PART III. NON-FIRE EMERGENCY SAFETY TRAINING

Chapter 13. APPLICABLE LESSONS FROM 911 WORLD TRADE CENTER ATTACKS

(This section was cited from NIST NCSTAR 1, 2005, Federal building and fire safety investigation of the world trade center disaster report. "Final Report on the Collapse of the World Trade Center Towers. http://ws680.nist.gov/publication/get_pdf.cfm?pub_id=909017)

The September 11 attacks were a series of terrorist attacks on September 11, 2001. Four passenger airliners were hijacked by al-Qaeda terrorists. Two of the planes were crashed into the North and South towers, respectively, of the World Trade Center complex in New York City. Both buildings collapsed within 2 hours with debris and the resulting fires causing partial or complete collapse of all other buildings in the World Trade Center complex. The attacks took the lives of nearly 3,000 people and injured over 6,000 others.

In 2005, the National Institute of Standards and Technology (NIST) released a final report on the collapsed of the World Trade Center Towers. Some recommendations from the NIST report regarding to fire alarm panel, communication system, and building evacuation issues are listed below:

- **Fire alarm panel and communication system:**

The NIST recommends that fire alarm and communication systems in buildings be developed to provide continuous, reliable, and accurate information on the status of life safety conditions at a level of detail sufficient to manage the evacuation process in building fire emergencies; all communication and control paths in buildings need to be designed and installed to have same resistance to failure and increased survivability above that specified in present standards.

The NIST also recommends the inspection and testing of emergency communication system, radio communications and associated operating protocol to ensure that the systems and protocols: (1) are effective for large-scale emergencies in buildings with challenging radio frequency propagation environments; and (2) can be used to identify, locate, and track first responders within indoor building environments and in the field.

- **Building evacuation**

The building owner and staff should develop and carry out training education to improve building occupants' preparedness for evacuation in case of building emergencies. For example, they should be familiar with the egress route. The egress systems should be provided with consistent layouts and standard signage and guidance so that systems become intuitive and obvious to building occupants during evacuations. The laws should not discourage building occupants from familiarizing themselves with the detailed layout of egress routes.

Chapter 14. NON-FIRE DRILLS

14.1 Types of non-fire drills

Non-fire drills shall consist either of instruction or stairwell familiarization, as follows:

14.1.1 Instructional drills

Such drills shall serve to familiarize building occupants with the requirements and procedures of the emergency action plan by means of informational sessions approved by the FLS Director. Such sessions shall address implementation of the FLS plan both during regular business hours and at other times, when FLS wardens and other FLS staff may be absent from the building.

14.1.2 Stairwell familiarization drills

Such drills shall serve to familiarize building occupants with the process of in-building relocation or building evacuation via building stairwells. A stairwell familiarization drill shall require building occupants to enter a building stairwell and be escorted down at least four (4) floors of stairs (or to ground level, if below the fifth floor) during which time stairwell safety features and safe evacuation procedures shall be reviewed.

14.2 Qualifications, timing, frequency, and participation

A non-fire drill conducted for purposes of compliance with Fire Code must be conducted by a person holding a Certificate of Fitness as an FLS Director, FEP Coordinator, or Drill Conductor. A non-fire drill conducted by a Drill Conductor in a building or occupancy requiring an FLS Director or FEP Coordinator must be conducted under the personal supervision of such FLS Director or FEP Coordinator. The non-fire drill must be conducted through live instruction. The drill may be at any appropriate location, including but not limited to stairwell entrances or in-building relocation areas.

The non-fire drills must be scheduled to maximize the participation of required drill participants. Drills must be scheduled in a manner that best assures the participation of regular building occupants. Drills may be conducted on different work shifts and/or during non-business hours to facilitate the participation of building occupants.

Office buildings and other buildings with Comprehensive Fire Safety and Emergency Action Plans accepted for filing by the Department must continue to conduct separate fire and non-fire emergency (emergency action plan) drills on separate dates.

The frequency of non-fire drills and the building occupants required to participate must be as set forth in the following:

1. At least two non-fire drills must be conducted **within one year of the date of Fire Department acceptance of the building's initial Comprehensive Fire Safety and Emergency Action Plan**, the first of which shall be conducted within six months of such date of acceptance. At least one (1) of these initial non-fire drills must involve stairwell familiarization.
2. Beginning one year from the date of department acceptance of the building's initial emergency action plan, a non-fire drill shall be conducted on each floor of the building at least once a year. A non-fire drill involving stairwell familiarization shall be conducted at least once every three years.

14.3 Presentation requirements and techniques

Refer to the fire drill section of this booklet (Section 10.2 of this booklet)

14.4 Persons with special needs

Refer to the fire drill section of this booklet (Section 10.3 of this booklet)

14.5 General content of all drills

Refer to the fire drill section of this booklet (Section 10.4 of this booklet)

14.6 Content of non-fire drills

The presenter shall state that the drill is being conducted to educate building occupants about the actions they should take in the event of a non-fire emergency. The presenter shall provide examples of non-fire emergencies and specify which ones will be addressed in the drill. (Not all types of non-fire emergencies must be addressed in a particular drill.)

When conducting a non-fire emergency drill (also known as emergency action plan drill), the presenter must communicate the following information to the building occupants with respect to non-fire drills:

14.6.1 General information

Describe different types of non-fire emergencies and give examples. The FDNY recommends that non-fire emergencies drills should include the most common non-fire emergencies that may happened at the premises, for example: active shooter and medical emergencies; carbon monoxide leaks; chemical, biological, and radiological (CBR) threats; suspicious packages; civil disturbance; building utility failure; and etc.

14.6.2 Notification to 911 and the FLS Director

Emphasize to the building occupants the importance of reporting any emergency to 911. In a non-fire drill, instruct building occupants to immediately call New York City 911 upon reaching a place of safety. After calling 911, the FLS Director should be contacted. In office buildings, the floor wardens will also communicate with the FLS Director via warden phone.

Emphasize that the fire alarm system's manual pull stations are NOT to be used during an active shooter emergency or to notify others of any other non-fire emergency, as doing so may cause building occupants to enter the stairwells and/or evacuate the building when they should be sheltering in place.

14.6.3 Alarm system and method of notification

Explain that the notification process for a non-fire emergency will differ from a fire. Explain to building occupants how they will be notified of non-fire emergencies in the building or occupancy. If applicable, indicate that separate and distinct inquiry tones or other alarm tones will sound for a non-fire emergency. Distinguish the non-fire emergency notification tones from the auditory and visual alerts (fire alarm tones and strobe lights) that are used to notify building occupants of a fire. This may include use of the fire alarm system's inquiry tone or, if the fire alarm system has voice communication capability, verbal announcements by a member of the emergency preparedness staff who holds a Fire Department Certificate of Fitness (e.g. FLS Director, FEP Coordinator, or other Certificate of Fitness authorized by the FDNY for emergency announcement).

Identify and describe any other means by which building occupants will be notified of a non-fire emergency, such as e-mails and texts.

14.6.4 Responses for non-fire emergencies

The response to non-fire emergencies may be different from the response to a fire. Discuss the four basic non-fire emergency actions: sheltering in place in the building relocation within a building evacuation of all of the occupants from the building and evacuation of some but not all building occupants. Reference may be made to the acronym "TIPS" (Total evacuation, In-building relocation, Partial evacuation, and Sheltering in place). Explain the response that the building's FLS Director may choose to implement during a specific non-fire emergency and why.

Use some examples to discuss with the occupants that the best response to a non-fire emergency may not be evacuation but sheltering in place or relocating within the building.

With respect to active shooters, emphasize that building occupants should exercise their best judgment in responding to such an emergency, but describe the actions that the building or occupancy recommends to its staff and occupants. Specific protocols have been developed in response to active shooter emergencies. The protocols should be referred to Chapter 18 of this booklet.

In the event of a medical emergency requiring emergency medical care and transport to a hospital, the drill conductor should instruct the building occupants the following procedures:

- **Call 911**. When notifying New York City 911 of a medical emergency requiring emergency medical care and transport to a hospital, include the following information:
  - The name of the building or occupancy.
  - The address of the appropriate building entrance or other location at which emergency responders will be met by FEP staff and the nearest cross-street location.
  - The number of patients and their exact location inside or outside of the building.
  - The patient's chief complaint and/or present condition (e.g. bleeding, breathing/not breathing, conscious/unconscious, etc.)
- **Call building emergency notification number.** After calling 911, notify the emergency preparedness staff of the building or occupancy (using a warden phone if convenient) or the building office designated to receive notification of emergencies on the premises. This will alert them to assist emergency responders upon their arrival. The emergency preparedness staff should meet the emergency responders, hold an elevator for their use, escort them to the patient, and facilitate removal of the patient.
- **Know location of defibrillator.** Building occupants should be familiarized with the location of defibrillators or other medical equipment that may be needed in the event of a medical emergency.
- **Stay with patient.** Building occupants should be advised that someone should remain with patient. However, the victim/patient should not be moved by untrained personnel unless the victim/patient's location is unsafe.
- **CPR volunteer response.** If there are persons trained in cardio-pulmonary resuscitation (CPR) who wish to volunteer to respond to medical emergencies on the premises, notify the FLS staff of the building or occupancy. These volunteers can be listed in the building plan.

14.6.5 Means of egress

Identify all of the means of egress in the building, the specific floor, or the area. The presentation should address each of the means of egress and egress routes as Section 10.5.4 (fire drill sections) of this booklet and the emergency preparedness plan of the building or occupancy.

Identify any access stairs between floors, describing and/or illustrating their location and the floors that they connect.

Indicate whether elevators will be available for evacuation and how they will be used. Advise building occupants to follow the direction of the emergency preparedness staff before using the elevators during a non-fire emergency, as it may be necessary to shut down the elevators in certain circumstances. If elevator use is authorized and building occupants are instructed to evacuate the building, priority should be given to persons who are elderly or have disabilities.

14.6.6 Full building evacuation drills

Full building evacuation drills, in which all building occupants evacuate the building, are not required.

Any owner wishing to undertake a full building evacuation drill shall

(1) notify the Field Public Communications Unit of the Bureau of Fire Prevention not less than 72 hours in advance of any full building evacuation drill;
(2) notify the owners of neighboring buildings not less than 72 hours in advance of any full building evacuation drill. The owner of a neighboring building, upon receipt of such a notification, shall notify the occupants of such neighboring building of the drill, to prevent the evacuation from causing alarm; and
(3) provide not less than 72 hours advance notification to the New York City Police Department and New York City Department of Transportation of any full building evacuation drill, and make any necessary arrangements with such agencies for such drill.

Chapter 15. FLS DIRECTOR RESPONSIBILITIES IN NON-FIRE EMERGENCIES

FLS Directors, have to assess the magnitude of the non-fire emergency in order to determine the best course of action. Communicate with the Brigade members to get information of conditions at different locations and their possible impact on the building. In certain situations, news outlets may also provide you a broader picture of the situation. Once he or she has sufficient information to dictate that the FDNY plan should be immediately implemented, he or she has to decide on which of the following actions shall take place: shelter in place, in-building relocation, partial evacuation or full evacuation, whenever such action is deemed necessary to ensure the safety of building occupants.

15.1 Required non-fire emergency actions

In the event of a non-fire emergency in or affecting the building, the following actions must be taken:

- The FLS Director should immediately report to the Fire Command Center. The Fire Command Center should be used for command, communication and control of the emergency.
- Immediately call 911 to report (1) any emergency situation and (2) any determination to implement the Plan and which non-fire emergency action (i.e. EAP action) is being implemented. These two details must be covered to receive full credit during the On Site exam. (Title 3 Rules of the City of New York 404-02-(c)-7)
- Notify/consult with the FLS Brigade regarding the implementation of the Fire Safety/Emergency Action Plan.

The FLS Director may decide to perform different actions based on the different events and emergency scenarios (refer to chapter 17 of this booklet). **The most appropriate actions may also vary depending on the specific emergency situation occurring and the building design and components.** The decision of sheltering in place, in-building relocation, partial evacuation or full evacuation shall be based on an analysis of circumstances (such as consultation with the FLS brigade members and information gathered from the building occupants, news outlets, etc.) in which such action would best ensure safety of building occupants, and the manner in which it could best be implemented in the building.

The proper non-fire emergency actions should also depend on the type of the emergency, and the location of the incidents. The FLS Director should also decide the affected area based on the understanding of the basic characteristics of the hazards such as speed of onset, scope and duration of impact, and potential for producing casualties and building damage.

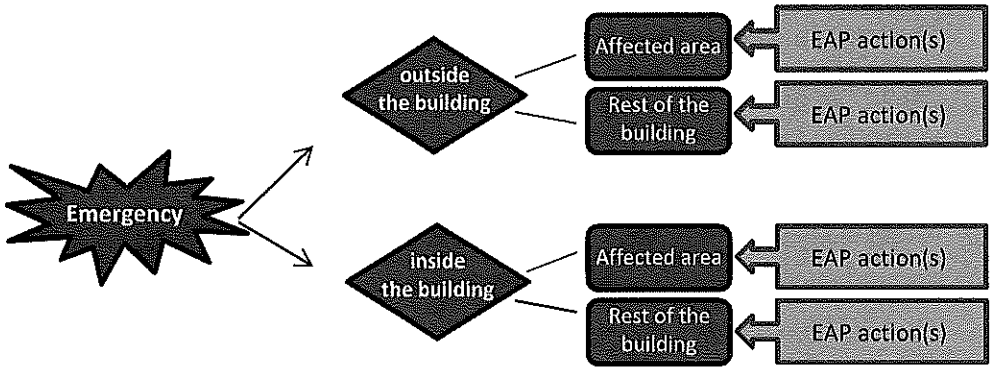
In general, the FLS Director should implement a non-fire emergency action (EAP action) or combination of actions that will keep the occupants away from the threat. FLS Director or FLS staff should strongly encourage the occupants to follow the FLS Director's order; however; they cannot **physically** force the building occupants to shelter in place, relocate in building or evacuate unless mandated by law enforcement or public health officials.

- The meaning of the **affected area** in this booklet is determined to be:

  The area(s) that may be in close proximity to the threat/incident and experience the immediate impact of the threat/incident.

- The meaning of the **rest of the building** in this booklet is determined to be:

  The area(s) other than the affected area



- Notify the building occupants of
  a. What has occurred
  b. Where it has occurred
  c. What provisions of the plan will be implemented (Inform the occupants of the appropriate actions to follow)
  d. Why they are being instructed to follow the non-fire emergency actions (EAP actions) (explain why the actions are necessary)
- Assess the Building Components or Systems and take appropriate actions
  - Egress from entrances/exits and stairways

The access/egress might be denied or limited based on different emergencies.

- Elevator operation

  Recall all elevators. Determine if it is safe to use elevators. If safe, only elevators provided with two-way voice communication are allowed to be used and must be operated in a manual/independent mode. (Exception: the active shooter incident should be referred to chapter 18 of this booklet).

- Evaluate ventilation system operation

  Take appropriate actions.

- Windows

  In some emergencies, windows may need to be placed in a closed position. The occupants may need to be moved away from shattering glass; however, in some emergencies, the windows may need to be opened (if possible) to increase the air flow.

- Interior door, including fire doors

  Maintain doors in the closed and unlocked position. Manually release all fail-safe (electro-magnetic door release) devices (if applicable) to ensure all re-entry doors are unlocked (Exception: the active shooter incident should be referred to chapter 18 of this booklet).

- Evaluate electrical, natural gas, steam, and other utility operations

  All should be assessed. The shut-off valve should be indicated in the Plan of the building.

- Evaluate fuel oil storage systems and associated pumps and piping

  All should be assessed.

- Communications

  - Monitor the media via the television, radio, and internet for updates from local authorities (i.e. the Mayor's Office).
  - Maintain appropriate communication with the building occupants. Prevent occupants from panic or self-evacuation.

- The "all clear" can only be given when it is announced by the authorities that the threat has passed.

  Once the "all clear" is given, an appropriate announcement should be made to the building occupants by the authorities that the threat has passed.

15.2 Non-evacuation actions: shelter-in-place and in-building relocation

There may be situations when it's best to stay where you are to avoid any uncertainty outside. There are circumstances, such as an incident occurring outdoors or during a tornado when the occupants should stay

indoor as a matter of survival. The FLS Director should understand the different threats and plan for all possibilities. Shelter-in-place and in-building relocation are protective actions taken inside the building, with doors and windows closed, to minimize occupants' chance of injury.

The FLS Director may decide to implement shelter-in-place or in-building relocation if the emergency is determined that:

- It is safer to remain inside the facility because of outside threats:
    - Severe weather (tornado, hail, etc.)
    - Civil disturbances close to the premises
    - Bomb threat outside building
    - presence of an outside airborne substance that has not yet been identified
    - Accidental chemical released outside
- Releasing a large number of employees onto the roads and public transportation will only add to the confusion and panic
- Exposure to some hazard or harm is likely, and releasing employees will spread the hazard to others, including family members.

15.2.1 Shelter in Place

Shelter in place: The precaution of directing building occupants to remain inside the building, at their present location, in response to a fire or an emergency. In other words, "shelter in place" means stay where you are. The decision is made because the FLS Director determines that this action can best ensure safety of building occupants and be best implemented in the building.

15.2.2 In-building relocation

In-building relocation. The controlled movement of building occupants from an endangered area of a building to an in-building relocation area within the same building in response to a fire or an emergency.

