21 00 00 General Information

1. The primary goal of the Architect and Engineer shall be to provide an environment for occupants that are reasonably safe from fire and products of combustion. To achieve this goal, the objectives are to protect occupants who are not intimate with initial fire development for the time needed to take appropriate action, and to improve the survivability of occupants who are intimate with initial fire development.

2. The secondary goals of the Architect and Engineer shall be to provide a reasonable level of building usability and property protection from the effects of fire and products of combustion. To achieve these goals, the objectives are to increase the likelihood that, in the event of a fire, critical operational functions are not interrupted for longer than 24 hours and the loss of real or personal property does not exceed $250,000.00.

3. Buildings to be renovated at CCU where construction costs will exceed 50% of the building size or 50% of the building value shall be required to have Fire Detection/Alarm and Suppression Systems as if the building were new construction.

21 05 00 Common Work Results for Fire Suppression

1. Specify for the Contractor to submit at least the following for approval by the A/E:
   a. Complete shop Drawings with hydraulic calculations
   b. All Valves
   c. Sprinkler Heads
   d. Flexible Sprinkler Fittings, if utilized.
   e. Pipe Hangers and supports
   f. Pipe and Fittings
   g. FDC
   h. Backflow Preventer Assembly  
      For exterior, below finish floor surfaces of masonry foundation walls and the exterior face of inner wythe exterior masonry cavity walls.

2. Specify that Fire Department Connections (FDCs) be located and sized in accordance with NFPA and locations approved by the CCU Fire Marshal. FDCs for automatic sprinkler systems shall be provided with two 2-1/2” inlets, minimum. Unless
physical/geographical conditions prevent it, FDCs shall be remotely located at least 40’ from the building and within 100’ of a hydrant.

3. The required installation for a remote FDC is flush-mounted hose connections on a brick bollard to match the building and for pipe protection.

4. Specify that risers be tagged with metal riser hydraulic data plates. Stick-on labels are not permitted. Hydraulic design information on data plates shall be stamped. Permanent marker is not permitted.

5. Post Indicator Valve (PIV) locations shall be approved by the CCU Fire Marshal and the Project Manager. PIVs shall be supervised by the building fire alarm system.

6. Riser rooms for new construction shall be provided with an exterior door.

7. Where preaction or clean agent systems are utilized, the preferred manufacturer for the releasing panel is Fire-Lite by Honeywell to be consistent with existing campus installations. Emergency release pull stations shall be provided with protective cover for tamper resistance.

21 10 00 Water-Based Fire Suppression Systems

1. All areas shall be designed for coverage per the edition of NFPA 13 currently adopted by the Office of the State Fire Marshal, and State and Local code requirements and modifications. Design must be coordinated with and approved by CCU’s Fire Marshal prior to construction.

2. Specify that fire sprinkler system shop drawings, prepared in accordance with SCLLR Title 40 Chapter 10, shall be approved by the State Fire Marshal prior to ordering material or installing piping.

3. Aboveground piping shall be specified as Schedule 40 black steel pipe: ASTM A 53 with Class 150 malleable iron threaded fittings, welded steel fittings, or with mechanical grooved joint couplings. Mechanical couplings for main sprinkler and standpipe risers shall be Victaulic style 07 "Zero-flex" coupling or equal. Where flexible couplings are required by NFPA, they shall be Victaulic style 75 Flexible couplings or equal.

4. If a dry pipe sprinkler system is required for new construction, it shall be provided with a packaged nitrogen generator system. Automatic purge valves that continuously sample the purity of the gas shall be provided at remote points in the system as recommended by the manufacturer.

5. Underground piping and fittings shall be specified as Ductile Iron Pipe, minimum Pressure Class 51 with “bolted type” joints.

6. Specify that all valves, flow switches and pressure switches be located in visible locations and no higher than 5’-6” above finished floor. Fire sprinkler system devices located above ceilings or requiring the use of a ladder will not be acceptable.
7. Specify that all main drain and low point drains be hard-piped to the exterior. Concrete splashblock shall be provided at areas without concrete or asphalt.

8. If flexible sprinkler connections are utilized, they shall be UL listed. Specifying the use of UL Listed/FM Approved braided flexible connections is highly encouraged.