Required vs. Non-required Fire Protection Systems

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What are we going to cover?

- What makes a system required?
- What to do when a non-required system is installed?
- Examples, lots of examples.
Chapter 9 – Section 901

- **901.4 Installation.** *Fire protection systems* shall be maintained in accordance with the original installation standards for that system. Required systems shall be extended, altered or augmented as necessary to maintain and continue protection whenever the building is altered, remodeled or added to. *Alterations to fire protection systems* shall be done in accordance with applicable standards.
Chapter 9 – Section 901

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901.4.1 Required fire protection systems. *Fire protection systems* required by this code or the *International Building Code* shall be installed, repaired, operated, tested and maintained in accordance with this code.

Clarification: Any system required by the Codes becomes a required system. For example, if sprinkler systems are needed for height or area increase, they are now a required system.
901.4.2 Nonrequired fire protection systems. Any fire protection system or portion thereof not required by this code or the International Building Code shall be allowed to be furnished for partial or complete protection provided such installed system meets the requirements of this code and the International Building Code.

Clarification: System not required by any code section or exception.
Chapter 9 – Section 901

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Clarification: Designed intent, what is the purpose.
Chapter 9 – Section 901

- **901.4.2 Nonrequired fire protection systems.** Any fire protection system or portion thereof not required by this code or the *International Building Code* shall be allowed to be furnished for partial or complete protection provided such installed system meets the requirements of this code and the *International Building Code*.

- Clarification: Devices installed meet the installation requirements of the North Carolina Codes and referenced standards.
NFPA 13 – General

- **4.2 Limited Area Systems.**
  - **4.2.1** When partial sprinkler systems are installed, the requirements of this standard shall be used insofar as they are applicable.
  - **4.2.2** The authority having jurisdiction shall be consulted in each case.

- Clarification: Not limited to 20 heads, unless fed from domestic service.
3.3.171* **Nonrequired.** A system component or group of components that is installed at the option of the owner, and is not installed due to a building or fire code requirement. (SIG-FUN)
A.3.3.171 Nonrequired. There are situations where the applicable building or fire code does not require the installation of a fire alarm system or specific fire alarm system components, but the building owner wants to install a fire alarm system or component to meet site-specific needs or objectives. A building owner always has the option of installing protection that is above the minimum requirements of the Code.
NFPA 72 – Annex

- **A.3.3.171 Nonrequired.(Continued)** It is the intent of the Code that any fire alarm system, or fire alarm system components installed voluntarily by a building owner, meet the requirements of the applicable portions of the Code. However, it is not the intent of the Code that the installation of a nonrequired fire alarm system, or fire alarm system components, trigger requirements for the installation of additional fire alarm system components or features.
A.3.3.171 Nonrequired. (Continued) For example, the installation of a fire alarm control unit and fire detectors to service a specific area, such as a computer room or flammable liquid storage room, does not trigger a requirement for audible or visible notification appliances, manual fire alarm boxes, or other fire alarm system features in other parts of the building.
17.5.3.3* Nonrequired Coverage.

17.5.3.3.1 Detection installed for reasons of achieving specific fire safety objectives, but not required by any laws, codes, or standards, shall meet all of the requirements of this Code, with the exception of the prescriptive spacing criteria of Chapter 17.

17.5.3.3.2 Where nonrequired detectors are installed for achieving specific fire safety objectives, additional detectors not necessary to achieve the objectives shall not be required.
23.3.2* Nonrequired (Voluntary) Systems and Components.

The features for a nonrequired system shall be established by the system designer on the basis of the goals and objectives intended by the system owner.

23.3.2.1 Nonrequired protected premises systems and components shall meet the requirements of this Code.

23.3.2.2 Nonrequired systems and components shall be identified on the record drawings required in 7.2.1(12).
A.23.3.2 Nonrequired fire alarm features are defined in 3.3.171. These are fire alarm systems or components that are not required by the building or fire codes and are installed voluntarily by a building owner to meet site-specific fire safety objectives. There is a need to properly document the nonrequired system and components. Nonrequired components must be operationally compatible in harmony with other required components and must not be detrimental to the overall system performance.
A.23.3.2 It is for this reason that 23.3.2.1 mandates that nonrequired (voluntary) systems and components meet the applicable installation, testing, and maintenance requirements of this Code. It is not the intent of the Code to have the installation of nonrequired (voluntary) systems or components trigger a requirement for the installation of additional fire alarm components or features in the building.
A.23.3.2 For example, if a building owner voluntarily installs a fire alarm control unit to transmit sprinkler waterflow signals to a central station, that does not trigger a requirement to install other fire alarm system components or features, such as manual fire alarm boxes, occupant notification, or electronic supervision of sprinkler control valves. See also A.17.5.3.3 and A.18.1.5.

Alternatively, supervision and power requirements are required to be taken into account for the nonrequired components/systems on the required fire alarm systems.
24.3.4* Nonrequired (Voluntary) Emergency Communications Systems.

