



## Office Building Emergency Action Plans A Simplified Analysis of NYC Local Law 26 of 2004

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Following the September 11, 2001 (9/11) terrorist attacks on the World Trade Center (WTC) in New York City, multiple studies were conducted to improve human safety in the built environment, particularly in high-rise commercial buildings. Changes were recommended by committees that reviewed lessons learned from the most catastrophic terrorist attack in the history of the United States. The New York City Department of Buildings World Trade Center Building Code Task Force was created in 2002 and was tasked with reviewing current building design, construction and operating requirements. The most obvious, albeit most complex question was whether new buildings should be required to meet new design and construction standards that would ensure the safety of the public in the event of catastrophic failures. Revisiting the design and construction phases was paramount to a successful campaign to construct buildings that could withstand airplane crashes. The Task Force consisted of an Executive Committee and five Working Groups comprised of experts from the public and private sector. They included engineers, real estate owners and organizations, academic experts (public and private) and people who were directly affected by 9/11.

In the aftermath of 9/11, the city's government officials needed to implement new building and life safety codes for a number of reasons. The most prominent reason for the creation and adoption of Local Law 26 of 2004 (LL26): "Office Building Emergency Action Plans" was life safety. Studies showed that the WTC occupants faced issues that were detrimental to their safety because of a lack of proper directives, an absence of proper stairwell designations or signage and training. The lives of many WTC occupants were compromised and almost 3,000 people did not survive the tragic events that unfolded on that fateful day. LL26 addresses both human and non-human elements designed to protect occupants from harm.

New building and fire codes were proposed and adopted by the Mayor's Office and the City Council. Although they are complex in nature and consist of hundreds of pages of material, these codes will undoubtedly provide a more secure environment for future occupants of high-rise commercial buildings. These measures are not only important for safety and security, but also contribute to the city's economic growth.

In 1973, NYC Local Law 5: "Fire Safety in High-Rise Buildings" was introduced to mitigate fire emergencies in high-rise commercial buildings. That code, amongst other things, required high-rise commercial buildings to have certified fire safety directors on premises. The fire safety director was and continues to be responsible for the life safety of the building occupants in the event of fire emergencies. The process involves attending a course, taking a test at fire department headquarters and an on-site practical test conducted at the high-rise where the candidate will be employed as a fire safety director.

Thirty-one years later LL26 was introduced to address new concerns in emergencies. LL26 specifically addresses and mitigates emergencies other than fire, hence LL5 remains active. LL26 adds codes to high-rise commercial properties to increase the probabilities that all occupants will evacuate safely during emergencies other than fires. To become a certified EAP Director (EAPD), an individual must first be certified as a fire safety director. The reasoning behind this decision was that since high-rises already had fire safety directors, they would assume additional formal responsibilities to deal with those emergencies where fire does not necessarily play a role.

### WHAT IS THE EMERGENCY ACTION PLAN?

Emergency Action Plan emergencies may be caused by natural events, such as tornadoes and earthquakes. They may also be human-made events, and may be accidental, such as a chemical release from a plant, or intentional such as a bomb threat against a person or corporation. The EAPD is responsible for deciding whether to activate the EAP after analyzing information about the incident and consulting with the EAP Brigade. Once the EAP is activated, the EAPD will inform the occupants via the fire alarm control panel's public announcement system of **what** has happened, **where** the incident has happened, **what** EAP concept will be implemented and **why** that concept is being implemented. Under no circumstances is the activation of the EAP to be delayed because communication cannot be established with building management or ownership, or the EAP Brigade.

The following three actions must be activated: 1) All elevators will be recalled in Phase I only and placed on independent mode; 2) Outside air intake fans will be shut

down; and 3) Fail-safe door release will be activated to automatically release all doors in the building that are interfaced with the fire alarm system.

### **WHAT TYPES OF CONCEPTS (RESPONSES) ARE REQUIRED WHEN THE EMERGENCY ACTION PLAN IS ACTIVATED?**

The EAP has four designed concepts (responses) to protect high-rise occupants from emergencies other than fires. **“Shelter in Place”** is when occupants remain at their work location on their floor in response to an emergency. There is no controlled movement of people to another area on the floor, to another floor of the building or to the outside of the building. The reason for sheltering in place is that the hazard is likely to be external and occupants will be safer if they remain inside the building where they are protected by the building’s curtain walls.

Another concept is **“In-Building Relocation.”** When in-building relocating, occupants are directed to move from one area to another area on their floor or to another floor. For example, occupants might be directed to move from the perimeter of their floor to the core of the floor or vice-versa, or to another part of the building, depending on the hazard. The designated protected area is known as the In-Building Relocation Area or IBRA.

A third EAP concept is **“Partial Evacuation.”** When partially evacuating, a section of the building is directed to evacuate in response to an emergency.

