UNIFIED FIRE AUTHORITY
FIRE PREVENTION BUREAU

Fire Protection System Minimum Requirements, Third Party Plan Review Instructions

4/1/2010

This document is to be used as a guide for those who desire information pertaining to the design, installation of fire protection systems. This document outlines procedures for Third Party Plan Review.

Unified Fire Authority
Fire Protection System Minimum Requirements
Third Party Plan Review Instructions

1. Intent of the Fire Code

101.3 Intent. The purpose of the fire code is to establish the minimum requirements consistent with nationally recognized good practice for providing a reasonable level of life safety and property protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises and to provide safety to fire fighters and emergency responders during emergency operations.

2. Authority

104.1 General. The *fire code official* is authorized to enforce the provisions of the fire code and shall have the authority to render interpretations of the code, and to adopt policies, procedures, rules and regulations in order to clarify the application of its provisions. Such interpretations, policies, procedures, rules and regulations shall be in compliance with the intent and purpose of this code and shall not have the effect of waiving requirements specifically provided for in the code.

3 Third Party Review, Qualifications

104.7.2 Technical assistance. To determine the acceptability of technologies, processes, products, facilities, materials and uses attending the design, operation or use of a building or premises subject to inspection by the *fire code official*, the *fire code official* is authorized to require the *owner* or agent to provide, **without charge to the jurisdiction**, a technical opinion and report. **The opinion and report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization acceptable to the *fire code official*** and shall analyze the fire safety properties of the design, operation or use of the building or premises and the facilities and appurtenances situated thereon, to recommend necessary changes. The *fire code official* is authorized to require design submittals to be prepared by, and bear the stamp of, a registered design professional.

Unified Fire Authority Acceptable Qualifications for System Design, and Third Party Plan Review Report

1. *NICET Level II or better “Water-Based Fire Protection Systems Layout”
2. *NICET Level II or better “Fire Alarm System Technician”
3. NFPA “Certified Fire Protection Specialist”, Verification of Certificate Required
4. Fire Protection Engineer, Verification of Degree Required
5. Licensed Engineer with Specific Additional Fire Protection System Training
6. Verification of Factory Training for Design and Installation (Wet Chemical Systems)
7. **Unified Fire Authority, AHJ Qualified

*The NICET Certified Mark is reserved for use by NICET certified individuals with an active status only. Display of the NICET Certified Mark must also include the following information about the corresponding NICET-certified person:

Name
Certification Number
Subfield
Level and/or Grade

An Example of How NICET allows Proper Use of Their Trademark

****UFA Qualified is "**A person who, by possession of a recognized degree, certificate, professional standing, or skill, and who, by knowledge, training, and experience, has demonstrated the ability to deal with problems relating to a particular subject matter, work, or project".

NOTE: Companies or individuals who design plans **are not eligible** to provide third party review of their own work or work done by their respective company where they are employed.

8. Permits for Fire Protection Systems

105.1.1 Permits required. Permits required by the fire code shall be obtained from the *fire code official*. Permit fees, if any, shall be paid prior to issuance of the permit. Issued permits shall be kept on the premises designated therein at all times and shall be readily available for inspection by the *fire code official*.

105.4.1 Submittals. *Construction documents* and supporting data shall be submitted in two or more sets with each application for a permit and in such form and detail as required by the *fire code official*. The *construction documents* shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

9. Examination of Documents – Plan Review

105.4.1.1 Examination of documents. The *fire code official* shall examine or cause to be examined the accompanying *construction documents* and shall ascertain by such examinations whether the work indicated and described is in accordance with the requirements of the fire code.

10. Plans, Details, Approval "Prior to the Start of Installation"

105.4.2 Information on construction documents. *Construction documents* shall be drawn to scale upon suitable material. Electronic media documents are allowed to be submitted when *approved* by the *fire code official*. *Construction documents* shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of the fire code and relevant laws, ordinances, rules and regulations as determined by the *fire code official*.

105.4.2.1 Fire protection system shop drawings. Shop drawings for the fire protection system(s) shall be submitted to indicate compliance with the fire code and the *construction documents* and shall be ***approved* prior to** the start of installation. Shop drawings shall contain all information as required by the referenced installation standards in IFC Chapter 9.