24.3.4.1 Nonrequired emergency communications systems and components shall meet the requirements of this chapter.

24.3.4.2 Nonrequired emergency communications systems and components shall be identified on the record drawings.

A.24.3.4 The features for a nonrequired system should be established by the system designer on the basis of the goals and objectives intended by the system owner.
GOT IT?
Something is better than Nothing, Right?

- Not always.

- Would a person feel that in the event of an emergency they would be notified?

- Does the system perform the intent as designed?
LET'S LOOK AT SOME EXAMPLES
Example 1

- Fire station:
  - Non-separated
  - Sleeping areas
  - Kitchen area

- What would be required?
  - Sprinkler system, 903.2.8
    - Type?
      - NFPA 13
  - Hood system, commercial cooking 507.2.3 NCMC
  - Smoke alarms, 907.2.9.2- 907.2.11
  - Dialer – 903.4
Example 1

- Is anything else required?
- Is the Fire Sprinkler Panel required to monitor the Hood System?
- Are manual pull stations required?
- Is occupant notification required?
Example 2

- Strip shopping center
- Up fit of tenant space
- What is required by code?
  - Group B occupancy
Example 2

FACP
- Horn/Strobe
- Smoke Detector
- DACT/Dialer
- Strobe
- Pull station
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Example 2

- What if we added sprinkler?
  - Does it need to dial out?

- FACPs
- Horn/Strobe
- Smoke Detector
- DACT/Dialer
- Strobe
- Pull station
- Waterflow Bell
Example 3 – First floor Business occupancy

- Facts:
  - No occupancy in the building requires sprinkler or alarm per NC Codes.

It is really confusing!!!
Example 3

- Design: Only notify occupants in waiting area.
- Staff will evacuate other occupants.

- Smoke Alarm
- FACP
- Hood System
- Smoke Detector
- DACT/Dialer
- Waterflow Bell
- Pull station
- Strobe
Example 3

- Just sprinkler in the Tenant space

- Waterflow Bell
- DACT/Dialer
- FACP
- Hood System
- Pull station
- Horn/Strobe
- Smoke Detector
- Smoke Alarm
- Strobe
Example 3

- Just a hood system

- Waterflow Bell
- DACT/Dialer
- FACP
- Hood System
- Pull station
- Horn/Strobe
- Smoke Detector
- Smoke Alarm
- Strobe
Example 3

- Just a hood system

- Waterflow Bell
- DACT/Dialer
- FACP
- Hood System
- Pull station
- Horn/Strobe
- Smoke Detector
- Smoke Alarm
- Strobe
Example 3

- Just a hood system

- Waterflow Bell
- DACT/Dialer
- FACP
- Hood System
- Pull station
- Horn/Strobe
- Smoke Detector
- Smoke Alarm
- Strobe
Example 4

- Storage occupancy with Business
  - Total 11,999ft² exterior wall to exterior wall.
  - 1,500ft² of I – IV Commodity high-piled storage area
  - 1,000ft² of High Hazard high-piled storage area.
  - Break room, 2 commercial 6-eye ranges.

- What is required?
  - Hood system for ranges.
  - Alarm for high-piled storage areas.
Example 4

- Waterflow Bell
- DACT/Dialer
- FACP
- Hood System
- Pull station
- Horn/Strobe
- Smoke Detector
- Smoke Alarm
- Strobe
Example 4

- Waterflow Bell
- DACT/Dialer
- FACP
- Hood System
- Pull station
- Horn/Strobe
- Smoke Detector
- Smoke Alarm
- Strobe
Example 4

- Waterflow Bell
- DACT/Dialer
- FACP
- Hood System
- Pull station
- Horn/Strobe
- Smoke Detector
- Smoke Alarm
- Strobe
Example 5

- One of my FAVORITE occupancies:
- Sweepstakes
Example 5

- Waterflow Bell
- DACT/Dialer
- FACP
- Hood System
- Pull station
- Horn/Strobe
- Smoke Detector
- Smoke Alarm
- Strobe
Example 5

- Just notification in gaming area?
- What is the design intent?
Example 5

- Just pull stations?
  - No DACT, No Alarms? What is the intent?
  - What can you require?
    - Signs – 907.5.2.4
  - What can you suggest?
Example 6

- Two tenant spaces:
  - Code compliant separation to make separated mixed use.
Example 6

- Sprinkler west side.
  - Bell outside.
  - Supervision?
  - Monitoring?

- Waterflow Bell
- DACT/Dialer
- FACP
- Hood System
- Pull station

- Horn/Strobe
- Smoke Detector
- Smoke Alarm
- Strobe
Example 6

- Fire alarm west side.
  - Panel
  - Monitoring?
  - Initiating Devices
    - Smoke/Heat
    - Pull

- Waterflow Bell
- DACT/Dialer
- FACP
- Hood System
- Pull station
- Horn/Strobe
- Smoke Detector
- Smoke Alarm
- Strobe