

FIRE!!

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FIRE!! Just the word can send chills up and down the spine of a facility manager, especially those responsible for a high-rise tower. Thought of the “Towering Inferno” might go through your mind.

On January 12, 2001, the Los Angeles County Metropolitan Transportation Authority (LA Metro) 628,000 square foot high-rise headquarters building housing 1,700 staff located in downtown Los Angeles had a spectacular and very unusual fire. This session reviews the LA Metro Gateway headquarters building emergency preparedness plan – what went right and what went wrong during the catastrophic event. Critical parts of an emergency preparedness plan will be presented, along with how to develop and test the plan. How the LA Metro personnel responded to the emergency will be illustrated.

Learning objectives:

1. Learn how to develop an emergency response plan
2. Learn how to test the emergency response plan
3. Learn how to critique the plan to determine what went right and what went wrong

Being part of the building management team, that owns and operates the LA Metro Gateway Headquarters building, I experienced firsthand what it is like to have an actual fire. I have also learned how to implement a plan to return the building to its previous working condition. My duties as part of this team include being responsible for the building emergency response plan and team, training the floor wardens, developing the response plan, occupant training, scheduling and overseeing the yearly evacuation drills and testing the various components of the plan along with being project manager for the building service contracts.

Why have an Emergency Response Plan??

The simple answer is for the health and safety of the occupants and visitors of the building and to ensure that they survive any disaster. In my case, a high rise tower in a downtown area.

Many of our employees asked that question prior to actually experience an event. Whether your facility experiences a fire, earthquake, tornado, hurricane or terrorism, you must be prepared to react to that emergency.

What are the components of an emergency preparedness plan and what needs to be included in the plan?

Site specific – Each plan must address:

- Facility:
 - High rise
 - Campus
 - Single building
 - Multiple buildings
- Occupancy load
- Location
 - Urban
 - Suburban
- Type of facility
 - Office
 - Distribution
 - Manufacturing
 - Hospital
- Building emergency systems
 - Smoke detectors
 - Duct detectors
 - Horns
 - Strobes
 - Pull stations

Listing of emergency contacts – When an emergency occurs, the listing would indicate how to contact emergency personnel for assistance and who in the building needs to be contacted. For example, are you to call 911 or 9911 depending on your phone system dialing requirements? Who also needs to be contacted? The emergency plan details that information and keeps it simple.

How to evacuate the building – Evacuating the building safely is the most critical function of the emergency response plan. The occupants must know how to evacuate the building to ensure for their survival and safety. This includes special procedures and equipment for the physically challenged occupants of the building.

Safe refuge area – Where are the occupants of the building to report after evacuating the building? The safe refuge area needs to be away from the building and large enough to accommodate the building occupants after an evacuation. It is recommended to have two alternate safe refuge area, in case the primary site is unavailable during an actual emergency.

Building systems – A comprehensive emergency plan will answer the following questions regarding the building emergency systems:

What emergency shut offs are included in the building along with where are these shut offs located?

What fire, life, safety systems are installed in the building and how do they operate?

How do the fire, life, safety systems operate?

Does the building contain specialized fire suppression systems, i.e. innergen or pre-action systems?

Emergencies to address – In planning for these emergencies consideration should always be given to the fact that one type of disaster can cause or aggravate another type, i.e. earthquakes trigger tsunamis; hazardous materials incidents, major fire, power outages, tec.

The emergencies that should be addressed in the plan include:

Fire

Earthquake (if in the west)

Tornados (if in the mid west)

Hurricanes (if in the east)

Flood/dam failure

High winds

Medical emergency, i.e. heart attack, stroke, etc,

Bomb threat

Power and water outages

Terrorist attack

Civil disturbance

Hazardous materials spill

War emergency

Aircraft disaster

How to respond to a specific emergency – For each emergency, although the response may be similar, must be addressed separately and handled differently. Responding to a fire is much different than responding to a bomb threat or earthquake. For example, during a fire everyone must evacuate the building quickly. However, during an earthquake it is not recommended to evacuate the building.

What are the job responsibilities of emergency personnel – Each person on the emergency response team (ERT) has a specific job function. Each has a specific function and the duties of that function need to be detailed in the plan. The following job titles and descriptions should be included in your plan.

Fire safety director

Assistant fire safety director

Security

Building engineers

Floor wardens

Stair monitors

Physically impaired assistants

Emergency Response Team (ERT) – Who will volunteer to ensure the life and safety of the building occupants and visitors? The optimum is to have the ERT's listed below:

Security – Lead by security and volunteers

Floor search and rescue – Volunteers, rescue, triage

Casualty care teams – Volunteers, CPR/First Aid

Floor/area captains/wardens – Leaders on each floor to ensure the life/safety of the floor occupants

Emergency supplies – There should be two types of emergency supplies, they are:

Emergency response team (ERT) tools and equipment – Each floor warden should have a flashlight, safety vest, and hardhat. This will assist to identify the floor wardens as well as provide the floor wardens tools to assist in ensuring the health and safety of everyone on the floor.

