

1. Introduction

This document provides an overview on the NFPA 72 (2016 Edition) requirements for an Area of Rescue system. Key requirements are quoted on the left-hand side in the grey boxes with text highlighted in yellow for key points or information. Products, solutions, or explanatory text are provided next to these grey boxes.

First, an Area of Rescue is defined in **Section A.24.10** as:

A.24.10 “Areas of refuge” or “areas of rescue assistance” are areas that have direct access to an exit, where people who are unable to use stairs can remain temporarily in safety to await further instructions or assistance during emergency evacuation or other emergency situation. It is, therefore, important that a method to communicate between that remote location and a central control point where appropriate action for assistance can be initiated.

Talkaphone provides an effective Area of Rescue System as a method for building occupants to communicate from these remote locations to a central control point.

Furthermore, **Sections 3.3.85.2 and 24.3.7.2** elaborate on the definition of an area of refuge (area of rescue assistance) emergency communications system:

3.3.85.2 Two-Way Emergency Communications System. Two-way emergency communications systems are divided into two categories, those systems that are anticipated to be used by building occupants and those systems that are to be used by fire fighters, police, and other emergency services personnel. Two-way emergency communications systems are used to both exchange information and to communicate information such as, but not limited to, instructions, acknowledgement of receipt of messages, condition of local environment, and condition of persons, and to give assurance that help is on the way. (SIG-ECS)

24.3.7.2 Two-way emergency communications systems shall consist of one or more of the following:

- (1) Two-way, in-building wired emergency services communications systems (see Section 24.8)
- (2) Two-way radio communications enhancement systems (see Section 24.9)
- (3) Area of refuge (area of rescue assistance) emergency communications systems (see Section 24.10)
- (4) Elevator emergency communications systems (see Section 24.11)
- (5) Stairway communications systems (see Section 24.12)

2. Two-Way Communication System – Requirements

24.10* Area of Refuge (Area of Rescue Assistance) Emergency Communications Systems.

24.10.1* Where required by the building code in force, an area of rescue assistance two-way emergency communications system shall be installed in accordance with 24.10.

24.10.2 The area of refuge (rescue assistance) emergency communications system shall be comprised of remotely located area of refuge stations and a central control point.

24.10.3 The remote area of refuge stations and the central control point shall communicate with each other via pathways based on their performance capabilities under abnormal (fault) conditions in accordance with the requirements for Class A, Class B, Class N, or Class X pathways specified in Chapter 12.

24.10.4 All pathways between a remote area of refuge stations and the central control point shall be monitored for integrity.

24.10.5* If the central control point is not constantly attended, it shall have a timed automatic communications capability to connect with a constantly attended monitoring location acceptable to the authority having jurisdiction where responsible personnel can initiate the appropriate response.

24.10.6 The physical location of the central control point shall be as designated by the building code in force or the authority having jurisdiction.

AOR-IP Series Command Unit Models:

AOR-IP-40-CU – 40-station Command Unit

AOR-IP-80-CU – 80-station Command Unit

AOR-IP-120-CU – 120-station Command Unit

AOR-IP-160-CU – 160-station Command Unit

24.10.7 The area of refuge station shall provide for handsfree, two-way communication, provide an audible and visible signal to indicate communication has occurred, and indicate to the receiver the location sending the signal.

AOR-IP Series Stations:

AOR-IP-CSE-FM – Flush mount IP station

AOR-IP-CSE-SM – Surface mount IP station

24.10.8 Instructions for the use of the two-way communications system, instructions for summoning assistance via the two-way communications system, and written identification, including in braille, of the location shall be posted adjacent to the two-way communications system.

