(ATTACHMENT 5)
Phone Line Emulator Proposed Draft Language for a potential Information Bulletin

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Communication means for Fire Alarm systems

Equipment and means of transmission at the protected premises for new and existing fire alarm systems, which are required to be supervised by an approved supervising station per the California Fire Code Section 907.6.6, must comply with all applicable requirements in Chapter 26 of NFPA 72 for transmitting fire alarm signals to the supervising station. NFPA 72 Annex A also provides important guidelines for using Managed Facilities-Based Voice Network (MFVN) to transmit fire alarm signals. The current applicable edition of NFPA 72 in CA is the 2022 edition, which allows for different types of communications between the FACU and the supervising station.

The intent of this bulletin is to alert building owners, design professionals, contractors, inspectors, and AHJs about the applicable provisions of NFPA 72 regarding the use of MFVNs as an acceptable means of communication and to provide a 5-point checklist to verify that adequate MVFN is provided.

Background

Traditional analog (or plain old telephone service—POTS) lines fall under the MFVN definition in NFPA 72. Many vendors claim to offer POTS replacement services that meet the MFVN requirements and guidelines of NFPA 72. This bulletin outlines the applicable requirements and guidelines that must be used. It also provides a checklist to enable AHJs and other stakeholders to identify whether any particular POTS replacement service offered by a telecommunications carrier qualifies as an MFVN under NFPA 72.

The 2025 edition of NFPA 72 contains some important updates to the provisions in Chapter 26 and Annex A regarding MFVNs. For example, starting with the 2025 edition of NFPA 72, building owners will be required to, among other things, notify the AHJ of any changes to the communications pathways, communications technologies, or communications hardware at the protected premises, such as converting from POTS lines to a another qualifying MFVN. OSFM expects to issue an update to this bulletin when the 2025 edition is adopted in California to highlight the new provisions**.**

When the fire alarm system (FAS) has a **Digital Alarm Communicator Transmitter (DACT)** either built-in inside the fire alarm control unit (FACU) enclosure or in a separate enclosure – the following shall apply:

NFPA 72-2022

- A DACT is permitted to transmit fire alarm signals if connected to a qualifying **Managed Facilities-Based Voice Network (MFVN).** Legacy copper POTS lines are MFVNs. Any alternative technology that meets the definition of MFVN and the criteria in Annex A is also an MFVN that's allowed to transmit fire alarm signals. The code treats any qualifying MFVN—whether a legacy copper POTS line or an alternative technology that meets the MFVN definition and criteria—the same.

- A DACT can be used as a signaling interface from a fire alarm control unit to another means of signal transmission. In this case, the use of a DACT is not for the direct transmission of signals via a connection through telephone lines from a qualified MFVN. The other transmission means will then transmit the signal data via another listed means, which is found in 26.6.3 or 26.6.5. A critical distinction between these two permitted uses of DACTs is that MFVNs are provided by qualified telecommunications carriers and are not considered part of the fire alarm system, while other listed means of communication are.

  26.6.4.2.1* Managed Facilities-Based Voice Network.

  A DACT shall be connected to a managed facilities-based voice network upstream of any private telephone system at the protected premises.

- The term managed facilities-based voice network (MFVN) is used frequently in the requirements for Digital Alarm Communication Systems (DACS). This is because the term public switched telephone network (PSTN) was used in many locations due to its importance to a DACS. As defined in 3.3.168 and as further explained in A.3.3.168, the MFVN is equivalent in function to a PSTN provided by traditional public utility phone companies. As such, the term MFVN applies to traditional PSTNs and new technologies that can emulate PSTNs, and it is used throughout 26.6.4.

  3.3.168* Managed Facilities-Based Voice Network (MFVN).

  A physical facilities-based network capable of transmitting real-time signals with formats unchanged that is managed, operated, and maintained by the service provider to ensure service quality and reliability from the subscriber location to the interconnection point with other MFVN peer networks or the supervising station. (SIG-SSS)

- The term managed facilities-based voice network (MFVN) has replaced the term public switched telephone network (PSTN) and is used in the requirements for DACTs in 26.6.4.2.