And fourth is **“Evacuation,”** which is when all building occupants are directed to evacuate in response to an emergency.

The most important aspect of the EAP is communication. The public announcement system is the most effective means to communicate to the entire building or to selected floors. If tenants are directed to shelter in place, in-building relocate, partially evacuate or evacuate then they are expected to follow these directives. Tenants however do not necessarily follow directives, increasing the probability of harm.

When directed to partially evacuate or evacuate the building, each floor has one stairwell designated as a primary stairwell and another as an alternate stairwell for evacuation purposes. The reason for designating stairwells to each floor is to balance the use of stairwells in an evacuation.

If there is an external biological attack that is formally declared hazardous and contagious by the authority having jurisdiction, then anyone who is outside of the building at the time of declaration will not be allowed to re-enter the property for fear of contamination of the building occupants. Hence tenants will most likely be directed to shelter in place. However, tenants cannot be prohibited from exiting the building and those who prefer to evacuate the building will be permitted to exit via designated exit routes. Other exits will be designated at the discretion of the Emergency Action Plan Director.

The service elevator is the designated primary elevator to rescue people who are unable to use the stairs. Alternative passenger elevators in each of the passenger elevator banks must be designated in the EAP.

All tenants are responsible for maintaining a count of their employees to ensure that all occupants are accounted for in an in-building relocation, partial evacuation or evacuation.

Finally, there are two designated assembly areas for EAP emergencies whenever a partial evacuation or evacuation is ordered by the EAP Director.

### **THE EAP PRACTICAL ON-SITE TEST**

The EAP on-site test consists of multiple areas that must be mastered by prospective EAPDs. This test, which was prepared by a committee consisting of fire officials, building officials, people from academia, social scientists, professional engineers and others, is designed to ensure that candidates have a superior understanding than the average person on how to mitigate emergencies. Following are the areas with which EAPDs must be familiar to ensure that the decisions they make in emergencies other than fire are accurate, practical and result in no loss of life and no injuries to property occupants.

#### ***Building Familiarization***

The code requires that all high-rise EAPDs have concrete knowledge and understanding of mechanical systems and statistical data about the high-rise commercial buildings in which they are employed. Statistical data consists of the following areas: Building population; building statistics; regular business hours; construction type; occupancy; stairwell type and identification; attack stairwell; setback roofs; fail-safe re-entry floors; elevators/banks and floors serviced, machine room locations, weight capacity, power failure, emergency exits, door vanes and EAP-designated elevators.

#### ***Elevators***

All elevators will be recalled to the lobby or the lowest terminal landing. Elevators will not be operated in automatic mode in an EAP emergency. They must be operated in independent mode either by an EAP staff member on board or from the fire command station under the personal supervision of the EAPD. People requiring assistance to relocate to another floor or evacuate should respond or be assisted to the designated waiting area on their floor. In most high-rises, these areas are usually freight areas on the floor where they usually work during normal business hours. Elevators on independent mode will also be used to quickly reach occupants who need medical assistance. After recalling the elevators, if possible, their doors will be closed to minimize up-draft and lessen the circulation of dust, debris or other materials throughout the building in the event of explosions or similar hazards, unless otherwise directed by emergency responders.

#### ***Ventilation***

The building engineer is expected to assist the EAPD by shutting down the outside air intake fans and internal sub-systems relative to HVAC as indicated in the EAP. This is applicable to explosions, chemical, biological and radiological incidents. By stopping the mechanical movement of air it may be possible to limit the spread of contaminated air throughout the property. After analyzing the information, the EAP Director may decide to reactivate the outside air intake fans and the HVAC in general if doing so would not compromise the safety of the occupants. Stairwells and elevator shafts may not be pressurized to prevent spread.

## ***Purge***

Building air-intake locations purge the system and exhaust the building's contaminated air to the outside and intake 100% fresh air, effectively diluting the contaminants. This is a complex operation that is usually left to emergency responders to decide. Placing the system in full circulating mode effectively bringing no outside air into the building should be considered. By sealing off the building and circulating the air may prevent exterior contaminants from entering the building. Be aware that the ventilation effects and air movement caused by elevators in motion, stairwells, windows and doors will become dominant if the HVAC system is shut down.

## ***Communications***

There must be a primary and alternate means of communicating within the building with the EAP staff, building occupants and critical operations staff. The EAPD will control the incident and communicate with staff and occupants from a predetermined location if the public announcement system on the fire alarm control panel is compromised. The EAP states that there must be communication between the EAP staff, the critical operations staff and the building occupants to ensure that everyone has consistent information about the hazard and how it is being resolved to ensure the safety of all the people involved. Portable hand-held radios are an alternate means of communication between base-building groups.

