

**DESIGN & CONSTRUCTION GUIDELINES**

**DIVISION 21 FIRE SUPPRESSION**

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**SECTION 21 00 00 GENERAL REQUIREMENTS****PART 1 – GENERAL****1.1 GUIDELINE INTENT**

- A. This division serves as a design and construction guideline for the Professional Architect/Engineer (A/E) and Contractors performing fire suppression services at the University of South Florida (USF). This guideline is intended to establish the USF standard of quality and is not a specification. The A/E shall develop the permit and construction documents in accordance with the intent of the guideline and as necessary to comply with the given project scope and/or program.

**1.2 DESIGN CRITERIA**

- A. The A/E shall provide Contract Documents prepared in accordance with Division 61G15-32 (Board of Professional Engineers), Florida Administrative Code. Fire Protection construction drawings shall be signed and sealed by a Florida Registered Fire Protection System Design Engineer acting as the Engineer of Record. Copies of signed and sealed construction drawings shall be submitted to this office for review and comment. When approval is achieved, the contractor shall submit the necessary number of copies of signed and sealed drawings to authorities having jurisdiction for review and approval.
- B. All work shall meet all of the requirements of the edition in effect at time of permitting of the Florida Fire Prevention Code (FFPC), and applicable National Fire Protection Association (NFPA) codes and standards editions as adopted by the State Fire Marshal's Office in the Florida Fire Prevention Code.
- C. All water based systems shall be hydraulically designed. Construction documents shall include hydraulic calculations and a fully developed and complete set of fire suppression system specifications signed and sealed by a Florida Registered Professional Engineer. The design details and installation shall conform to the latest edition of national Fire Protection Association (NFPA) 13, latest edition of the Fire Prevention Code, and all local codes and regulations.
- D. During the schematic phase of the project, the A/E shall evaluate the existing site water service conditions and determine if the fire lines and/or site domestic water service designated to serve the fire suppression system is adequate (flow, static and residual pressure) for the building fire suppression system. If the A/E determines the service is not adequate, they shall immediately notify the USF Project Manager (USF-PM) in writing. If the fire pump is deemed necessary, the design shall include the fire pump system design as a basic part of the project.
- E. Requirements of the latest revision of the USF Cost Containment Guidelines (CCG), Florida Building Code (FBC), and applicable NFPA 13, NFPA 14, NFPA 20, NFPA 25, NFPA 70 must be met.
- F. Appropriate American Society for Testing and Materials (ASTM), American National Standards Institute (ANSI), Underwriters Laboratory (UL), American Society of Mechanical Engineers (ASME) and NFPA standards must be met and specified for materials.
- G. Fire suppression systems other than Wet Pipe Sprinkler Systems (Dry Pipe Sprinkler Systems, Preaction Sprinkler Systems, Clean Agent Systems, etc.) may be considered for a given program and/or building code requirement. If other systems are being considered for the project, the A/E shall notify the USF-PM in writing and review the concepts and intent with USF-FM prior to finalizing.

**1.3 PERMITS AND INSPECTIONS**

- A. Follow USF Building Code Administrator (BCA) requirements for permitting and scheduling inspections. Coordinate with USF BCA department.

**1.4 COORDINATION**

- A. Visit the site included in the scope of work to ascertain existing conditions. Verify all dimensions and locations before proceeding with work in the area and prior to purchasing equipment.
- B. Review and coordinate between all construction documents, all project specifications, and all sections in USF Design and Construction Guidelines (DCG). Notify USF-PM of conflicts or discrepancies prior to proceeding with work.

- C. Locate all underground utilities required by the Sunshine Law prior to proceeding with work. Contact USF-PM to obtain latest USF Campus Utilities Map for the area in scope of work prior to proceeding.
- D. Coordinate with USF-PM, USF Parking and Transportation Services (PATS), and USF Police Department (UPD) for required lane closures and parking spaces closures minimum 72 hours prior to closures. Contractor is responsible for all closure barriers and signs subject to USF review and approval.

**1.5 SUBMITTALS**

- A. Submit one electronic copy of Fire Suppression Submittals as a single bookmarked pdf. Include a table of contents, bookmark/tab manual based on specification chapters or sections.
- B. Submit hydraulic calculations.

**PART 2 – PRODUCTS (Not used)**

**PART 3 -- EXECUTION**

**3.1 PROJECT CLOSE OUT**

- A. Submit one electronic copy and one hard copy of Operations Manual as a single bookmarked pdf. Include a table of contents, bookmark/tab manual based on specification chapters or sections.
- B. Provide record documents per USF-FM requirements. Coordinate with USF-PM. Record documents shall include updated as-built drawings including clear delineation of main and branch shut-off valve locations and actual installed invert elevations for all applicable services. Submit working CAD drawings (with bound Xref files) on disk or other approved memory storage device, include separate folder or disk including pdf copies of each as-built drawing. Filenames shall include drawing number as reference.

**3.2 COLOR CODING OR LABELING AND IDENTIFYING**

- A. Fire sprinkler devices (valves, accessories, etc.) concealed above ceilings requiring access for service, maintenance or tests shall be labeled on the ceiling tile or ceiling grid, etc. and made clearly visible from below.
- B. The following band colors and letter designations shall be used:

Fire Suppression Piping		
Description	Acronym	Color
Fire Pipe	Fire	Red

END OF SECTION 21 00 00

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**SECTION 21 13 13 WET SPRINKLER SYSTEMS****PART 1 – GENERAL****1.1 DESIGN CRITERIA**

- A. All systems shall comply with the latest edition of NFPA 13, NFPA 14, NFPA 20, and NFPA 25 where applicable.
- B. Hydraulic calculations shall be provided per the latest NFPA code and submitted to BCA.
- C. All fire suppression system drawings shall be coordinated with ceilings, air devices, ductwork, lighting, structural members, etc. Sprinkler heads shall be within the center of each ceiling tile where applicable while maintaining spacing requirements.

**PART 2 – PRODUCTS****2.1 MATERIALS**

- A. All pipe shall be ASTM A53, Type S Grade B steel pipe.
- B. All threaded pipe shall be minimum Schedule 40. Cut groove pipe shall not be used.
- C. Welded and rolled grooved pipe may be used. Schedule 10 piping may be used on pipe sizes 2.5 inches and up. Use of CPVC Fire Sprinkler piping may be considered for use on residential buildings only.
- D. Sprinkler pipe hangers shall be Underwriters Laboratory / Factory Mutual (UL/FM) rated and meet NFPA and FBC requirements for pipe support.

**PART 3 – EXECUTION****3.1 INSTALLATION REQUIREMENTS**

- A. Pipes shall follow building lines.
- B. Install sprinklers in suspended ceilings in center of acoustical ceiling panels.
- C. Arrange for pipe spaces, chases, slots, and openings in building structure during progress of construction, to allow for fire-suppression installations.
- D. Coordinate installation of required supporting devices and set sleeves in poured-in-place concrete and other structural components as they are constructed.
- E. Coordinate requirements for access panels and doors for fire-suppression items requiring access that are concealed behind finished surfaces. Access panels and doors are specified in Division 8, Openings.
- F. Install piping in concealed locations, unless otherwise indicated and except in equipment rooms and service areas.
- G. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.
- H. Painting of fire-suppression systems, equipment, and components is specified in Section 09 90 09, Painting. All exposed riser and branch piping in finished and unfinished rooms shall be painted Red and properly labeled.

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END OF SECTION 21 13 13