



Stafford County Fire and Rescue Department Office of the Fire Marshal

1225 Courthouse Road, PO BOX 339, Stafford, VA 22555
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Guidelines and Specifications For:

Fire Alarm Systems

Applicable Codes and Standards:

VSFPC - Virginia Statewide Fire Prevention Code (2018)
VCC – Virginia Construction Code (2018)
NFPA 72 – National Fire Alarm and Signaling Code (2016)
ASME A17.1 – Elevator Code (2016)

General	Code Section
Fire alarm systems are required to be provided in accordance with the applicable Building Code, maintained in accordance with the National Fire Alarm Code and not removed without approval by the Building Official. Fire alarm systems shall be consistent with the National Fire Alarm Code requirements so as to not create a hazardous condition or false sense of protection.	VCC 907.1.1 VSFPC 907.8.5 VCC 103.8
Design professionals signing/sealing fire alarm system design documents shall at least be certified as a NICET level III, level IV, or a Virginia licensed professional engineer.	VCC 111.1 NFPA 72,
Where a fire alarm system is monitored, the approved alarm company information including 24-hour phone number and any access codes shall be provided inside the locked cover of the Fire Alarm Control Panel or other approved location.	VSFPC 907.6.5 NFPA 72, 26.3.4
Generally, a building shall only have one single fire alarm system unless otherwise approved. Multiple, independent fire alarm systems are not acceptable within the same building and all signals shall be annunciated at the main Fire Alarm Control Panel. Where fire alarm notification devices are provided within a building, an approved fire alarm annunciator shall be provided at the main entrance or other approved location.	NFPA 72, 23.8.2
Approved annunciation shall be provided for all fire alarm systems, shall include silence and reset functions, shall be key secured (password protection is not permissible), and shall include an approved floor plan map or graphic. Annunciation devices are typically be located at the main entrance to the building and associated with an approved “Knox” key box. Where a main entrance is not provided (multi-tenant buildings or strip shopping centers), annunciation should be located at the building’s common fire protection room or other approved exterior access location.	NFPA 72, 10.16.3 VSFPC 506
When using single or non-traditional communication paths for fire alarm monitoring: <ol style="list-style-type: none"> 1) Single Technology, Cellular Only – <u>24 hours</u> of supervised, secondary power AND coverage shown from <u>two independent towers</u> or <u>two carriers</u> on the same tower. (Reference NFPA 72, A.26.6.3.5 – 2016 Edition) 2) IP-DACT and Cellular Backup – <u>8 hours</u> of secondary power for IP equipment with <u>24 hours</u> of supervised secondary power for cellular. 3) Single Technology, IP Only – <u>24 hours</u> of supervised, secondary power for all on-site devices (includes routers and any utility provided equipment). In all cases, failure of the communication path shall be indicated as a trouble signal on the Fire Alarm Control Panel within 5 minutes and all components within the communications path shall be monitored for integrity and provide with secondary power.	NFPA 72, 26.6.3
Unless otherwise approved, audible fire alarm evacuation signals shall be a temporal-three sound and shall be in sync throughout the notification area. All notification signals, including low-frequency horns, shall be in sync throughout the notification zone.	NFPA 72, 18.4.2
Annual fire alarm system tests shall be conducted in accordance with NFPA 72, specifically document each device tested, and provide a list of all deficiencies or problems found and their disposition. At least 3 years of records shall be kept on site.	VSFPC 907.8.5 NFPA 72 – 10 VSFPC 901.6.2



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Fire Alarm Systems Without Occupant Notification (Sprinkler Monitoring Systems)	Code Section
The arrangement of Fire Alarm systems that do not provide building evacuation notification shall be approved. The Fire Alarm Control Panel is typically located in designated fire protection system room and provided with a "Knox" key box at the associated exterior access door.	VCC 903.4 VCC 907.2 VSFPC 506
Sprinkler monitoring system should have a manual pull station at the exit from the sprinkler room.	VCC 907.2
The required exterior horn/strobe alarm device must be listed for outdoor use and should be located at the associated exterior access door.	VCC 903.4.2 NFPA 72, 18.3.1

Emergency Voice Evacuation and Alarm Communication Systems	Code Section
Any pre-recorded message(s) from a fire alarm system shall be approved by the Fire Official. Evacuation messages shall include at least two cycles of the temporal-three signal between each message.	NFPA 72, 24.4.1.2
Speaker wattage should be set to at least 1 Watt in all areas and should be 2 Watts for hallways and high noise areas as needed.	NFPA 72, 24.3.1
Acceptance testing, including system pre-testing, shall verify intelligibility of all messages in all areas. Often additional speakers are required to provide adequate sound levels and intelligibility.	NFPA 72, 24.3.1
Voice evacuation alarm system shall be provided with pre-set, selectable paging zones that include elevator groups, exit stairways, each fire area, each floor, and each area of refuge. High-rise buildings shall activate the alarming floor, the floor above and the floor below.	VCC 907.5.2.2
The location of all microphones shall be approved by the Fire Official and key secured (not password protected) from unauthorized use. Typically only one or two locations are permitted within a building in order to reduce the possibility of conflicting or confusing messages.	NFPA 72, 24.4.1.5.1

Other Special Applications	Code Section
Where a main Fire Alarm Control Panel monitors <u>multiple sub-panels</u> , the location of all sub-panels (especially those that cannot be operated or reset from the main panel) shall be listed at the main panel.	NFPA 72, 23.8.2.
The arrangement of any <u>pre-alarm</u> notifications such as in Very Early Smoke Detection and Alarm Systems, shall be designated on the design documents and approved by the Fire Official.	NFPA 72,23.8.1.2 VSFPC 907.5.1
When <u>duct smoke detectors</u> are activated, they shall initiate a supervisory signal in the fire alarm system and not an alarm evacuation signal. Existing devices should be updated where possible.	VSFPC 907.3.1
Generally, <u>elevator recall</u> shall be initiated by smoke detectors in elevator lobbies, elevator control room and elevator shafts/pits where required. Where elevator shunt-trip is required, it shall be activated by an appropriately selected and located heat detector. For elevator recall purposes, the designated level is typically the level associated with the main entrance and the alternate level is the floor above or below. In all cases, an approved <u>elevator-style</u> "Knox" key box shall be provided in the designated level lobby and include all required elevator keys.	NFPA 72, 21.3 ASME A17.1 VSFPC 506
Where <u>single-station or multiple-station alarms</u> are monitored by a non-household fire alarm system, they shall initiate a supervisory signal in addition to the local alarm from the device(s). Where multiple station detectors are also required to provide visible alarm notification, all interconnected devices shall be so equipped.	VCC 907.2.11
See the Stafford County "Smoke Alarm Guidelines and Specifications" for details regarding proper placement of household smoke alarms.	NFPA 72, Ch29