

SECTION 21 00 00
BASIC FIRE PROTECTION SYSTEM DESIGN
Design Standard

PART 1 GENERAL

1.1 PURPOSE:

The purpose of this document is to standardize the basic elements of the Fire Protection System Design process. This design standard has the purpose of creating a consistent application of Fire Protection System Design throughout the San Mateo County Community College District, therefore achieving a standard of quality for maintenance and reliability throughout all renovation and new building projects.

PART 2 PRODUCT

2.1 Codes and standards:

- A. California Fire Code
- B. NFPA 13, Installation of Sprinkler Systems.
- C. NFPA 14, Standard for the Installation of Standpipe and Hose Systems
- D. NFPA, Automatic Sprinkler System Handbook.
- E. Underwriters Laboratories Fire Protection Equipment Directory.
- F. Factory Mutual Approval Guide.
- G. Local Fire Marshall

All new structures and structures receiving a major modernization will be protected by an approved wet pipe hydraulically calculated automatic fire sprinkler system designed, installed, and tested in accordance with NFPA 13, CCR Title 19, the California Fire Code and local Fire Marshal requirements. The fire sprinkler water connection will be connected to the site fire water service. The design and installation of wet sprinkler system will be by a Design/Build Fire Protection Contractor.

The Contractor is responsible for all hydraulic calculations, stamping of drawings by a California Licensed Engineer in conformance with all the jurisdictions requirements for submittal to Division of State Architect and local agencies for application, coordination with Architect, and obtaining approval from the AHJ.

Design and furnish all materials, labor and equipment necessary for installation of the hydraulically designed Automatic Wet Sprinkler System throughout the building as generally outlined herein:

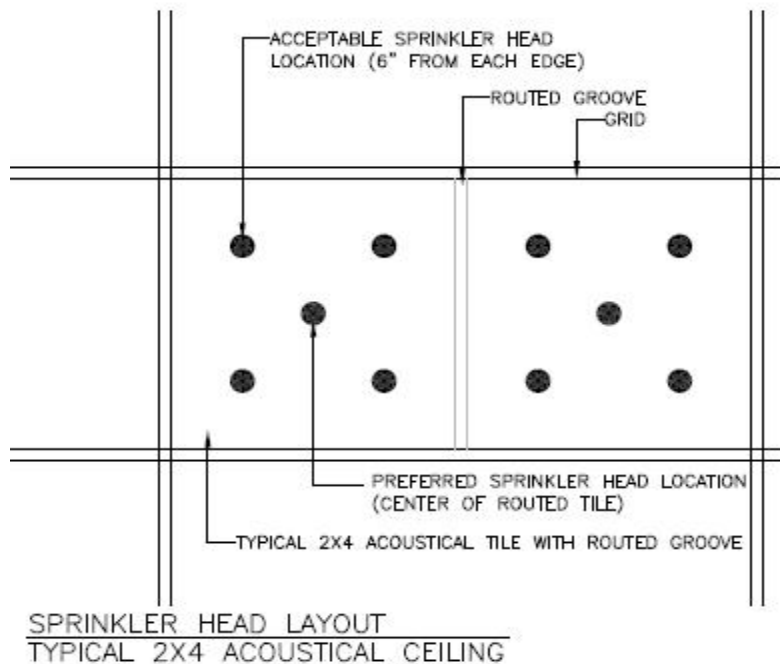
- A. Service main from connection to campus water main to building entrance riser valve assembly (with post indicator shut off valve, back flow preventer and fire department hose connection).
- B. Required zone control valve assemblies, drain valves, pressure gauges and signs to identify all valves.
- C. Provide a stock 2 of each type of sprinkler head in a locked box near the main fire riser of each building.
- D. Water flow and valve supervisory switches with alarm signals to building fire alarm system.

- E. All piping shall be concealed except in equipment type rooms that have no ceilings. In retrofit project, discuss merits of concealing pipes with the District.

Fire Sprinkler Design to be based on flow and residual water pressure tests and submitted to the local and state Fire Marshal for approval prior to installation.

2.2 SPRINKLER HEAD USE:

- A. Exposed, Upright – Mechanical Rooms without ceilings, Equipment Rooms without ceilings, Utilitarian Mechanical Type Shops, Electrical Rooms without ceiling, Telecom Rooms without ceilings.
- B. Semi-recessed – All removable tile ceilings and hard lid ceilings.
- C. Concealed – Only in architecturally sensitive locations to match architectural design intent.
- D. High Temperature – Utilize in all Mechanical Rooms, Electrical Rooms, Telecom Rooms or other areas where high temperatures may be anticipated to be experienced.
- E. Sprinkler head Guard - Utilize in all Mechanical Rooms, Electrical Rooms, Telecom Rooms or other areas where damage to heads could easily result.
- F. See sprinkler layout detailed below. In corridors, sprinkler heads are ideally located along the centerline. However priority is given to the location of the light fixtures. In general, the District standards for the suspended acoustical tile ceilings includes a 2'x4' tile with a routed groove which simulates a 2'x2' tile. The sprinkler head layout should avoid placing heads over the routed groove, or within 6" of any tee.



2.3 PRE-ACTION SYSTEMS:

Provide in all locations where damage due to water is deemed undesirable and in conjunction with clean agent systems if required. Determination of rooms requiring such shall be made by SMCCCD as part of a risk mitigation consideration.

2.4 CLEAN AGENT SYSTEMS:

- A. Provide in all locations where damage due to water is deemed catastrophic (i.e. data centers). Determination of rooms requiring such shall be made by SMCCCD as part of a risk mitigation consideration.
- B. Determine best application of single or double interlock as required and coordinate use with clean agent extinguishing system if required. Use clean agents that match existing inventories. Complete system parameters and design intent shall be coordinated with the SMCCCD project manager for risk assessment including use of cross zoned detection, VESA systems, etc.
- C. All dry sprinkler piping shall be galvanized steel.

2.5 APPROVED MANUFACTURERS:

Not Applicable

PART 3 EXECUTION

3.1 SUBSTITUTES ALLOWED?

Not Applicable

3.2 ASSOCIATED DESIGN STANDARDS AND CONSTRUCTION SPECIFICATIONS:

Division 22 Design Standards and Specifications

END OF SECTION