AOR Signage:

ETP-SIGN-PFH – Area of Refuge “PUSH FOR HELP” instructional sign

24.13.1.2 The emergency command center shall contain the following:

- (1) The in-building fire emergency voice/alarm communications system equipment including:
 - (a) Fire alarm system controls
 - (b) Fire alarm system annunciator
 - (c) In-building fire emergency voice/alarm communications system controls
- (2) Area of refuge (area of rescue assistance) emergency communications systems equipment
- (3) Elevator emergency communications systems equipment

AOR-IP Series Command Unit Models:

AOR-IP-40-CU – 40-station Command Unit

AOR-IP-80-CU – 80-station Command Unit

AOR-IP-120-CU – 120-station Command Unit

AOR-IP-160-CU – 160-station Command Unit

Appendix A provides further explanatory information on Area of Refuge (Area of Rescue Assistance) systems:

A.24.10 “Areas of refuge” or “areas of rescue assistance” are areas that have direct access to an exit, where people who are unable to use stairs can remain temporarily in safety to await further instructions or assistance during emergency evacuation or other emergency situation. It is, therefore, important that a method to communicate between that remote location and a central control point where appropriate action for assistance can be initiated.

A.24.10.1 Generally, the building code or engineer specification will provide the specifics on the required locations of the remote area of refuge (area of rescue assistance) stations, as well as the central control point. Requirements found in Section 24.10 should be coordinated with the requirements of the building code in force.

A.24.10.5 In order to ensure a timely response to a call for assistance, the call is to be forwarded to a constantly attended approved location, such as a supervising station, 911 communications center, or other monitoring location.

3. Cabling/Pathway Requirements

24.3.13.9* Area of refuge (area of rescue assistance) emergency communications systems shall comply with 24.3.13.9.1 and 24.3.13.9.2.

24.3.13.9.1 Area of refuge emergency communications systems shall have a pathway survivability of Level 2 or Level 3.

Exception: Level 1 shall be permitted where the building is less than 2-hour fire-rated construction.

24.3.13.9.2 Circuits intended to transmit off-premises shall have a pathway survivability of Level 0, Level 1, Level 2, or Level 3.

12.4* Pathway Survivability. All pathways shall comply with NFPA 70.

12.4.1 Pathway Survivability Level 0. Level 0 pathways shall not be required to have any provisions for pathway survivability.

12.4.2 Pathway Survivability Level 1. Pathway survivability Level 1 shall consist of pathways in buildings that are fully protected by an automatic sprinkler system in accordance with NFPA 13 with any interconnecting conductors, cables, or other physical pathways installed in metal raceways.

12.4.3* Pathway Survivability Level 2. Pathway survivability Level 2 shall consist of one or more of the following:

- (1) 2-hour fire-rated circuit integrity (CI) or fire-resistant cable
- (2) 2-hour fire-rated cable system [electrical circuit protective system(s)]
- (3) 2-hour fire-rated enclosure or protected area
- (4)*Performance alternatives approved by the authority having jurisdiction

12.4.4 Pathway Survivability Level 3. Pathway survivability Level 3 shall consist of pathways in buildings that are fully protected by an automatic sprinkler system in accordance with NFPA 13 and one or more of the following:

- (1) 2-hour fire-rated circuit integrity (CI) or fire-resistant cable
- (2) 2-hour fire-rated cable system [electrical circuit protective system(s)]
- (3) 2-hour fire-rated enclosure or protected area
- (4)*Performance alternatives approved by the authority having jurisdiction

CI/CIC Cabling:

Contact Comtran for CI/CIC cabling solutions:

800-842-7809

sales@comtrancorp.com



Section 24.10.3 defines the acceptable pathway classes for Area of Rescue systems:

24.10.3 The remote area of refuge stations and the central control point shall communicate with each other via pathways based on their performance capabilities under abnormal (fault) conditions in accordance with the requirements for Class A, Class B, Class N, or Class X pathways specified in Chapter 12.

As such, the AOR-IP Series Area of Rescue System meets **Class N** pathway requirements—please note that some of these requirements are imposed on the network infrastructure (not provided by Talkaphone):

12.3.6 Class N. A pathway shall be designated as Class N when it performs as follows:

(1)*It includes two or more pathways where operational capability of the primary pathway and a redundant pathway to each device shall be verified through end-to-end communication.

