Avoid Delays!

by Dean K. Wilson, P.E.

Question: **I am currently leading the investigation into a serious fire in a building with a business occupancy classification. One of the issues that has arisen during the investigation involves an apparent time delay between the receipt of the fire alarm signal from the protected building at the commercial alarm receiving station and the retransmission of that alarm signal to the public communications center. Exactly how long may the commercial alarm receiving station delay the alarm signal before retransmitting it to the public communications center? Specifically, may that commercial alarm receiving station attempt to verify the validity of the alarm signal before retransmitting it?**

In the particular occupancy classification for your building, NFPA 72-2010, *National Fire Alarm and Signaling Code*®, does not permit any delay whatsoever in the retransmission of the fire alarm signal. Nor does the Code permit the "verification" by the alarm receiving company of the validity of the alarm signal before retransmitting it to the public communications center.

The *Code* provides specific requirements that affect any aspect of a fire alarm system that may introduce a delay into the initiation, processing, transmission, or retransmission of an alarm signal. For example:

> **10.5.7.3** Required signals shall not be lost, interrupted, or delayed by more than 10 seconds as a result of the primary power failure.

In contrast, sometimes the *Code* requires a specific delay for other types of signals. For example:

> **10.12.2** Indication of primary power failure trouble signals transmitted to a supervising station shall be delayed in accordance with 10.17.3.3.
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> **10.17.3.3*** Unless prohibited by the authority having jurisdiction, supervising station alarm systems shall be arranged to delay transmission of primary power failure signals for a period ranging from 60 minutes to 180 minutes.
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> **A.I 0.17.3.3** This requirement is intended to prevent all of the supervising station alarm systems in a given geographic area from transmitting simultaneous trouble signals (and overwhelming the associated supervising stations) in the event of a widespread power failure. A trouble signal is not intended to be transmitted if primary power is restored within the time delay.

The *Code* offers permissive provisions for delaying alarm signals at the protected premises in certain circumstances. However, in choosing to use either Presignal (23.8.1.2) or Positive Alarm Sequence (23.8.1.3), a fire alarm system designer or installation contractor must make certain that the relevant Building Code or Fire Code permits the use of such a delay arrangement for the particular occupancy classification of the building in question. Similarly, if a designer or contractor chooses to use smoke detectors with an Alarm Verification feature, as described in 23.8.5.4.1, the designer or contractor must once again make certain that the relevant Building Code or Fire Code permits such a use. And the designer or contractor must determine that such an arrangement meets the requirements of the Authority Having Jurisdiction (AHJ).

When it comes to your specific question—the permitted delay that might occur at the commercial alarm receiving station—the *Code* breaks down its response into requirements for

central station service, proprietary supervising station service, and remote supervising station service. Both sets of requirements appear in Chapter 26 of the *Code*.

For central station service, the *Code* states the following retransmission requirements for the various types of signals:

> **26.3.7 Disposition of Signals.**
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> **26.3.7.1 Alarm Signals.**
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> **26.3.7.1.1** Alarm signals initiated by manual fire alarm boxes, automatic fire detectors, waterflow from the automatic sprinkler system, or actuation of other fire suppression system(s) or equipment shall be treated as fire alarms.
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> **26.3.7.1.2** The central station shall perform the following actions:
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> (1)* Immediately retransmit the alarm to the communications center.
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> **A.26.3.7.1.2(1)** The term *immediately* in this context is intended to mean "without unreasonable delay." Routine handling should take a maximum of 90 seconds from receipt of an alarm signal by the central station until the initiation of retransmission to the communications center.
>
> (2) Dispatch a runner or technician to the protected premises to arrive within 2 hours after receipt of a signal if equipment needs to be manually reset by the prime contractor. Except where prohibited by the authority having jurisdiction, the runner or technician shall be permitted to be recalled prior to arrival at the premises if a qualified representative of the subscriber at the premises can provide the necessary resetting of the equipment and is able to place the system back in operating condition.
> (3) Immediately notify the subscriber.
> (4) Provide notice to the subscriber or authority having jurisdiction, or both, if required.
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> *Exception: If the alarm signal results from a prearranged test, the actions specified by 26.3.7.1.2(1) and (3) shall not be required.*
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> **26.3.7.2 Guard's Tour Supervisory Signal.**
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> **26.3.7.2.1** Upon failure to receive a guard's tour supervisory signal within a 15-minute maximum grace period, the central station shall perform the following actions:
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> (1) Communicate without unreasonable delay with personnel at the protected premises
> (2) Dispatch a runner to the protected premises to arrive within 30 minutes of the delinquency if communications cannot be established
> (3) Report all delinquencies to the subscriber or authority having jurisdiction, or both, if required

