

SECTION 21 00 00 – FIRE PROTECTION

PART 1 - ABBREVIATIONS

NFPA National Fire Protection Association

PART 2 - GENERAL

1. Elevator Machine Rooms are to have a two-hour separation and be protected with smoke detection as accepted by the Fire Authority.
2. Yard equipment storage area(s) shall be separated from the balance of the building with fire-rated construction as accepted by the Fire Authority.
3. Hazard classification shall be light hazard and ordinary hazard. Group 1.
4. The system shall comply with applicable federal standards, NFPA Bulletin No. 13 Installation of Sprinkler Systems, local State Board of Insurance and Fire Marshal.
5. Wet sprinkler lines must be designed into conditioned zones. Pay attention to vestibules, foyers, etc., and ensure space above the ceiling is conditioned to eliminate piping freezing.
6. Generally, zoning for sprinkler system will comply as follows: public area, food preparation areas, dry-pipe system, by floor and by building wing so that zoning is limited to 40,000 sft/zone. All zoning shall be approved by the Local Fire Authority. In multi-story buildings, each floor shall be isolated as a separate zone with a max square footage of 40,000 sft to allow maintenance on an individual floor.
7. All unused fire hose cabinets and associated piping valving must be removed and the open area must be in-filled to match the adjacent wall. Coordinate with architectural.

PART 3 - TYPE

1. Areas required by code or program shall be protected with a wet-pipe sprinkler system.
2. Dry-pipe sprinkler systems shall be avoided unless the building conditions require it.
3. Yard equipment storage areas attached to the building shall be protected with a dry-pipe system.
4. Dry-pipe systems will include a tank-type nitrogen generator complete with a low-pressure and loss-of-power sensor connected to the Building Automation System.
5. Each dry-pipe system to have trouble alarm and pressure switch for flow.
6. Main Technology Room(s) shall be reviewed with the College as to the type of protection required and/or desired. Rooms that store archived/special items shall also be reviewed.

PART 4 - LOCATIONS

1. Finished ceiling: recessed type heads with flush cover caps to avoid vandalism.
2. Exposed structure ceilings: upright type sprinkler with a natural brass finish.
3. Walk-in freezers and exterior storage sheds connected to building: dry pendant heads.
4. Storage rooms, boiler rooms, mechanical rooms, open ceiling: use basket-type guards.

PART 5 - PLACEMENT

1. Sprinkler heads are to be installed in the center of ceiling tile in lay-in type ceilings.
2. All other sprinkler heads to be spaced as required by the Code for the required coverage; however, no device shall be less than 6" from a ceiling grid or bulkhead.

PART 6 - DISTRIBUTION / MAINTENANCE

1. Sprinkler system piping 2" diameter and less shall be Schedule 40 black steel joined with screwed, flanged, welded, or grooved mechanical (equal to Victaulic) joints. Schedule 10 and Schedule 7 Light Wall pipe are not acceptable.
2. Sprinkler piping greater than 2" diameter can be Schedule 10 black steel. Schedule 7 Light Wall pipe is not acceptable.
3. All drains for sprinkler system shall drain through outside wall at grade where practical. If not possible, provide floor drain at the drain down locations. If floor drain is used confirm discharge capacity, provide a throttling valve on the drain line at the floor drain to control the discharge and prevent flooding at the drain. Take care not to drain on sidewalk.
4. Inspection test piping to be discharged at one location only.
5. Drains are to be routed to a manifold header for single discharge to exterior where practical.
6. Provide spare heads and wrench as required in wall-mounted cabinet located near the fire service main per NFPA 13 requirements.
7. All sprinkler piping to be labeled.

PART 7 - FIRE SERVICE / FIRE DEPARTMENT CONNECTION

1. Fire service main shall be located in Mechanical Room, unless otherwise accepted by the College and Fire Department. Engineer should confirm with the local water provider if an exterior vault is required. Engineer shall obtain a preliminary water flow test from the local water provider during schematic design and include flow test data in the Design Documents.
2. Fire Department connection shall be located on the plans. The Architect/Engineer must coordinate the review and approval of the location with the local Fire Department and Fire Marshal. The Architect/Engineer must coordinate review with the local Fire Authority.

3. Confirm FDC is within 100' of a fire hydrant.
4. Confirm the size and connection type (threaded vs. Storz) with local Fire Marshal.
5. Try to locate fire department connection within view of a security camera.
6. Post indicator valves shall be supervised.
7. Provide a flush-mounted 'Knox Box', located as directed by the local fire department and Fire Marshal. The requirement of a fire pump shall be verified during Schematic Design.
8. The fire pump shall be electric and be connected to an emergency generator if required by the Fire Authority. The use of a natural gas or diesel-powered generator must be approved by the Owner during schematic design.

PART 8 - QUALITY ASSURANCE

1. Installer shall have a minimum of five years experience with the approved system and with similar project types.
2. Coordinate pipe specifications with use.
3. Fire Protection Contractor Shop Drawings shall include complete hydraulic calculations, certified and stamped by a registered professional engineer or State of Indiana approved NICET certified designer, and they shall be reviewed and stamped by the Fire Marshal, the College's insurance underwriter, and other local authority with jurisdiction.
4. Plans shall include floor plans, flow test data used for the design of the system, vital area protected, detailed schematic of the sprinkler risers, and complete schedule of products.
5. Fire Protection contractor to test and submit test reports for all systems per NFPA requirements.
6. All devices, systems, and materials shall be listed by UL for its intended use.
7. A/E to coordinate water source with mechanical contractor sections and local water utility requirements.
8. Coordinate design criteria with building use and plans.
9. Warranty: Contractor shall provide emergency repair service for the system within 24 hours of a request by the College during construction.