## ***Assembly Areas (Outside of Building)***

The EAP requires that high-rises designate primary and alternate assembly areas that are at a distance equal to or greater than the height of the building. Based on the EAP, evacuees who have been contaminated or exposed to a biological or chemical agent will be directed to the primary assembly area. When doubt exists as to exposure, or if people are similarly exposed, all evacuees will be directed to the primary assembly area. When a partial evacuation or evacuation is ordered, available EAP staff member are directed by the EAPD to both the primary and alternate assembly areas as soon as possible and advise the EAPD of the conditions of those areas.

## ***EAP Brigade***

The EAP Brigade consists of three key building representatives who are in managerial positions and may influence the implementation of any of the provisions of the EAP. The list must indicate the following positions and the names of the people who hold those positions: Property manager, chief engineer and director of security.

## **DEMONSTRATION OF SKILLS**

It is imperative that the applicants for EAPD are proficient in the English language. The candidates must demonstrate proficiency in the following areas: 1) Ability to identify and explain all components of the fire alarm control

panel. Because candidates for EAPD must first be certified FSDs, the candidates should be familiar with the fire alarm control panels in their high-rises; 2) Knowledge of the central station and the purpose of having a central station; 3) Knowledge of the location of the nearest firehouses and their contact numbers and the telephone numbers to the FDNY Borough Dispatchers.

## ***Fire Alarm Control Panels***

Fire alarm control panels serve the same purpose regardless of design or manufacturer. A company must be contracted to operationally maintain the system trouble-free and to address any issues that might hamper the designed operation of the system. Although these panels have multiple functions, the primary function is to communicate pertinent information to the high-rise occupants during fires and emergencies other than fires via the public announcement system.

## ***Actions***

The EAPD must be prepared to make "All-call" and stairwell announcements to the people who are evacuating. The announcements may also be localized to only address the occupants who are immediately affected by the hazard. This is commonly referred to as the "Rule of Five." This rule indicates that the floors in the proximity of the hazard must be evacuated first, starting with the hazard floor, followed by the floor above, the floor below, the floor above the floor above the hazard floor and the floor below the floor below the hazard floor. For example, if the hazard is on the 10<sup>th</sup> floor, the following floors would also be contacted and evacuated: 11, 9, 12 and 8. Of course, this is not always feasible.

In all EAP emergencies the elevators should be recalled via Fireman's Recall Phase I. The elevators will then be used as necessary at the discretion of the EAPD. Fail-safe door release should also be activated during EAP emergencies to ensure that there are no barriers in the paths of egress used by building occupants when in-building relocating, partially evacuating or evacuating. Outside air intake fans will be shut down.

## ***Independent Mode Elevator Operations***

One of the major provisions in the EAP is that EAPDs and other critical building staff know how to operate elevators on independent mode. This is a critical function because the elevators will be used to assist/rescue people who have mental, medical and physical disabilities and need assistance evacuating the floors. The elevator operators will first retrieve those people with disabilities on the highest floor of the building and descend to other floors as needed, eventually bringing all the people needing assistance to the street level.

## ***Decontamination***

Decontamination is needed within minutes of exposure to minimize health consequences. No one, building staff nor building occupants, is to leave the safety of a shelter to go outdoors to help others until authorities announce it is

safe to do so if the hazard is external. The following guidelines will assist people who have been contaminated by the hazard: 1) Use extreme caution when helping others who have been exposed to chemical agents; 2) Remove all clothing and other items in contact with the contaminated body. Clothing normally removed over the head should be cut off to avoid contact with the eyes, nose, and mouth; 3) Put contaminated clothing and other items into a plastic bag and seal it; 4) Decontaminate hands using soap and warm water; 5) Flush eyes with water; 6) Gently wash face and hands with soap and water before thoroughly rinsing with clean water; 7) Decontaminate other body areas likely to have been contaminated. Blot (do not swab or scrape) with a cloth soaked in soapy water and rinse; 8) Change into uncontaminated clothes; 9) Proceed to a medical facility for screening and professional treatment.

### **EMERGENCY SCENARIOS OTHER THAN FIRES**

The EAPD must be prepared to execute the required procedures described in the EAP. A specific interest in the following areas allows the EAPD to concentrate their knowledge and resources to effectively execute the EAP: 1) Analysis of information; 2) Consultation with the EAP Brigade; 3) Selection of EAP concepts and 4) Communication with occupants and the EAP and critical operations staffs. EAPDs must be able to support their decisions to implement the EAP. During any EAP scenarios, the EAPD is required to analyze information, consult with the building owner's representatives, and notify 911 that the EAP is being implemented. Consultation with the Critical Operations staff and EAP Brigade regarding building components is critical. In consultation with the engineering staff, the EAPD will recall all the elevators, activate fail-safe door release, shut down outside air intake fans and prepare and make announcements to all occupants.

