TINKER AIR FORCE BASE FIRE PROTECTION STANDARD

2026 Edition

Base Civil Engineer 72 ABW/CE
7535 5th ST, Ste 101
Tinker Air Force Base, Oklahoma 73145-9010
Telephone 405-734-3451
Fax 405-734-5535

APPROVING OFFICIAL:

WILSON.STEPHANIE.PETERENIA.1063234377

Digitally signed by WILSON.STEPHANIE.PETERENIA.1063234377
Date: 2026.03.13 07:50:59 -05'00'

Stephanie Wilson, NH-IV

Director, 72 ABW/CE

1. Fire Protection & Life Safety

1.1. Introduction

1.1.1. This document shall be utilized in conjunction with the latest version of Unified Facilities Criteria (UFC) 1-200-01, the criteria, standards, and codes referenced therefrom, and the requirements from subsequent references therefrom.

1.1.2. This document shall be utilized as the minimum standard(s) for the planning and development of projects and the design, construction, and commissioning for procurement of facilities for projects located at Tinker AFB, OK. Examples include, but are not limited to, the development of scopes of work, DD1391 documentation, drawings, specifications, and request for proposals. These standards will serve as the primary fire protection criteria reference document.

1.1.3. This document shall be used in conjunction with detailed design documents (e.g., shop drawings) in the procurement of Facility construction. No part of this document should be considered inclusive to all government requirements.

1.1.4. Deviations from this document shall be approved by either the 72 ABW/CE Base Fire Protection Engineer (Base FPE) or the 72 ABW/CE Engineering Division Chief.

1.2. Reserved

1.3. Reserved

1.4. Special Use

1.4.1. Aircraft Facilities

1.4.1.1. Aircraft Hangar Fire Alarm System

1.4.1.1.1. Optical Flame Detectors

1.4.1.1.1.1. Provide triple infrared (IR) optical flame detectors that are listed and approved for the expected fuel hazards in the hangar bay(s). Provide detectors that are immune to radar and radio frequency emissions from handheld equipment or equipment on board the aircraft. Provide shielded circuiting for both the Signal Line Circuits (SLC) and power circuits from the optical detectors to the control unit. Provide ground shielding in accordance with the optical flame detector manufacturer’s installation recommendations.

1.4.1.1.1.2. Optical Flame Detectors shall be Model X3301 Multi-spectrum IR Flame Detectors. Provide factory configured detectors with the manufacturer's "Hangar Mode".

1.4.1.1.2. Optical Flame Detector Location

1.4.1.1.2.1. The entire floor area must be visible by at least two flame detectors. Exception: The area of the hangar bay within 5 ft. (1.5 m) of the perimeter wall is not required to be within the cone-of-vision of an optical flame detector.

1.4.1.1.2.2. Angle detectors and provide blinds (field of view inhibitors) so the cone-of-vision is contained within its designated suppression zone and does not extend more than 5 ft. (1.5 m) outside the hangar bay, into another fire area such as through a normally open roll-up fire door or is within the view of hot sources such as radiant heaters. Locate optical flame detectors at a sufficient distance per the manufacturer's recommendations from sources that may cause false alarms such as welding, solar glare, radiant heaters, aircraft engine exhaust, strobes, hot surfaces, and other relevant sources.

1.4.1.1.3. Optical Flame Detector Installation

1.4.1.1.3.1. Mount detectors in accordance with their listing at approximately 8 ft. (2.4 m) above the finished floor of the hangar bay. Do not mount optical detectors in inaccessible locations. Provide optical flame detectors with 5 ft. (1.5 m) of

flexible conduit to allow for minor adjustments during testing or changes in the mission of the hangar bay.

1.4.1.1.4. Optical Flame Detection Performance

1.4.1.1.4.1. Calibrate optical flame detectors to alarm upon viewing of the flame signature. Follow manufacturer guidelines to set the sensitivity of the optical flame detectors. Upon the test fire reaching full development, all detectors within the cone-of-vision are required to activate within 30 seconds.

