the fire sprinkler protection. Generally, renovated facilities in non-fire sprinklered buildings will not require fire sprinklers but may require roughed-in fire sprinkler piping to accommodate future building fire sprinklers.
3. UVic is largely self-insured and has a policy to manage risk and enhance the safety of its facilities to the benefit of faculty, staff, students, and visitors. Fire sprinkler protection at the University shall be consistent with standard industry practice with reasonable deviations to increase system longevity and provide flexibility for subsequent renovations.
4. Clearly determine with Facilities Management in advance whether the systems will be designed under Scenario 1 or Scenario 2 of the B.C. Building Code and whether or not the services of a Code Consultant are required.
5. NFPA Codes (latest edition) and the B.C. Building Code shall be used to determine level of protection required.
6. UVic campus straddles two jurisdictions – Saanich and Oak Bay. The specific jurisdiction that a particular building is in will be the authority having jurisdiction.
7. UVic's fire protection systems shall meet latest applicable NFPA codes and the authority having jurisdiction policies in effect.
8. All fire protection systems shall be designed by Consultant firms and Professional Engineers specializing in fire protection design. Mechanical Engineers wishing to undertake the designs must demonstrate that they possess fire protection design experience. The intent of this requirement is to ensure that designs not only meet the minimum code requirements but meet specific building requirements which can only be evaluated by an expert in the field.
9. All contract documents and "as built" drawings must meet criteria outlined in NFPA 13. All calculations must be sealed by a Professional Engineer registered in British Columbia.

10. Provide fire hydrants to meet UVic and Saanich / Oak Bay requirements.
11. Information on water supply available for fire-fighting must be obtained through UVic Facilities Management which has a model for the UVic water system (Focus Engineering).
12. Do not specify Halon Systems. Pre-action and clean agent systems shall only be provided where the need is coordinated in advance with Facilities Management.
13. Coordinate with Electrical Consultant for the fire alarm panel monitoring requirements for flow switches and valves and for heat tracing and alarming of wet pipes exposed to freezing conditions.
14. Typically conceal all piping (but not necessarily standpipe risers in stairwells). Coordinate with the Architect for chases and enclosures to conceal the piping where necessary.

Final Function Testing

1. Certify fire systems have been tested to meet requirements of authorities having jurisdiction.
2. Insulate or conceal work only after testing and approval by authorities having jurisdictions and the Fire Protection Design Engineer and after the Plumbing Shop has been given notice and the opportunity to review.
3. Conduct tests in presence of the Fire Protection Design Engineer and authorities having jurisdiction who wish to be present.
4. Coordinate verification of the sprinkler system with the Plumbing Shop. Contact UVic Facilities Management in advance of verification to provide opportunity for Plumbing Shop personnel to be present during verification.
5. Test fire systems in accordance with authorities having jurisdiction and as required by applicable codes.
6. Operate all control valves to verify proper operation of the valve and associated tamper switch.
7. Operate all test connections to verify water flow switch operation.
8. Provide project record drawings and maintenance manuals to Facilities Management prior to building turn-over.

21 30 01 GENERAL

Fire Pump

1. Design systems to avoid the need for a fire pump. Specify a fire pump only where the system cannot reasonably be designed without one and only after consulting with Facilities Management.
2. Where a fire pump is provided include a metered bypass for testing the fire pump.

Painting

1. All exposed fire protection piping and equipment shall be painted red.
2. Specify at least one coat of corrosion resistant primer paint to ferrous supports and site fabricated work (pewter gray).

System Drains

1. System drains shall be piped to drains sufficient to handle the full anticipated flow.

Building Fire Protection Water Service

1. Provide a single combined domestic/fire protection water service to a building unless there is a compelling reason to provide two separate services.
2. Sprinkler system drains should discharge to a sanitary sewer drain, not a storm drain.

Spare Parts and Cabinet

1. Specify spare parts to suit the critical requirements of the project.
2. Specify the following spare parts at minimum:
 - i. Sufficient numbers (minimum of 6) of spare sprinkler heads of each type used on the project.
 - ii. Sprinkler wrench, recessed head socket type with ratchet, to fit all sprinkler heads.
 - iii. One set of packing and one casing joint gasket for each pump.
 - iv. Provide a red cabinet with name plate "SPARE SPRINKLERS" suitable for storing the spare sprinklers and wrenches.

Signs

1. Provide all control, drain and test valves with signs hung by a chain identifying the type of valve, the area (floor or portion of the building) affected by the valve and whether, "Normally Open" or "Normally Closed". Submit the wording to UVic Facilities Management for approval.

Pressure Gauges

1. Gauges shall be minimum 85mm (3 1/2") diameter, bourdon type pressure gauge, 0-200 psi or 0-250 psi.

Fire Sprinkler systems/Standpipes

1. Zone control valves may be concealed if a sufficiently sized access panel is provided to allow for maintenance and testing. Coordinate location with Facilities Management.
2. Provide a shut-off valve (to be easily accessible and visible) at the base of each standpipe riser. Do not locate in crawl space.
3. A building with a standpipe system shall have a flow switch monitored for trouble alarm in the main to detect flow from the standpipe.
4. Pipe shall be ferrous to NFPA 13 except drain pipe may be copper to NFPA 13. Do not use plastic piping.
5. Flexible head drops shall not be used.
6. Ring type hangers are not acceptable.
7. Snap-let type fittings are not acceptable.
8. Provide chrome plated fire hose valves in finished areas.

Sprinklers Subject to Freezing

1. Where sprinkler main piping is wet and subject to freezing, provide heat tracing connected to the fire alarm panel with high/low temperature monitoring. Coordinate with the Electrical Consultant.

Dry Pipe Alarm Valve

1. Dry pipe alarm valves, trim packages, accelerators and air maintenance devices, shall all be of the same manufacturer.

Inspector's Test and Drains

1. For each zone provide an inspector's test and drain in a lockable panel, cage or room not subject to vandalism. The discharge shall be into a drain riser on a multi-storey buildings.