As discussed earlier, the announcements must include the following critical information: What has occurred?, Where it has occurred?, What EAP concept will be implemented?, and Why is it necessary to implement that EAP concept? An example follows: "Attention, attention please, this is your Emergency Action Plan Director. A crane lifting a generator has crashed into the building on the 62<sup>nd</sup> Street side of the building. A complete evacuation of the building using Stairwell 'A' on the 61<sup>st</sup> Street side is being ordered because the building is structurally unstable."

The EAPD must assess building components for safety. The availability of access and egress from entrances/exits and stairwells must be determined prior to making a decision on the evacuation route that will be implemented. The EAPD must ensure that elevators are safe for use by occupants, building staff and emergency personnel, and that ventilation systems including HVAC and smoke/air management systems are operational and fuel oil storage systems, electrical, natural gas, steam and other utilities are deemed safe.

#### ***Shelter in Place***

If there is an external chemical release, the occupants would be safer if they remain inside the property. If the chemical incident or release is in or proximate to the building,

the EAPD shall make an assessment of the situation and determine when it would be best to order occupants to shelter in place or in-building relocate to ensure their safety. This assessment must include the nature of the incident or threat, i.e., intentional or accidental, the location, the type of chemical (if known), the potential for dissipation and the need for decontamination of occupants.

The EAPD should shelter in place if the emergency is outside of the building, if for example the incident is the detonation of a dirty bomb or chemical contaminant. Relocating the occupants away from the most exposed side of the building should become a priority. Attempts are to be made to obtain information from authorities about the incident and the chemical that might have been used in the attack. HVAC will have to be shut down to avoid bringing radioactive material into the building. Open windows must be closed immediately. The implementation of the shelter in place provision of the EAP shall be based on an analysis of the circumstances in which such action would best ensure the safety of building occupants.

#### ***In-Building Relocation***

In-Building Relocation will be ordered when occupants are endangered in their work locations but would face a greater threat to their health and safety should they exit the building. In-building relocation normally should not be implemented after occupants have been exposed to chemical agents. This procedure will usually result in a large number of people together in a confined and enclosed area providing the potential for people who have not been exposed to come into contact with contaminated individuals. Additionally, placing a number of contaminated people together in an enclosed area may create a high concentration of harmful chemicals.

Similar to the shelter in place concept, the implementation of the in-building relocation response will be signaled by an alert tone followed by an announcement instructing people to move to the designated in-building relocation areas on their floors. Information will be provided by way of an announcement from the fire alarm control panel. Occupants may also be informed by telephone, warden phone, e-mail or in person by a member of the EAP staff. EAP Wardens and Deputy EAP Wardens will direct occupants to the designated in-building relocation areas.

During in-building relocation, access to the building may be limited or denied if entry to the building will expose people to danger or interfere with implementing in-building relocation procedures. Egress points as well as all stairwells will remain open and accessible if possible. Occupants will be informed of any stairwell or exits damaged or inaccessible as a result of an explosion or the threat of an explosion or other hazards.

Upon being directed to in-building relocate, building occupants must follow directions from the EAPD and EAP Wardens. It is critical that the EAP warden maintains a sense of organization and calmness and ensure that visitors and guests within the facility are directed to proper in-building relocation areas. Doors and windows must be closed and all ventilation shut off, including furnaces, air conditioners, vents, fans and HVAC. The room must be sealed with duct tape and plastic sheeting if necessary. A designated representative is accountable for accounting for their colleagues. The occupants

must remain in the relocation area until they are informed that it is safe to leave. If a threat in their area develops, then people must listen to radio for instructions from authorities having jurisdiction.

If an explosion occurs outside of the building, the EAPD will move occupants away from the most exposed areas. To enhance early detection of disease outbreaks and bio-terrorist attacks, the city's Department of Health and Mental Hygiene (DOHMH) uses a syndromic surveillance system that monitors emergency room visits, ambulance runs and pharmacy sales. In a health emergency, the city may open Points of Dispensing, or PODs, which are special clinics to distribute antibiotics or vaccines. The EAPD must be aware of what is happening relative to the threat both internally and externally.

The EAPD must be familiar with in-building relocation areas to which building occupants could be relocated, and, for each such in-building relocation area, identify: 1) Type of area (such as stairwell, interior office, conference room, file room or MERs); 2) Floor and its exact location thereon; 3) Type of protection it offers; 4) Maximum number of building occupants each relocation area can accommodate; 5) Whether it affords access to water, lavatories and/or other facilities, equipment or supplies, including any pre-positioned equipment or supplies. The EAPD will designate the route by which building occupants would be directed to in-building relocation areas if such areas are on a different floor and identify the stairwells and (if applicable) elevators to be utilized, and their capacity and set forth the actions that would be taken with respect to building components or systems.