Note: Every effort will be made by the Unified Fire Authority to process plan review and permits in a reasonable time frame. Any fire protection system installation started prior to approved plan review and permit is at the cost and liability of the installing contractor. Construction materials, systems, parts, etc. that are obscured from vision can and will be required to be removed before final approval and/or a "Certificate of Fire Clearance" is issued.

11. Applicant Responsibility for Construction Documents, Code Compliance

105.4.3 Applicant responsibility. It shall be the responsibility of the applicant to ensure that the *construction documents* include all of the fire protection requirements and the shop drawings are complete and in compliance with the applicable codes and standards.

105.4.4 Approved documents. *Construction documents approved* by the *fire code official* are *approved* with the intent that such *construction documents* comply in all respects with the fire code. Review and approval by the *fire code official* shall not relieve the applicant of the responsibility of compliance with the fire code.

12. As Built Drawings

105.4.5 Corrected documents. Where field conditions necessitate any substantial change from the *approved construction documents*, the *fire code official* shall have the authority to require the corrected *construction documents* to be submitted for approval.

13. Work Accessible for Inspection

106.3 Concealed work. It shall be the duty of the permit applicant to cause the work to remain accessible and exposed for inspection purposes. Whenever any installation subject to inspection prior to use is covered or concealed without having first been inspected, the *fire code official* shall have the authority to require that such work be exposed for inspection. Neither the *fire code official* nor the jurisdiction shall be liable for expense entailed in the removal or replacement of any material required to allow inspection.

14. Inspection Approval by the Fire Department is not to be an Approval of a Violation

106.4 Approvals. Approval as the result of an inspection **shall not** be construed to be an approval of a violation of the provisions of the fire code or of other codes or ordinances of the jurisdiction. Inspections presuming to give authority to violate or cancel provisions of the codes or of other ordinances of the jurisdiction shall not be valid.

15. Red Tag – Stop Work Order

111.1 Order. Whenever the *fire code official* finds any work regulated by the fire code being performed in a manner contrary to the provisions of the code or in a dangerous or unsafe manner, the *fire code official* is authorized to issue a stop work order.

Specific Requirements for Fire Protection Systems in the Unified Fire Authority Jurisdiction

System Type

Fire Sprinkler Systems

- Design and installation shall be via the most recent version of the State approved NFPA 13.
- Manufacturer cut sheets shall be submitted with the plans.
- Hydraulic calculations shall be submitted with the plans.
- The maximum amount of 40 gallons of antifreeze is allowed unless the system has been designed per the Darcy-Weisback formula rather than the Hazen-Williams formula with zero degrees Celsius as a baseline for calculation.
- Antifreeze cannot be added to a system without plans specifying type, amount and detail of antifreeze loop, or antifreeze protection per NFPA 13 Sections 8 16.4, 24.6.1.2
- Antifreeze shall not be added to a fire sprinkler system without a field inspection which will include temperature and consistency of antifreeze with a listed meter suitable for the type of antifreeze being tested.
- A remote post indicator valve is required where a door does not lead directly into the riser room from outside the building.
- All Post Indicator Valves shall be supervised. Where assessable to the public they shall be locked via chained with a Knox type padlock
- Any fire sprinkler system where system hazard classification design changes, requires a new permit and third party plan review.
- Any fire sprinkler system where more than 20 fire sprinkler heads (except 13-D, some 13-R systems) requires remote monitoring from an approved monitoring company.
- Any fire sprinkler system where more than 20 fire sprinkler heads (except 13-D, some 13-R systems) requires horns and strobes per NFPA 72. Outside water flow bell can be low voltage and tied into the fire alarm system.

- A sign, "**RISER ROOM"** shall be placed on or adjacent to the outside of the door leading into the riser room. Minimum 1 inch red letters, white contrasting background or other approved.
- Any antifreeze system utilizing 40 or more gallons will require a remote testing location utilizing an inspector type test globe valve or equivalent.
- Antifreeze systems using more than 40 gallons of antifreeze must be approved and justified as to why a dry pipe or pre-action system is not used instead.
- Antifreeze must comply with NFPA 13 mix requirements suitable to -20 minimum in the valley area, -40 in mountain (ski resort) areas.
- Remote "up-right type or periscope type" fire department connections shall only be required upon owner request (when approved), when required by the AHJ, or where specified on plans for high-rise type buildings.
- All Fire Department Connection Caps must be Knox type locking caps.

