DIVISION 21  FIRE SUPPRESSION

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DIVISION 21  FIRE SUPPRESSION

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. This guideline is intended to establish the Universities 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 (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, and applicable 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 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 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 SUS Cost Containment guidelines, Florida Building Code (FBC), applicable NFPA 13, NFPA 14, NFPA 20, NFPA 25, NFPA 70 must be met.

F. Appropriate ASTM, ANSI, UL, 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 Project Manager in writing and review the concepts and intent with FP&C & PPD 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.

B. Minor Projects - Contractor is responsible for all permitting and inspecting fees.

C. Major Projects - Coordinate with USF Project Manager for responsible party for permitting fees.
D. Minor Projects with USF approved Construction Manager (CM) - Coordinate with USF Project Manager and assigned Construction Manager for responsible party for permitting fees.

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. Notify USF Project Manager 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 Project Manager to obtain latest USF Campus Utilities Map for the area in scope of work prior to proceeding.

D. Coordinate with USF Project Manager, USF Parking and Transportation, and USF Police Department 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.

1.6 SITE

A. All existing utilities shall remain in place unless otherwise noted on the contract documents.

B. Contractor shall restore back to original installation primary gear, primary feeders, utilities, irrigation, etc. damaged by the contractor in the area of demolition or construction.

C. Provide an erosion control plan addressing prevention, control, and abatement of water pollution to USF Project Manager for approval prior to proceeding with work.

D. Safety fencing shall be neon green. Orange or black safety fencing shall not be used.

E. Conduit trenches shall be backfilled completely to provide safe crossing by the end of work day or whenever the work zone becomes inactive.

F. Maintain access to side streets, drives, and sidewalks at all times during construction.

G. Existing pedestrian/sidewalk lighting and roadway lighting shall remain operational during all phases of the construction until new lighting is energized.

H. Construction Sites: Provide protective barriers around open trenches manholes. USF shall have clear vehicle access to these items at all times during construction.

I. Manholes: Provide 10’ square barricade around manhole cover. Manhole cover shall be accessible to USF at all times. Remove construction debris such as dirt, sod, ground cover, etc.

J. Temporary services protective barricades shall allow 3’ clearance on sides and rear (or required by code if greater), and 5’ clearance in front of equipment.

K. No construction materials or construction tools shall be stored within the protective barricades.

L. No construction vehicles or personal vehicles shall be parked over plumbing manhole covers.

M. Project site design and final site constructed conditions shall include clear vehicle access to all above mentioned equipment for maintenance.

N. Fenced Construction Sites: An access point agreed to by USF Project Manager and USF Physical Plant Department shall be provided to USF. Chains shall have USF Standard 2000 Padlock and site contractor pad lock daisy chained. Project is responsible to provide the USF
Standard 2000 Padlock, coordinate with USF Project Manager and USF Physical Plant Department.

O. Areas where work is performed shall be kept clean of debris and materials and shall be cleaned at the end of each work day. Contractor is responsible to secure all tools and materials at all times.

1.7 WARRANTY

A. Contractor shall provide minimum 1 year warranty for all labor and materials, whether included or not included by equipment manufacturers. Contractor shall replace defective materials during the first year of warranty without additional compensation from USF.

B. Manufacturer warranties greater than 1 year, or where lengthier warranties are required in the project documents, or in USF Design and Construction Guidelines shall extend the standard 1 year warranty.

C. Warranty period shall begin on date of substantial completion.

1.8 MISCELLANEOUS

A. USF Furnished Equipment- Contractor shall be responsible for receipt from USF, storage after receipt, and installation if required. Verify equipment connection requirements prior to rough-in and ordering materials. Install equipment in accordance with manufacturer instructions. Maintain equipment until project is turned over to USF at Substantial Completion.

B. A/E for new construction and renovations or contractor for miscellaneous additions shall demonstrate that the existing services have the required additional capacity and can accommodate the load being added.

C. A/E for new construction and renovations or contractor for miscellaneous additions shall demonstrate that the existing services are at adequate depth to accommodate the minimum slope requirements for tie-in of new to existing services.

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 (as-builts) per USF FPC requirements. Coordinate with USF Project Manager. 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 ACAD 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. The following band colors and letter designations shall be used:

<table>
<thead>
<tr>
<th>FIRE SUPPRESSION PIPING</th>
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<tbody>
<tr>
<td>DESCRIPTION</td>
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<tr>
<td>Fire Pipe</td>
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END OF SECTION 21 00 00
DIVISION 21 FIRE SUPPRESSION

SECTION 21 13 13 WET SPRINKLER SYSTEMS

PART 1 – GENERAL

1.1 DESIGN CRITERIA

A. All systems shall be hydraulically designed and shall comply with the latest edition of NFPA 13, NFPA 14, NFPA 20, and NFPA 25 where applicable. Electrical and telecommunication rooms shall not be sprinklered, but shall have the necessary fire rated construction and doors.

B. Hydraulic calculations shall be shown on drawing.

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.

D. Sprinkler pipe hangers shall be 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 08 Section Access Doors and Frames.

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 Division 09 Sections Interior Painting and Exterior Painting. All exposed riser and branch piping in finished and unfinished rooms shall be painted Red and properly labeled.

I. Install dry-type sprinklers with water supply from heated space. Do not install pendent or sidewall, wet-type sprinklers in areas subject to freezing.

J. Provide fire stop at all penetrations of smoke/fire partitions and barriers. All fire stopping shall be U.L. listed assembly.
K. Sprinkler system shall be designed for a maximum working pressure of 175 psi per NFPA 13.
L. Sprinkler system shall be hydrostatically tested for two hours at 200 psi per NFPA 13.
M. All valves shall have the proper signage attached with suitable chain.
N. Pipe hangers shall be spaced and located per NFPA 13 (latest edition).
O. All sprinklers shall be installed according to their listings, spacing and obstruction requirements.

END OF SECTION 21 13 13