Each floor of the building has an assigned primary and alternate exit route in an attempt to avoid congestion in stairwells and speed egress from the building. Exit routes have been designated in a manner that will ideally evenly distribute people throughout the building during an evacuation and ensure utilization of all available stairwells and exits. Should any stairwell or exit be untenable, the EAPD will immediately make an announcement relaying such information and directing occupants to exit routes that are safe for use during in-building relocations and evacuations.

### ***Partial Evacuation***

Partial evacuation is the evacuation of some, but not all of the building occupants. Possible reasons to partially evacuate include utility emergencies. Actions to be taken in a partial evacuation: 1) Decide the safest and quickest route for the occupants to leave; 2) Can they use the elevators?; 3) Have knowledge of the capacity of the elevators and the stairs when evacuating people; 4) Have knowledge of the number of occupants in the building, including visitors; 5) Have a primary and alternate route to evacuate; 6) Decide if occupants can leave by "any safe means" or directed to their assigned assembly area; 7) People most at-risk given priority; 8) People in the escape route also given priority.

"Any safe means" is defined as having the occupants leave the building and not proceed to an assembly area as indicated on the EAP. An example is when there is advanced warning of a hurricane). This allows occupants to proceed directly to their homes.

### ***Evacuation***

Evacuation is the emptying of all of the building occupants. Possible reasons to evacuate include advanced warning of severe weather related emergencies and utility emergencies. Evacuations will be ordered in response to an intentional incident occurring within the building provided there is no obvious threat to occupant safety outside the building. The evacuation will commence with floor(s) directly affected by the explosion and expand to endangered floors above and below as necessary. All exits and stairwells will remain open and available for use unless circumstances render areas off limits. Announcements will be made regarding the status of all exits and stairwells and their availability for use. Staff members will facilitate the evacuation by flattening revolving doors and directing people away from the building to allow for continuous movement of occupants. Upon exiting the building, occupants will normally be directed to the primary assembly area for the building. Occupants will not be allowed to return to the building until the EAPD deems it safe for them to return based on the incident commander's directives.

### **OTHER EMERGENCIES**

In the event that an emergency other than those previously covered occurs, the EAPD will do the following: 1) Verify the incident; 2) Call 911; 3) Alert key EAP personnel and building staff; 4) Inform and provide direction to building occupants; 5) Assess the situation and apply the appropriate EAP provision to the situation; 6) Example: In the event of a dangerous individual or group in or near the building, security personnel will be utilized to secure entrances and exits and direct occupants away from areas of danger; 7) Announcements will advise occupants of areas to avoid if they have not yet sheltered in place; 8) Occupants sheltering in place in response to a dangerous individual or group will be instructed to secure the access to their work areas; 10) The EAPD will assess elevator usage; 11) Elevator recall or manual operation will be directed as the situation requires; 12) Elevators may be stopped or recalled to impede access of a dangerous individual or group; 13) The EAPD will assess the need to shut or unlock any interior or fire door: Example: In the event of long-term power loss to part of the building, evacuation of affected areas may be necessary; 14) In determining the need for a partial evacuation, the EAPD should consider the cause and extent of the power loss, the length of time to restoration of power as well as the impact upon occupants who remain in the building; 15) EAP staff members will be equipped with flashlights to assist occupants; 16) Occupants should leave the area by any safe means if the power loss is likely to be prolonged or affects a number of other buildings in the area; 17) Access to the building may be limited to those individuals who work in non-affected areas of the building; 18) Egress will be maintained from all exits if possible; 19) Security personnel at the fire command station will communicate with any elevators stopped between floors; 20) A member of the security or porter staff will respond to floors where elevators are stopped and attempt to make contact with people trapped if intercom system is not functioning; 21) Emergency responders and/or elevator service company personnel will be notified of condition and location of people entrapped; 22) Priority will be given to people

indicating a need for medical attention or severe distress as a result of being entrapped; 23) Interior fail-safe and stairwell reentry doors will unlock if there is power loss; 24) Engineering staff will check to see if doors have functioned correctly; 25) The EAPD will assess the need to manually unlock doors from the fire command station; 26) Engineering staff will attempt to determine the cause of power loss and coordinate with Con Edison in an attempt to determine the duration of the outage; 27) In the event of total power loss for a prolonged or indeterminate period of time, an evacuation will likely be instituted to ensure occupant safety and building security; 28) Access to the building will normally be denied to non-EAP staff members; and egress will be maintained through all exits if possible.

