



Stafford County Fire and Rescue Department Office of the Fire Marshal

1225 Courthouse Road, PO BOX 339, Stafford, VA 22555
(540) 658-8648 · www.staffordfireandrescue.com/fm

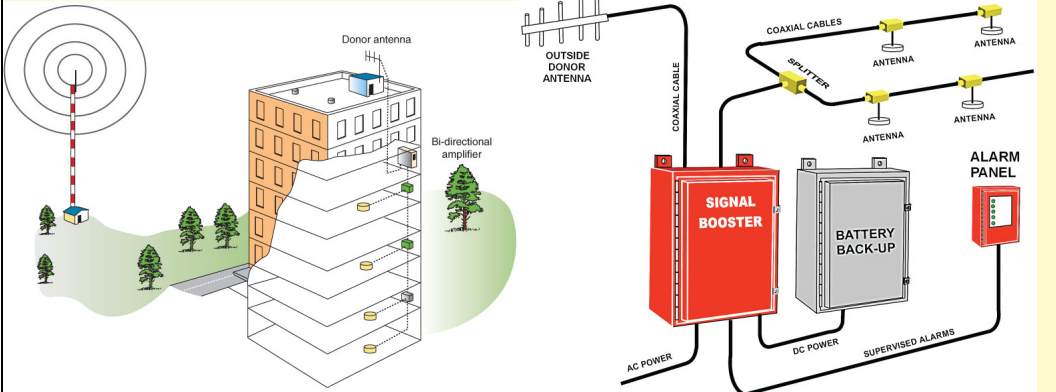


Guidelines and Specifications For:

In-Building Emergency Communications 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)

General	Code Section
<p>In-building Emergency Communication Systems, sometimes referred to as Bi-directional Antenna Systems (BDA) or Distributed Antenna Systems (DAS), are often used where public safety wireless communication is not adequate within a building. New buildings, unless covered in one of the exceptions below, must provide a system or have an acceptable test showing adequate coverage (see item 5 below) just prior to occupancy.</p> <p>Exceptions:</p> <ol style="list-style-type: none"> 1) Buildings of Use Groups A-5, I-4, within dwelling units of R-2, R-3, R-4, R-5, and U. 2) Buildings of Types IV and V construction without basements, that are not considered unlimited area buildings in accordance with Section 507. 3) Above grade single story buildings of less than 20,000 square feet. 4) Buildings or leased spaces occupied by federal, state, or local governments, or the contractors thereof, with security requirements where the building official has approved an alternative method to provide emergency communication equipment for emergency public safety personnel. 5) Where the owner provides technological documentation from a qualified individual that the structure or portion thereof does not impede emergency communication signals. 	<p>VCC 916.1</p>
<p>For details regarding the Stafford County public safety wireless systems, contact the Stafford County Emergency Communications Center Radio Specialist at 540-658-4680.</p> <p><i>Stafford County's radio system operates under APCO Project 25 Standard, using P25 Trunking Protocol and P25 Digital Voice Protocol. A copy of the radio system's frequencies is available to the designer and installer upon request. For reference, the FCC call signs for the radio system and primary Public Safety Interoperability frequencies are WQKD203, WQKD204, WQKD205, and WQQK832, and can be referenced via the FCC's ULS License database. https://wireless2.fcc.gov/UlsApp/UlsSearch/searchLicense.jsp</i></p>	<p>NFPA 72, 24.5.2.1.1, NFPA 72, 24.5.2.4</p>
 <p>Bi-Directional Amplifier System. (Source: Copyright © Jack Daniel Company, Victorville, CA)</p>	<p>NFPA 72, 24.5.2</p>



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System Installation	Code Section
Plans and Permits: Consultation with the Stafford County Emergency Communications System Radio Specialist is strongly recommended prior to design and plan submittal. System information and device documents are typically submitted with the building fire alarm system permit.	NFPA 72, 24.5.2.1.2
Critical Areas: Fire command centers, fire pump rooms, exit stairs, exit passageways, elevator lobbies, standpipe cabinets, sprinkler control valves, fire alarm control panel, electrical rooms, areas of hazardous materials storage or system controls. These areas shall be provided with 99% floor area radio coverage.	NFPA 72, 24.5.2.2.1
General Building Areas: These areas shall be provided with at least 90% floor area radio coverage.	NFPA 72, 24.5.2.2.2.
Signal Strength: Minimum inbound signal strength of -95dBm throughout the coverage area. Minimum outbound signal strength of -95dBm at the donor site from the coverage area.	NFPA 72, 24.5.2.3
Power Supplies: Two independent and reliable power supplies (such as primary building power and battery backup for a 12-hour operation) are required.	NFPA 72, 5.2.5.5
Supervision and Annunciation: The system and power supplies shall be monitored by the fire alarm system. Indication of the system status shall be provided at the fire alarm system or an approved dedicated panel at the fire command center.	NFPA 72, 24.5.2.6

Acceptance Testing	Code Section
Where a system is NOT provided and a new the building is NOT exempt from VCC 916.1, field testing by a qualified contractor shall be submitted to the Fire Marshal's Office AND the Stafford County Emergency Communications Center Radio Specialist for approval. This test must be completed after all substantial construction is complete and just prior to occupancy.	VCC 916.1(5)
Where a system IS provided, a field testing report by a qualified contractor shall be submitted to the Fire Marshal's Office AND the Stafford County Emergency Communications Center Radio Specialist for approval. This test must be completed after all substantial construction is complete and just prior to occupancy.	VCC 916.1(5) NFPA 72, 24.5.2.1.2.
At a minimum, all designated "critical areas" must have adequate coverage for Temporary Occupancy approval. NOTE: Where only radiating cable is provided by the owner and where coverage deficiencies in "critical areas" exist, the installation of any equipment by the jurisdiction must be installed, tested and operational prior to occupancy approval.	NFPA 72, 24.5.2.2.1

Maintenance	Code Section
The building manager/owner shall suspend and correct other equipment installations that degrade the performance of the public safety radio system or public safety radio enhancement system.	NFPA 72, 24.5.2.1.1
The status of the supervision, monitoring and operational components of the system shall be inspected and tested annually with the annual fire alarm system inspection. This testing and inspection is the responsibility of the building manager/owner or their agent.	VSFPC 907.8.5 NFPA 72, 14.3
After providing reasonable notice, the fire official, police chief or their agents shall have the right to conduct field tests to verify that the required level of radio coverage is present.	VSFPC 510.3