

## **FIRE PROTECTION EDUCATION – CLASS 4**

### **CLASS TITLE:**

#### **FIRE ALARM SYSTEM DESIGN FOR RESIDENTIAL AND OFFICE HIGH-RISE BUILDINGS:**

**Occupants' evacuation and relocation procedures, Intelligibility and audibility of voice messages, Fire Emergency Operation (FEO) of elevators, and interface with other emergency fire/life-safe systems.**

### **CLASS GENERAL INFORMATION:**

**1 full day (8-Hour) in-class training.**

**Continuing Education Units (CEU) – 8 CEU units accredited by ESA/NTS will be granted to all participants upon completion of the class.**

### **CLASS DESCRIPTION**

Voice fire alarm systems also known as “Emergency Voice Alarm Communication Systems” (EVACS) are required to be installed in all new high-rise buildings. High-Rise buildings are typically divided into two main occupancy groups as classified in the International Building Code (IBC): Residential occupancy Group - including R-1 tourist hotels and R-2 apartments/condominium buildings, and Office occupancy Group including B – business/office use buildings. The design of the EVACS for these buildings include many different parameters such as the evacuation and relocation of building's occupants during fire emergencies, the pre-recorded voice messages and associated alert tones, the fire emergency operation of elevators and the interface with other building's emergency systems such as the automatic sprinkler system, fire pump, emergency generator, two-way wired communication systems and wireless emergency responders radio coverage system.

This class will clarify and discuss building and fire code requirements for different type high-rise buildings and specific NFPA-72 code requirements for the EVACS installed in these buildings.

**Current Editions of IBC-2012, CBC-2013, ASME A17.1-2004, and NFPA 72 -2013 will be presented**

**Future Editions of IBC-2015, CBC-2016, ASME A17.1-2013, NFPA 72-2016, will be discussed.**

## **LEARNING OBJECTIVES/OUTCOMES**

1. Identify all building and fire codes, elevator codes, and NFPA standards associated with Emergency Voice Alarm Communication Systems (EVACS) in high-rise residential and office buildings.
2. Understand the specific IBC/CBC Sections 403, 907, 911 requirements for high-rise building and the different methods of relocation and evacuation of occupants during fire emergencies.
3. Understand specific NFPA-72 (Fire Alarm and Signaling Code) related to EVACS, Intelligibility and audibility of voice messages, survivability requirements, hearing-impaired and low-frequency audibility requirements and fire alarm sequence of operation associated with other fire/emergency systems in the building.
4. Understand specific elevator code - ASME A17.1-2004 and 2013 specific requirements for elevators in high-rise buildings and their interface with the building's EVACS.

## **TARGET AUDIENCE**

**Fire Alarm Systems Personnel:** Designers, Installers, Technicians, Service personnel, Vendors, Engineers.

**Authority Having Jurisdiction (AHJ) and Code Officials Personnel:** –Fire, Building, Elevator, Electrical, Mechanical Inspectors, Code Enforcers and Permit Plans Reviewers.

**Elevator Personnel:** Consultants, Mechanics, Engineers, Vendors, Inspectors.

**Building Personnel:** Owners, Managers, Building Engineers, Property managers.

**Professionals:** Architects, Mechanical, Electrical and Fire Protection Engineers.

**Fire Service Personnel:** Fire Plan Review Inspectors, Fire Field Inspectors.

## CLASS OUTLINE

ONE FULL DAY CLASS		
Morning		
2.0 hours	<p>Topic: <b>General building code IBC/CBC overview requirements for high-rise buildings</b></p> <p>Topic: <b>Review specific building and fire code requirements for high-rise residential and office buildings.</b></p>	<p>Delivery Method:</p> <p><b>Power-Point Presentation and Discussion</b></p>
	<i>Break</i>	
1.75 hours	<p>Topic: <b>Review and clarify specific occupants' evacuation and relocation procedures in high-rise buildings.</b></p> <p>Topic: <b>Review specific requirements for audibility and intelligibility of voice messages and alert tones produced by the EVACS.</b></p>	<p>Delivery Method</p> <p><b>Power-Point Presentation and discussion</b></p>
	<i>Lunch Break</i>	
Afternoon		
2.0 hours	<p>Topic: <b>Review specific current NFPA 72-2013 and future NFPA 72-2016 design requirements for voice systems listed in chapters 24 –Emergency Communication Systems and survivability requirements for EVACS listed in chapter 12.</b></p> <p>Topic: <b>Review and discuss EVACS interface with elevators systems and other emergency/fire systems provided in the building.</b></p>	<p>Delivery Method:</p> <p><b>Power-Point Presentation and discussion</b></p>
	<i>Break</i>	
1.75 hours	<p>Topic: <b>Review and discuss real life projects: Examples of plans and permits associated with residential and office high rise buildings' EVACS design.</b></p> <p>Topic: <b>Review and answer class related questions on a Q&amp;A and open discussion format</b></p>	<p>Delivery method</p> <p><b>Presentation</b></p> <p><b>Discussion</b></p> <p><b>Exercise</b></p>
<i>7.5 hours</i>		

**KEYWORDS ASSOCIATE WITH THE CLASS.**

Voice Alarm Communication System (EVACS), Partial and Total Building evacuation, Relocation of occupants, Elevator Fire Emergency Operation (FEO), Pre-recorded voice messages, Level 2 and Level 3 pathway survivability, audibility level, voice intelligibility, low-frequency audible appliances, hearing-impaired adoptable units, two-way emergency communication systems, Stairway communication system, Fire Command Center, FA Sequence of operation matrix.

**CLASS ASSOCIATED CODES AND STANDARDS:**

Current IBC- 2012 Edition and New IBC 2015 Edition Sections 403, 907 and 911  
Current CBC- 2013 Edition and New CBC 2016 Edition Sections 403, 907 and 911  
Current ASME A17.1-2004 and New 2013 Section 2.27. Fire Emergency Operation  
Current NFPA 72 -2013 Edition and New NFPA 72 -2016 Edition