Survival supplies – Each building should have emergency supplies located in a strategic place(s) on each floor. The emergency supply cabinet should have critical items to assist the floor wardens if the occupants are harbored in place. The cabinet should include radios, flashlights, food water, plus any other specific equipment thought to be required.

Emergency operations control (EOC) – The EOC is comprised of staff who make the decisions on the management of information, decision making, resource management, allocation of resources along with other emergency driven decisions. The type of emergency will dictate who is in charge and participating in the EOC. The core group should remain the same. However, the department calling for implementation of the EOC would be different depending on the emergency. During the strike, the head of operations was in charge of the EOC. After the fire, administration was in charge of the EOC.

How to develop a plan

Each plan must be site specific. Although some of the components that are included in the plan are indicated above, the plan must address your building along with how it and the occupants are to respond to an emergency. In developing the plan, input and assistance is required from the local fire department, building engineers, security, and the building Fire Safety Director. All items listed above must be included in the plan along with how to respond to several different types of emergencies. The plan needs to be placed in written manual formats. Sometimes local jurisdictions dictate what needs to be included in the plan along with the format of the written plan.

Each building plan should be composed of written documents that include:

Occupant manual – The occupant manual contains information that the occupant needs to know and informs them how to respond to various emergencies along with how to evacuate the building. Usually, the occupant manual is turned into a video that is used to train the occupants.

Floor warden manual – The floor warden manual includes some of the same information as the occupant manual but it also includes the floor warden's responsibilities and how they are to respond to different emergencies.

Building emergency response manual – The building manual includes all of the detailed information about the building, the job duties of the ERT, and all of the information indicated above. This manual incorporates all of the information included in the occupant and floor warden manuals. It is utilized by the first responders during an building emergency.

All of the manuals also must include:

How to use a fire extinguisher

How to perform CPR

How to assist the physically impaired who require assistance to evacuate the building

Why do I need this program?

The main function of an Emergency Response Plan is to ensure the life and safety of the building occupants and visitors. In the case of an emergency, help can be obtained quickly. In the case of a medical emergency, everyone in the building should know how to obtain help. If the building needs to be evacuated for any reason, everyone should know how to evacuate safely.

How do I find volunteers?

Ask each employee or building occupant to fill out an "Employee Emergency Skills Questionnaire". This questionnaire requests the following information:

Employee name

Department

Phone numbers both at work and at home

Location in the building

Medical training – CPR, first aid, ERT, AED

Foreign languages

Search and rescue experience/training

Fire fighting
Law enforcement
Emergency experience or special training
Emergency response assignment – currently or formally part of the ERT
Psychology skills – training, crisis intervention, counseling
Public health – sanitation, water testing
Food preparation
Mechanical aptitude – plumbing, electrical, carpentry, auto repair.
Communication – amateur radio operator, CB, cellular phone
Emergency equipment – four wheel drive, pick up truck, van, station wagon, motorcycle
Structural engineer
Would you like to serve as an Emergency Response Team member?

What training does the emergency response personnel require?

Everyone on the ERT should receive training and re-training on the tasks they are expected to carry out. Everyone on our ERT is required to be proficient in CPR and AED use along with First Aid.

Formal training should include:

Classroom instruction of skills, CPR, AED, First Aid
Table top exercises
Hands on exercises
Search and rescue training
Drills

Practice and exercises are vitally important to ensure the success of any emergency response plan. The more practicing and reviewing the plan, the better the plan will become and the better the ERT members will react during an actual emergency.

What are the components of my emergency organization?

The emergency operation center (EOC) is the command center for any emergency. Reporting to the EOC is the Emergency Management Team and/or the Incident Commander. The Emergency Management Team determines what resources are needed and will provide communications to all concerned. Reporting to the Emergency Management Team are: security, floor search and rescue, casualty care teams and the floor wardens.

Once on site the first responding emergency provider (police, fire, etc) will establish an Incident Command Center. From this command center comes all decisions on responding to the emergency. The emergency provider (as in our case during the fire, the fire department) will take over control of the building

along with receiving and making all decisions regarding the emergency from this post. This incident command center is important because all coordination during the emergency occurs at this center.

What procedures must be followed during an emergency?

The emergency procedures should be described in detail in your plan and communicated to the building occupants along with frequent testing of the plan.

During and after an emergency, the emergency agency in charge of responding will take over your building until the emergency has passed. In the example of our fire, the City fire department once on site took over the building and its systems. They established an Incident Command Center (ICC). This ICC directed the response by all emergency responding units to the fire. The participants included the City fire commander, the building Fire Safety Director, and the building engineer.

Communication of the plan

Emergency Preparedness Manual – Every building should have a site specific emergency preparedness manual located on site. The plan should contain all the information noted above and communicated to the building occupants.