Fire Alarm Systems

- Design and installation shall be via the most recent version of the State approved NFPA 72.
- Manufacturer cut sheets shall be provided.
- Horn/strobe candela shall be indicated on the plans.
- Battery calculations shall be submitted with the plans.
- All Post Indicator Valves shall be supervised. Where assessable to the public they shall be locked via chained with a Knox type padlock.
- All alarm systems where more than five (5) horn or strobes are moved or added to require a permit and an approved third party review.
- Sign: **Fire Alarm Control Panel** shall be placed on or adjacent to the door leading into fire alarm panel location. Minimum 1 inch red letter, white contrasting background or other approved.
- Any structure (except one and two family dwellings) where 20 or more fire sprinkler heads are installed shall have off site monitoring. In addition, the system shall provide audio and visible occupant notification.
- Restrooms shall be strobe only and a maximum of 15 dBA over ambient sound pressure levels.
- Remote annunciators are required near the main interior areas assessable to the fire department.
- Smoke detection is required within 20 feet of the main annunciator panel.
- All Institutional, Hazardous, Large Shopping Malls, and High Rise type occupancies (or other buildings as required) shall have a Knox type 1300 series cabinet that contains within a detailed floor plan of the building showing all floors, location of critical systems, chemicals (704 insignias) utility shut-offs and significant fire protection system appurtenances.

Commercial Cooking Wet Chemical Systems

- Design and installation shall be via the most recent version of the State approved NFPA 17-A.
- Manufacturer cut sheets shall be submitted with the plans.
- Distance from burner/cook top surface to nozzle shall be submitted with plans.
- Nozzle types shall be indicated on the plans.
- System nozzles not designed with "foil" anti-grease nozzle protection shall be protected with metal caps. **Rubber caps are not allowed**.
- Frangible links must meet manufacturer specifications. Out of date replaced links are to be attached to or near the system manual pull station (for inspection) to verify that old (last year) links have been replaced with links that are manufactured in the calendar year of the inspection. Exception for glass bulb type links.
- Manual pull stations approved on Type I recalculating (self contained) hood systems can be located on and be a part of the metal hood assembly but must be assessable and free of obstructions.
- A manual or automatic system activation shall shut off gas and electricity under Type 1 hoods. Reset shall be manual.
- Class "K" type wet chemical portable fire extinguishers shall comply with the fire code, be located within 30 feet of the fryer and are required any time a minimum of ¼ inch of grease on any cooking surface is anticipated.
- Type I hoods are required over appliances that produce grease laden vapors. Chain type broilers may not be required to have a wet chemical fire protection system, but approval is required. Pizza ovens do not require wet chemical fire protection systems.
- Where more than one wet chemical system is installed, each system shall be clearly marked near the pull station as to which Type I hood that system protects.

Standpipe Systems

- Design and installation shall be via the most recent version of the State approved NFPA 14.
- Manufacturer cut sheets shall be submitted with the plans.
- Hydraulic calculations shall be submitted with the plans.
- Wet standpipes shall be installed and tied into the fire sprinkler system whenever possible.
- Wet standpipe systems shall have pressure gauges at all test and drain locations and at the top most (heated) portion of the standpipe.
- Standpipes shall be located within stair enclosures. Spacing of standpipes shall be equal to exiting requirements of the structure, and/or a maximum of 200 feet spacing (non-sprinklered) or 250 feet (with sprinklers) between standpipe connections.
- Dry standpipe systems must be approved.
- Signs on the fire department connections must designate which connection provides flow to the standpipe system. Signs shall be all weather construction, 1 inch red lettering with white background, metal or other approved method.
- Standpipe design, installation and pressure shall comply with NFPA 14 and shall be designed to provide 100 psi at the uppermost remote connection.

- All fire department standpipe pumper supply connection caps must be Knox type locking caps.
- Unless approved otherwise, all fire department connections shall be located no more than 100 feet from the nearest fire hydrant connected to an approved water supply.

Unified Fire Authority
KNOX BOX ORDER INFORMATION

1. WEB SITE: www.knoxbox.com
2. Click on ONLINE PURCHASE.
3. Enter **zip code** (84119).
4. Choose **Unified Fire Authority** as the fire department listed
5. On drop down menu select the Item that you want to purchase, i.e. Knox Box 3200 Series, Key Switches etc.
6. Select Buy Now!

