**6. ENGINEERING SYSTEMS REQUIREMENTS**

**D40 FIRE PROTECTION**

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SYSTEMS REQUIREMENTS  
FIRE PROTECTION TEMPLATE 02/18  
   
Instructions for using this template: There are template files for each UNIFORMAT Level 2 Group Elements. This template is for Group Element D40-FIRE PROTECTION. Text such as this is hidden text that will not print when the hidden text box in "Print/Options" is un-checked.  
   
The Fire Protection Team Member must edit this template for the requirements of the project. The SYSTEMS REQUIREMENTS are intended to define items that are required throughout the facility or on a system wide basis that is common to several rooms. Room-specific requirements are defined in the ROOM REQUIREMENTS section. Coordinate with the lead programmer for ROOM REQUIREMENTS. Editing is required where brackets [ ] appear. Delete all building elements that are not required for the project. If additional elements or sub-elements are required for the project that do not appear in the template, refer to the NAVFAC Design-Build RFP Web Site Uniformat II/ WBS publication for additional building element numbers and descriptions. The Uniformat II Work Breakdown Structure can be found at** [**www.wbdg.org/ndbm/**](http://www.wbdg.org/ndbm/) **. Coordinate with the PERFORMANCE TECHNICAL SPECIFICATION SECTION D40 to ensure that performance requirements are provided for all of the Building Elements listed here and that paragraph numbering matches.  
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NOTE: Edit the following paragraphs to suit the project, or create your own, to describe the FIRE PROTECTION for the project. Coordinate this section carefully with other portions of the RFP.  
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Refer to Part 4 Section D40 for performance requirements of the building elements included in the fire protection systems.

**SYSTEM DESCRIPTION**  
**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*   
NOTE: Edit the following for the specific project requirements.  
  
Refer to UFC 4-740-14, 3, Services, Fire Protection and all subsections for information relative to system requirements.  
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Provide an integrated fire alarm and mass notification system and suppression system capable of notifying building occupants and controlling any fire that may start inside the facility.

**GENERAL SYSTEM REQUIREMENTS**  
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NOTE: Refer to UFC 4-740-14, Ch 3, Services, Fire Protection and all subsections for information relative to system requirements.  
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Provide working space around all equipment. Provide concrete pads under all equipment. Provide all required fittings, connections and accessories required for a complete and usable system. Install all equipment in accordance with the criteria of PTS section D40 and the manufacturer’s recommendations. Where the word "should" is used in the manufacturer's recommendations, substitute the word "must".

All Design Documents, (i.e., Building Code/Life Safety Analysis, plans, specifications, and calculations) developed for Section D40 must be prepared by, or under the supervision of the design/build contractor's Qualified Fire Protection Engineer, the Fire Protection Designer of Record (FPDOR). Refer to UFC 3-600-10N *Fire Protection Engineering* for guidance on Design Build fire protection document requirements.

Installation drawings, shop drawings or working plans, calculations, other required pre-construction documentation and as-built drawings must be prepared by, or under the direct supervision of a National Institute for Certification in Engineering Technologies (NICET) engineering technician as specified below. NICET engineering technicians must hold a current certification as an engineering technician in the field of Fire Protection Engineering Technology with minimum Level III certification in the appropriate subfield.

Provide training for the active systems consisting of [two (2)] [three (3)] eight (8)-hour sessions to accommodate [both] [all] shifts of the base fire department and allow for rescheduling for unforeseen fire department responses.

**D4010 FIRE ALARM AND DETECTION SYSTEMS**

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NOTE: If facility is defined as "inhabited", as defined in UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, a Mass Notification System is required.  
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Provide an integrated fire alarm and mass notification [and public address] systems capable of notifying building occupants inside the facility. Provide a complete, electrically supervised, addressable intelligent, manual and automatic, annunciated fire alarm and detection system throughout the facility. Provide a voice evacuation type system that also serves as a mass notification system. Provide integrated systems capable of notifying building occupants by means of tones, strobes, [textural messaging,] prerecorded and live voice announcements. The fire reporting portion of the system must be compatible with the existing base fire reporting system.

Provide a complete and useable fire alarm system including manual stations, system smoke detectors, [duct smoke detectors,] [line voltage single-station smoke detectors,] [heat detectors,] audio/visual notification appliances, [fire alarm radio transmitter,] electrical supervision of all sprinkler system alarm and supervisory devices, [electrical supervision of kitchen hood suppression], [and electrical supervision of fire pump controllers].

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NOTE: Refer to UFC 4-740-14, Ch 3, Services, Fire Protection for fire alarm circuit classification/performance requirements.  
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Provide a fire alarm control panel capable of handling a minimum of [500] [ ] individually identified address points within the main control panel. Provide Class A Notification Appliance Circuits, Class B Signaling Line Circuits, and Class B Initiation Device Circuits. [Provide back-up amplifiers for combination fire alarm/mass notification systems.]

Provide [flush] [semi-flush] [surface mounted] manual pull stations.

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NOTE: Preferred annunciator location is at the front desk or entry vestibule.  
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[Provide a remote annunciator located [\_\_\_\_].]

**D4020 FIRE SUPPRESSION WATER SUPPLY AND EQUIPMENT**

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NOTE: Coordinate with the Civil engineer for the location of the water supply piping beyond the 5' building line.  
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Base hydraulic calculations on a static pressure of [ ] psig (gauge) ([\_\_\_\_\_]kPa) with [\_\_\_\_\_] gpm ([ ] L/m) available at a residual pressure of [\_\_\_\_\_] psig (gauge) ([ ] kPa) at [the junction with the water distribution piping system] [the base of the sprinkler piping riser] [ ].

[Provide the incoming sprinkler service with a [double check backflow preventer][reduced pressure principle backflow preventer].]

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NOTE: Where fire department access to the building perimeter is restricted a freestanding pedestal fire department connection shall be provided. Refer to UFC 4-740-14 Ch 3, Services, Fire Protection for other coordination items including maximum distance from Siamese connection and fire hydrant.  
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[Provide a freestanding pedestal type fire department connection located no closer than 40 ft from the building and accessible by fire apparatus.]

[Provide [horizontal split-case centrifugal] [vertical split-case centrifugal] [vertical shaft turbine-type], [diesel][electric] driven fire pump[s]. [The minimum rated capacity must be [\_\_\_] gpm ([\_\_\_] Lpm).]]

**D4040 SPRINKLER SYSTEMS**

Provide [wet] [and] [dry] [pipe] automatic sprinkler protection to provide complete coverage throughout [\_\_\_\_].

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NOTE: Refer to UFC-3 600-01 Fire Protection Engineering, Section "Occupancy Hazard Classification for Determining Automatic Sprinkler Densities and Hose Demands" for required densities and demands.  
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[For [light] [ordinary] [extra] hazard [ ] areas the sprinkler rate of application must be [\_\_\_\_]gpm/ft2 ([\_\_\_\_]L/min/m2 ), over an area of [\_\_\_\_] ft2 ([\_\_\_\_] m2 ) with hose stream allowance of [ ] gpm ([ ] L/min).]

Provide quick-response [recessed] [concealed] sprinklers with [ordinary] [ ] temperature rating in areas with finished ceilings. Provide [white] [chrome] [ ] sprinkler[s] [cover plates] [escutcheon plates] [to match ceiling color].

**D4090 OTHER FIRE PROTECTION SYSTEMS**

[Provide a pre-engineered wet chemical fire extinguishing system for protection of cooking equipment including exhaust hoods, ducts, and related work.]

--End of Section--