1.4.1.1.5. Optical Flame Detection Testing

1.4.1.1.5.1. Demonstrate the performance requirements of the optical flame detector coverage has been met in accordance with UFC 4-211-01.

1.4.1.1.5.2. Final testing shall be witnessed by the 72 ABW/CE Base FPE or their delegated representative, at the discretion of the 72 ABW/CE Base FPE.

1.5. Reserved

1.6. Reserved

1.7. Fire and Smoke Protection Features

1.7.1. Fire Rated Walls' Identification

1.7.1.1. All fire rated walls shall be labeled using terminology found in the International Building Code.

1.7.1.2. Labeling shall consist of the type of construction, prefaced by the hours for which it is rated. Examples: "2 HR FIRE BARRIER", "1 HR FIRE PARTITION", "3 HR FIRE WALL".

1.7.1.3. All smoke rated walls shall be labeled using terminology found in the International Building Code.

1.7.1.4. Labeling shall consist of the type of construction, prefaced by the hours for which it is rated (if applicable). Examples: "1 HR SMOKE BARRIER", "SMOKE PARTITION".

1.7.1.5. Wall labeling shall be located within 15 feet of the end of each wall and at intervals not to exceed 20 feet measured horizontally along the wall.

1.7.2. Firestopping

1.7.2.1. Firestopping Contractor Qualifications

1.7.2.1.1. Contractors installing firestopping systems shall be FM Research approved in accordance with FM 4991 or a UL Certified Firestop Contractor. The installer shall have been trained by a direct representative of the manufacturer (not distributor or agent) in the proper selection and installation procedures. The installer shall obtain from the manufacturer, and submit to the government, written certification of training and retain proof of certification for duration of firestop installation. A manufacturer's willingness to sell its firestopping products to the contractor or to an installer engaged by the contractor does not in itself confer installer qualifications on the buyer.

1.7.2.2. Firestopping Inspector Qualifications

1.7.2.2.1. The firestopping inspector shall be certified/qualified through the Intertek's Qualified Personnel (IQP) program as a Firestop Inspector, International Firestop Council (IFC) Special Inspector program, or approved equal. The inspector shall have a minimum of two years' experience in construction field inspections of firestopping systems, products, and assemblies. The inspector shall be completely independent of, and divested from, the installer, the manufacturer, and the supplier of any material or item being inspected. The inspector shall not be a competitor of the installer, the contractor, the manufacturer, or supplier of any material or item being inspected. Include in the qualifications submittal a signed and sealed or notarized statement assuring compliance with the requirements stated herein.

1.7.2.3. Submittals

1.7.2.3.1. Submit typical details conforming to UL Fire Resistance or other details certified by another nationally recognized testing laboratory, installation instructions or UL listing details for a firestopping assembly in lieu of fire-test data or report.

1.7.2.3.2. For those firestop applications for which no UL tested system is available through a manufacturer, a manufacturer's engineering judgment, derived from similar UL system designs or other tests, shall be submitted for review and approval prior to installation.

1.7.2.3.3. Installer and inspector qualifications shall be submitted for review.

1.7.2.3.4. Submittals must indicate the firestopping material to be provided for each type of application.

1.7.2.3.5. When more than a total of 5 penetrations and/or construction joints are to receive firestopping, provide drawings that indicate location, "F" "T" and "L" ratings, and type of application.

1.7.2.3.6. Submit a written report indicating locations of penetrations, types of penetrations, and types of firestopping used at each location; record type by UL list printed numbers.

1.7.2.3.7. Submit inspection report stating that firestopping work has been inspected and found to be applied according to the manufacturer's recommendations and the specified requirements.

1.7.2.3.8. Submit certificates attesting that firestopping material complies with the specified requirements. For all intumescent firestop materials used in through penetration systems, manufacturer shall provide certification of compliance with UL 1479.