In-building relocation area (IBRA): A designated area within a building to which building occupants may be relocated. Such areas shall be addressed in the Fire Safety/Emergency Action Plan. The areas are more sheltered than the normal work areas.

During certain emergencies, occupants will require actual physical protection from an external threat. In such cases, occupants will be directed to a pre-designated, relocation area that provides appropriate protection against the perceived threat or danger.

The decision of in-building relocation shall be based on an analysis of the circumstances in which such action would best ensure the safety of building occupants, and the manner in which it could best be implemented in the building.

Specific requirements in the Comprehensive Fire Safety and Emergency Action Plan for In-Building Relocations

The Comprehensive Fire Safety and Emergency Action Plan must provide a statement and explanation of the specific procedures for every emergency that will be implemented.

The plan must provide the following information:

(1) Designated in-building relocation areas (IBRA).

Type and location of areas (such as elevator lobby, interior office, conference room, and mechanical room, etc.) must be listed in the plan.

(2) Designated routes by which building occupants would be directed to in-building relocation areas.

If building occupants will be directed to IBRA's on a floor other than the floor of their normal work location, complete routes to such IBRA's shall be designated. If the building occupants on a single floor will be directed to IBRA's on more than one floor specify how such areas will be assigned, such as by employer, room numbers or portions of the floor area.

(3) Procedures for accounting for building occupants after completing in-building relocation.

A statement which provides the specific methods to be used to account for persons in the IBRA after an in-building relocation is implemented, who will communicate such information back to the Fire Command Center, and how it will be communicated must be included in Fire Safety/ Emergency Action Plan.

The FLS Director should know who are in the building and where they are if an emergency develops.

(4) Procedures for identifying building occupants who require assistance, and the procedures for providing such assistance.

Include in statement that a list of such occupants shall be prepared and maintained at the Fire Command Center. Also state in this plan that person(s) will be designated to assist such occupants, the elevator(s) designated for use in their movement, and specific personnel designated to operate such elevator(s). Person designated to operate the elevator(s) shall also be identified in the plan.
Additionally, an alternative procedure for movement of such building occupants in the event that designated elevators are inoperable or unsafe for use shall be provided.

15.3 Evacuation actions: partial evacuation and evacuation

The decision on whether to evacuate the building, either completely or certain portions, will involve the consideration of several factors. Deciding whether and how to evacuate depends on the type of threat, the circumstances of the threat, and where the danger is or is suspected to be.

Partial evacuation. The emptying of a building of some but not all building occupants in response to an emergency.

Evacuation (Full evacuation). The emptying of a building of all building occupants in response to an emergency.

Evacuation of an entire building or a particular area may not always be necessary, especially if the incident may only affect a specific area and pose no threat to other parts of the building. The most general consideration is whether there was an event that already compromised the integrity of the building systems and the safety of its occupants or if there is the potential for one to occur. The difference between considering an evacuation as opposed to an in-building relocation would be the impact of the emergency to the building. An evacuation is necessary to remove people from a specific area of danger within the building or from the entire building. In many cases, partial evacuation may be sufficient. Partial evacuation provides for immediate, general evacuation of the areas of the building nearest the incident. A partial evacuation may be appropriate when the building features assure that occupants away from the evacuation zone will be protected from the effects of the incident for a reasonable time. If an incident expands and threatens occupants in other parts of the building, further partial or full evacuation may be required.

The Comprehensive Fire Safety and Emergency Action Plan must provide a statement and explanation of the specific procedures for every emergency that will be implemented when a partial evacuation or a full evacuation is implemented. The plan must provide the following information:

(1) Location of exits, stairways and elevators.

Identify the location of exits, stairways, and (if to be utilized) elevators, and their capacity.

(2) Primary and alternate exit routes.

Identify the primary designated exit routes for the evacuation of each floor or other area of the building and alternative exit routes in the event that the primary designated routes cannot be used.

(3) Assembly areas.

Identify the assembly areas.

(4) Procedures for accounting for building occupants after completing a partial evacuation.

Provide the specific methods to be used to account for persons in the assembly areas after a partial evacuation or a full evacuation is implemented, and who and how such information will be communicated back to the Fire Command Center.

The FLS Director should know who are in the building and where they are if an emergency develops.

(5) Procedures for identifying building occupants who require assistance, and the procedures for providing such assistance.

Include in statement that a list of such occupants shall be prepared and maintained at the Fire Command Center. Also state in this plan that person(s) will be designated to assist such occupants, the elevator(s) designated for use in their movement, and specific personnel designated to operate such elevator(s). Person designated to operate the elevator(s) shall also be identified in the plan.
Additionally, an alternative procedure for movement of such building occupants in the event that designated elevators are inoperable or unsafe for use shall be provided.

15.4 Building ventilation options

The building engineer is expected to assist the FLS Director with building ventilation systems. The FLS Director should consult the engineer in regards to the **Heating Ventilation and Air Conditioning** (HVAC) and **Smoke Control System**. Shutting down the HVAC in the entire building or parts of the building is usually the standard action during a fire/smoke condition. However, the response may be different during chemical, biological, and radiological (CBR) emergencies. Different issues should be considered under different circumstances.

According to the NYC Building Code, all building occupant spaces must be ventilated by either natural or mechanical means. Ventilation in high-rise buildings is best accomplished via the HVAC system. In most HVAC systems, a portion of ventilation air is supplied to occupied spaces is outdoor air and a portion is re-circulated air. The HVAC systems can become an entry point and a distribution system for hazardous chemical, biological, or radiological contaminates.

Preventing terrorist access to a targeted facility requires physical security of entry, storage, roof, and mechanical areas, as well as securing access to the outdoor air intakes of the building's HVAC system.

One of the most important steps in protecting a building's indoor environment is the security of the outdoor air intakes. Outdoor air enters the building through these intakes and is distributed throughout the building by the HVAC system. Introducing CBR agents into the outdoor air intakes may allow a terrorist to use the HVAC system as a means of dispersing the agent throughout a building. Publicly accessible outdoor air intakes located at or below ground level are at most risk—due partly to their accessibility (which also makes visual or audible identification easier) and partly because most CBR agent releases near a building will be close to the ground and may remain there. Securing the outdoor air intakes is a critical line of defense in limiting an external CBR attack on a building.

> Real life event:
>
> On 02/12/2017, Firefighters and ambulances were rushed to Hamburg Airport in German after about 50 people at one terminal complained of eye irritation and breathing difficulties. German officials evacuated hundreds of people and briefly closed the facility. Authorities said it was probably pepper spray disseminated through the air-conditioning system.

Physically securing the outdoor air intakes or providing perimeter barriers, making the intakes inaccessible to the public, is a preferred way to protect the intakes.

Many central HVAC systems have energy management and control systems that can regulate airflow and pressures within a building on an emergency response basis. Some modern fire alarm systems may also provide useful capabilities during CBR events. **In some cases, the best response option (given sufficient warning) might be to shut off the building's HVAC and exhaust system(s), thus, avoiding the introduction of a CBR agent from the outside. In other cases, interior pressure and airflow control may prevent the spread of a CBR agent released in the building and/or ensure the safety of egress pathways.** The decision about the emergency HVAC control options should be made in consultation with a qualified HVAC professional (e.g. Building chief engineer) who understands the ramifications of various HVAC operating modes on building operation and safety systems.

15.5 Actions and building ventilation issues during CBR threats

FEMA developed a manual, *FEMA 426: Reference Manual to Mitigate Potential Terrorist Attacks*, to provide guidance to the building staff how to safeguard the occupants of a building from CBR threats.

The manual indicates that after the presence of an airborne hazard is detected, there are possible protective actions for a building and its occupants. In increasing order of complexity and cost, these actions are:

1. Evacuation
2. Sheltering in Place or in-building relocation
3. Air Filtration and Pressurization
4. Exhausting and Purging

These actions are implemented, singly or in combination, when a hazard is present or known to be imminent. To ensure these actions will be effective, a protective action plan specific to each building, as well as training and familiarization for occupants, is required.

15.5.1 Evacuation

Evacuation is the most common protective action taken when an airborne hazard, such as smoke or an unusual odor, is **perceived in a building**. In most cases, existing plans for fire evacuation apply. Orderly evacuation is the simplest and most reliable action for an internal airborne hazard. However, it may not be the best action in all situations, especially in the case of an external CBR release or plume, particularly one that is widespread. If the area covered by the plume is too large to rapidly and safely exit, sheltering in place should be considered. If a CBR agent has infiltrated the building and evacuation is deemed not to be safe, the use of protective hoods may be appropriate.

Two considerations in non-fire evacuation are:

1) to determine if the source of the airborne hazard is internal or external, and

2) to determine if evacuation may lead to other risks.

Also, evacuation and assembly of occupants should be on the upwind side of the building and at least 100 feet away, because any airborne hazard escaping the building can be carried downwind.

15.5.2 Sheltering in place or in-building relocation

Sheltering in place or in-building relocation may protect building occupants from airborne hazards **outside the building**. To maximize the protection, the following two distinct actions are required without delay:

(1) Reduce the indoor-outdoor air exchange rate **before** the hazardous plume arrives. This can be achieved by closing all windows and doors and turning off all fans, air conditioners, and combustion heaters.

(2) Increase the indoor-outdoor air exchange rate as soon as the hazardous plume **has passed**. This can be achieved by opening all windows and doors and turning on all fans to ventilate the building.

The tighter the building (i.e., the lower the air exchange rate), the greater the protection it provides. In most cases, air conditioners and combustion heaters cannot be operated while sheltering in place because operating them increases the indoor-outdoor exchange of air.

Protection will decrease as the time of exposure increases. Sheltering in place or in-building relocation is, therefore, suitable only for exposures of short duration, roughly 2 hours or less, depending on conditions.

Important considerations for use of sheltering in place or in-building relocation are that stairways must be isolated by closed fire doors, elevators must not be used, and clear evacuation routes must remain open if evacuation is required.

15.5.3 Air filtration and pressurization

Among the various protective measures for buildings, high efficiency air filtration/cleaning provides the highest level of protection against an outdoor release of hazardous materials. It can also provide continuous protection, unlike other approaches for which protective measures are initiated upon detecting an airborne hazard.

15.5.4 Exhausting and purging

The Fire Department personnel may turn on building ventilation fans and smoke-purge fans as a protective action to purge airborne hazards and reduce occupant exposure.

15.5.5 Plan and training

Individuals developing emergency plans and procedures should recognize that there are fundamental differences between chemical, biological, and radiological agents. **In general, chemical agents will show a rapid onset of symptoms, while the response to biological and radiological agents will be delayed.** If an HVAC control plan is pursued, building personnel should be trained to recognize a terrorist attack quickly and to know when to initiate the control measures. For example, emergency egress stairways should remain pressurized (unless they are known to contain the CBR source). Other areas, such as laboratories, clean rooms, or pressure isolation rooms in hospitals, may need to remain ventilated. All procedures and training associated with the control of the HVAC system should be addressed in the building's emergency response plan.

15.6 Use of elevator

The Comprehensive Fire Safety and Emergency Action Plans MUST specify whether and how elevators and other building systems will be used to implement such plan. Elevators may be used to implement the plan during non-fire emergencies, subject to the following considerations:

(A) Floors or building occupants to be evacuated or relocated by elevators shall be designated in the Comprehensive Fire Safety and Emergency Action Plan.

(B) Elevators that are to be used for evacuation, partial evacuation, shelter in place or in-building relocation must be provided with **two-way voice communication** to the Fire Command Center in accordance with the Building Code requirements.

(C) Elevator use must be directed only when the FLS Director or deputy FLS Director has assessed the situation and determined that such use would be safe.

(D) Only designated elevators must be used and only those elevators so designated shall remain in service. All other elevators must be recalled to the lobby or their lowest floor of travel.

(E) Movement of elevators must be controlled either by operation in manual mode by an FLS staff member or at the elevator control panel in the lobby, under the direct supervision of the FLS Director.

(F) Building occupants must board elevators only on designated floors and disembark elevators at floors as directed by the FLS Director.

15.7 Building occupants with special needs

The FDNY plan must establish procedures for identifying and providing assistance to building occupants with special needs. It may include implementing procedures or modifying equipment to ensure

- receipt of announcements,
- areas for assistance are designated,
- persons to provide assistance are designated.

The owner must make the procedure for such assistance known to all employers and building occupants.

A list of the building occupants who have requested such assistance and their work location must be maintained at the Fire Command Center, and made available to FDNY representatives or emergency response personnel, upon request.

The FLS Director, FLS wardens and, as appropriate, other FLS staff, shall periodically review the list of such building occupants on the floors or other areas of the building in which they perform their duties, so as to familiarize themselves with the building occupants requiring assistance to participate in the FDNY plan.

15.8 Situational awareness in the context of non-fire emergencies

(This section is cited from the following resources:

1. Aware, Alert, Aggressive, Always: How to Do Your Job Effectively When Things Are Trying to Kill you. Capt. Rommie L. Duckworth at Ridgefield Fire Department, presented at the Wisconsin EMS Association Working Together conference, 2017. **https://www.slideshare.net/romduck/situational-awareness-for-fire-and-ems**
2. Situational awareness: Key to Emergency Response, Chief Scott Reichenbach with the New Cumberland Federal Fire Department in Pennsylvania, 2009.**http://www.fireengineering.com/articles/print/volume-162/issue-3/features/situational-awareness-key-to-emergency-response.html**

Situational awareness is defined as knowing what is going on and figuring out what to do. Situational awareness involves perceiving, processing, and predicting. Situational awareness follows six critical steps. The first step is to perceive by seeking and scanning for critical clues and cues. The second step is to process a mental model from the critical clues and cues gathered during the seek and scan. The third step is to predict what will happen next if responders don't intervene. The prediction is based on the mental model formed in the previous step. Use the prediction to decide in the fourth step and then in step five take action. The final step in Duckworth's situational awareness process is to communicate and coordinate.

When situational awareness decreases, the potential for human error will increase. Effective communication is one of the most important factors in maintaining situational awareness. An FLS Director should be aware of what actions will be performed by other FLS staff, so he or she can coordinate the operations efficiently. An

FLS Director should assess and reassess the incident's progress in relation to determine if the FLS staff is on track to safely and effectively accomplish the mission goals.

Situational awareness is dynamic and complex. It is not easy to know what is going on all the time, especially during large-scale or high-stress incidents. Therefore, it is important that you know how to seek and identify the critical clues and information to keep yourself situationally aware.

Chapter 16. NON-FIRE EMERGENCY INCIDENTS

16.1 Hazardous material incidents involving chemical, biological, or radiological (CBR) agents

(This section is cited from the following resources:

1. Responding to a Biological or Chemical Threat: A Practical Guide, Bureau of Diplomatic Security of U.S. Department of State, 2001. http://www.state.gov/m/ds/rls/rpt/20214.htm
2. Biological Attack Fact Sheet: Human Pathogens, Biotoxins, and Agricultural Threats. A fact sheet from the National Academies and the U.S. Department of Homeland Security, 2004. http://www.dhs.gov/biological-attack-what-it
3. Health Effects from Chemical, Biological and Radiological Weapons. Department of Veterans Affairs, 2003. http://www.publichealth.va.gov/docs/vhi/chem_bio_rad_weapons.pdf)

16.1.1 The CBR agents

A hazardous materials (HAZMAT) incident is a situation in which harmful substances are released into the environment. These types of releases are often classified as chemical, biological, and radiological (CBR). The cause of a release can be either accidental or intentional. Accidental incidents may result from human error, tainted food products, technological failure, or a natural disaster and may include spills, leaks, airborne releases, or seepage into uncontained areas. Asbestos released during building demolition or collapse, oil spills, or raw sewage releases are some examples.

Intentional releases of hazardous materials include criminal acts such as purposeful dumping by industries to avoid regulatory requirements or terrorist acts that target a specific location and may involve the use of a dispersal device or explosive. Whether accidental or intentional, the impacts of a CBR event will vary according to the release scenario, the agent type and its physical properties, the weather conditions, the topography of the area, and the potential for indirect transmission and cross-contamination.

16.1.2 Historic occurrences in New York City.

Date	Event /Substance	Location	Description
08/07/1980	Liquefied petroleum gas	Manhattan	• A Ritter truck carrying 9,000 gallons of liquefied petroleum gas leaks on the George Washington Bridge traveling from New Jersey to New York City • Bridge cleared for 8 hours out of fear of an explosion, creating massive traffic jam
09/02/1986	Cyanide (intentional)	Manhattan	• 21 injured when cyanide is released in Metropolitan Opera
08/24/1989	Asbestos	Manhattan	• Steam pipe explosion results in evacuation of Gramercy Park area in Manhattan after discovery of "extremely high" levels of asbestos
09/18/2001	Anthrax (intentional)	Manhattan	• Letters sent to various media offices in New York City contain anthrax spores • Part of larger coordinated attack that also infects people in other cities and states • 5 people killed, 17 others infected (not all in New York City)
12/03/2004	Chlorine	Bronx	• An SUV collides with a tractor-trailer carrying barrels of chlorine on the Cross Bronx Expressway, causing chlorine to leak onto the roadway • 3 firefighters and 2 police officers are exposed to high levels of chlorine and treated at the hospital
07/18/2007	Asbestos	Manhattan	• Steam pipe explosion with asbestos found in the debris
08/15/2010	Hydrogen peroxide	Manhattan	• Spill in a high-rise building due to machine malfunctioning releases about 30 gallons hydrogen peroxide
07/20/2011	Raw sewage	Citywide	• Four-alarm fire at North River Wastewater Treatment Plant on the Hudson River and 135th Street in Manhattan • 15 to 20 million gallons of raw sewage released into Hudson River • Forced closure of 3 beaches in Staten Island and 1 beach in Brooklyn due to high levels of harmful bacteria in the water • DEP treats water with chlorine to reduce concentration of bacteria
10/29/2012	Release of various hazardous substances during Hurricane Sandy	Citywide	• 10 of 14 DEP wastewater treatment plants are damaged or lose power, releasing approximately 560 million gallons of untreated sewage mixed with storm water into local waterways • Floodwaters contain numerous other toxic substances such as oil, household chemicals, pesticides, and industrial pollutants
10/22/2013	Oil spill	Manhattan	• Approximately 50 gallons of home heating oil spill into the street at West 36th Street and 7th Avenue in Manhattan • 3 people are contaminated and treated on-scene
10/21/2015	Ammonia leak	Brooklyn	• An ammonia leak at the Prospect Park skating rink sends nine firefighters and one other person to the hospital for minor inhalation problems. • The leak spread a strong smell throughout the neighborhood and park.