### **ON-SITE PRACTICAL TEST SCENARIOS**

FDNY examiners may pose similar fictional scenarios to candidates taking the EAP Practical On-Site Tests. The candidates for EAP Director must use common sense, experience and the knowledge they acquired during the EAP course to answer these scenarios effectively. It is critical for candidates to dedicate time and energy to studying the scenarios and developing what they feel would be the most effective approach to protect the building occupants. Note that the scenarios posed by the FDNY during the on-site test will be more complex and in-depth. The scenarios that follow are intended to give candidates a “glimpse” of what to expect during the on-site test.

#### ***Scenario #1: External Toxic Fumes Envelope the Building***

The examiner states that toxic fumes from an unknown source have enveloped the area surrounding the building. There are official reports from the authority having jurisdiction that the fumes could pose a threat to people's health when exposed to the fumes for a period of 30 minutes or more.

**Answer:** In this case, because the hazard is outside, the EAP course of action could possibly be shelter in place. The tenants should remain inside the building, where they are protected by the building's curtain walls. The outside air intake fans would be immediately shut down to prevent toxic fumes from contaminating the building.

#### ***Scenario #2: A Riot Three Blocks from Building***

The examiner states that there is a riot originating about three blocks from the candidate's building. Soon after, the rioters and other people escaping the riot scene are running towards the candidate's property, in effect “transporting” the riot scene to the front of the candidate's building.

**Answer:** In this case, because the riot is now in the perimeter of the building, the EAP course of action could possibly be in-building relocation. The tenants working in the street level retail spaces have to be protected from the rioters by removing them from the hazard of glass shattering and into a safe location away from the street level retail spaces. Doors to the retail spaces and the main lobby would be secured to prevent rioters from entering the building.

#### ***Scenario #3: One Elevator Bank Malfunctions***

The examiner states that one of multiple banks of elevators malfunctions and tenants are preparing to leave the building because it is nearing the end of the business day.

**Answer:** In this case, because only one section of the building is affected by the lack of elevator service, the EAP course of action could possibly be partial evacuation. Since the other banks of elevators are functioning, those tenants may use the elevators to exit their floors, as usual. The tenants on the floors affected by the lack of elevator service will be informed to evacuate via the stairwells until they reach a cross-over floor or the street level.

#### ***Scenario #4: Hurricane Warning: Category 5 in 4 Hours***

The examiner states that a Category 5 Hurricane Warning with winds of 170 mph is expected to shatter windows in high-rises in your area in about four hours.

**Answer:** In this case, because the hurricane is expected to shatter all of the building's windows, the EAP course of action could possibly be Evacuation. There is plenty of time to evacuate the entire building in an orderly manner via the use of elevators and stairwells and the occupants allowed to go home.

### **KNOWLEDGE OF RESPONSIBILITIES**

Applicants will be given approximately 15 minutes to prepare an outline to be used for training a member of the EAP staff. The candidate will be asked to train one of the following people: Deputy Fire Safety/EAP Director, Fire Safety/EAP Building Evacuation Supervisor, Fire Safety/EAP Brigade, Critical Operations Staff, Fire Safety/EAP Warden and Deputy FS/EAP Warden.

#### ***Training Skills***

The EAP covers five basic topics and the EAPD must be able to answer the five questions for each of the EAP staff designations. 1) How many are required for the building?; 2) What is the frequency and length of training they are required to receive from the EAPD?; 3) List the duties required for the position to be performed in the event of an emergency; 4) Discuss the four methods of dealing with an emergency as listed in the EAP; 5) Explain the building-specific details this position is required to know once the EAP is implemented.

#### ***Emergency Action Plan Director and Deputy***

The Emergency Action Plan Director has the following responsibilities: 1) Person designated in the EAP; 2) Be present and on duty in the building during regular business hours; 3) Be fully familiar with the provisions of the EAP; 4) Carries out the EAP; 5) Supervises and trains the FS/EAP staff; 6) Notifies 911; 7) Responds to the fire command station; 8) Obtains data from and distributes it to the FS/EAPB, FS/EAPWs and DFS/EAPWs; 9) Sounds alarm or alert tone followed by announcements (What, Where, What and Why); 10) Have a plan for primary communications and a back-up

plan; 11) Repeats announcements as necessary; 12) Determines if it is safe to use elevators and identify those elevators; 13) Conducts the EAP drills; 14) Distributes educational materials; 15) Ensures notices are posted; 16) Ensures record keeping is maintained; 17) Approves the procedures established by employers of the occupants; 18) Periodically reviews the list of building occupants with special needs.