1.7.2.4. Firestopping Materials

1.7.2.4.1. Provide firestopping materials, supplied from a single domestic manufacturer, consisting of commercially manufactured, asbestos-free, nontoxic products FM APP GUIDE approved, or UL listed, for use with applicable construction and penetrating items, complying with the following minimum requirements.

1.7.2.5. Installation

1.7.2.5.1. Firestopping shall be installed by a Firestopping Contractor who meets the requirements of the “Firestopping Contractor Qualifications” section above. All firestopping systems shall be installed by a single Firestopping Contractor for each separate project. Multiple firestopping contractors shall not be used for a project unless otherwise approved.

1.7.2.5.2. Install firestopping in accordance with manufacturer's written instructions.

1.7.2.5.3. Provide tested and listed firestop systems or systems with an approved engineering judgement.

1.7.2.5.4. Where necessary to prevent soiling of adjacent surfaces by firestopping materials during installation, provide masking and/or temporary covering.

1.7.2.5.5. All firestopping systems shall be labeled with a permanent label containing, at minimum, the following information:

1.7.2.5.5.1. Firestopping material manufacturer

1.7.2.5.5.2. Firestopping system UL number or engineering judgement number/title

1.7.2.5.5.3. Date of firestopping system installation

1.7.2.6. Inspection

1.7.2.6.1. Firestopping shall be inspected by an inspector who meets the requirements of the “Firestopping Inspector Qualifications” section above.

1.7.2.6.2. Firestopping shall not be covered or enclosed until inspection is complete and approved by the Contracting Officer. The inspector must inspect the applications

initially to ensure adequate preparations (clean surfaces suitable for application, etc.) and periodically during the work to assure that the completed work has been accomplished according to the manufacturer's written instructions and the specified requirements.

1.7.2.6.3. Submit written reports indicating locations of and types of penetrations and types of firestopping used at each location; type shall be recorded by UL listed printed numbers.

1.7.2.6.4. Inspect all firestopping in accordance with ASTM E2393 and ASTM E2174 and document inspection results to be submitted.

1.8. Reserved

1.9. Fire Protection Systems

1.9.1. Fire Department Access

1.9.1.1. For all new construction projects, a KNOXBOX Model 3200 – Non-Monitored, recessed is required. For renovations that add a KNOXBOX, recessed is preferred. On renovations where a recessed box cannot be achieved, coordinate with 72 ABW/CE Fire & Emergency Services Fire Prevention for guidance. Knox Boxes are not required for gates.

1.9.2. Fire Lanes

1.9.2.1. Fire Lanes as described in this section are lanes intended for use by emergency services personnel for emergency vehicle access and emergency vehicle staging.

1.9.2.2. Fire Lanes shall not be obstructed, used for storage, or used for staging.

1.9.2.3. Fire Lanes shall maintain a minimum continuous, unobstructed clear width of 20 feet.

1.9.2.4. Fire Lanes shall maintain a minimum continuous, unobstructed clear height of 13.5 feet.

1.9.2.5. Fire Lanes shall be labeled “NO PARKING – FIRE LANE”, with text meeting the color and dimensional requirements discussed in this section.

1.9.2.6. Exterior Fire Lanes

1.9.2.6.1. Exterior Fire Lanes shall be identified as follows:

1.9.2.6.1.1. 8-inch wide solid and continuous line that is “Safety Red” in color.

1.9.2.6.1.2. 6-inch tall “Arial Font” or similar lettering that is high contrast/high visibility white color.

1.9.2.7. Airfield Fire Lanes

1.9.2.7.1. Airfield Fire Lanes shall be identified as follows:

1.9.2.7.1.1. 8-inch wide solid and continuous line that is high contrast/high visibility white color.

1.9.2.7.1.2. 6-inch tall “Arial Font” or similar lettering that is “Safety Red” in color.

1.9.2.8. Interior Fire Lanes – B3001 & B9001

1.9.2.8.1. B3001 and B9001 are two facilities large enough to require interior dedicated fire lanes. Fire lanes for these two facilities shall be established and maintained in accordance with this standard.