16.1.3 Characteristics of chemical warfare agents and biological agents

(1) Chemical

A chemical is generally considered hazardous if it exhibits toxicity, reactivity, corrosive hazard, or flammability. The chemical properties of these substances are such that they can react with and cause damage to living cells and tissue. Exposure pathways include inhalation, skin contact, eye contact, ingestion, or injection. Commercially or industrially used hazardous chemicals (also known as Toxic Industrial Chemicals\Materials–TICs\TIMs) that may be released accidentally include petroleum substances (such as oil, gasoline, and liquid natural gas) and those with industrial applications (such as chlorine and pesticides).

Chemical agents are generally liquids, often aerosolized, and most have immediate effects or are delayed for a few hours. Many chemical agents have a unique odor and color.

Chemical warfare agents (released intentionally) are often classified according to their effect on the body, based on the primary organ system affected by exposure. Nerve agents (e.g., sarin, VX, and VR) enter the body through the skin or lungs and affect the central nervous system. Blood gases or systemic agents (e.g., hydrogen cyanide) enter the bloodstream either directly or indirectly and are transported systemically throughout the body. Respiratory agents (e.g., chlorine, phosgene) are inhaled and can cause damage to the lungs. Blister agents (e.g., mustard gas, lewisite) burn the skin, causing unsightly blisters on the skin, and if they get absorbed they can also affect other parts of the body. Depending on the severity of exposure, impacts may include temporary illness or injury, permanent medical conditions, or death.

Historical chemical attacks

- *The Ghouta chemical attack occurred in Ghouta, Syria.*

On 08/21/2013, Ghouta was struck by rockets containing the chemical warfare agent sarin. Estimates of the death toll range from at least 281 people to 1,729.

- *The Khan Shaykhun chemical attack occurred in Khan Shaykhun, Syria.*

On 04/04/2017, the town was reported to have been struck by a heavy airstrike by government forces followed by massive civilian chemical poisoning. The release of the toxic gas, which included sarin or a similar substance, killed at least 74 people and injured more than 557.

(2) Biological

Biological hazards include toxins or disease-causing microorganisms and pathogens, such as bacteria and viruses. The distinguishing characteristic of these substances is their ability to multiply within a host (e.g. humans etc.) and cause an infection. Some bacteria and viruses can be spread, or transmitted, from one

individual to another. Infections typically occur as a result of airborne exposure, skin contact, or ingestion. In general, exposure to bacteria and viruses can occur through inhalation (as is the case with airborne Bacillu anthracis spores, which cause anthrax), ingestion of contaminated food or water (the case with E. coli, which causes gastrointestinal infection), contact with infected individuals, or contact with contaminated surfaces.

The method of transmission can have a significant impact on the spread of infection among a population. Some infections may be transmitted only by direct physical contact between individuals or contact with contaminated materials or surfaces.

Biological agents differ in that the effects are delayed, often for days. The effects of toxins, such as botulinum toxin, occur typically in less than a day. Living biological agents, such as anthrax or plague, generally take 2-5 days for symptoms to appear. Biological agents have no odor or color and can be in either liquid or powder form.

Although food or water contamination or absorption through the skin are possible attack routes, most experts agree that inhalation of chemical or biological agents is the most likely and effective means. Protection of breathing airways is therefore the single most important factor in a situation where chemical or biological agents may be present. In all cases, medical attention should be sought immediately, even if exposure is thought to be limited.

Historical biological incidents

- *Norovirus breakout in Redwood City upscale hotel, CA.*

On October 26, 2014, 127 conference members became ill after eating banquet dinner at Redwood City's Hotel Sofitel. Many people projectile vomited in the lobby and had to be rushed to the hospital. It was confirmed that it was caused by norovirus.

16.1.4 Characteristics and effects of radiological dispersal devices (RDD) / Dirty bombs

With the end of the Cold War, the possibility of battlefield use of nuclear weapons appears diminished, although not eliminated. The possibility of terrorists obtaining nuclear weapons is disturbing but probably unlikely given the enormous difficulty of obtaining the necessary components and underlying critical technology required to make a nuclear weapon. However, a much simpler radiological dispersant device or "dirty bomb" is an all too plausible terrorist scenario.

A **"dirty bomb"** is one type of RDD that uses a conventional explosion to disperse radioactive material over a targeted area. The "dirty bomb" combines a radioactive material with a conventional explosive to disperse it. The radioactive material could potentially come from many sources, such as radioactive waste or hospital or

engineering radiation sources. The "dirty" term refers to the potential widespread radiological contamination that would follow exploding the bomb and the resultant dispersal of radioactive material. The term dirty bomb and RDD are often used interchangeably in technical literature. However, RDDs could also include other means of dispersal such as placing a container of radioactive material in a public place or using an airplane to disperse powdered or aerosolized forms of radioactive material.

It is very difficult to design an RDD that would deliver radiation doses high enough to cause immediate health effects or fatalities in a large number of people. Therefore, experts generally agree that an RDD would most likely be used to contaminate facilities or places where people live and work, disrupting lives and livelihoods and causing anxiety in those who think they are being, or have been, exposed.

Radiation can be readily detected with equipment carried by many emergency responders, such as Geiger counters, which provide a measure of radiation dose and rate. Other types of instruments are used to identify the radioactive element(s) present known as isotopes.

Most dirty bombs and other RDDs would have very localized effects, ranging from less than a city block to several square miles. For example, if the material is dispersed as fine particles, it might be carried by the wind over a relatively large area.

Most injuries from a dirty bomb would probably occur from the heat, debris, radiological dust, and force of the conventional explosion used to disperse the radioactive material, affecting only individuals close to the site of the explosion. At the low radiation levels expected from an RDD, the immediate health effects from radiation exposure would likely be minimal. The health effects of radiation tend to be directly proportional to radiation dose.

Psychological effects from fear of being exposed may be one of the major consequences of a dirty bomb. Unless information about potential exposure is made available from a credible source, people unsure about their exposure might seek advice from medical centers, complicating the centers' ability to deal with acute injuries.

16.1.5 The differences between chemical, biological or radiological, agents:

Agents	Chemical Agents	Biological Agents	Radiological agents
Makeup	• Man-made. • Large-scale, cheaper, industrial production	• Natural origin. • Difficult, costly, small-scale production	• Man-made. • Easy to make small DDRs, but hard to design one with high dose radiation.
Appearance (In general)	Noticeable odor or taste	Odorless and tasteless	Not recognizable by the senses, and are colorless and odorless
Effects	• The response normally is immediate (few seconds to a few minutes), but some might not be detected for hours. • Crisis may persist for hours or days	• The response may be delayed, could be undetected for hours, days, or potentially weeks. • Crisis may persist for weeks or months	• The onset of symptoms requires days to weeks and there typically will be no characteristic signatures. • Because of the delayed onset of symptoms, the affected area may be greater due to the migration of contaminated individuals.

16.1.6 Contamination issue

Transmissibility (or contamination) is one of the key properties that CBR agents in common. CBR agents can be introduced into water, air, and soil or even be transmitted from one person to another. Indirect exposure or cross contamination to CBR agents after their release and dispersal may occur via

- person-to-person transmission of CBR agents by contact with contaminated clothing, objects, and surfaces, or through skin contact
- person-to-person transmission of disease or illness caused by biological agents
- re-suspension in the air of CBR agents that have been widely dispersed on the ground, thus increasing the likelihood of their inhalation or ingestion
- transfer of CBR agents by exposed persons, or transport of material from affected to unaffected areas, causing cross-contamination.

16.1.7 Basic responses

Hazardous materials release including biological, chemical, and radiological materials pose a serious risk if not promptly and properly responded to by the individuals who initially identify the spill and the appropriate emergency response staff.

The best defense to prevent further causalities from CBR agents is using the fundamental principles of contamination avoidance. Avoiding contamination requires the ability to recognize the presence or absence of CBR hazards in the air; on water, land, personnel, equipment, and facilities; and at short and long ranges. Surveillance and detection capabilities enable forces to recognize CBR hazards.

Contamination and exposure can be minimized by doing the following:

(1) Limiting the duration of exposure by reducing the amount of time in the hazardous area
(2) Delaying entry time until radiation decays enough to permit safe passage or occupancy or both
(3) Avoiding and bypassing contaminated areas
(4) Operating the HVAC system properly (refer to Section 15.4 of this booklet)

In addition to the required basic procedures, the FDNY recommends that additional procedures for CBR releases should include:

(1) Evacuate the spill area. Provide assistance including the use of safety showers and eyewashes. Seek emergency medical assistance once properly decontaminated.
(2) Confine the spill area by closing the nearest doors to the spill area. Isolate contaminated persons in a separate room outside the spill area and attempt to minimize the spread of the contamination.
(3) Secure the area until emergency response personnel arrive to ensure no one enters the spill area. If area has multiple entrances, be sure to locate staff at all entrances to prevent entry.

16.2 Bombs, bomb threats, and suspicious packages

(This section is cited from the following resources:

1. Plan Ahead for Disasters: Explosions. Ready.gov. **https://www.ready.gov/explosions**
2. Are You Ready? An In-depth Guide to Citizen Preparedness. FEMA, 2004. **https://www.fema.gov/pdf/areyouready/areyouready_full.pdf**
3. Bomb Threat and Suspicious Package Management, Office of Homeland Security, 2015. **https://www.tn.gov/assets/entities/safety/attachments/Bomb_Threat_and_Suspicious_Package_Management.pdf**)

16.2.1 The threat

(1) Bombs or explosive devices

Bombs or explosive devices are common weapons of terrorism. Explosive devices can be highly portable, using vehicles and humans as a means of transport. They may be easily detonated from remote locations or by suicide bombers. Conventional bombs have been used to damage and destroy financial, political, social, and religious institutions. Attacks have occurred in public places and on city streets.

(2) Bomb threat

Bomb threats are most commonly received via phone, but are also made in person, via email, written note, or other means. Different from real bombers who want to cause catastrophic damage, the bomb threat makers may focus more on making people fearful and disrupting the business. Fortunately, the majority of bomb threats and hazardous material threats are false. However, we cannot always assume that they will be false for every bomb threat. The FLS Director must take it seriously and notify 911 immediately.

(3) Suspicious packages

U.S. Department of Homeland Security suggests some indicators to identify suspicious packages:

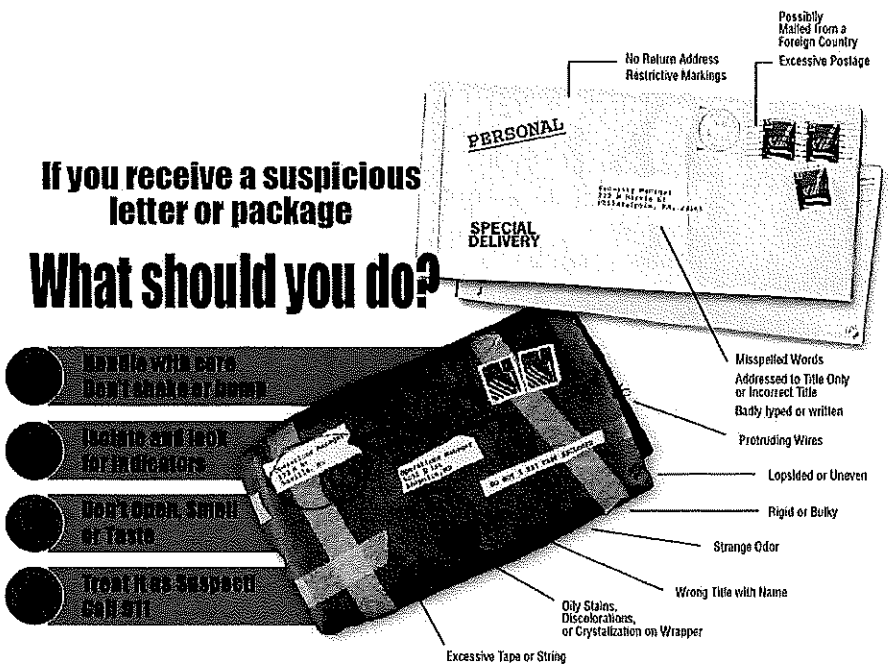
One indicator of a suspicious package or piece of mail includes **inappropriate or unusual labeling**, such as

- Excessive postage
- Misspelled common words
- No return address or strange return address
- Unusual addressing, such as not being addressed to a specific person or the use of incorrect titles or titles with no name
- Restrictive markings, such as "personal," "confidential," or "do not x-ray"

Other indicators include an **unusual or inappropriate appearance**, including

- Powdery substances felt through or appearing on the item
- Oily stains or discolorations on the exterior
- Strange odors
- Excessive packaging material, like tape or string
- Lopsided or bulky shape of envelopes or boxes
- Ticking sounds, protruding wires, or exposed aluminum foil

The FBI provides graphic examples for suspicious packages:



16.2.2 History of bombings and attempts in the US

Date	Event	Location	Description
May 16, 1981	A bomb exploded	Queens, NYC	• A bomb explodes in a men's bathroom at the Pan Am terminal at New York's Kennedy Airport, killing a man. • A group calling itself the Puerto Rican Armed Resistance claims responsibility.
Nov. 7, 1983	A bomb exploded	Washington, D.C.	• A bomb blows a hole in a wall outside the Senate chamber at the Capitol in Washington. No one is hurt.
Feb. 26, 1993	A bomb in a van exploded	Manhattan, NY	• A bomb in a van explodes in the underground World Trade Center garage in New York City, killing six people and injuring more than 1,000.
April 19, 1995	A truck bomb exploded	Oklahoma, OK	• A truck bomb parked outside the Murrah Federal Building in Oklahoma City kills 168 people and injures more than 500. It is the deadliest U.S. bombing in 75 years.
July 27, 1996	A bomb exploded	Atlanta, GA	• A bomb explodes at Centennial Olympic Park in Atlanta during the Summer Games, killing two people and injuring more than 100.
Jan. 20, 1998	A bomb exploded	Birmingham, AL	• A bombing at an abortion clinic in Birmingham, Ala., kills one guard and injures a nurse.
Dec. 25, 2009	Attempted use of a weapon of mass destruction	Airline heading from Paris to Detroit	• The so-called "underwear bomber is subdued by passengers and crew after trying to blow up an airliner heading from Paris to Detroit using explosives hidden in his undergarments.
May 1, 2010	Attempted to detonate an explosives-laden SUV	Manhattan, NY	• A man leaves an explosives-laden SUV in New York's Times Square, hoping to detonate it on a busy night. Street vendors spot smoke coming from the vehicle and the bomb is disabled.

Jan. 17, 2011	Attempted use of a weapon of mass destruction	Spokane, WA	• A backpack bomb is placed along a Martin Luther King Day parade route in Spokane, Washington, meant to kill and injure participants in a civil rights march, but is found and disabled before it can explode.
April 15, 2013	Two bombs exploded	Boston, MA	• Two bombs explode in the packed streets near the finish line of the Boston Marathon, killing two people and injuring more than 80.
September 17-18, 2016	One bombings and three attempts	Seaside Park and Elizabeth, NJ; Manhattan, NY	• On 9/17, a pipe bomb exploded in a trash can along the route of a United States Marine Corps charity run in Seaside Park. No one was injured. • On 9/17, a homemade pressure cooker bomb exploded on West 23rd Street in the Chelsea neighborhood of Manhattan. Thirty-one civilians were injured. • On 9/17, a second pressure cooker bomb, with wires and a mobile phone attached, was discovered by authorities on West 27th Street of Manhattan, four blocks away from the first pressure cooker bomb. • On 9/18, multiple bombs are discovered inside a suspicious package at the Elizabeth train station.
October 3, 2016	A pipe bomb was found inside vehicle	Lafayette, TN	• A pipe bomb is found during a traffic stop Monday night in Lafayette, Tennessee. • The two men, who allegedly made the device, claim they did not know it was illegal.
Jan to Mar, 2017	Bomb threats	Nationwide	• Months-long series of bomb threats targeting Jewish community centers. • Fourteen centers in 10 states of U.S. plus a Canadian province received threats • The bomb threats forces the evacuations of the Jewish institutes.