Exception: When only one device is served, only one pathway shall be required.

(2) A loss of intended communications between endpoints shall be annunciated as a trouble signal.

(3) A single open, ground, short, or combination of faults on one pathway shall not affect any other pathway.

(4)*Conditions that affect the operation of the primary pathway(s) and redundant pathway(s) shall be annunciated as a trouble signal when the system's minimal operational requirements cannot be met.

(5)*Primary and redundant pathways shall not be permitted to share traffic over the same physical segment.

4. Supervision Requirements

The AOR-IP Series Area of Rescue System meets the requirements for supervision through the following product components:

AOR-IP-SUP – IP Network Supervisor

AOR-IP-UPS-SUP – UPS Supervisor

10.6.9.1.1 Failure of either the primary or secondary power supply shall result in a trouble signal in accordance with Section 10.14.

10.14 Trouble Signals.

10.14.1 Trouble signals and their restoration to normal shall be indicated within 200 seconds at the locations identified in 10.14.7 and 10.14.8.

10.14.2 Indication of primary power failure trouble signals transmitted to a supervising station shall be in accordance with 10.6.9.3.

10.14.3 An audible trouble signal shall be permitted to be intermittent provided it sounds at least once every 10 seconds, with a minimum duration of 1/2 second.

10.14.4 A single audible trouble signal shall be permitted to annunciate multiple fault conditions.

10.14.5 The audible trouble notification appliances shall be located in an area where they are likely to be heard.

10.14.6 Actuated notification appliances at the protected premises shall continue to operate unless they are manually silenced as permitted by 10.14.10.1.

10.14.7 Visible and audible trouble signals and visible indication of their restoration to normal shall be indicated at the following locations:

- (1) Fire alarm control unit for protected premises alarm systems
- (2) Building fire command center for in-building fire emergency voice/alarm communications systems
- (3) Central station or remote station location for systems installed in compliance with Chapter 26

10.14.8 Trouble signals and their restoration to normal shall be visibly and audibly indicated at the proprietary supervising station for systems installed in compliance with Chapter 26.

10.14.9* A trouble signal that has been deactivated at the protected premises shall comply with 10.14.9.1 and 10.14.9.2.

10.14.9.1 The audible and visible trouble signal shall automatically reactuate at the control unit every 24 hours or less until trouble signal conditions are restored to normal.

10.14.9.2 The audible and visible trouble signal associated with signaling the depletion or failure of the primary battery of a wireless system as required by 23.16.2(3) and (4) shall automatically resound every 4 hours or less until the depletion signal is restored to normal.

12.3.6 Class N. A pathway shall be designated as Class N when it performs as follows:

(1)*It includes two or more pathways where operational capability of the primary pathway and a redundant pathway to each device shall be verified through end-to-end communication.

Exception: When only one device is served, only one pathway shall be required.

(2) A loss of intended communications between endpoints shall be annunciated as a trouble signal.

(3) A single open, ground, short, or combination of faults on one pathway shall not affect any other pathway.

(4)*Conditions that affect the operation of the primary pathway(s) and redundant pathway(s) shall be annunciated as a trouble signal when the system's minimal operational requirements cannot be met.

(5)*Primary and redundant pathways shall not be permitted to share traffic over the same physical segment.

24.10.4 All pathways between a remote area of refuge stations and the central control point shall be monitored for integrity.

5. Annual Testing and Maintenance

Table 14.3.1 defines the frequency and method for inspection, testing, and maintenance:

INSPECTION, TESTING, AND MAINTENANCE				72-83
<i>Table 14.3.1 Continued</i>				
Component	Initial Acceptance	Periodic Frequency	Method	Reference
24. Reserved				
25. Area of refuge two-way communication system	X	Annual	Verify location and condition.	
26. Reserved				
27. Supervising station alarm systems — receivers				
(a) Signal receipt	X	Daily	Verify receipt of signal.	
(b) Receivers	X	Annual	Verify location and normal condition.	