1.9.2.8.2. Fire Lanes at vehicle intersections shall have 45-degree angle cut and three-foot setback for emergency vehicle maneuverability.

1.9.2.8.3. B3001 & B9001 Interior Fire Lanes shall be identified as follows:

1.9.2.8.3.1. 8-inch wide solid and continuous line that is “Safety Red” in color.

1.9.2.8.3.2. 6-inch tall “Arial Font” or similar lettering that is high contrast/high visibility white color.

1.9.2.8.4. Building 9001 main north-south aisle (44-45), east-west (SRQ), and east-west (AB) shall maintain their current widest width. No future decreasing deviation shall be allowed, only an increase to meet this standard.

1.9.3. **Fire Hydrants**

1.9.3.1. Newly installed fire hydrants barrels shall be provided with a single, integral, 4" Storz quick connect outlet and two 2.5" NHT outlets.

1.9.3.2. Fire hydrants supplied by domestic water mains shall have barrels factory painted "OSHA Safety Yellow". A flow test shall be performed to determine the available supply. Hydrant caps and bonnets shall be painted with reflective paint in accordance with NFPA 291 to identify the flow capacity. The colors designated in NFPA 291 shall be modified as follows:

1.9.3.2.1. Light Blue – Change to Light Blue – Krylon A01540007 Light Blue or equivalent

1.9.3.2.2. Green – Change to OSHA Safety Green

1.9.3.2.3. Orange – Change to OSHA Safety Orange

1.9.3.2.4. Red – Change to OSHA Safety Red

1.9.3.3. Fire hydrants supplied by dedicated fire protection water mains shall be factory painted "OSHA Safety Red".

1.9.4. **Fire Pumps**

1.9.4.1. For new facilities, fire pumps shall be of the horizontal split-case type.

1.9.4.2. For existing facilities, fire pumps shall be of the horizontal split-case type. For instances where existing dimensional and clearance restrictions do not allow for the installation of a horizontal split-case, consult with the 72 ABW/CE Base FPE or 72 ABW/CE Engineering Division Chief.

1.9.5. **Special Hazards Systems Contractor Qualifications**

1.9.5.1. Contractors performing installation or modification of special hazards systems which utilize a chemical agent shall have Special Hazards Systems NICET certification.

1.9.5.2. These systems shall be installed by or under the direct supervision of a contractor who is NICET Level III (minimum).

1.9.5.3. Control and releasing equipment shall be installed by a contractor who is NICET Level III.

1.9.5.4. System circuit terminations shall be performed by, or under the direct supervision of, a contractor who is NICET Level III.

1.9.5.5. System testing shall be conducted by a contractor who is NICET Level III.

1.9.5.6. Proof of qualifications must be submitted to and approved by Contracting Officer prior to beginning work.

1.9.6. **Automatic Sprinkler Systems**

1.9.6.1. General

1.9.6.1.1. Existing fire sprinkler systems shall be pretested prior to any modification work being performed. At minimum, testing shall consist of hydrostatic testing performed in accordance with NFPA 13. Testing results shall be submitted to, and approved by, the Contracting Officer prior to beginning work.

1.9.6.2. Contractor Qualifications

1.9.6.2.1. Contractors performing installation or modification of fire sprinkler systems shall have Water-Based Systems Layout NICET certification.

1.9.6.2.2. All fire sprinkler systems shall be installed by or under the direct supervision of a contractor who is NICET Level III (minimum).

1.9.6.2.3. System testing shall be conducted by a contractor who is NICET Level III.

1.9.6.2.4. Proof of qualifications must be submitted to and approved by Contracting Officer prior to beginning work.

1.9.6.3. Piping

1.9.6.3.1. All aboveground sprinkler piping shall be black steel Sch. 40.

1.9.6.3.2. All aboveground sprinkler piping shall be painted using two coats of Red No. 11105.

1.9.6.3.3. Provide dedicated fire service main to supply the building fire suppression system(s). Service main shall include a single-piece, stainless steel lead-in, also referred to as in-building riser (IBR).