16.2.3 Basic responses

(1) Bombs

If there is an explosion inside the building, the building occupants should:

- Get under a sturdy table or desk if things are falling around them. When things stop falling, leave quickly, being cautious of weakened floors and stairways. As occupants exit from the building, be especially watchful of falling debris.
- Leave the area as quickly as possible. Do not stop to retrieve personal possessions or make phone calls.
- Do not use elevators.

Once building occupants are out

- Do not stand in front of windows, glass doors, or other potentially hazardous areas.

- Move away from sidewalks or streets to be used by emergency officials or others still exiting the building.

(2) Bomb threat

• If the bomb threat is made via phone, get as much information as possible. Keep the caller on the line and record everything that is said.

• Call 911 and notify the FLS Director and the building management.

(3) Suspicious packages

When a suspicious package/item is discovered, the following procedures are recommended:

- Report the location and an accurate description of the object to 911.
- Identify the danger area, cordon off, and evacuate a clear zone of at least 300 feet, including floors below and above the object.

If you suspect that the suspicious package may contain a hazardous material type substance (example: ricin, anthrax, etc.),

- Leave the mail or package where it was found. Do not disturb. Do not try to clean the substance.
- Do not touch, taste, smell, or try to identify the substance.
- Clear the immediate area of all persons and keep others away.
- Cordon off the immediate area.
- Instruct people to wash hands and other exposed skin with soap and water, if a wash station is in the immediate area.
- Isolate exposed persons to a designated area away from the substance – but nearby, in order to limit any further contamination of your facility – and await further instruction.
- Shut down all HVAC (heating, ventilation, air conditioning) systems and room fans, heaters, etc.
- Document the location of mail or package.
- Keep a list of the persons in the immediate area of the mail or package.
- Wait for emergency personnel to arrive and follow their instructions regarding changing of clothing and further decontamination.

16.3 Natural hazards

Natural hazards are natural events such as flood, earthquake, tornado, hurricanes, and windstorms that threaten lives, property, and other assets. Natural hazards may be predicted and they tend to occur repeatedly in the same geographical locations because they are related to weather patterns or physical characteristics of certain areas.

FLS Directors, should know what their premises' risks are from natural hazards and should take precautionary measures to protect the properties and the buildings' occupants.

16.3.1 Hurricanes, storms, or floods

(This section is cited from the following resources:

1. Are You Ready? An In-depth Guide to Citizen Preparedness. FEMA, 2004. **https://www.fema.gov/pdf/areyouready/areyouready_full.pdf**
2. Mitigation Assessment Team Report: Hurricane Sandy in New Jersey and New York. FEMA, 2013. **https://www.fema.gov/media-library-data/1385586488603-a4f5b6e4f1f0b415a69faacb5f2ef07f/Sandy_MAT_Ch4_508post.pdf)**

A hurricane is a type of tropical cyclone. All Atlantic and Gulf of Mexico coastal areas are subject to hurricanes or tropical storms. The Atlantic hurricane season lasts from June to November, with the peak season from mid-August to late October. Hurricanes can cause catastrophic damage to coastlines and several hundred miles inland. Winds can exceed 155 miles per hour. Hurricanes and tropical storms can also spawn tornadoes and microbursts, create storm surges along the coast, and cause extensive damage from heavy rainfall.

Hurricanes are classified into 5 categories based on their wind speed, central pressure, and damage potential. Category 3 and higher hurricanes are considered major hurricanes. Categories 1 and 2, however, are still considered dangerous and warrant your full attention.

Hurricane Katrina in 2005 was a Category 5 hurricane over the Gulf of Mexico but weakened before making landfall as a Category 3 hurricane in Southeast Louisiana. It caused severe destruction. The amount of damage total more than $100 Billion.

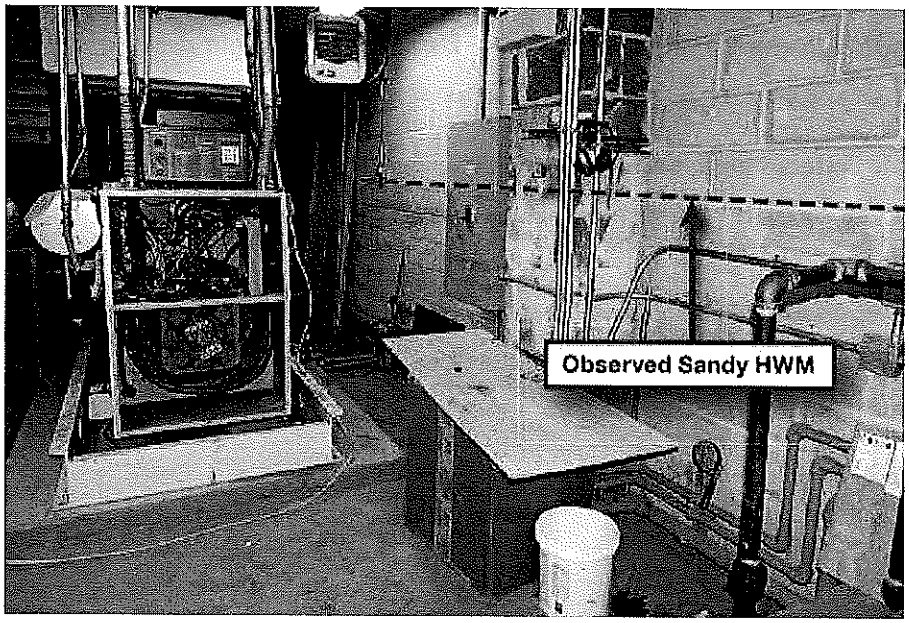
Hurricane Sandy in 2012 was a Category 3 storm at its peak intensity when it made landfall in Cuba. While it was a Category 2 storm off the coast of the Northeastern United States, the storm became the largest Atlantic hurricane on record. At least 233 people were killed along the path of the storm in eight countries. When the storm surged NYC, it caused flooding on streets, tunnels, and subway lines and cut power.

The threats from the hurricane include storm surges (a dome of water pushed onshore by hurricane and tropical storm winds), high winds, heavy rainfall and flooding. Flash flooding, a rapid rise in water levels, caused by the hurricane can also be a major threat to low-lying coastal areas.

High-rise buildings typically are designed to have robust structural systems; however, good structural performance alone does not ensure adequate protection from flood damage. Hurricane Sandy demonstrated that mid- and high-rise buildings do not have to be severely damaged or collapse to be rendered inoperable. Flood damage was predominantly to the critical building systems (e.g. emergency power, gas installations, communications, and fire protection systems, etc.) of these structures, and the failure of these systems crippled building operations and affected thousands of occupants.

Hurricane Sandy brought the water level up over this shopping premises entrance.

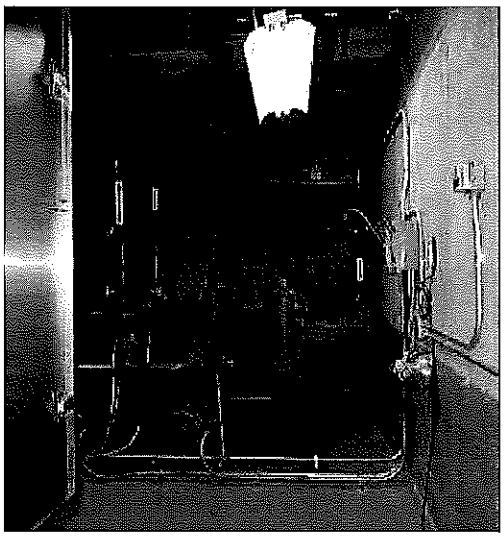
Hurricane Sandy storm surge filling the concourse retail level of a Manhattan commercial high-rise building



High Water Mark (red dashed line) along first floor electrical room wall.

The water caused by Hurricane Sandy entered through the lobby doors and the loading dock of a 24-story high-rise building in Lower Manhattan. The first floor of the building was swamped with more than 4 feet of water (see the photo above). Floodwater spread through the first floor and filled the basement, primary through the elevator shaft.

The electrical service equipment located on the first floor of electrical room was all damaged. The steam distribution system, water booster pumps, and other equipment in the mechanical room located in the basement were also damaged.



The images above are of a basement in an 11 story commercial and office building built in 1914. It is located on the banks of the Hudson River. The building suffered minor flood damage during Hurricane Sandy. Flood inundation was approximately 1 to 2 feet above street level. More than 40,000 gallons of fuel was stored in four tanks in the basement. The fuel tanks and pumps are inside a flood proofed enclosure. In addition, the basement has six pumps to drain the basement in case of flooding. Before Hurricane Sandy, all six pumps were arranged to an emergency power circuit.

Based on an interview with the building's chief engineer, water initially entered the basement through a telecommunications utility point of entry on the river side of the building. The six pumps successfully controlled flood levels in the basement, keeping the water below 3 inches throughout the basement.

Generators throughout the building remained operational during the storm and after, until power service was restored by the utility provider.

FLS Directors should, properly prepare for a hurricane by, taking the following measures prior to any hurricane:

- Stay tuned to the latest hurricane updates via the radio, TV, or internet.
- Perform the hurricane hazard risk assessment. Find out if premises is in a hurricane evacuation zone by using the Hurricane Evacuation Zone Finder.
- Make plans to secure property. Hurricane winds are stronger at higher elevations. Tape does not prevent windows from breaking.

- Conduct pre-incident planning meetings with critical vendors, tenants, and building staff. Ensure that the critical building systems are properly tested and additional supplies are ordered ahead. Establish an emergency hotline with the tenants.
- Assess the utilities. Ensure the building has additional fuel for portable generators on hand.
- Protect the equipment and facilities located in underground levels.

Additional lessons learned from Hurricane Sandy include:

- **Protect elevator service.** Loss of elevator service in high-rise buildings hinders vertical building access and significantly affects building service and operations. Elevator and conveyance system components should be protected appropriately to enable restoration of elevator service to the building as quickly as possible.
- **Steam and gas heating systems are less prone to prolonged disruption than oil furnaces.** Most of the buildings heated by steam and gas were online within a week or two after Hurricane Sandy, while those with oil furnaces were reliant on an emergency heat source 2 months following Hurricane Sandy. In addition, damaged oil tanks contaminated buildings, which complicated restoration and repairs.
- **Protect the emergency power system**. The emergency power equipment and controls must be protected to ensure they will be available when needed.
- **Use flood damage-resistant material.** Use of flood damage-resistant materials in lower floors reduced repairs in many of the buildings that were flooded during Hurricane Sandy. Repairing flooded buildings offers an opportunity to improve building construction and make them more flood-damage resistance.
- **Limit the use of lower floors.** Buildings where lower levels were limited to parking, building access, and storage areas (e.g., fuel vaults) experienced less flood damage than those with multi-use lower levels.
- **Elevate temporary equipment.** Placing temporary equipment on scaffolding or platforms adjacent to facilities reduced the number of times temporary utility equipment had to be shut down and relocated.

If the building occupants are not evacuated before a hurricane, they should stay indoors during the hurricane and away from windows and glass doors.

16.3.2 Floods

(This section is cited from the following resource: Be Ready-Plan for Hazards: Flooding, New York City Emergency Management. https://www1.nyc.gov/site/em/ready/flooding.page)

Floods are one of the most common hazards in United States. Flood effects can be local, impacting a neighborhood or community, or very large, affecting entire river basins and multiple states. However, all floods are not alike: Some floods develop slowly, sometimes over a period of days, as opposed to flash floods, which develop quickly, sometimes in just a few minutes and without any visible signs of rain. Flash floods often have a dangerous wall of roaring water that carries rocks, mud, and other debris and can sweep away most things in its path. Overland flooding occurs outside a defined river or stream, such as when a levee/embankment is breached, but still can be destructive. Flooding can also occur when a dam breaks, producing effects similar to flash floods. Be aware of flood hazards no matter where the premises is, but especially if the premises is in a low-lying area, near water or downstream from a dam. Even very small streams, gullies, creeks, culverts, dry streambeds, or low-lying ground that appears harmless in dry weather can flood. Every state is at risk from this hazard.

If a flood is likely in area, FLS Director should:

- Stay tuned to the latest updates via the radio, TV, or internet.
- Be aware that flash flooding can occur. If there is any possibility of a flash flood, instruct occupants to move immediately to a higher ground.
- Be aware of streams, drainage channels, canyons, and other areas known to flood suddenly. Flash floods can occur in these areas with or without typical warning signs such as rain clouds or heavy rain.

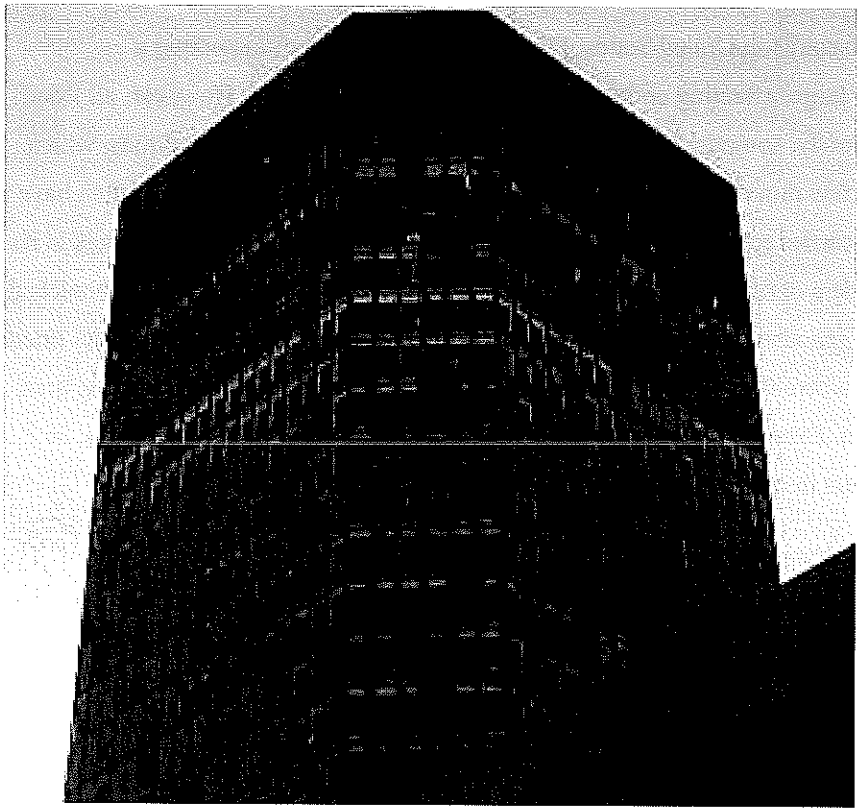
16.3.3 Tornadoes

(This section is cited from the following resources:

1. Plan Ahead for Disasters: Tornadoes. Ready.gov. https://www.ready.gov/tornadoes
2. Tornado Safety at Home, Work or at Play. Ready Wisconsin. http://readywisconsin.wi.gov/tornado/home_work_safety.asp)

A tornado is a violently rotating column of air that extends from a thunderstorm to the ground and is often—although not always—visible as a funnel cloud. Lightening and hail are common in thunderstorms that produce tornadoes. Tornadoes cause extensive damage to structures and disrupt transportation, power, water, gas, communications, and other services in the direct path and in neighboring areas. Related thunderstorms can cause

heavy rains, flash flooding, and hail. Damage paths can be in excess of one mile wide and 50 miles long. Every state is at some risk from this hazard. Tornadoes can strike in any season but occur most often in the spring and summer months. They can occur at all hours of the day and night, but are most likely to occur between 3 p.m. and 9 p.m.



Windows and outer walls of the Bank One Building in downtown Fort Worth, Texas were damaged by the 2000 Fort Worth tornado.

Some tornadoes are clearly visible while rain or nearby low-hanging clouds obscure others. Occasionally, tornadoes develop so rapidly that little, if any, advance warning is possible.

2007 Brooklyn/Queens tornado was the strongest tornado on record to strike in New York City. It was formed in the early morning hours of August 8, 2007, skipping along an approximately 9 miles long path, from Staten Island to Brooklyn. Several people were treated at area hospitals for flying glass injuries. At least 40 buildings and 100 cars were damaged.

If a premise is under a tornado WARNING, the FLS Director should advise the occupants to stay away from corners, windows, doors, and outside walls. DO NOT OPEN WINDOWS. Occupants may need to move to a pre-designated shelter, such as a basement, and get under a sturdy table or the stairs. A specially-constructed "safe room" within a building offers the best protection. If a basement is not available, move to a small interior

room or hallway on the lowest floor and cover yourself with anything close at hand: towels, blankets, pillows. If possible, get under a sturdy table, desk or counter.

16.3.4 Earthquakes

(This section is cited from the following resource: Be Ready-Plan for Hazards: Earthquakes, New York City Emergency Management. **https://www1.nyc.gov/site/em/ready/earthquakes.page**)

One of the most frightening and destructive phenomena of nature is a severe earthquake and its terrible aftereffects. An earthquake is a sudden movement of the earth, caused by the abrupt release of strain that has accumulated over a long time.

If the earthquake occurs in a populated area, it may cause many deaths and injuries and extensive property damage.