### ***Building Evacuation Supervisor***

The BES must be present and on duty in the building at all times when an EAPD is not required to be on duty, but there are occupants in the building. The FS/EAPBES at such times shall exercise the authority and responsibility of the EAPD to implement the EAP. The duties of the BES are as follows: 1) Person designated in the EAP and on duty when a EAPD is not required to be on duty, but there are occupants in the building; 2) During an event when the EAPD and the FS/EAPBES are both on duty, the FS/EAPBES will provide assistance to the EAPD; 3) Does not hold a certificate of fitness; 4) Must be familiar with the EAP, including Shelter-in Place, In-Building Relocation, Partial Evacuation and Evacuation procedures, the exit and In-Building Relocation routes to be utilized for the floor, the location of In-Building Relocation areas and assembly areas and the means of communicating with the EAPD; 5) The FS/EAPBES is selected based on experience, capability, and reliability; 6) Responds to the fire command station; 7) Time permitting, contacts the building manager or assistant and advises them of emergency conditions.

### ***Emergency Action Plan Wardens***

The Wardens are designated in the EAP and 1) Are usually tenants; 2) There must be one FS/EAPW for each floor of the building; 3) The FS/EAPW shall be on duty on each floor during regular business hours for such floor; sign the "Fire Warden Daily Sign-In Log" at the lobby desk every day; 4) Be familiar with the EAP, including Shelter-in Place, In-Building Relocation, Partial Evacuation and Evacuation procedures, the exit and In-Building Relocation routes to be utilized for the floor, the location of In-Building Relocation areas and assembly areas and the means of communicating with the EAPD; 5) Keep the EAPD informed of his or her location and the progress of the implementation of EAP measures; 6) Confirm the In-Building Relocation or Evacuation of the floors or portion thereof by directing DFS/EAPWs and/or other EAP staff designated as Searchers to search all areas of the floor to be relocated or evacuated; to do so by visual inspection, not merely by the lack of a voice response, and to notify any remaining building occupants that they must immediately comply with the applicable EAP procedures; 7) Determine whether the stairwells are safe to enter before directing building occupants to use them, and if unsafe, notify the EAPD; 8) Instruct building occupants not to use elevators unless and until the EAPD authorizes their use; 9) Make periodic inspections of corridors, freight elevator lobbies and fire stairwell doors to make sure they are free from rubbish and easily accessible in case of an emergency. All areas with rubbish accumulation and clutter are to be reported to the office services managers for prompt corrective action.

### ***Emergency Action Plan Deputy Wardens***

The Deputy Wardens are designated in the EAP and are 1) Familiar with the EAP, emergency exits and location and operation of the fire alarm devices; 2) Shall be on duty during regular business hours; 3) Don hat and/or armbands (or other apparel) identifying themselves as members of the EAP Staff during drills and whenever the EAP is implemented; 4) Perform their designated assignments, as set forth in the EAP or as directed by the EAPD; 5) In the event of an emergency, immediately report to the designated locations, as set forth in the EAP, or directed by the EAPD and be ready to undertake their designated assignments.

### ***Emergency Action Plan Brigade***

The Brigade consists of the following people: 1) Building Manager; 2) Chief Engineer; 3) Director of Security. Brigade personnel are key members directly assisting the EAPD. Brigade members will assemble with the EAPD at the fire command station to determine the conditions of the hazard and provide input on whether the EAP should be activated.

### ***Floor Searchers***

Upon hearing the evacuation signal, searchers will transmit their own signal and commence area searches: 1) Enter private offices, rest rooms, storage areas, file rooms and other areas where employees could reside without hearing the evacuation signal and inform them of the emergency condition on the floor; 2) Until all employees have vacated their areas, stand by and direct them to go to the nearest emergency exit; 3) Complete a search of hidden areas and report to the FS/EAPW at the warden phone station near the stairwell and inform that person of the completion of the assignment; 4) Evacuate the floor by fire exits and go to the reentry floor, relocate or evacuate as per conditions and instructors.

### ***Disabled People Aides***

The person designated to aid a disabled person is charged with the responsibility of helping in the evacuation of a disabled floor occupant if an emergency requires such action: 1) Elevators will be utilized to evacuate or relocate individuals requiring assistance and the service elevator will be the primary elevator used in an emergency; 2) FS/EAPW and DFS/EAPW should direct people requiring assistance, with any assigned Buddies, to the freight areas; 3) The EAP staff member operating the service elevator will utilize the list of people requiring assistance and respond to floors with individuals listed; 4) Service elevator will also respond to floors as needed based upon the circumstances; 5) Service elevator will respond by going to the highest listed floor first and then lower floors during descent to Main Lobby; 6) Should elevators be unsafe or unavailable for use, the EAPD will inform all occupants via the building's public address system; 7) Buddies of people requiring assistance will aid these people to Evacuate or In-Building Relocate; 8) FS/EAPWs and DFS/EAPWs should inform the EAPD and assist Buddies if additional help is needed; 9) The EAPD will have EAP staff members respond to help people requiring assistance if personnel are available; 10) If Buddies and/or EAP staff are unable to provide assistance to any

individuals, the EAPD will make such facts known to the first emergency responders or to 911; 11) List of people requiring assistance will be provided to emergency responders; 12) Navigate the stairwell with the assistance of the aides then the individual will remain inside the stairwell on the landing for professional evacuation; 13) The people assigned to help them should then accompany the person with the disability down the emergency stairwell to the re-entry floor.