When buying the 3200 / 1650 Series Knox Box

"Door Type" select "Hinged Door"
"Mounting Type" is optional
"Color" is optional
"Tamper Switch" is optional.

3200 Series Surface Mount Hinged Door

3200 Series Recessed Mount Hinged Door

1650 Series Surface Mount Hinged Door

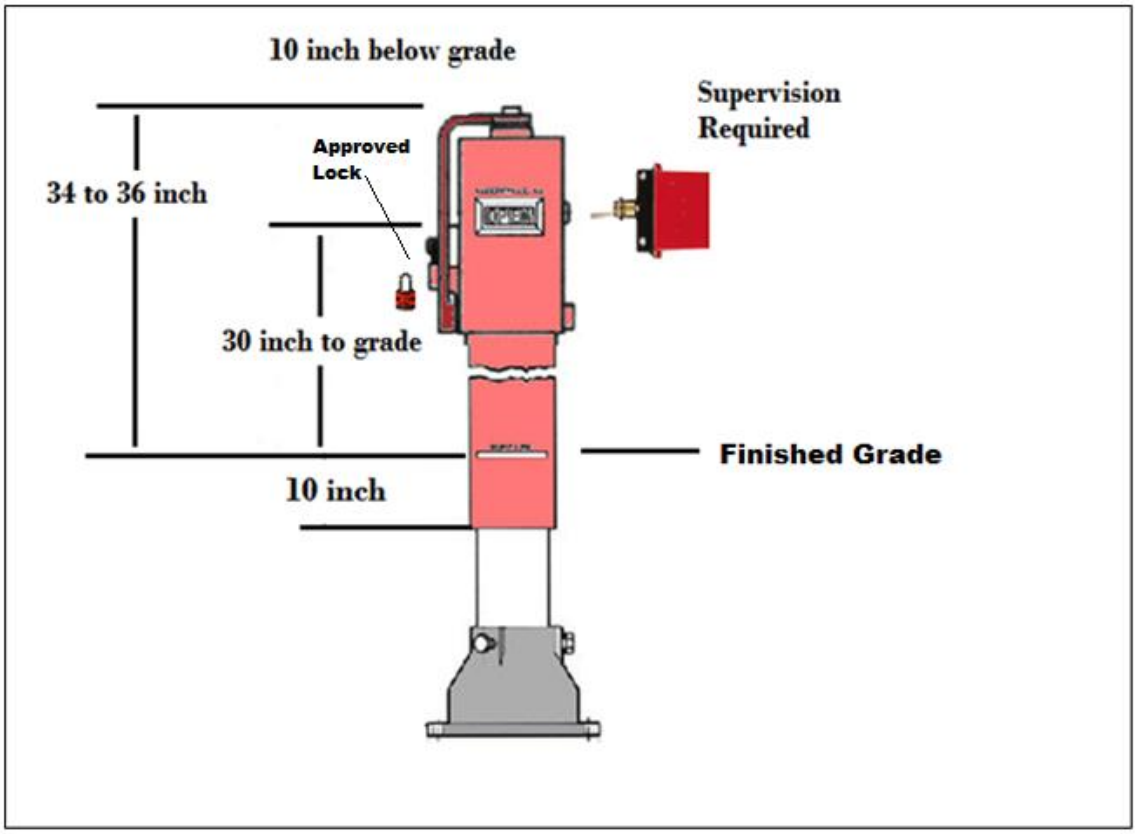
*1650 Knox Residential

1300 Series Cabinet 3500 Series Key Switch 3753 Padlock FDC Plug Model 3043 or 3042

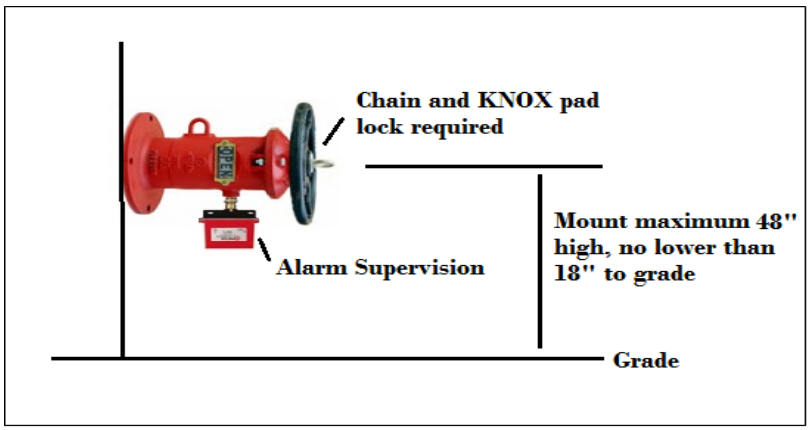
Mount knox box no more than 5 feet high near the main front door, and opposite the outside swing of the riser room door.