During an earthquake, the FLS Director should suggest the building occupants to

- minimize the movements during an earthquake to a few steps to a nearby safe place.
- stay indoors until the shaking has stopped. Most injuries during earthquakes occur when the occupants are hit by falling objects when entering into or exiting from buildings.
- stay away from glass, windows, outside doors, or anything that could fall, such as lighting fixtures or furniture.
- be aware that the electricity may go out or the sprinkler systems or fire alarm may activate.
- avoid using the elevators.
- be prepared for aftershocks. These secondary shockwaves are usually less violent than the main quake but can be strong enough to do additional damage to weakened structures.
- be aware of possible tsunamis if the premises is in coastal area. These are also known as seismic sea waves (mistakenly called "tidal waves"). When local authorities issue a tsunami warning, assume that a series of dangerous waves is on its way.

16.4 Failure of building utilities or systems

16.4.1 Electric power failure

(This section is cited from the following resource: Be Ready-Plan for Hazards: Utility Disruptions, New York City Emergency Management. https://www1.nyc.gov/site/em/ready/utility-disruptions.page)

Utility failures or incidents are common occurrences and may happen at any time. Preplanning for utility failures is necessary to protect building occupants as well as building properties. The FLS Director should know the locations of all utility power sources.

Major power outage events in NYC:

- The Northeast blackout of 2003: A widespread power outage that occurred throughout parts of the Northeastern and Midwestern United States on 08/14/2003, affected over 55 million people. Few households and businesses were restored by the end of day. However, many others did not get their power back until two days later. Some areas lost water pressure because pumps lacked power. Transportation systems were shut down. Many gas stations were unable to pump fuel due to lack of electricity. Cellular communication devices were disrupted. Large numbers of business operations were closed in the affected area.
- Hurricane Sandy Power Outage in 2012: Close to 2 million people lost power at some point during the storm, with almost a third being in Manhattan. Parts of Lower Manhattan and Brooklyn even lost power prior to Sandy, when Con Edison preemptively disconnected them from the city's grid to protect equipment and reduce potential downtime. It took four to five days to restore power to most people in Manhattan. Damage to electrical equipment within buildings took considerably longer in many cases. Other utility systems experienced varying degrees of disruption. Con Edison's steam system, which services 1,700 large buildings in Manhattan, including major hospitals, was unable to supply steam to one-third of its customers when the storm inundated four of the system's six plants and flooded utility tunnels. It took nearly two weeks to restore service to these customers.

Prolonged power outages are not only a nuisance — they are also potentially life-threatening and can cause major economic loss. Power outages occur most often during the summer months, when residents run air conditioners and power usage is at its peak.

Most buildings with emergency power use either battery-powered systems for emergency power and/or generators for longer duration outages. Battery-powered systems are typically used for emergency egress lighting, data servers, alarm systems, and other small equipment. Generators, on the other hand, typically service

a number of systems, including heating, ventilation equipment, fire pumps, elevators, and domestic water booster pumps.

To protect emergency power systems, facility managers should first identify the emergency power needs and then decide how to best to prevent the emergency power from failing.

It is important to consider the entire emergency power supply system as a whole or it may not function during an emergency. An effective plan should identify

- Which building systems require emergency power;
- What emergency power capacity is needed, how quickly it must be activated, and for how long;
- Effective protection for the generator, such as locating it in an elevated and hardened position;
- How distribution equipment, transfer switches, fuel pumps, and critical equipment supplied by the emergency power system will be protected;
- A reliable and consistent fuel source for the generator (source should also be protected from flooding by being properly anchored, submersible, or elevated).

16.4.2 Natural gas supply disruptions or natural gas leak

(This section is cited from the following resources:

1. Be Ready-Plan for Hazards: Gas Supply Disruptions, New York City Emergency Management. https://www1.nyc.gov/site/em/ready/gas-disruptions.page)
2. Gas Safety. Con Edison. https://www.coned.com/en/safety/safety/gas-safety?utm_source=SmellGasActFAst&utm_medium=Slider&utm_campaign=Homepage
3. Gas Emergencies. National Grid. https://www.nationalgridus.com/NY-Home/Safety/Report-a-Gas-Emergency)

Since natural gas is odorless, a harmless chemical odor is added so leaks will be detectable. The chemical has a very distinct and unpleasant odor that many people compare to the smell of rotten eggs. Natural gas is lighter than air and tends to rise, while most other flammable gases have higher vapor densities and tend to move downward. There are hazards inherent to natural gas if the levels are high enough. For example, inhaling a high concentration of natural gas can lead to asphyxia or a natural gas leak can very easily turn into a fire or an explosion.

What to do if you smell gas:

- Call 911 to report the smell of gas and notify the utility company.

- If the odor is faint, open windows to air out the area before leaving.
- If the odor is strong, leave the premises IMMEDIATELY.
- Isolate and eliminate potential ignition sources. Do not smoke or light lighters/matches. Do not use your telephone, switch on electrical appliances, lights, or even turn on a flashlight in the area where you smell gas — any spark could cause a fire.

Natural gas explosion incidents:

2014 East Harlem gas explosion: On 3/12/2014, Con Edison received a call from a resident at a building in NYC East Harlem reporting a (natural) gas leak around 9:13 a.m. Seventeen minutes later, the gas leak led to an explosion and knocked down two 5-story buildings. The accident killed at least eight people and injured at least 70 others.

2015 East Village gas explosion: A gas explosion occurred in the afternoon of March 26, 2015 in a building located in the NYC East Village. The explosion was caused by an illegal tap into a gas main. The explosion caused two deaths and injured at least nineteen people. It also resulted in fires that completely destroyed three adjacent buildings.

2016 Bronx gas explosion: The explosion occurred after firefighters responded to reports of a strong gas smell coming from a two-story house in Bronx, NYC. The explosion was caused by an illegal natural gas hookup that leaked and then sparked. The explosion destroyed the two-story home. 20 people were injured and an FDNY battalion chief was killed.

16.4.3 Carbon monoxide leak

(This section is cited from the following resources:

1. Be Ready-Plan for Hazards: Gas Supply Disruptions, New York City Emergency Management. https://www1.nyc.gov/site/em/ready/gas-disruptions.page
2. Be Ready-Plan for Hazards: Carbon Monoxide, New York City Emergency Management. https://www1.nyc.gov/site/em/ready/carbon-monoxide.page
3. NYC EMERGENCY MANAGEMENT URGES NEW YORKERS TO PREPARE FOR EXTREME COLD, New York City Emergency Management, 2016. http://www1.nyc.gov/site/em/about/press-releases/20161214_pr_nycem_URGES-NEW-YORKERS-TO-PREPARE-FOR-EXTREME-COLD.page)

Carbon monoxide is a colorless, tasteless and odorless gas. It is a by-product of fuel combustion that can be created by typical heating fuels. High levels of carbon monoxide indoors can be dangerous to your health, and can cause serious illness or death if inhaled in large concentrations.

Everyone is at risk to being exposed to carbon monoxide; however, people with health problems, seniors, pregnant women, and infants are at a higher risk.

Causes of Carbon Monoxide Poisoning

Carbon monoxide can build up to a dangerous level if a fuel-burning appliance isn't operating properly or is not safely venting out fuel combustion by-products. For instance, dangerous levels of carbon monoxide can be produced from improperly vented furnaces, plugged or cracked chimneys, water heaters, space heaters, fireplaces, stoves, and tail pipes. Running a vehicle inside a garage is the most common carbon monoxide danger. During the heating season, when fresh air circulation is reduced, it's especially important to prevent indoor carbon monoxide buildup.

Carbon monoxide leaking events

Carbon monoxide poisoning in NYC TriBeCa high-rise building, 2017: People started feeling faint around 8:30 a.m. in a 12-floor building just as a worker opened a package in the basement, stirring worries that the parcel might have been poisonous. However, the NYPD determined that it was not hazardous. The problem ultimately was traced to a broken boiler pipe in a grocery store that was located in the basement. Thirty-two people, mostly in the basement and first floor, were sickened. The shop and the apartments above were evacuated as firefighters saw carbon monoxide levels maxed out on their meters in several areas. These meters measure up to 1,000 parts per million, enough to render people unconscious instantly.

Carbon monoxide poisoning around an indoor pool in a Michigan hotel, 2017: Staff at the Michigan hotel found several children laying on the indoor pool deck unresponsive and unconscious. The staff members immediately opened the doors to the indoor-pool area and called 911. First responders then went through each floor of the hotel to evacuate any remaining visitors and staff. One child was found dead and six other children were hospitalized for apparent carbon-monoxide poisoning. The carbon-monoxide leak was caused by a broken pool heater. The fire captain said the highest carbon monoxide reading in the pool area was 800 parts per million, far above the 50 ppm maximum that the U.S. OSHA recommends for workplace exposure for a normal healthy adult.

Tips for Preventing Carbon Monoxide Poisoning

- **Install carbon monoxide detectors** and check them regularly to make sure the batteries are working. NYC law requires owners to provide and install at least one approved carbon monoxide alarm within 15 feet of the primary entrance to each sleeping room. Test these alarms on a regular basis.
- Carbon monoxide comes from the burning of fuel. Have the heating systems, fuel-burning appliances, flues, and chimneys inspected, cleaned, and tuned up annually by a qualified technician.
- Never heat your premises with a gas stove or oven.
- Kerosene heaters and propane space heaters are dangerous and illegal in New York City.
- Never use any gas-powered appliance, such as a generator, indoors.
- Never use a charcoal grill or a hibachi indoors.
- Never run a car or truck in a garage or enclosed area. Clear exhaust pipes before starting a car or truck after it snows.

Signs of carbon monoxide poisoning include

- Headache;
- Flu-like symptoms, such as dizziness, chest pain, nausea, and vomiting;
- Breathing difficulties;
- Confusion and loss of consciousness;
- Cardiac problems.

If you suspect carbon monoxide poisoning,

- Open windows;
- Leave the premises and get to fresh air immediately;
- Call 911;
- Call the New York City Poison Control Center: 212-POISONS (212-764-7667).

16.4.4 Water supply disruption

(This section is cited from the following resources:

1. Be Ready-Plan for Hazards: Water Supply Disruptions, New York City Emergency Management. **https://www1.nyc.gov/site/em/ready/water-supply-disruptions.page**)

Since water is essential for survival, it's important to know what to do in the event of a water supply emergency. Water main breaks, drought, and water contamination can affect both water quality and use in New York City.

Water Main Breaks

Water main breaks may temporarily halt water supply to households and businesses in the surrounding areas. Breaks can also result in property damage, street and sidewalk closures, and traffic and business disruptions. Temperature change causes most water main breaks. A 10-degree change in air or water temperature can cause pipes to contract or expand, making them fragile. When water or ground temperatures dip near the freezing point, it creates tremendous stress inside and outside the pipe. Additionally, some water pipes installed before World War II are made of cast iron — a brittle material susceptible to breakage.

If you see water coming up from the ground or roadway or suspect a water main break, call 311 or contact 311 online.

Be prepared to provide

- A description of the condition;
- What is being affected (street, cellar, basement, subways, etc.);
- The exact location of the problem;
- Your name, address and telephone number.

You may also contact DEP via 311 if you lose water service, experience low water pressure, or the premise is flooded due to a water main break.

If water is causing a dangerous condition, such as street or sidewalk collapse or severe indoor or outdoor flooding, you must call 911.

Water Contamination

Water supply contamination has not been a significant hazard in New York City in the last century, but it's important to know what to do in the event the City's water supply becomes contaminated.

If authorities determine that there is a concern about drinking water quality, you will be advised of what actions to take. In some cases, the occupants may be told not to use water for cooking or for drinking purposes unless it

is boiled, treated with bleach, or disinfected by other means. In an extreme case, the occupants may be told not to use the water for hand-washing or even bathing purposes.

16.5 Civil unrest and disturbances

(This section is cited from the following resources:

1. State of New Jersey 2014 Hazard Mitigation Plan, Section 5. Risk Assessment: Civil Unrest. State of New Jersey, Office of Emergency Management. http://ready.nj.gov/programs/pdf/mitigation2014b/mit2014_section5-14.pdf
2. Emergency Response Guide, State of Colorado, 2014. http://www.colorado.gov/docs/pdf/EmergencyResponseGuideFinal.pdf)

A civil unrest and disturbance is a public demonstration or gathering that results in a disruption of essential functions, rioting, looting, arson, or other unlawful behavior. Civil disturbances can take the form of small gatherings or large groups blocking or impeding access to a building, or disrupting normal activities by generating noise and intimidating people. Civil unrest and disturbance can quickly overwhelm local public safety resources and can result in millions of dollars of damage.

The worst riot to occur in the United States took place in Los Angeles in 1992. The riot was first started in South Los Angeles and then eventually spread out into other areas over a 6-day period within the Los Angeles metropolitan area. The riots started on April 29 after a trial jury acquitted four Los Angeles Police Department officers of assault and use of excessive force. The mostly white officers were videotaped beating an African-American following a high-speed police pursuit. Thousands of people throughout the metropolitan area in Los Angeles rioted over 6 days following the announcement of the verdict. In total, 63 people were killed during the riots, over 2,000 people were injured and estimates of property damage topped $1 billion.

Other recent civil unrest and disturbances:

Protests of election results, 2016: Nov. 9-27. As a result of the 45th president being elected, thousands protested across twenty five American cities and unrest broke out in Downtown Oakland, California and Portland, Oregon. In Downtown Oakland over 40 fires started and police officers were injured.

May Day protests, 2017: These protests were a series of protests that took place on 05/01/2017 throughout the United States. Protests became violent in Olympia, WA and Portland, OR. In Portland, protesters allegedly threw lead balls, smoke bombs, paint, glass bottles, and cans of Pepsi at police officers. There were multiple cases of property damage and arson. In Olympia, black-clad protesters shattered windows and threw smoke-issuing devices and rocks at police.

Preparations and responses for civil unrest and disturbance

During demonstrations and other large gatherings, inform the building occupants not to provoke or obstruct demonstrators. Secure the premises area (doors, safes, files, vital records, expensive equipment).

If a civil disturbance or civil unrest occurs outside of your premises,

- Ensure that all staff/visitors are aware of the civil unrest situation;
- Maintain situational awareness of the evolving situation and communicate changes to staff/visitors;
- Maintain a calming influence over your group. Reassure staff and visitors that everything possible is being done to return the situation to normal;
- Suggest all building occupants
  - Remain in the building;
  - Stay away from doors and windows;
  - Identify one point person to establish communications with and then call 9-1-1;
  - Keep phone free as much as possible for incoming messages;
  - Wait for the "all-clear" from supervisors;
- Provide the "all-clear" when the situation has resolved;
- Suggest the building occupants to walk in groups to parking facilities (after the "all-clear" is given);

16.6 Interaction with first responders

16.6.1 Citywide Incident Management System (CIMS)

(This section is cited from the following resource:

Citywide Incident Management System Charts, New York City Office of Emergency Management. http://www.nyc.gov/html/oem/downloads/pdf/cims_charts.pdf)

On May 14, 2004, the Citywide Incident Management System (CIMS) was adopted as the City's program for responding to and recovering from emergencies, and for managing planned events.

CIMS establishes roles and responsibilities and designates authority for city, state, and other government entities and non-profit and private sector organizations performing and supporting emergency response.

The CIMS Protocol is New York City's implementation of the National Incident Management System (NIMS). NIMS compliance is a requirement for federal domestic preparedness funding for local governments. While CIMS has been developed to address New York City's unique incident management requirements, its full compliance with NIMS ensures compatibility with incident command systems in use in other states and federal agencies. CIMS is also designed to be scalable, facilitating the integration of additional organizations, such as private sector and non-profit entities. CIMS defines how citywide emergencies or multiple large-scale incidents will be managed. It also defines agency roles and responsibilities at emergency incidents.

The owner, FLS Director, and all other FLS staff and building occupants shall comply with the orders of the Fire Department or other incident commander or emergency response personnel should such incident commander or emergency response personnel be present at the building. As an FLS Director, you should be familiar with different primary agencies during different incidents. Primary agencies are designated in CIMS to have overall responsibility for an incident, including overall management of strategic and tactical operations. Primary agencies will cooperate with supporting agencies to successfully achieve incident objectives. Incidents managed by a unified command will have more than one primary agency.

In a single command response, the incident commander will be the designated member of the primary agency who is responsible for overseeing that agency's operations for the incident. The incident commander will designate the operations section chief.

The following tables list the core competencies of different agencies. Core Competencies are functional areas of expertise that relate specifically to tactical operations managed by the Operations Section. Agencies have the authority to direct operations related to their Core Competencies at incidents. If more than one agency is capable of performing the same tactical operations, the agency with the Core Competency will give tactical direction, by the ranking officer, to other agencies performing operations within that competency.