26.3.7.2.2 Failure of the guard to follow a prescribed route in transmitting signals shall be handled as a delinquency.

26.3.7.3* Supervisory Signals. Upon receipt of a supervisory signal from a sprinkler system, other fire suppression system (s), or other equipment, the central station shall perform the following actions:

A.26.3.7.3 It is anticipated that the central station will first attempt to notify designated personnel at the protected premises. When such notification cannot be made, it might be appropriate to notify law enforcement or the fire department, or both. For example, if a valve supervisory signal is received where protected premises are not occupied, it is appropriate to notify the police.

(1)* Communicate immediately with the persons designated by the subscriber and notify the fire department or law enforcement agency, or both, when required by the authority having jurisdiction

A.26.3.7.3(1) The term *immediately* in this context is intended to mean "without unreasonable delay." Routine handling should take a maximum of 4 minutes from receipt of a supervisory signal by the central station until the initiation of communications with a person(s) designated by the subscriber.

(2) Dispatch a runner or maintenance person to arrive within 2 hours to investigate

Exception: Where the supervisory signal is cleared in accordance with a scheduled procedure determined by 26.3.7.3(1).

(3) Notify the authority having jurisdiction when sprinkler systems or other fire suppression systems or equipment have been wholly or partially out of service for 8 hours

(4) When service has been restored, provide notice, if required, to the subscriber or the authority having jurisdiction, or both, as to the nature of the signal, the time of occurrence, and the restoration of service when equipment has been out of service for 8 hours or more

Exception: If the supervisory signal results from a prearranged test, the actions specified by 26.3. 7.3(1), (3), and (4) shall not be required.

26.3.7.4 Trouble Signals. Upon receipt of trouble signals or other signals pertaining solely to matters of equipment maintenance of the alarm systems, the central station shall perform the following actions:

(1)* Communicate immediately with persons designated by the subscriber

A.26.3.7.4(1) The term *immediately* in this context is intended to mean "without unreasonable delay." Routine handling should take a maximum of 4 minutes from receipt of a trouble signal by the central station until initiation of the investigation by telephone.

(2) Dispatch personnel to arrive within 4 hours to initiate maintenance, if necessary

(3) When the interruption is more than 8 hours, provide notice to the subscriber and the fire department if so required by the authority having jurisdiction as to the nature of the interruption, the time of occurrence, and the restoration of service

26.3.7.5 Test Signals.

26.3.7.5.1 All test signals received shall be recorded to indicate date, time, and type.

26.3.7.5.2 Test signals initiated by the subscriber, including those for the benefit of an authority having jurisdiction, shall be acknowledged by central station personnel whenever the subscriber or authority inquires.

26.3.7.5.3* Any test signal not received by the central station shall be investigated immediately, and action shall be taken to reestablish system integrity.

A.26.3.7.5.3 The term *immediately* in this context is intended to mean "without unreasonable delay." Routine handling should take a maximum of 4 minutes from receipt of a trouble signal by the central station until initiation of the investigation by telephone.

26.3.7.5.4 The central station shall dispatch personnel to arrive within 2 hours if protected premises equipment needs to be manually reset after testing.

26.3.7.5.5 The prime contractor shall provide each of its representatives and each alarm system user with a unique personal identification code.

26.3.7.5.6 In order to authorize the placing of an alarm system into test status, a representative of the prime contractor or an alarm system user shall first provide the central station with his or her personal identification code.

