Over the past 15 years types of communication systems have become available that permit building owners to have an option in the provider of their telephone service. These providers generally provide their service through different types of hardware (such as telephone lines, cable lines, or fiber optics) or through a software conversion using existing computer-network transmission methods (internet providers, satellite, etc.). It is the intent of this technical bulletin to provide guidance on the National Fire Protection Association document, NFPA 72, 2007 edition term “Switched Telephone Network” (or synonymously “Public Switched Telephone Network”) to determine if a communications network is suitable to use as a way to transmit a fire alarm signal to a supervising station.

NFPA 72, 2007 edition, Section 3.3.200 (and 3.3.201) defines a [Public] Switched Telephone Network as (PSTN):

An assembly of communications facilities and central office equipment operated jointly by authorized common carriers that provides the general public with the ability to establish communications channels via discrete dialing codes.

Because of the limited number of means that were available for Digital Alarm Communicator Transmitter (DACT or “dialer”) to communicate to the supervising station, the term “telephone network” generally referred to the “telephone company” and the components of that system have a longstanding acceptance as an appropriate way to monitor fire alarm systems. However, the definition does not provide adequate guidance on the performance requirements that the traditional telephone system provides insofar as approving or disapproving other technologies.

The best resource on the issue of determining technical requirements for PSTN is the new definition in the 2010 edition of NFPA 72, modified by Technical Agreement (TIA) 10-3. The new language recognizes a PSTN as being equivalent to a “Managed Facilities-based Voice Network.” NFPA 72 Annex A3.3.141 recommends a Managed Facilities-Based Voice Network (MFVN) meets the following requirements to be functionally equivalent to a PSTN:

1. Equivalent to dialing, dial plan, call completion, carriage of signals and protocols, and loop voltage.
2. Loop start telephone circuit service interface.

3. Pathway reliability that is assured by proactive management, operation, and maintenance by the MFVN provider.

4. 8-hours of standby power supply capacity for all MFVN equipment located at the protected premises or field deployed. The MFVN equipment typically monitors the condition of the standby battery to permit the communications service provider to take appropriate action.

5. 24 hours of standby power for MFVN communications equipment located at the communications service provider’s central office.

6. Installation of network equipment at the protected premises with safeguards to prevent unauthorized access to the equipment and its connections.

The following items should be reviewed when considering the use of an alternative communications system:

- The communications provider provides the hardware, equipment, and support from the telephone jack inside the building to the central office. A conversion of the telephone jack (voice) signal to a digital/data signal and transmission through the internet to a receiving location does not meet this requirement.

- No equipment or system components are accessible, except by the communications service provider, the communication service customer, the building owner or authorized agent, and the Authority having Jurisdiction.

- The backup power is independent of the building power (including building emergency power), and is able to operate for at least 8 hours as well as having a proactive emergency power and maintenance program. This is for the complete system; subscriber equipment to the central office.

- Is a loop-start telephone circuit interface (no on-site “px” or “9 + #” dialing arrangements).

- Has a dedicated 10-digit (area code + 7 digits) dial-in phone number.

It should be noted that communication service providers offer different products for different needs. As an example, a MFVN that utilizes cable television wires to transmit their voice signal may be permitted in a business occupancy because of the type of communications equipment installed at that location. However, the communications equipment installed in a residential occupancy may not be suitable for connection to a fire alarm due to the access to the equipment and absence of the emergency power. Therefore, it is recommended that specific installation system arrangements are approved for use, not a blanket approval for the communication service providers.

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1 NFPA 72, 2007 edition is the referenced standard within Fire Code of New York State and Building Code of New York State. Discussion of the 2010 edition of NFPA 72 and all NFPA TIA’s is guidance and use for local approval only and is not to be construed as a regulatory adoption of these requirements.

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Ronald E. Piester, AIA, Director
Division of Code Enforcement and Administration