1.9.6.3.3.1. IBR shall be provided at the point where the service main enters the building.

1.9.6.3.3.2. IBR shall extend a minimum of 12” above finished floor prior to connection to building suppression systems.

1.9.6.3.3.3. IBR shall extend a minimum of 5 feet past the face of the building or building foundation, whichever is further, before connection to the water supply.

1.9.6.4. Fire Department Connection (FDC)

1.9.6.4.1. FDCs shall be provided with 4" Storz x 4" Female NPT with 30° bend.

1.9.6.4.2. FDC location and finish shall be approved by the 72 ABW/CE Fire & Emergency Services Fire Prevention.

1.9.6.5. Gauges

1.9.6.5.1. Gauges for system installation and testing shall meet the following requirements:

1.9.6.5.1.1. 3” dial / face minimum

1.9.6.5.1.2. 5 lb. increments maximum

1.9.6.5.1.3. Liquid filled

1.9.6.5.2. Gauges shall bear identification of calibration from the testing entity

1.9.6.6. Exterior Waterflow Alarm

1.9.6.6.1. Exterior sprinkler waterflow alarm appliance shall be an electrically operated alarm bell.

1.9.6.6.2. The exterior waterflow alarm shall function independently from the building’s fire alarm control unit.

1.9.6.6.3. Exterior waterflow alarm shall be located within five feet of the exterior door providing access to the building sprinkler riser(s).

1.9.7. **Fire Alarm**

1.9.7.1. General

1.9.7.1.1. Existing fire alarm and mass notification systems (MNS) shall be pretested prior to any modification work being performed. Testing results shall be submitted to, and approved by, the Contracting Officer prior to beginning work.

1.9.7.2. Contractor Qualifications

1.9.7.2.1. Contractors performing installation or modification of fire alarm systems and mass notification systems shall have Fire Alarms Systems NICET certification.

1.9.7.2.2. All fire alarm and mass notification systems shall be installed by or under the supervision of a contractor who is NICET Level III (minimum).

1.9.7.2.3. Control equipment shall be installed by a contractor who is NICET Level III (minimum).

1.9.7.2.4. System circuit terminations shall be performed by, or under the direct supervision of, a contractor who is NICET Level III.

1.9.7.2.5. System testing shall be conducted by a contractor who is NICET Level III.

1.9.7.2.6. Proof of qualifications must be submitted to and approved by Contracting Officer prior to beginning work.

1.9.7.3. Plans and Calculations

1.9.7.3.1. Intelligibility measurement results shall be documented on the record drawings, in addition to the information required by NFPA 72.

1.9.7.4. B3001/B9001/B9201 Requirements

1.9.7.4.1. Circumstances within the existing buildings 3001,9001, and 9201 may require deviation from the fire alarm manufacturer guidance provided in this standard. Requirements provided in this standard shall be followed unless otherwise approved by 72 ABW/CE Fire & Emergency Services Fire Prevention and 72 ABW/CE Project Management Branch.

1.9.7.5. Fire Alarm System Reporting

1.9.7.5.1. New fire alarm reporting equipment shall be manufactured by Monaco Enterprises and have point-to-point reporting capabilities. These systems shall report to the base supervising station receiving equipment (Monaco D-21).

1.9.7.5.2. System antenna installation shall be in accordance with all manufacturer requirements and recommendations unless otherwise approved by the 72 ABW/CE Fire & Emergency Services Fire Prevention or 72 ABW/CE Project Management Branch.

1.9.7.6. Control Equipment

1.9.7.6.1. Scopes of Work (SOW) for projects which will include new control equipment shall be approved by the 72 ABW/CE Fire & Emergency Services Fire Prevention or 72 ABW/CE Project Management Branch. Approval must be obtained prior to contract solicitation.

1.9.7.6.2. New fire alarm systems shall be addressable.

1.9.7.6.3. Fire alarm control units (FACU) shall be manufactured by Monaco Enterprises and shall provide point-to-point reporting.