For proprietary supervising station service, the *Code* states the following retransmission requirements for the various types of signals:

26.4.5.6 Dispositions of Signals.

26.4.5.6.1 Alarms. Upon receipt of an alarm signal, the proprietary supervising station operator shall initiate action to perform the f(ll1owing:

(1) Immediately notify the fire department, the emergency response team, and such other parties as the authority having jurisdiction requires
(2) Dispatch a runner or technician to the alarm location to arrive within 2 hours after receipt of a signal
(3) Restore the system as soon as possible after disposition of the cause of the alarm signal

26.4.5.6.2 Guard's Tour Supervisory Signal. If a guard's tour supervisory signal is not received from a guard within a 15minute maximum grace period, or if a guard

fails to follow a prescribed route in transmitting the signals (where a prescribed route has been established), the proprietary supervising station operator shall initiate action to perform the following:

(1) Communicate at once with the protected areas or premises by telephone, radio, calling back over the system circuit, or other means accepted by the authority having jurisdiction
(2) Dispatch a runner to arrive within 30 minutes to investigate the delinquency if communications with the guard cannot be promptly established

26.4.5.6.3 Supervisory Signals. Upon receipt of sprinkler system and other supervisory signals, the proprietary supervising station operator shall initiate action to perform the following,
if requi red:

(1) Communicate immediately with the designated person(s) to ascertain the reason for the signal
(2) Dispatch personnel to arrive within 2 hours to investigate, unless supervisory conditions are promptly restored
(3) Notify the fire department if required by the authority having jurisidiction
(4) Notify the authority having jurisdiction when sprinkler systems are wholly or partially out of service for 8 hours or more
(5) Provide written notice to the authority having jurisdiction as to the nature of the signal, time of occurrence, and restoration of service when equipment has been out of service for 8 hours or more

26.4.5.6.4 Trouble Signals. Upon receipt of trouble signals or other signals pertaining solely to matters of equipment maintenance of the alarm system, the proprietary supervising station operator shall initiate action to perform the following, if required:

(1) Communicate immediately with the designated person(s) to ascertain reason for the signal
(2) Dispatch personnel to arrive within 4 hours to initiate maintenance, if necessary
(3) Notify the fire department if required by the authority having jurisdiction
(4) Notify the authority having jurisdiction when interruption of service exists for 4 hours or more
(5) When equipment has been out of service for 8 hours or more, provide written notice to the authority having jurisdiction as to the nature of the signal, time of occurrence, and restoration of service

For remote supervising station service, the *Code* states the following retransmission requirements for the various types of signals:

26.5.5.1 If the remote supervising station is at a location other than the communications center, alarm signals shall be immediately retransmitted to the communications center.

> **26.5.5.2** Upon receipt of an alarm, a supervisory, or a trouble signal by the remote supervising station other than the communications center, the operator on duty shall be responsible for notifying the owner or the owner's designated representative immediately.

As you read through these requirements, you should have noted the frequent use of the word "immediately" and the attendant explanations from the Annex. And you should have discerned that the *Code* requires no delay in the retransmission of the fire alarm signal once the central station, proprietary supervising station, or remote supervising station receives the signal.

Just to present as thorough an answer as possible, even though your building was a property housing a business occupancy, in the case of single- and multiple-station alarms and household fire alarm systems serving one- and two-family dwellings, the *Code* does provide this permissive requirement:

> **29.7.8.2*** Remote monitoring stations shall be permitted to verify alarm signals prior to reporting them to the fire service, provided that the verification process does not delay the reporting by more than 90 seconds.

The *Code* expects central station, proprietary, and remote station alarm receiving facilities to immediately retransmit fire alarm signals without any delay. In general, the Code does not permit the central station, proprietary supervising station, or the remote supervising station to verify the validity of the alarm signal before retransmitting it to the public communications center. The only exception, as noted above, occurs when the signal originates from a household fire alarm system serving a one- or two-family dwelling.

Thus, in the case of your fire investigation, if you feel that the receiving station delayed the retransmission of the fire alarm signals, you should give at least some attention to that part of the investigation.

Delaying the retransmission of fire alarm signals does not provide a suitable solution for alarm systems that produce unnecessary alarm signals. Rather, the owner of the property needs to work diligently with qualified alarm system service technicians to resolve all underlying causes for the unnecessary signals.

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