### ***Critical Operations Staff***

In the event of an emergency requiring implementation of the EAP, Critical Operations Staff will shut down and secure the following systems as needed: HVAC, electric, natural gas, water and steam utilities, back up generators, etc. The tenants' COS will ensure that their business continuity equipment is operating as designed prior to evacuating.

### **TRAINING SCHEDULE**

Deputy Fire Safety/Emergency Action Plan Director (DFS/EAPD): Initial 3-hour training session, plus a semi-annual 1-hour refresher session thereafter; Fire Safety/Emergency Action Plan Building Evacuation Supervisor (FS/EAPBES): Initial 3-hour training session, plus a semi-annual 1-hour refresher session thereafter; Fire Safety/Emergency Action Plan Warden (FS/EAPW): Initial 2-hour training session, plus an annual 1-hour refresher session thereafter; Deputy Fire Safety/Emergency Action Plan Warden (DFS/EAPW): Initial 2-hour training session, plus an annual 1-hour refresher session thereafter. Fire Safety/Emergency Action Plan Brigade (FS/EAPB): Initial 2-hour training session, plus an annual 1-hour refresher session thereafter; Critical Operations Staff (COS): Initial 2-hour training session, plus an annual 1-hour refresher session thereafter. All training sessions are to be recorded in the EAP log book and are to be conducted by the FS/EAPD or under supervision of the FS/EAPD.

### **BUILDING INFORMATION CARD (BIC)**

The Building Information Card (BIC) contains two sides. One side has 11 boxes which contain building data and the other side of the card contains diagrams of pertinent building features. FDNY Examiners will ask prospective candidates to identify the items contained on the BIC. Therefore, it is incumbent upon candidates to dedicate time to review, understand and memorize this data prior to taking the EAP on-site practical test. All commercial high-rises that are in compliance with LL26 of 2004 have BICs. BICs are also required in Group "R-1" properties: High-Rise Hotels.

### **EAP DRILLS**

The EAP mandates that two drills be executed to familiarize the building occupants with EAP-related

information. The two EAP drills are the Instructional Drill and the Stairwell Familiarization Drill. The first EAP drill must be conducted within six months of the Plan approval date issued by the FDNY and the second must be conducted within one year of the Plan approval date. Local law 26/2004 does not specify which of the two drills should be conducted first, however, since the Stairwell Familiarization tends to be more complex, it should be conducted last. Full building evacuation drills are optional in high-rises.

### ***Instructional Drills***

The Instructional Drills are similar to fire drills in that participants gather in a specified location on the floor and a presentation is given by the EAP Director or designee. All aspects of the EAP are discussed to ensure that participants are aware of what procedures to expect and follow upon the activation of the EAP. All the people on the floor at the time of the drill are expected to participate, with the exception of the tenant critical operations staff. This drill is conducted every year after the year of Plan approval.

### ***Stairwell Familiarization Drills***

The other drills are the Stairwell Familiarization Drills. These drills are more complex since building occupants must be physically introduced into the emergency stairwells while being provided with the details of the emergency stairwells. The participants are expected to walk down a minimum of four floors from their original floor. The occupants become familiar with the type of stairwell, design and content as explained by the EAP Director. Participants from the fifth floor down are exposed to the public walkway when the stairwell discharge is not the main lobby. When participants are exposed to the public walkway, the neighboring buildings (those buildings within 200 feet), FDNY and DOT must be notified to prevent the drill from being perceived by neighboring building occupants and the general public as an emergency situation.

Individuals who become Fire Safety/Emergency Action Plan Directors will undoubtedly have a significant impact in mitigating high-rise emergencies. In an ideal world we would not have to concern ourselves with catastrophic hazards, but as we witnessed on 9/11, even the most educated and dedicated protection professionals and state of the art systems will not necessarily prevent loss of life and damage to property during catastrophic incidents.

Lessons learned from previous incidents do not necessarily prepare us for the uncertainties of future acts of terrorism; however we move forward with confidence knowing that the thousands of high-rises in New York City are under the leadership of dedicated protection management professionals.

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#### **Works Cited**

Bloomberg, M. R. and Lancaster, P. J., AIA. (2003). *New York City Department of Buildings World Trade Center Building Code Task Force: Findings and Recommendations*. Buildings Department. (2004). Local Law 26 of 2004: *Summary of Provisions*. Provenzano, Avela, et. al. (2004). *Local Laws of the City of New York for the Year 2004: No. 26*. Note: Portions of this piece are direct quotes from the above-cited sources.