

## Clemson University: Fire Suppression Systems Installation and Alterations

### Permitting and Submittals

Renovation Permits are required for all new installation of fire suppression systems and any alterations to existing systems. Plans for fire alarm, fire sprinkler, and alternative automatic fire extinguishing systems shall be submitted with the permit and will be reviewed for compliance with the International Fire Code and its referenced standards. Any change to the Engineer of Record (EOR), architect or sprinkler contractor after submittals require notification via [LLR Notification Form](#) to the Fire Code Official and OSE Project Manager.

Submittals shall include the following documents:

- [Renovation Permit](#)
- [Request for Fire Sprinkler System Shop Drawing Review for State Construction](#)
- Fire Protection Drawings
- [Fire Sprinkler System Specification Sheet](#)
- [Certificates of Compliance](#)

New installations and alterations adding more than ten sprinkler heads to an existing system or other circumstance deemed necessary by the Fire Code Official shall require submission to OSFM for review.

### Installation, Inspection and Acceptance of Fire Sprinkler Systems

**Fire Department Connections (FDC):** FDC's will be installed as free standing equipment in accordance with [CUFD Free Standing FDC](#). The FDC will be two 2-1/2" female NST (Siamese) connections. The placement and orientation of the FDC will be at the discretion of the Fire Code Official and will be within 100' of a fire hydrant if the FDC is to supplement water for a standpipe. A single point connection shall be provided for buildings, not high-rise, with multiple risers.

**Riser Valves:** A double check valve is required at the fire riser. If a combination riser is present, the double check valve will be installed downstream of where the fire riser and domestic water split.

**Dry Systems:** Dry systems will be charged with no less than 98% nitrogen gas to inhibit corrosion of the dry pipe system. Nitrogen generators shall be FM approved or listed in accordance with UL 2879. The dry system will be installed and operate in accordance with NFPA 13 and require third party inspections.

**Alarm Panels:** See the [Fire Alarm Plan Submittal List](#) as sample for required documentation by Clemson University.

**Underground Inspection:** Inspections of underground piping, including all thrust blocks, shall be conducted by the Clemson University Utilities and witnessed by Fire Code Official and/or OSE third party inspectors. Connections to the building shall not be made until a witnessed flush of the system is completed. Ensure University Facilities Survey Office is provided opportunity to document location of underground equipment prior to back filling. See the [Underground Piping Plan Submittal List](#) as sample for required information.

**Testing:** A two-hour hydrostatic pressure test at 200 psi is required for new systems or alterations involving new mains or new branch lines or when repairs or alterations affect 20 or more sprinkler heads. This test must be witnessed by the Fire Code Official and/or OSE third party inspectors. All other alterations and repairs shall be tested using the system water supply pressure.

**Above Ceiling Inspection:** Visual above ceiling inspections must be completed and witnessed by the Fire Code Official and/or OSE third party inspectors prior to covering.

**Final Inspection:** Final inspection shall include verification of sprinkler heads and testing of the fire alarm system and fire flow bell. As-built drawings are to be approved prior to final inspection. The *Contractors Material and Test Certificate for Above and Underground Piping* as listed in the latest edition of NFPA 13 shall be provided within 13 days following the final inspection.