*KNOX model 1650 residential type lock boxes can be used for individual strip mall type occupancies or when approved by the Unified Fire Authority Area Fire Inspector call 801-743-7230 for approval.

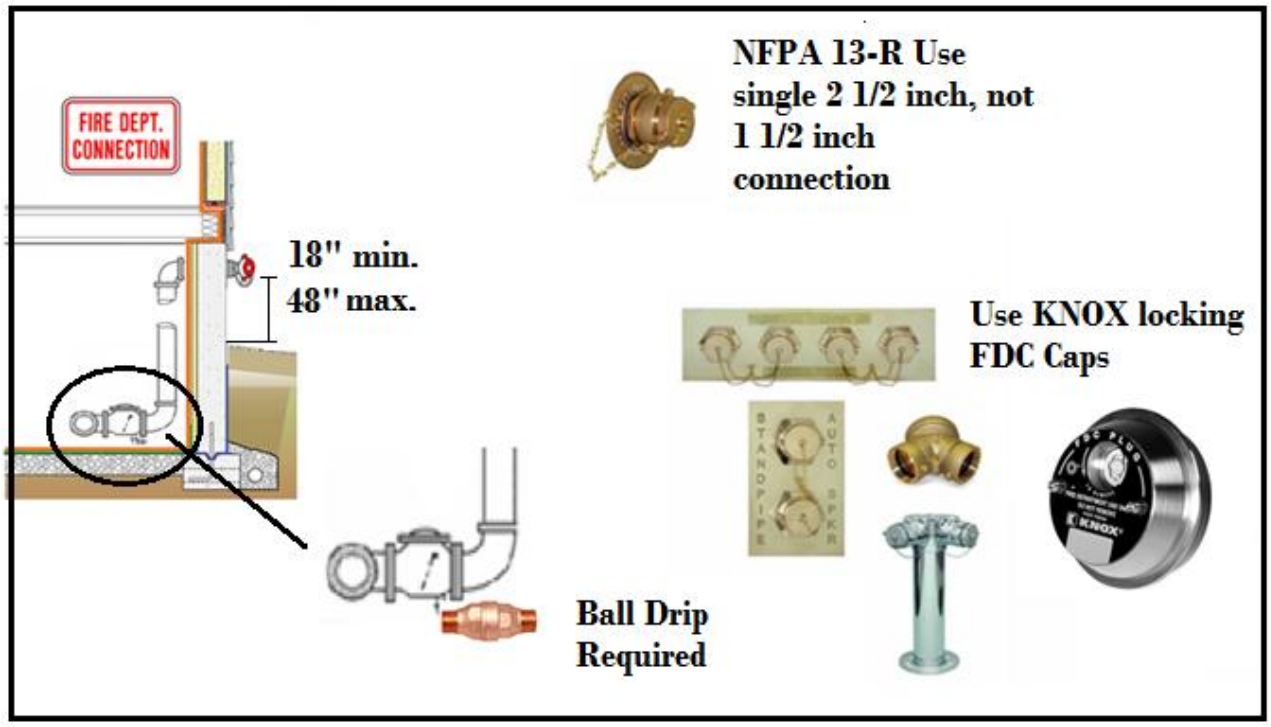
Post Indicator Valve Requirements



Wall Mount Post Indicator Valve



Fire Department Connections,
NFPA 13-R Required 2-1/2" Connection



Required Signs

RISER ROOM

FIRE ALARM CONTROL PANEL

WET STANDPIPE SERVES EAST STAIR ENCLOSURE

1 Inch high letters
Red on White Background
All Weather Construction

Hood Fire System 1

Hood Fire System 2

Hood 1

Hood 2

1/2 inch Red lettering on white background