1.9.7.6.4. Local Operating Consoles (LOC) shall have a label “MASS NOTIFICATION SYSTEM LOC” affixed permanently to the front of the cabinet.

1.9.7.6.5. LOCs shall not be provided with push buttons to initiate the “Carbon Monoxide Emergency” or “Fire Emergency” messages.

1.9.7.6.6. LOCs shall be provided with tactile buttons. Models with “touchscreen” interface for the initiation of MNS messages are not allowed.

1.9.7.7. Initiating Devices

1.9.7.7.1. All initiating devices shall have a label affixed permanently to the exterior of the device identifying its assigned address and circuit. These shall match the information provided in the record drawings.

1.9.7.7.2. Where concealed, duct smoke detectors shall be provided with an access panel for maintenance and access to the detector. Access panel shall be a minimum 18”x18”.

1.9.7.7.3. Detectors (as defined by NFPA 72) must be provided with integrated status LED which is visible from the floor in an accessible location.

1.9.7.7.3.1. Where initiating device status LEDs are not visible, a remote status indicator LED must be provided in a location which is visible from the floor in an accessible location and in the vicinity of the initiating device.

1.9.7.7.3.2. When provided, remote status LEDs must be provided with a label in accordance with the Initiating Devices section of this standard.

1.9.7.8. Notification Devices

1.9.7.8.1. All notification devices shall have a label affixed permanently to exterior of the

device identifying its device number and circuit. These shall match the information provided in the record drawings.

1.9.7.8.2. Where MNS is required, textual display signs shall be provided in accordance with this section.

1.9.7.8.2.1. Where an exit is required to be provided per NFPA 101, and that exit is required to be marked with an exit sign per NFPA 101, a textual display sign shall be provided.

1.9.7.8.2.2. Where a main exterior exit door for a facility might not be required to be identified with an exit sign per NFPA 101, a textual display sign shall still be provided.

1.9.7.8.2.3. Textual display signs are not required for exit doors serving only a single room (e.g. mechanical rooms, CDC Child Activity Rooms, etc.) unless otherwise required by the governing UFC.

1.9.7.8.2.4. A textual display sign is not required for the exit door serving a one or two person dwelling unit unless otherwise required by the governing UFC.

1.9.7.8.2.5. Where an exit from a hangar bay is required to be provided per UFC 4-211-01 for egress purposes, a textual display sign shall be provided.

1.9.7.8.2.6. Where an exit access door from a hangar bay is required to be provided per UFC 4-211-01 for egress purposes, a textual display sign shall be provided.

1.9.7.8.2.7. Textual display signs shall be two line programmable. Top line shall display stationary alert message “Evacuate” (red text) or “Announcement” (green text). Second line shall scroll message from right to left (white or yellow text).

1.9.7.8.2.8. Textual display signs shall be centered above the door(s) for which they serve. Where exit signs are also provided, textual display signs shall be installed above the exit signs. Where space does not allow for installation above the exit sign, the textual display sign shall be installed on the right side of the exit sign.

1.9.7.8.2.9. Capacity of secondary power supplies for dedicated textual display sign circuits shall be determined in accordance with NFPA 72.

1.9.7.9. Wiring, Circuits, and Conduit

1.9.7.9.1. All circuits shall be installed in no smaller than ¾” conduit (EMT minimum).

1.9.7.9.2. All conduit shall be factory painted red in color.

1.9.7.9.3. Network fiber shall terminate at a fiber hub, which shall be provided at each FACU. Patch cabling shall be provided to connect the FACU to the fiber hub.

1.9.7.10. Power

1.9.7.10.1. The circuit breaker for the primary power supply circuits serving fire alarm systems shall be provided with a red circuit breaker lock intended for use on the panel in which it is installed.

1.9.7.11. MNS Messages

1.9.7.11.1. Coordinate with 72 ABW/CE Fire & Emergency Services Fire Prevention for in-building MNS messages’ content and format. When there is a direct conflict with requirements found in the UFC, the UFC criteria shall take precedence.