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Dear Construction Official and Fire Subcode Official:

Fire Alarm Transmission Channels and Managed Facilities Voice Networks (MFVNs)

An issue has arisen in reference to providing phone service to facilities that are required to have a fire alarm system. As many of you are aware, for a few years we have had questions about fiber optic service companies providing phone line service via a package deal with internet and/or television service. This letter provides guidance on whether a service provider can provide the required transmission means to a monitoring company.

Background

Starting in the early 1980's, fire alarm transmissions from protected premises to the supervising station were sent through Digital Alarm Communicator Transmitters (DACTs) over "Plain Old Telephone Service" (POTS). DACTs were originally designed to utilize POTS on the Public Switched Telephone Network (PSTN). POTS is the old copper line system that served every home or business with a telephone line. For many years, only this style of wiring was used and NFPA required that the primary transmission channel be a "telephone line (number)". This ensured that the transmission means was on a reliable circuit to the telephone company central office and then was switched to the number that the caller was trying to reach. Many times, when the signal left the telephone company office, it was carried on optical fiber. All POTS was on a battery backup power system. (Think about how many storms there were while you were growing up and your power went out, but you still had phone service.) POTS was and is a very reliable system, however the telephone company found a better way to transmit its communications and started using light over fiber optic service for telephone transmission. In many areas, POTS has been replaced with optical fiber, so your phone line (number) now comes to you by fiber optic service; you can also receive internet and television service, such as FIOS, by that means.

Code Requirements

The New Jersey Uniform Construction Code currently adopts the International Building Code (IBC)/2009. The IBC/2009 references the National Fire Protection Association (NFPA) 72/2007 standard, which requires that DACTs be connected to the PSTN.



The recently published NFPA 72/2010, which is not adopted by reference in the building subcode, contains a new term "Managed Facilities Voice Networks" (MFVNs). This term has caused concern for some providers. However, MFVNs are the functional equivalent of PSTN. NFPA 72/2010 states that traditional POTS, Cable and FIOS are permitted for transmission channels as long as the signaling protocols are fully compatible with and equivalent to those of the PSTN. NFPA 72/2010 was amended before printing by a Tentative Interim Amendment (TIA) that clarified the definition in Chapter 3 and the requirements in Chapter 29.

Both NFPA 72/2007 and 2010 require that a secondary power supply be installed to provide a minimum of 24-hour standby power when a fire alarm system is installed. A battery backup unit (BBU) is a compliant secondary power supply. Most fiber optic service providers provide an eight hour BBU supply, in some cases, they provide four hours. So, a separate BBU is required to be installed wherever a monitored fire alarm system is installed.

Guidance

The term "Managed Facilities Voice Networks" was added to clarify that Cable or FIOS companies could provide the telephone line (number) required for DACTs. Because NFPA 72, Section 1.5., Equivalency, allows the local fire subcode official to accept systems that provide equivalent protection, NFPA 72/2007 already addresses this issue when the Cable or FIOS companies provide the telephone line service required by the standard. The Cable or FIOS companies need to provide a means of transferring the signal from the fire alarm communicator to their network and provide the required backup power supply on any interface equipment. MFVNs may be used provided that they offer demonstrated equivalent reliability. When the performance standard is met, the communication method is acceptable and the Local Enforcing Agencies can approve these installations. Attached is a matrix that should be used to evaluate various service providers.