Table: Local agencies' core competencies

AGENCY	CORE COMPETENCIES		AGENCY	CORE COMPETENCIES
FDNY	• Fire Suppression • Pre-hospital Emergency Medical Care • Search and Rescue • Structural Evacuation, Structure Collapse • Haz-Mat Life Safety and Mass • Decontamination • Arson Investigation (Cause &Origin) • Elevator Incident or Emergency • Combined Space Rescue		DOT	• Bridges and Roadways: Infrastructure • Assessment, Repair and Reconstruction • Transportation Systems Management • Staten Island Ferry Operations
NYPD	• Law Enforcement and Investigation • Intelligence Collection and Analysis • Crime Scene Processing / Evidence • Civil Disturbance • Suspicious Package • Explosive Device, Bomb Threat • Preservation • Site Management • Perimeter Control • Traffic Control • Crowd Control • Site Security and Force Protection • Evacuation (Area and / or Law Enforcement • related) • Water Search and Rescue • Haz-Mat Assessment and • Investigation (Crime Scene / Terrorism) • Accident Investigation • VIP Protection • Arson Investigation (Major Case)		DOHMH*	• Disease Surveillance and Epidemiology • Public Health Orders, Clinical Guidance • and Risk Communication • Mass Prophylaxis / Vaccination • Laboratory Testing (Biological and • Radiological) • Public Health Assessment • Environmental Mitigation (Radiological and Biological) • Animal-Related Surveillance and Vector • Control • Mental Health Needs Assessment and Service Coordination
			ConEd	• Electric, Gas and Steam: Infrastructure • Assessment, Repair and Reconstruction
DDC*	• Technical Debris Management Operations • Technical Stabilization, Remediation and • Demolition • Public Buildings, Roadways, Water and • Wastewater: Infrastructure • Assessment, Repair and • Reconstruction		DEP	• Environmental Monitoring, Sampling, • Evaluation and Analysis • Environmental Mitigation (Chemical) • Environmental Law Enforcement • Water and Wastewater: Infrastructure • Assessment, Repair and • Reconstruction
DOB	• Damage Assessment (Structural) • Building Re-occupancy (Structural)		OEM*	• Interagency Coordination and Support

*DDC: Department of Design and Construction
DOHMH: Department of Health and Mental Hygiene
OEM: Office of Emergency Management

In a unified command response with multiple incident commanders, the primary agencies will co-locate at a single incident command post and jointly set incident objectives (The following table lists some examples for unified command incidents). The unified command may designate a single operations section chief by mutual agreement, or he/she may be designated from each primary agency with a relevant core competency.

Depending on the location and/or type of an incident, additional agencies may have jurisdictional responsibilities for managing the incident (e.g. incidents occurring on state or federal property within NYC). The primary agency matrix tries to anticipate these scenarios and identifies these agencies as potential primary agencies that will participate in a unified command, as appropriate.

Table: Unified Command Incidents

INCIDENT TYPE	PRIMARY AGENCIES
Chemical, Biological, Radiological or Nuclear (CBRN) / Haz-Mat Incident *	NYPD, FDNY
Citywide Public Health Emergency	DOHMH, NYPD, FDNY
Explosion	FDNY, NYPD
Natural Disaster / Weather Emergency	OEM, NYPD, FDNY, DOT, DSNY
Utility Incident: Electric, Gas, Steam	NYPD, FDNY
Utility Incident: Water / Wastewater	DEP, FDNY, NYPD
Utility Incident: Telecommunications	DOITT, NYPD, FDNY

16.6.2 Interaction with first responders

The FLS Director, all other FLS staff and building occupants must comply with the orders of the FDNY personnel. The lobby and the building entrance must be kept clear for the FDNY or other first responders' access. When the first responders arrive, the FLS Director must remain on the Fire Command Center to greet the first responders, and the Building Engineer should be available and prepared to follow the first responders' instructions.

The FLS Director should silence the alarm system when authorized by the first responders. Audible silence allows for easier communication for the first responders while responding to an alarm.

The FLS Director is, required to notify arriving first responders of the nature of the emergency and the actions already taken. He or she should also provide the following materials to the first responders:

- Floor plans
- Building Information Card (BIC)
- FDNY Plan
- Elevator and stair diagrams
- Elevator keys
- Any other master keys/access cards that may be required
- Premises security radios/walkie-talkies

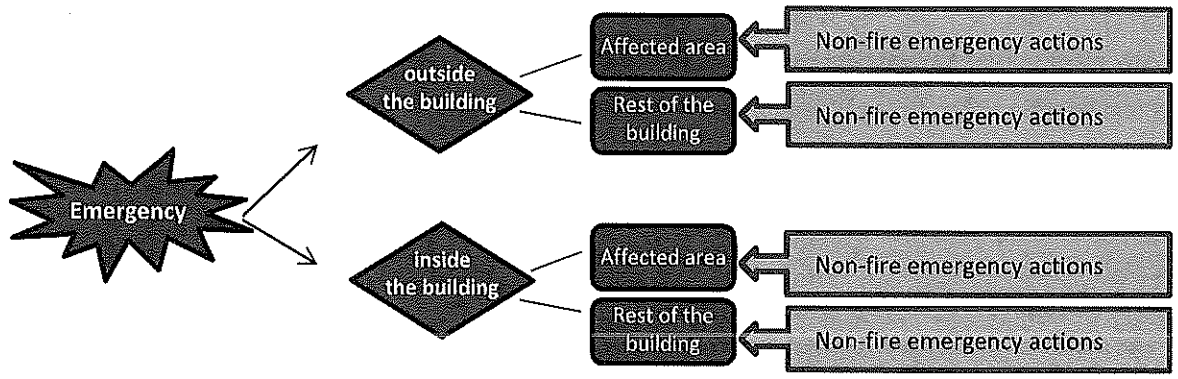
The FLS Director may need to quickly provide the first responders and the incident commander with the following information, if known:

- Location of the incidents
- The nature of the incidents (what caused the incident)
- The conditions in the affected area
- The status of the stairways (stairway being used by occupants and stairway suggested to be used for the FDNY personnel)
- The implementation of the non-fire emergency actions (shelter in place, in-building relocation, partial evacuation or full evacuation)
- Status of elevators and HVAC system
- The location of the evacuated people
- Any problems with the implementation of the non-fire emergency actions
- Number of potential victims at the location
- Any people unaccounted for
- Any problems reported to you
- Any impairment of the fire protection or major building systems

It is critical for the FLS staff to follow orders of the first responders or incident commander. The first responders may request assistance of the FLS Director and other FLS staff to operate and control the building systems.

Chapter 17. FOUR NON-FIRE EMERGENCY ACTIONS (EAP ACTIONS) FOR DIFFERENT AREAS AND EMERGENCY SCENARIOS

This section is meant as a commentary to support & further clarify the tables enclosed (table 17-A1, 17-A2, 17-B1, 17-B2, 17-C1 and 17-C2). This section is broken down into different types of emergencies. Each emergency is then split into two areas: inside the building & outside the building. The actions discussed will follow along as seen below:



- The meaning of the **affected area** in this booklet is determined to be:

  The area(s) that may be in close proximity to the threat/incident and experience the immediate impact of the threat/incident.

- The meaning of the **rest of the building** in this booklet is determined to be:

  The area(s) other than the affected area

The FDNY has created three categories of response actions: they are "**RECOMMENDED**" (refer to table 17-A1 & table 17-A2), "**ACCEPTABLE**" (refer to table 17-B1 & table 17-B2) and "**UNACCEPTABLE**" (table 17-C1 & 17-C2).

The following content is arranged as follows:

- **The type of the emergency**
  - **Outside** – Action to be taken for:
    - Affected Area -Recommended → Acceptable → Unacceptable

- ➢ Rest of the Building -Recommended → Acceptable → Unacceptable

- **Inside – Action to be taken for:**
  - ➢ Affected Area -Recommended → Acceptable → Unacceptable
  - ➢ Rest of the Building -Recommended → Acceptable → Unacceptable

This section offers, as a general guide, the following non-fire emergency (EAP) actions steps, as used in table 17-A1, 17-A2, 17-B1, 17-B2, 17-C1 and 17-C2. They will be used as a scoring criterion for the FLSD on-site test:

- The **recommended** non-fire emergency (EAP) actions (listed in the table 17-A1 & table 17-A2) - the actions that the FDNY strongly recommends the applicants should apply for the specific scenarios. The applicants **will receive full credit** if they choose the action(s) in the On-Site exam.
- The **acceptable** non-fire emergency (EAP) actions (listed in the table 17-B1 & table 17-B2) - the actions that the FDNY does not recommend. The applicants **will receive partial credit** in the On-Site exam.
- The **unacceptable** non-fire emergency (EAP) actions (listed in the table 17-C1 & table 17-C2) - the actions that the FDNY does not encourage the applicants to apply for the specific scenarios. The applicants **will NOT receive credit** in the On-Site exam.

The study material is **NOT** a mandate regarding non-fire emergency (EAP) actions; it is only providing a rule of thumb for general emergency situations. **The most appropriate non-fire emergency actions may vary depending on the specific emergency situation which occurs within the context of the building design and components.**

17.1 Emergency actions for biological incident or release

If there is any suspicious letter or package that may contain a biological agent, such as "anthrax", the envelope or package should be isolated. All occupants should be removed and situated into a safe area. The first responders will perform a threat assessment of the situation and make decisions about further actions.

17.1.1 Biological agent released outside the building impacting the immediate area

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: in-building relocation.

➢ *Reason:*

If a credible biological threat has occurred outside the building (e.g. outside the building main entrance), the openings of the building or the place near the main entrance (e.g. the lobby) have a high probability of being exposed to the threat and should be treated as affected areas.

The occupants may be exposed to the threat. The FDNY recommends relocating the occupants to a safe in-building relocation area.

(2) Recommended actions for the rest of the building: shelter in place.

➢ *Reason:*

Since the rest of the building is not affected by the incident, the FLS Director should instruct the occupants to remain where they are.

b. Acceptable actions: (refer to table 17-B1)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: in-building relocation.

➢ *Reason:*

There is no urgent need to move the occupants who are not affected by the incident; however, the FDNY accepts (but does not recommend) if the FLS Director makes the choice to move the occupants to safe in-building relocation areas.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place, partial or full evacuation (evacuation P/F).

➢ *Reason:*

The occupants who are in the affected area should be moved. The decision made to shelter in place may expose the occupants to the threat.

Evacuating the occupants and exposing them to the outside biological/toxic agent will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to stay away from the threat; it may be safer for the occupants to remain inside the building.

(2) Unacceptable actions for the rest of the building: partial or full evacuation (evacuation P/F).

➢ *Reason:*

Evacuating the occupants and exposing them to the outside biological/toxic agent will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to stay away from the threat; it may be safer for the occupants to remain inside the building.

II. Other special notes:

The affected area should be isolated. All building entrances (including loading dock, garage door, etc.) should be closed and sealed off to prevent any contamination from entering the building. It may also be advisable to post a guard at every entrance to limit both access and egress from the building.

17.1.2 Biological agent released inside the building (in a confined area only)

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: isolate the individual(s) who was/were directly exposed to the agent.

➢ *Reason:*

The individual(s) who has/have been exposed to or have had contact with the possible biological agents must be isolated. **The individual(s) should be isolated in an area free from any further exposure and away from other people who have not been exposed to the agent and be hold for possible decontamination. By isolating both the affected area and individual(s), the FLS director helps to** limit the spread of the biological agents and allow the individual(s) to receive medical evaluation and treatment as soon as possible.

(2) Recommended actions for the rest of the building: shelter in place or in-building relocation.

➢ *Reason:*

The decision made to implement a shelter in place or an in-building relocation is recommended by the FDNY. The occupants in the rest of the building are not experiencing the threat directly. There is no need to evacuate the occupants; however, the occupants should be alerted to stay away from the threat.

b. Acceptable actions: (refer to table 17-B1)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: partial or full evacuation (evacuation P/F).

➢ *Reason:*

There is no urgent need to move the occupants outside; however, the FDNY accepts (but does not recommend) if the FLS Director chooses to evacuate the occupants to a safe, well-ventilated outside assembly area(s).

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: not isolate the individual(s) who has/have had direct contact with the agent.

➢ *Reason:*

The individual(s) who has/have had direct contact with the agent should be removed away from the threat but not be released to prevent possible cross-contamination.

(2) Unacceptable actions for the rest of the building:

➢ *Reason:*

If the FLS Director chooses to move the occupants, it will not be acceptable to the FDNY if he/she decides that the exit route for the occupants is passage through the affected area. The occupants should be alerted to stay away from the affected area, and not to pass through or enter it.

II. Other special notes:

The affected area should be isolated. Advise everyone to stay clear of the affected area.

17.1.3 Biological agent released inside the building, and possibly contaminates multiple floors (e.g. someone carried the agent to multiple floors)

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: isolate the individual(s) who was /were directly exposed to the agent.

➢ *Reason:*

The individual(s) who has/have been exposed to or have had contact with the possible biological agents must be isolated. **The individual(s) should be isolated in an area free from any further exposure and away from other people who have not been exposed to the agent and be held for possible decontamination. By isolating both the affected area and individual(s), the FLS Director helps to** limit the spread of the biological agents and allow the individual(s) to receive medical evaluation and treatment as soon as possible.

(2) Recommended actions for the rest of the building: shelter in place.

➢ *Reason:*

Before the emergency personnel arrive, the decision made to implement a shelter in place is recommended by the FDNY. Because the agent has been carried around on multiple floors, it might contaminate undetermined locations. The FLS Director should recommend that all individuals who have not been directly exposed to the agent to stay in place to wait for further instructions given from the emergency personnel. It could prevent the occupants from exposure to the agent.

b. Acceptable actions: (refer to table 17-B1)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: in-building relocation, partial or full evacuation (evacuation P/F).

➢ *Reason:*

There is no urgent need to move the occupants; however, the FDNY accepts (but does not recommend) if the FLS Director chooses to move the occupants to designated safe in-building relocation areas or to safe, well-ventilated outside assembly areas.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: not isolate the individual(s) who has /have had direct contact with the agent.

➢ *Reason:*

The individual(s) who has/have had direct contact with the agent should be removed away from the threat, but not be released to prevent possible cross-contamination.

(2) Unacceptable actions for the rest of the building:

➢ *Reason:*

If the FLS Director chooses to move the occupants, it will not be acceptable to the FDNY if he/she decides that the exit route for the occupants is passage through the affected area. The occupants should be alerted to stay away from the affected area, and not to pass through or enter it.

II. Other special notes:

The affected area should be isolated. Advise everyone to stay clear of the affected area.

17.2 Emergency actions for chemical incident or release

17.2.1 Chemical agent released outside the building impacting the immediate area

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: in-building relocation.

- *Reason:*

  If a credible chemical threat has occurred outside the building (e.g. outside the building main entrance), the openings of the building or the place near the main entrance (e.g. the lobby) which have higher risk for being exposed to the threat should be treated as affected areas.

  The occupants may be exposed to the threat. The FDNY recommends relocating the occupants to a safe in-building relocation area.

(2) Recommended actions for the rest of the building: shelter in place.

- *Reason:*

  Since the rest of the building is not affected by the incident, the FLS Director should instruct the occupants to remain where they are.

b. Acceptable actions: (refer to table 17-B1)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: in-building relocation.

- *Reason:*

  There is no urgent need to move the occupants who are not affected by the incident; however, the FDNY accepts (but does not recommend) if the FLS Director makes the choice to move the occupants to safe in-building relocation areas.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place, partial or full evacuation (evacuation P/F).

- *Reason:*

  The occupants who are in the affected area should be moved. The decision made to shelter in place may expose the occupants to the threat.

Evacuating the occupants and exposing them to the outside threat will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to stay away from the threat; it may be safer for the occupants to remain inside the building.

(2) Unacceptable actions for the rest of the building: partial or full evacuation (evacuation P/F).

➢ *Reason:*

Evacuating the occupants and exposing them to the outside threat will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to stay away from the threat; it may be safer for the occupants to remain inside the building.

II. Other special notes:

The affected area should be isolated. All building entrances (including loading dock, garage door, etc.) should be closed and sealed off to prevent any contamination from entering the building. It may also be advisable to post a guard at every entrance to limit both access and egress from the building.

17.2.2 Chemical agent released inside the building

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: in-building relocation, partial or full evacuation (evacuation P/F).

➢ *Reason:*

The individual(s) who has/have been exposed to or have had contact with the possible chemical agents should be removed from the affected area (in-building relocation, partial or full evacuation). **The individual(s) should be relocated to an area free from any further exposure and away from other people who have not been exposed to the agent and be held for possible decontamination.** By isolating both the affected area and individual(s), the FLS Director helps to limit the spread of the chemical agents and allow the individual(s) to receive medical evaluation and treatment as soon as possible.

Decontamination includes changing of clothes and placing the contaminated clothes in a sealed plastic bag, if applicable. Washing with soap (preferably liquid) and water. Flushing skin with lots of water; flushing eyes with water if they are irritated.

In general, the FLS Director should take action to find clean air quickly: evacuate or in-building relocate the occupants.

(2) Recommended actions for the rest of the building: shelter in place.

➢ *Reason:*

The decision made to implement a shelter in place is recommended by the FDNY. Because there is no urgent need to move the occupants, the FLS Director should recommend the occupants stay in place.

b. Acceptable actions: (refer to table 17-B1)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: in-building relocation, partial or full evacuation (evacuation P/F).

➢ *Reason:*

There is no urgent need to move the occupants; however, the FDNY accepts (but does not recommend) if the FLS Director chooses to move the occupants to designated safe in-building relocation areas or to safe, well-ventilated outside assembly areas.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place.

➢ *Reason:*

Sheltering the occupants in place in the affected area will serve to increase their contact with the threat.

(2) Unacceptable actions for the rest of the building:

- *Reason:*

If the FLS Director chooses to move the occupants, it will not be acceptable to the FDNY if he/she decides that the exit route for the occupants is passage through the affected area. The occupants should be alerted to stay away from the affected area, and not to pass through or enter it.

II. Other special notes:

The affected area should be isolated. Advise everyone to stay clear of the affected area.