- A PSTN had traditionally been viewed as comprising the copper telephone lines and connected system of the local telephone company, sometimes referred to as the "plain old telephone system (POTS)." Telephone (voice) service is now provided not only by the traditional telephone company but also by other service

providers. The MFVN incorporates the current state of telephone service, which is provided by traditional telephone providers, as well as other non-traditional providers, such as cable providers. In accordance with the current definition of MFVN, a DACT is permitted to connect to equipment and systems of a telephone service provider using an MFVN. The annex text in A.3.3.168 provides insight into what constitutes an MFVN.

Excerpts from A.3.3.168 Managed Facilities-Based Voice Network (MFVN):

Managed facilities-based voice network service is functionally equivalent to traditional PSTN-based services provided by authorized common carriers (public utility telephone companies) with respect to dialing, dial plan, call completion, carriage of signals and protocols, and loop voltage treatment and **provides all of the following features:**

1) *A loop start telephone circuit service interface.*
2) *Pathway reliability that is assured by proactive management, operation, and maintenance by the MFVN provider.*
3) *8 hours of standby power supply capacity for MFVN communications equipment either located at the protected premises or field deployed. Industry standards followed by the authorized common carriers (public utility telephone companies), and the other communications service providers that operate MFVNs, specifically engineer the selection of the size of the batteries, or other permanently located standby power source, in order to provide 8 hours of standby power with a reasonable degree of accuracy. Of course, over time, abnormal ambient conditions and battery aging can always have a potentially adverse effect on battery capacity. The MFVN field-deployed equipment typically monitors the condition of the standby battery and signals potential battery failure to permit the communications service provider to take appropriate action.*
4) *24 hours of standby power supply capacity for MFVN communications equipment located at the communications service provider's central office.*
5) *Installation of network equipment at the protected premises with safeguards to prevent unauthorized access to the equipment and its connections.*

Summary and Checklist

It may be difficult for the designer and the authority having jurisdiction to determine whether the telephone service provider is providing the five key features necessary for an MFVN. The telecommunications service provider should document that the MFVN service meets or exceeds these five features. MFVN service that is not provided using a traditional POTS line or via an MFVN would not be permitted for connection to a DACT in accordance with 26.6.4.2.

NFPA 72 intends to only recognize the use of the means of transmission of alarm, supervisory, trouble, and other emergency signals through the use of qualified MFVNs.

The following checklist can be used to ensure code compliance:

CSFM MFVN Checklist

- □ MFVN listed by the CA SFM Listing Service as an MFVN

- □ MFVN is equivalent in function to a public switched telephone network ("PSTN") associated with a traditional telecommunications carrier licensed by the state public utility commission and FCC to provide local exchange (i.e., dial tone) services and is considered part of the communication infrastructure, not the fire alarm system.
    - Key question for premises owner: "Who is the carrier of record?"
    - Note: The telecommunications carrier information can be found in one of the following:
        - FCC: https://apps.fcc.gov/cgb/form499/499a.cfm
        - CPUC: https://apps.cpuc.ca.gov/apex/f?p=102:1

- □ The MFVN provides a loop start telephone circuit

    - MFVN loop start telephone circuit tested according to the relevant Telcordia standards by an independent testing laboratory

- □ The pathway reliability is assured by the MFVN provider using each of the following:
    - The MFVN uses multiple technologies for back-end transmission for redundancy—wireline (where available) and wireless are provided
    - The MFVN can maintain a call when switching communication paths
    - The MFVN Carrier has disaster recovery plan available for review

- □ The MFVN has 8 hours of standby power supply capacity located at the protected premises or field deployed; and 24 hours of standby power supply capacity at the communications service provider's central office.

- □ MFVN access safeguards are provided at the protected premises during installation
    - (i.e., MFVN is in a locked telecom closet; Signage is provided identifying the communication pathways on the telecom punch down (66) terminal block, etc.)

- □ The MFVN is connected through a fully managed network by the telecommunications carrier
    - Carrier responsible for all traffic up to PSTN handoff point
    - Cannot be just hardware—needs a carrier to be responsible for management of network