If you have questions please call the code assistance unit at (609) 984-7609 or email codeassist@dca.state.nj.us

Sincerely,



Edward M. Smith
Director
Division of Codes and Standards

Digital Alarm Communicator Service Matrix
Communications Methods for Supervising Station Fire Alarm Systems
Transmitters (DACT)
 2007 NFPA-72-8.6.3.2
 2007 NFPA-72-1.5.1

Service Provider	Service Name	Service Type	NFPA-72 Compliant	Service Note*
Verizon	POTS	POTS	YES	*1
Verizon	FIOS-POTS EMULATION	FIOS-POTS EMULATION	YES	*2
Verizon	FIOS-Digital Voice	VoIP	YES	*2
Verizon	FIOS-Internet	Internet	NO	*3
Vonage	All	VoIP	NO	*4
Skype	All	VoIP	NO	*5
Magic Jack	All	VoIP	NO	*6
Comcast	Digital Voice	VoIP	YES	*7
Cablevision	Optimum Digital Voice Residential Enhanced Wiring Solution	VoIP	YES	*8
Cablevision	Optimum Digital Voice Business	VoIP	NO	*9
AT&T	U-verse Digital Home Voice	VoIP	YES	*10
AT&T	Business in a Box	VoIP	YES	*11

The notes below are Providers' Terms of Service Statements

*1. Verizon POTS: Monitored alarm systems are integrated with telephone wiring so that they can send an alert (call) to an alarm monitoring service, should the alarm be set off. The FCC requires a device known as an RJ31X jack to be installed on alarm systems that make a call to monitoring services. The RJ31X jack interrupts communications on your telephone line when your alarm is activated to ensure that the alarm signal is sent to the monitoring company without interference from DSL or any telephone service.

*2. Verizon FIOS-POTS EMULATION: FiOS Digital Voice and Home Security Systems use the same telephone jacks used by a home security service. In the case of an electrical outage, FiOS Digital Voice service that is provided through normal telephone jacks will continue to operate on ONT battery power for up to 8 hours. If electricity has not returned by that time, it will not be possible to make or receive calls, including emergency calls to 911 and your alarm system will not be able to call out. Verizon strongly recommends you check with your alarm provider to ensure compatibility.

*3. Verizon FIOS-Internet: The battery back-up will not power FiOS Internet; therefore, some features of the service will not be accessible through FiOS Internet during a power outage.

*4. Vonage All Service: Vonage does not support the use of a telephone-based monitored alarm system, and recommends against using a telephone-based monitored alarm system with Vonage.

*5. Skype All Service: Skype Connect is not guaranteed to work with credit card machines, franking (stamping) machine and alarm systems, or other services that use a regular phone line with a modem connection.

*6. Magic Jack All Service: Magic Jack acknowledges that some users make a connection between their alarm system and Magic Jack. Magic Jack does not recommend or endorse this use.

*7. Comcast Digital Voice: Most modern, home alarm systems are supported by Comcast Digital Voice service; however, we recommend that you consult your home alarm company before your Comcast service is installed. Because we use our own managed network, and not the public Internet, we can ensure quality of service required to support home alarm systems.

*8. Cablevision Optimum Digital Voice Residential Enhanced Wiring Solution: In certain cases, Cablevision may be required to alter or adapt the Subscriber's inside wiring so that Optimum Voice is available on the existing phones. Subscribers who wish use Optimum Voice as the connection between their home security system and central station monitoring, must request the Enhanced Wiring solution.

*9. Cablevision Optimum Digital Voice Business: Cablevision does not support the use of Optimum Voice for Business as a connection between (i) medical alert systems, (ii) any high security monitoring systems (UL 681 or similar) or (iii) fire alarm systems (UL 864 or similar), and the central station monitoring Subscriber must maintain an alternate connection.

*10. AT&T U-verse Digital Home Voice: Prior to your AT&T U-verse Voice installation, AT&T strongly recommends that you notify your alarm company of your switch to AT&T U-verse Voice service and your scheduled U-verse installation date in order for your alarm company to test and check the status of your alarm system with you prior to installation and once installation is complete. If your alarm company determines that your existing alarm panel does not work with AT&T U-verse Voice, your alarm company may be able to install an alternative alarm panel that will work with AT&T U-verse Voice, or a panel that uses cellular phone service, or an IP-based panel that uses your Internet access service.

*11. AT&T Business in a Box: Survivability Port - Provides connectivity to analog phones during emergencies and unexpected service interruption.