17.3 Emergency actions for carbon monoxide/natural gas leak

17.3.1 Carbon Monoxide/Natural Gas Leak found outside the building impacting the immediate area

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: in-building relocation.

- *Reason:*

The occupants may be exposed to the threat. The FDNY recommends relocating the occupants to a safe in-building relocation area.

(2) Recommended actions for the rest of the building: shelter in place.

- *Reason:*

Since the rest of the building is not affected by the incident, the FLS Director should instruct the occupants to remain where they are.

b. Acceptable actions: (refer to table 17-B1)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: in-building relocation.

➢ *Reason:*

There is no urgent need to move the occupants who are not affected by the incident; however, the FDNY accepts (but does not recommend) if the FLS Director make the choice to move the occupants to safe in-building relocation areas.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place, partial or full evacuation (evacuation P/F).

➢ *Reason:*

The occupants who are in the affected area should be moved. The decision made to shelter in place may expose the occupants to the threat.

Evacuating the occupants and exposing them to the outside threat will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to stay away from the threat; it may be safer for the occupants to remain inside the building.

(2) Unacceptable actions for the rest of the building: partial or full evacuation (evacuation P/F).

➢ *Reason:*

Evacuating the occupants and exposing them to the outside threat will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to stay away from the threat; it may be safer for the occupants to remain inside the building.

II. Other special notes:

Isolate the affected area. Advise everyone to stay clear of the affected area.

17.3.2 Carbon Monoxide/Natural Gas Leak found inside the building (in a specific floor/area only)

If the FLS Director or his/her brigade members cannot decide if the gas leak is a major or minor leak, the leak should be treated as a major leak. In this case, the FLS Director should follow the procedure recommended in Section 17.3.3 of this booklet: Carbon Monoxide/Natural Gas Leak found inside the building (throughout the building)

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: in-building relocation, partial or full evacuation (evacuation P/F).

➢ *Reason:*

Carbon monoxide gas and natural gas are both flammable and constitute a health hazard. The longer the occupants are exposed to the gas, the more ill they will become. The FLS Director should in-building relocate or evacuate the occupants to an **empty the affected area**. All occupants of the following floors: (1) the affected floor(s) that is/are reported for a suspicious gas leak, (2) the floor above the affected floor, and (3) the floor below the affected floor should be in-building relocated or evacuated, so that they may find fresh, clean air as quickly as possible.

(2) Recommended actions for the rest of the building: shelter in place

➢ *Reason:*

If the gas leak is minor and only in a certain small area, the rest of the building is not affected by the incident, the FLS Director should instruct the occupants to remain where they are.

b. Acceptable actions: (refer to table 17-B1)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: in-building relocation, partial, or full evacuation (evacuation P/F).

➢ *Reason:*

There is no urgent need to move the occupants; however, the FDNY accepts (but does not recommend) if the FLS Director chooses to move the occupants to designated safe in-building relocation areas or to safe, well-ventilated outside assembly areas.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place.

➢ *Reason:*

The occupants who are in the affected area should not be sheltered in place. Sheltering the occupants in place may expose them to the threat.

(2) Unacceptable actions for the rest of the building:

➢ *Reason:*

If the FLS Director chooses to move the occupants, it will not be acceptable to the FDNY if he/she decides that the exit route for the occupants is passage through the affected area. The occupants should be alerted to stay away from the affected area, and not to pass through or enter it.

II. Other special notes:

The affected area should be isolated. Advise everyone to stay clear of the affected area.

17.3.3 Carbon Monoxide/Natural Gas Leak found inside the building (throughout the building)

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: full evacuation.

➢ *Reason:*

"Full evacuation" will be the only recommended and acceptable action. Once the gas leak is ignited by a spark, it might cause major damage to the occupants and the building structure. In order to prevent a possible catastrophe, it is highly recommended that the entire building be evacuated before the "all clear" is given by the FDNY.

(2) Recommended actions for the rest of the building: full evacuation.

➢ *Reason:*

"Full evacuation" will be the only recommended and acceptable action. Once the gas leak is ignited by a spark, it might cause major damage to the occupants and the building structure. In order to prevent a

possible catastrophe, it is highly recommended that the entire building be evacuated before the "all clear" is given by the FDNY.

b. Acceptable actions:

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: NA.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place, in-building relocation and partial evacuation.

➢ *Reason:*

No occupant should be allowed to stay inside the building.

(2) Unacceptable actions for the rest of the building: shelter in place, in-building relocation and partial evacuation.

➢ *Reason:*

No occupant should be allowed to stay inside the building.

II. Other special notes:

It may be advisable to post a guard at every entrance to limit the access to the building.

17.4 Emergency actions for explosion

17.4.1 An explosion happened directly outside the building impacting the immediate area

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: in-building relocation.

➢ *Reason:*

If an explosion happened outside the building, the building may still be exposed to a threat. The FDNY recommends that the FLS Director move the occupants to safe in-building relocation areas.

If the outdoor explosion has severely damaged the building structure, refer to Section 17.4.2 of this booklet: "An explosion happened inside the building".

(2) Recommended actions for the rest of the building: in-building relocation.

➢ *Reason:*

If an explosion happened outside the building, the building may still be exposed to a threat. The FDNY recommends that the FLS Director move the occupants to safe in-building relocation areas.

If the outdoor explosion has severely damaged the building structure, refer to Section 17.4.2 of this booklet: "An explosion happened inside the building".

b. Acceptable actions: (refer to table 17-B1)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: shelter in place.

➢ *Reason:*

It is safer to relocate all occupants to safe in-building relocation areas for outdoor explosion events; however, since the rest of the building may not be affected by the event, the FDNY also accepts (but does not recommend) that the FLS Director suggest to occupants in the rest of the building to remain in place.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place, partial or full evacuation (evacuation P/F).

➢ *Reason:*

The occupants who are in the affected area should not be sheltered in place. Sheltering the occupants in place may expose them to the threat. The occupants who are in the affected area should be moved.

It is considered to be unacceptable by the FDNY for the FLS Director to evacuate the occupants immediately after the explosion occurs outside the building. It is safer to keep the occupants inside the building until credible information can be gathered and an informed decision can be made.

The partial or full evacuation decision is recommended by the FDNY only when the building structure is damaged. The occupants should be alerted to stay away from the affected area, and not to pass through or enter it.

(2) Unacceptable actions for the rest of the building: partial or full evacuation (evacuation P/F).

➢ *Reason:*

It is considered to be unacceptable by the FDNY for the FLS Director to evacuate the occupants immediately after the explosion occurs outside the building. It is safer to keep the occupants inside the building until credible information can be gathered and an informed decision can be made.

The partial or full evacuation decision is recommended by the FDNY only when the building structure is damaged. The occupants should be alerted to stay away from the affected area, and not to pass through or enter it.

II. Other special notes:

Isolate the affected area. Advise everyone to stay clear of the affected area.

17.4.2 An explosion happened inside the building

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: full evacuation.

➢ *Reason:*

"Full evacuation" will be the recommended and acceptable action by the FDNY for this scenario. An explosion very often causes damage to the building structure, and can cause many serious post explosion injuries among survivors. The FLS Director should determine the best route for all building occupants to leave the building quickly.

Relocation in a building is recommended only when all the paths to the exits are blocked.

(2) Recommended actions for the rest of the building: full evacuation.

➢ *Reason:*

"Full evacuation" will be the recommended and acceptable action by the FDNY for this scenario. An explosion very often causes damage to the building structure, and can cause many serious post explosion injuries among survivors. The FLS Director should determine the best route for all building occupants to leave the building quickly.

Relocation in a building is recommended only when all the paths to the exits are blocked.

b. Acceptable actions:

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: NA.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place, in-building relocation or partial evacuation.

➢ *Reason:*

If there is any safe way to leave the building, the FLS Director should not suggest that any occupant stay inside the building. It is unsafe to leave any occupant inside the building before the authorities declare that the building structure is safe and that there are no other explosives inside the building (most bomb attacks have more than 2 explosives).

If the explosion has compromised all safe exit routes, the FLS Director should suggest safe in-building relocation areas for the occupants.

(2) Unacceptable actions for the rest of the building: shelter in place, in-building relocation or partial evacuation.

➢ *Reason:*

If there is any safe way to leave the building, the FLS Director should not suggest that any occupant stay inside the building. It is unsafe to leave any occupant inside the building before the authorities declare that the building structure is safe and that there are no other explosives inside the building (most bomb attacks have more than 2 explosives).

If the explosion has compromised all safe exit routes, the FLS Director should suggest safe in-building relocation areas for the occupants.

17.5 Emergency actions for a suspicious (unattended) package

If the suspicious package **has significant feature(s)** indicating that it may **contain explosives**, the FLS Director should refer to Section 17.4 of this booklet: "Emergency Actions for Explosion".

Packages that have lumps, bulges, protruding wires, or aluminum foil; buzz, tick or make a sloshing sound; or, have a bomb threat note related to it could be indicators of a potential bomb.

If there is no clear information what the suspicious package contains, the FDNY provides the following guidance to be followed:

17.5.1 A suspicious package is reported to be located directly outside the building impacting the immediate area

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: in-building relocation.

➢ *Reason:*

If there is a suspicious package located outside the building impacting the immediate occupancy area, even it **does not have any significant feature**(s) indicating that it contains explosives, the building occupants may still be exposed to the potential risk. The FDNY recommends that the FLS Director make the choice to move the occupants to safe in-building relocation areas.

(2) Recommended actions for the rest of the building: shelter in place.

➢ *Reason:*

If there is a suspicious package located outside the building impacting the immediate occupancy area, and it **does not have any significant feature**(s) indicating that it contains explosives. The decision made to implement a shelter in place for the rest of the building is recommended by the FDNY. Because there is no urgent need to move the occupants, the FLS Director should recommend the occupants stay in place.

b. Acceptable actions: (refer to table 17-B1)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: in-building relocation.

➢ *Reason:*

There is no urgent need to move the occupants; however, the FDNY accepts (but does not recommend) if the FLS Director chooses to move the occupants to designated safe in-building relocation areas.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place, partial or full evacuation (evacuation P/F).

➢ *Reason:*

The occupants who are in the affected area should not be sheltered in place. Sheltering the occupants in place may expose them to the threat. The occupants who are in the affected area should be moved.

Evacuating the occupants and exposing them to the outside threat will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to stay away from the threat; it may be safer for the occupants to remain inside the building.

The occupants should be alerted to stay away from the affected area, and not to pass through or enter it.

(2) Unacceptable actions for the rest of the building: partial or full evacuation (evacuation P/F).

➢ *Reason:*

Evacuating the occupants and exposing them to the outside threat will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to stay away from the threat. It may be safer for the occupants to remain inside the building.

The occupants should be alerted to stay away from the affected area, and not to pass through or enter it.

II. Other special notes:

DO NOT HANDLE THE PACKAGE. Isolate the affected area. Advise everyone to stay clear of the affected area.

17.5.2 A suspicious package is reported inside the building

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: in-building relocation, partial or full evacuation (evacuation P/F).

➢ *Reason:*

If a suspicious package(s) is/are found inside the building, even it **does not have any significant feature**(s) indicating that it contains explosives, the occupants may still be exposed to the potential risk. The FLS Director should in-building relocate or evacuate the occupants to **empty the affected area.**

If an evacuation is announced to the occupants, the FLS Director must determine the best route(s) for the occupants. The goal is to stay as far away from the threat as possible. There should not be anyone near or inside the area before the "all clear" is announced by the FDNY/NYPD.

(2) Recommended actions for the rest of the building: shelter in place.

➢ *Reason:*

If a suspicious package(s) is/are found inside the building, and it **does not have any significant feature**(s) indicating that it contains explosives, the decision made to implement a shelter in place is recommended by the FDNY. Because there is no urgent need to move the occupants, the FLS Director should recommend the occupants stay in place.

b. Acceptable actions: (refer to table 17-B1)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: in-building relocation, partial or full evacuation (evacuation P/F).

➢ *Reason:*

There is no urgent need to move the occupants; however, the FDNY accepts (but does not recommend) if the FLS Director chooses to move the occupants to designated safe in-building relocation areas or to safe, well-ventilated outside assembly areas.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place.

➢ *Reason:*

The occupants who are in the affected area should be moved. The decision made to shelter in place may expose the occupants to the threat.

(2) Unacceptable actions for the rest of the building: be in close proximity to the suspicious package

➢ *Reason:*

If the FLS Director chooses to move the occupants, it will not be acceptable to the FDNY if he/she decides that the exit route for the occupants is passage through the affected area. The occupants should be alerted to stay away from the affected area, and not to pass through or enter it.

III. Other special notes:

Isolate the affected area. Advise everyone to stay clear of the affected area.

17.6 Emergency actions for civil disturbance (outside the building)

Civil disturbances include riots, demonstrations, threatening individuals, crimes in progress, or assemblies that have become significantly disruptive.

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: in-building relocation.

➢ *Reason:*

If there is a civil disturbance happening outside the building, the occupants may be exposed to the threat. The FDNY recommends relocating the occupants to a safe in-building relocation area.

(2) Recommended actions for the rest of the building: shelter in place.

➢ *Reason:*

Since the rest of the building is not affected by the incident, the FLS Director should instruct the occupants to remain in place.

b. Acceptable actions: (refer to table 17-B1)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: in-building relocation.

➢ *Reason:*

There is no urgent need to move the occupants who are not affected by the incident; however, the FDNY accepts (but does not recommend) if the FLS Director chooses to move the occupants to safe in-building relocation areas.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place, partial or full evacuation (evacuation P/F).

➢ *Reason:*

The occupants who are in the affected area should be moved. The decision made to shelter in place may expose the occupants to the threat.

Evacuating the occupants and exposing them to the outside threat will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to stay away from the threat; it may be safer for the occupants to remain inside the building.

(2) Unacceptable actions for the rest of the building: partial or full evacuation (evacuation P/F).

➢ *Reason:*

Evacuating the occupants and exposing them to the outside threat will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to stay away from the threat; it may be safer for the occupants to remain inside the building.

II. Other special notes:

All building entrances (including loading dock, garage door, etc.) should be closed to prevent rioters from entering the building. It may also be advisable to post a guard at every entrance to limit access to the building.

17.7 Emergency actions for building utilities failure

There can be many types of Building Utilities Failure events depending upon the building components and the severity of the failure. FDNY recommends any non-fire emergency (EAP) action (shelter in place, in-building relocation, partial or full evacuation) that is reasonable and justifiable; **however, FDNY does not accept sheltering occupants in place if the emergency has compromised the affected area and the occupants will be in danger for remaining in the affected area. In this case, the occupants who are in the affected area should be relocated within the building or be evacuated.**

17.8 Emergency actions for a building with physical damage/structural failure

If the FLS Director **cannot decide** if the structural failure is major or minor, he/she **should assume it as a major failure** that may lead to building collapse and take the non-fire emergency (EAP) actions that will protect the occupants from the possible threat.

17.8.1 The building has minor physical damage (such as broken windows), and the damage is in some specific areas that will NOT lead to building collapse.

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: in-building relocation, partial or full evacuation (evacuation P/F).

➢ *Reason:*

If there is a minor physical damage to the building, the FLS Director should in-building relocate or evacuate the occupants to empty the affected area; however, if an evacuation is announced to the occupants, the FLS Director must determine the best route(s) for the occupants to avoid the threat. There should not be anyone near or inside the area before the "all clear" is announced by the authority (e.g. FDNY).

(2) Recommended actions for the rest of the building: shelter in place or in-building relocation.

➢ *Reason:*

The decision made to implement a shelter in place is recommended by the FDNY. Because there is no urgent need to move the occupants, the FLS Director could recommend that the occupants stay in place; however, it could also be recommended by the FDNY that the FS/EAP or FLS Director may make the choice to relocate all building occupants within the building to ensure their safety.

b. Acceptable actions: (refer to table 17-B1)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: partial or full evacuation (evacuation P/F).

➢ *Reason:*

There is no urgent need to move the occupants outside the building; however, the FDNY accepts (but does not recommend) if the FLS Director chooses to move the occupants to safe, outside assembly areas.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place.

➢ *Reason:*

The occupants who are in the affected area should be moved. The decision made to shelter in place may expose the occupants to the threat.

(2) Unacceptable actions for the rest of the building:

➢ *Reason:*

If the FLS Director chooses to move the occupants, it will not be acceptable to the FDNY if he/she decides that the exit route for the occupants is passage through the affected area. The occupants should be alerted to stay away from the affected area, and not to pass through or enter it.

II. Other special notes:

Isolate the affected area. Advise everyone to stay clear of the affected area.

17.8.2 The building has possible severe structural failure (such as a major wall collapse or damage) or the damages are within multiple floors/large areas that may lead to building collapse

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A1)

(1) Recommended actions for the affected area: full evacuation.

➢ *Reason:*

"Full evacuation" will be the recommended and acceptable action by the FDNY for this scenario. Severe building structural damage may cause the building to collapse. The FLS Director should determine the best route for all building occupants to leave the building quickly.

In-building relocation is recommended only when all the paths to the exits are blocked.

(2) Recommended actions for the rest of the building: full evacuation.

➢ *Reason:*

"Full evacuation" will be the recommended and acceptable action by the FDNY for this scenario. Severe building structural damage may cause the building to collapse. The FLS Director should determine the best route for all building occupants to leave the building quickly.

