**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.  
  
For Camp Pendleton projects a Performance Based Fire Hazard Analysis needs to be required due to providing adequate fire protection for the breezeways and dwelling units.  
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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**  
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NOTE: Edit the following for the specific project 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**  
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).

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][Level IV] certification in the appropriate subfield.[ Individuals responsible for work specified in D4090 must hold a Level IV certification in the Special Hazards Suppression Systems 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,] [triple infrared (IR) optical detectors,] audio/visual alarms, [fire alarm radio transmitter,] electrical supervision of all sprinkler system alarm and supervisory devices, [and electrical supervision of fire pump controllers].

Provide a fire alarm control panel capable of handling a minimum of 500 individually identified sensors within the main control panel. Provide Class A, Style Z Notification Appliance Circuits, Class B, Style 4 Signaling Line Circuits, and Class B, Style A Initiation Device Circuits. [Provide back-up amplifiers for combination fire alarm/mass notification systems.]

Provide sounder bases for smoke detectors within dwelling areas. Fire alarm system must be programmed such that activation of a dwelling unit smoke detector causes all detector sounder bases within that unit to alarm and a supervisory signal to be activated at the fire alarm control panel. Activation of any subsequent smoke detector must activate the building evacuation alarm.

Provide surface mounted manual pull stations.

[Provide a remote annunciator located [\_\_\_\_].]

Provide a remote microphone station 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. Water supply data is to be provided by the government. This is crucial information that is needed to determine the necessity of a fire pump and water storage tanks.  
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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 must be provided. The government is to coordinate with the base fire department as to preference of a wall mounted or pedestal type fire department connection.  
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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] where required, [diesel][electric] driven fire pump[s] where required by criteria.

**D4030 STANDPIPE SYSTEMS**

[Provide a Class I standpipe system where required by criteria.]

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NOTE: Residual pressure requirements specified in NFPA 14 may be omitted for buildings under 150 feet (45 m) in height where fire department apparatus are expected to boost pressure in standpipe systems. RFP Editor must contact fire department to verify capabilities and edit RFP accordingly. If the fire department does not have the capability then require that the fire pump meet NFPA 14 pressure requirements.  
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[The building standpipe system and sprinkler system must be fed from the same supply as a combined system.] [Residual pressure requirements specified in NFPA 14 must be supplied by a fire pump.]

**D4040 SPRINKLER SYSTEMS**

Provide either a NFPA 13 or NFPA 13R automatic sprinkler protection to provide complete coverage throughout [\_\_\_\_] as required by criteria.

For light hazard areas the sprinkler rate of application must be 4.1 L/min/m2 (.1 gpm/ft2 ), over an area of 21 m2 (225 ft2 ) with hose stream allowance of 950 L/min (250 gpm). For ordinary hazard areas the sprinkler rate of application must be 6.1 L/min/m2 (.15 gpm/ft2 ), over an area of 12.1 m2 (130 ft2 ) with hose stream allowance of 1900 L/min (500 gpm).

Provide the appropriate style and temperature rating of sprinkler as required by criteria. Provide [white] [chrome] [ ] sprinkler[s] [cover plates] [escutcheon plates] [to match ceiling color].

-- End of Section --