In-building relocation is recommended only when all the paths to the exits are blocked.

b. Acceptable actions:

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of building: NA.

c. Unacceptable actions: (refer to table 17-C1)

(1) Unacceptable actions for the affected area: shelter in place, in-building relocation, or partial evacuation.

- *Reason:*

  If there is any safe way to leave the building, the FLS Director should not suggest any occupant stay inside the building. It is unsafe to leave any occupant inside the building before the authorities declare the building structure is safe.

  If all safe exit routes are compromised, the FLS Director should suggest safe in-building relocation areas for the occupants.

(2) Unacceptable actions for the rest of the building: shelter in place, in-building relocation, or partial evacuation.

- *Reason:*

  If there is any safe way to leave the building, the FLS Director should not suggest any occupant stay inside the building. It is unsafe to leave any occupant inside the building before the authorities declare the building structure is safe.

  If all safe exit routes are compromised, the FLS Director should suggest safe in-building relocation areas for the occupants.

II. Other special notes:

All building entrances should be closed.

17.9 Emergency actions for natural disaster

The recommended/acceptable/unacceptable actions for the natural disasters should depend upon whether a given disaster causes structural damage to the building, or it causes any building utilities failure.

17.9.1 Natural disaster and the building structure is not compromised

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A2)

(1) Recommended actions for the affected area: in-building relocation.

➢ *Reason:*

It is a general natural disaster procedure (such as, earthquake, hurricane, tornadoes, storms) not to spontaneously evacuate. It is safer to stay inside the building rather than leaving the building to avoid falling or flying debris. The window areas (in earthquake conditions, it might also include areas with mirrors and overhead fixtures) are the most vulnerable areas in most natural disasters.

The FLS Director should relocate the occupants of the affected area to safe in-building relocation areas.

(2) Recommended actions for the rest of the building: shelter in place.

➢ *Reason:*

Since the rest of the building is not affected by the incident, the FLS Director should instruct the occupants to remain in place.

b. Acceptable actions: (refer to table 17-B2)

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: in-building relocation.

➢ *Reason:*

There is no urgent need to move the occupants who are not affected by the incident; however, the FDNY accepts (but does not recommend) if the FLS Director chooses to move the occupants to safe in-building relocation areas.

c. Unacceptable actions: (refer to table 17-C2)

(1) Unacceptable actions for the affected area: shelter in place, partial or full evacuation (evacuation P/F).

➢ *Reason:*

The occupants who are in the affected area should be moved. The decision made to shelter in place may expose the occupants to the threat.

Evacuating the occupants and exposing them to the outside natural disaster will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to stay away from the threat. It may be safer for the occupants to remain inside the building.

(2) Unacceptable actions for the rest of the building: partial or full evacuation (evacuation P/F).

➢ *Reason:*

Evacuating the occupants and exposing them to the outside natural disaster will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to stay away from the threat. It will probably be safer for the occupants to remain inside the building.

17.9.2 Natural disaster causing minor building physical damage (such as broken windows), which will NOT cause the building to collapse

If the FLS Director **cannot decide** if the building physical damage is major or minor, he/she **should assume it as a major building structural failure** that may lead to building collapse and take the non-fire emergency (EAP) actions that will protect the occupants from the possible threat.

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A2)

(1) Recommended actions for the affected area: in-building relocation.

➢ *Reason:*

If there is minor physical damage to the building, the FLS Director should in-building relocate the occupants to empty the affected area. There should not be anyone near or inside the area before the "all clear" is announced by the authority.

(2) Recommended actions for the rest of the building: shelter in place or in-building relocation.

➢ *Reason:*

The decision made to implement a shelter in place is recommended by the FDNY. Because there is no urgent need to move the occupants, the FLS Director could recommend to the occupants to stay in place; however, it could also be recommended by the FDNY that the FLS Director make the choice to relocate all building occupants within the building to ensure their safety.

b. Acceptable actions:

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: NA.

c. Unacceptable actions: (refer to table 17-C2)

(1) Unacceptable actions for the affected area: shelter in place, partial or full evacuation (evacuation P/F).

➢ *Reason:*

The occupants who are in the affected area should be moved. The decision made to shelter in place may expose the occupants to the threat.

It is safer to stay inside the building so as to avoid falling or flying debris rather than leave the building.

(2) Unacceptable actions for the rest of the building: partial or full evacuation (evacuation P/F).

➢ *Reason:*

It is safer to stay inside the building so as to avoid falling or flying debris rather than leave the building.

II. Other special notes:

Isolate the affected area. Advise everyone to stay clear of the affected area.

17.9.3 A natural disaster which caused major building structural failure that may cause building collapse

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A2)

(1) Recommended actions for the affected area: full evacuation.

➢ *Reason:*

"Full evacuation" will be the recommended and acceptable action by the FDNY for this scenario. Severe building structural damage may cause the building to collapse. The FLS Director should determine the best route for all building occupants to leave the building quickly.

In-building relocation is recommended only when all the paths to the exits are blocked.

(2) Recommended actions for the rest of the building: full evacuation.

➢ *Reason:*

"Full evacuation" will be the recommended and acceptable action by the FDNY for this scenario. Severe building structural damage may cause the building to collapse. The FLS Director should determine the best route for all building occupants to leave the building quickly.

In-building relocation is recommended only when all the paths to the exits are blocked.

b. Acceptable actions:

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of building: NA.

c. Unacceptable actions: (refer to table 17-C2)

(1) Unacceptable actions for the affected area: shelter in place, in-building relocation, or partial evacuation.

➢ *Reason:*

If there is any safe way to leave the building, the FLS Director should not suggest any occupant stay inside the building. It is unsafe to leave any occupant inside the building before the authorities declare the building structure is safe.

If all safe exit routes are compromised, the FLS Director should suggest safe in-building relocation areas for the occupants.

(2) Unacceptable actions for the rest of the building: shelter in place, in-building relocation, or partial evacuation.

➢ *Reason:*

If there is any safe way to leave the building, the FLS Director should not suggest any occupant stay inside the building. It is unsafe to leave any occupant inside the building before the authorities declare the building structure is safe.

If all safe exit routes are compromised, the FLS Director should suggest safe in-building relocation areas for the occupants.

II. Other special notes:

All building entrances should be closed.

17.9.4 Building power failure which is caused by a natural disaster

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A2)

(1) Recommended actions for the affected area: shelter in place or in-building relocation.

➢ *Reason:*

It is safer to stay inside the building to avoid falling or flying debris and wait for the authorities rather than leaving the building; **however, FDNY does not accept sheltering occupants in place if the emergency has compromised the affected area and the occupants will be in danger for remaining in the affected area. In this case, the occupants who are in the affected area should be relocated within the building or be evacuated.**

(2) Recommended actions for the rest of the building: shelter in place or in-building relocation.

➢ *Reason:*

It is safer to stay inside the building to avoid falling or flying debris and wait for the authorities rather than leaving the building.

b. Acceptable actions:

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: NA.

c. Unacceptable actions: (refer to table 17-C2)

(1) Unacceptable actions for the affected area: partial or full evacuation (evacuation P/F).

➢ *Reason:*

If there is a natural disaster occurring outside, instructing the occupants to leave the building may result in more injuries than suggesting that they remain inside the building.

(2) Unacceptable actions for the rest of the building: partial or full evacuation (evacuation P/F).

➢ *Reason:*

If there is a natural disaster occurring outside, instructing the occupants to leave the building may result in more injuries than suggesting that they remain inside the building.

17.9.5 The building affected by flooding caused by a natural disaster

I. Non-fire emergency (EAP) actions (recommended, acceptable and unacceptable)

a. Recommended actions (refer to table 17-A2)

(1) Recommended actions for the affected area: in-building relocation.

➢ *Reason:*

The FLS Director should relocate the occupants of the affected area to safe in-building relocation areas.

(2) Recommended actions for the rest of the building: shelter in place or in-building relocation.

➢ *Reason:*

The decision made to implement a shelter in place is recommended by the FDNY. Because there is no urgent need to move the occupants, the FLS Director could recommend the occupants stay in place; however, it is also could be recommended by the FDNY that the FLS Director make the choice to relocate all building occupants within the building to ensure their safety.

b. Acceptable actions:

(1) Acceptable actions for the affected area: NA.

(2) Acceptable actions for the rest of the building: NA.

c. Unacceptable actions: (refer to table 17-C2)

(1) Unacceptable actions for the affected area: shelter in place, partial or full evacuation (evacuation P/F).

➢ *Reason:*

The occupants who are in the affected area should be moved. The decision made to shelter in place may expose the occupants to the threat.

Evacuating the occupants and exposing them to the outside natural disaster will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to avoid the threat; it may be safer for the occupants to remain inside the building.

(2) Unacceptable actions for the rest of the building: partial or full evacuation (evacuation P/F).

➢ *Reason:*

Evacuating the occupants and exposing them to the outside natural disaster will be considered an unacceptable action by the FDNY for this scenario. The FLS Director should direct the occupants to avoid the threat. It may be safer for the occupants to remain inside the building.

II. Other special notes:

Isolate the affected area. Advise everyone to stay clear of the affected area.

Table 17-A1. **RECOMMENDED** non-fire emergency actions for different scenarios

This table is only a reference guide. IT CANNOT BE USED ALONE. The details are provided between Section 17.1 to Section 17.9

Scenario	The location where the scenario occurs					
	Outside the building		Inside the building (in a specific area only)		inside the building (possibly affecting multiple floors)	
	Affected area	The rest of the building	Affected area	The rest of the building	Affected area	The rest of the building
Biological Agent Release	✓ In-building relocation	✓ Shelter in place	✓ Isolate the individuals who were directly exposed to the agent	✓ Shelter in place ✓ In-building relocation	✓ Isolate the individuals who were directly exposed to the agent	✓ Shelter in place
Chemical Agent Release	✓ In-building relocation	✓ Shelter in place	✓ In-building relocation ✓ Evacuation (P/F)*	✓ Shelter in place	✓ In-building relocation ✓ Evacuation(P/F)*	✓ Shelter in place
CO/Natural Gas release	✓ In-building relocation	✓ Shelter in place	✓ In-building relocation ✓ Evacuation (P/F)*	✓ Shelter in place	✓ Full Evacuation	✓ Full Evacuation
Explosion	✓ In-building relocation	✓ In-building relocation	✓ Full evacuation	✓ Full evacuation	✓ Full evacuation	✓ Full evacuation
Suspicious package	✓ In-building relocation	✓ Shelter in place	✓ In-building relocation ✓ Evacuation(P/F)*	✓ Shelter in place	✓ In-building relocation ✓ Evacuation(P/F)*	✓ Shelter in place
Civil disturbances	✓ In-building relocation	✓ Shelter in place				
Failure of building utilities	NA		✓ Shelter in place ✓ In-building relocation ✓ Evacuation(P/F)*	✓ Shelter in place ✓ In-building relocation ✓ Evacuation(P/F)*	✓ Shelter in place ✓ In-building relocation ✓ Evacuation(P/F)*	✓ Shelter in place ✓ In-building relocation ✓ Evacuation(P/F)*
Building damage	NA		**Building has minor physical damages**		**Building suffers major structural failure**	
			Affected area	**The rest of the building**	**Affected area**	**The rest of the building**
			✓ In-building relocation ✓ Evacuation(P/F)*	✓ Shelter in place ✓ In-building relocation	✓ Full Evacuation	✓ Full Evacuation
Active Shooter	✓ In-building relocation	✓ In-building relocation	✓ ABC**	✓ ABC**	✓ ABC**	✓ ABC**

*Note: Evacuation (P/F) : Partial or Full Evacuation; **Note: ABC: Avoid, Barricade, Confront

Table 17-A2. **RECOMMENDED** non-fire emergency actions for **natural disasters**

This table is only a reference guide. IT CANNOT BE USED ALONE. The details are provided between Section 17.1 to Section 17.9

Scenario	Affected Area	The rest of the building
Natural disaster and the building structure is not compromised	✓ In-building relocation	✓ Shelter in place
A natural disaster causing minor building physical damage	✓ In-building relocation	✓ In-building relocation ✓ Shelter in place
A natural disaster causing major building structural failure	✓ Full Evacuation	✓ Full Evacuation
Building power failure which is caused by a natural disaster	✓ Shelter in place ✓ In-building relocation	✓ Shelter in place ✓ In-building relocation
The building affected by flooding caused by a natural disaster	✓ In-building relocation	✓ Shelter in place ✓ In-building relocation

Table 17-B1. **ACCEPTABLE** non-fire emergency actions for different scenarios

This table is only a reference guide. IT CANNOT BE USED ALONE. The details are provided between Section 17.1 to Section 17.9

Scenario	The location where the scenario occurs					
	Outside the building		Inside the building (in a specific area only)		inside the building (possibly affecting multiple floors)	
	Affected area	The rest of the building	Affected area	The rest of the building	Affected area	The rest of the building
Biological Agent Release		▪ *In-building relocation*		▪ *Evacuation (P/F)**		▪ *In-building relocation* ▪ *Evacuation (P/F)**
Chemical Agent Release		▪ *In-building relocation*		▪ *In-building relocation* ▪ *Evacuation (P/F)**		▪ *In-building relocation* ▪ *Evacuation (P/F)**
CO/Natural Gas release		▪ *In-building relocation*		▪ *In-building relocation* ▪ *Evacuation (P/F)**		
Explosion		▪ *Shelter in place*				
Suspicious package		▪ *In-building relocation*		▪ *In-building relocation* ▪ *Evacuation(P/F)**		▪ *In-building relocation* ▪ *Evacuation(P/F)**
Civil disturbances		▪ *In-building relocation*				
Failure of building utilities	NA					
Building damage	NA		**Building has minor physical damages**		**Building suffers major structural failure**	
			Affected area	**The rest of the building**	**Affected area**	**The rest of the building**
				▪ *Evacuation(P/F)**		
Active Shooter		▪ *Shelter in place*				

*Note: Evacuation (P/F) : Partial or Full Evacuation

Table 17-B2. **ACCEPTABLE** non-fire emergency actions for **natural disasters**

This table is only a reference guide. IT CANNOT BE USED ALONE. The details are provided between Section 17.1 to Section 17.9

Scenario	Affected Area	The rest of the building
Natural disaster and the building structure is not compromised		▪ *In-building relocation*
A natural disaster causing minor building physical damage		
A natural disaster causing major building structural failure		
Building power failure which is caused by a natural disaster		
The building affected by flooding caused by a natural disaster		

Table 17-C1. **UNACCEPTABLE** non-fire emergency actions for different scenarios

This table is only a reference guide. IT CANNOT BE USED ALONE. The details are provided between Section 17.1 to Section 17.9

Scenario	The location where the scenario occurs					
	Outside the building		Inside the building (in a specific area only)		inside the building (possibly affecting multiple floors)	
	Affected area	The rest of the building	Affected area	The rest of the building	Affected area	The rest of the building
Biological Agent Release	× Shelter in place × Evacuation (P/F)*	× Evacuation (P/F)*	× Not isolate the individuals who were directly exposed to the agent		× Not isolate the individuals who were directly exposed to the agent	
Chemical Agent Release	× Shelter in place × Evacuation (P/F)*	× Evacuation (P/F)*	× Shelter in place		× Shelter in place	
CO/Natural Gas release	× Shelter in place × Evacuation (P/F)*	× Evacuation (P/F)*	× Shelter in place		× Shelter in place × In-building relocation × Partial evacuation	× Shelter in place × In-building relocation × Partial evacuation
Explosion	× Shelter in place × Evacuation (P/F)*	× Evacuation (P/F)*	× Shelter-in-place × In-building relocation × Partial evacuation	× Shelter-in-place × In-building relocation × Partial evacuation	× Shelter in place × In-building relocation × Partial evacuation	× Shelter in place × In-building relocation × Partial evacuation
Suspicious package	× Shelter in place × Evacuation (P/F)*	× Evacuation (P/F)*	× Shelter-in-place		× Shelter in place	
Civil disturbances	× Shelter in place × Evacuation (P/F)*	× Evacuation (P/F)*				
Building utilities failure	NA					
Building damage	NA		**Building has minor physical damages**		**Building suffers major structural failure**	
			Affected area	**The rest of the building**	**Affected area**	**The rest of the building**
			× Shelter in place		× Shelter in place × In-building relocation × Partial evacuation	× Shelter in place × In-building relocation × Partial evacuation
Active shooter	× Shelter in place × Evacuation (P/F)*	× Evacuation (P/F)*				

*Note: Evacuation (P/F) : Partial or Full Evacuation

Table 17-C2. **UNACCEPTABLE** non-fire emergency actions for **natural disasters**

This table is only a reference guide, IT CANNOT BE USED ALONE. The details are provided between Section 17.1 to Section 17.9

Scenario	Affected Area	The rest of the building
Natural disaster and the building structure is not compromised	× Shelter in place × Evacuation(P/F)*	× Evacuation (P/F)*
A natural disaster causing minor building physical damage	× Shelter in place × Evacuation(P/F)*	× Evacuation (P/F)*
A natural disaster causing major building structural failure	× Sheter in place × In-building relocation × Partial evacuation	× Sheter in place × In-building relocation × Partial evacuation
Building power failure which is caused by a natural disaster	× Evacuation(P/F)*	× Evacuation(P/F)*
The building affected by flooding caused by a natural disaster	× Shelter in place × Evacuation(P/F)*	× Evacuation(P/F)*

***Note: Evacuation (P/F) : Partial or Full Evacuation**