Awareness programs – Programs need to be developed to raise awareness of the building occupants as to possible emergencies and how to respond to them.

Training videos – The most efficient way to ensure occupants of a building know what to do during an emergency is to develop a training video based on your building emergency response plan. This video should be shown to all occupants at least once per year and new occupants should view it shortly after arriving.

Training sessions – Regular training sessions should be conducted with all building occupants. During these sessions, the video is usually shown and then discussion is held to address comments and questions of the building occupants.

Assignment of floor wardens – To ensure that occupants can evacuate the building safely, the backbone of the emergency plan is the floor wardens. They are responsible to ensure the safety and safe evacuation of the building floor occupants. During an evacuation, they make sure that everyone has left the floor safely and are the last ones to leave the floor. In case of injury or problems, they communicate to the Emergency Operations Center what has happened on that specific floor.

Training of floor wardens – It is important to provide at least quarter training to the floor wardens. Training can be going over parts of the emergency response

plan, how to evacuate safely, what to do for a physically impaired person, along with addressing specific possible emergencies.

Testing the plan

Table top exercises – Table top exercises are the easiest way to test the emergency response plan. By developing various emergency scenarios and taking the emergency response one step at a time, ambiguities and problems with the plan can be identified and addressed.

Scheduled evacuation drills – This is disruptive to the building occupants. But it is important for them to actually participate in an evacuation drill. These drills proved invaluable when our fire broke out.

Debriefing and constantly improving the plan

Debriefing – After a drill or actual emergency, it is important to hold a debriefing session immediately. These sessions include what went right, what went wrong and why along with what suggestions are there for improvement in the future. These debriefing sessions identify flaws or problems with the existing plan.

Constantly improving the plan – The plan should not sit on a shelf gathering dust. But should be a living document that is reviewed, tested and revised constantly. After an emergency it should be reviewed and updated. Normally, once a year review and revision should be sufficient.

What happened when the emergency response plan was tested?

Fire!! The one word gives Facility Managers nightmares especially when you are responsible for a high rise building. Fires can be more devastating than other natural disasters, worse than hurricanes, floods or earthquakes.

The LA Metro Gateway Headquarters building which was occupied in 1995 contains 628,000 square feet with 27 floors above grade and 4 below. The top two floors of the building house the building's central plant along with the engineering staff. The Metro CEO and other agency executives occupy the 25th floor. The building was built to the strict City of Los Angeles Fire code and includes all the modern fire equipment required. This includes sprinklers, smoke detectors, duct detectors, emergency generators, break out windows, diesel and electric fire pumps, along with a modern fire control room. Every year we diligently perform required building emergency systems testing including evacuation drills. On January 12, 2001, the building emergency systems had been tested and were working properly. Just two weeks before, the last of our yearly evacuation drills had occurred.

Fire Evacuation

On the morning of January 12, 2001, at approximately 10:22 a.m., the Los Angeles City Fire Department Commander (located outside the building) noticed that the LA Metro headquarters building was on fire. Since it looked like the entire building was on fire, he immediately sent twenty four fire units to respond to the fire. The fire appeared to have engulfed on the top floors. At the same time, our Chief Building Engineer received a call from other Metro staff located away from the building who indicated that the building was on fire and it was located on a top floor. By that time, he began smelling smoke. He then alerted his staff and began the emergency evacuation procedures.

You are asking yourself, if the fire appeared to have engulfed the top floors that outside agencies spotted the fire, then why did the modern equipment fail? The answer is that it did not fail. The fire was located outside the building on a parapet that held decorative lighting. Since there is no code for smoke detectors on the outside of the building, there was no notification of the actual fire until pull stations located inside the building were activated. Eventually, the mechanical smoke detector in an intake duct near the fire did alert the building. If those outside the building who could visually see the fire had not called us, we would not have know anything was wrong.

Upon arriving at the building, the LA City Fire Department ordered a complete evacuation of the building. The building alarms were activated and building occupants were instructed to evacuate the building. Since the LA City Fire Department started rolling fire units prior to us knowing about the fire, they were arriving as building occupants were being informed to evacuate the building. The first fire unit on scene is required to climb the stairs on the other side of the building from the fire and exit the stairway about the fire. These are the same stairs used by the building occupants to evacuate the building. The fire fighters carrying 100 pound packs on their backs were going up as the building occupants were going down the stairs. The fire was located on the 26th floor parapet so the fire fighters had to climb 27 flights of stairs.

Thank goodness that the last building evacuation drill had been held two weeks prior to the fire. The LA City Fire Department complimented us on our speedy, calm and safe evacuation of the building with no one hurt during the evacuation.

I stayed in the building to assist the fire department personnel responding to the fire. The Fire Command Post was across the street. During this time, my thoughts were about the physically impaired staff members and wondered if they were able to evacuate the building. Other thoughts were what was the damage to the building and what remediation measures must I take to put the building back together.

Fire Description

The fire was located on the 26th floor small parapet that contained decorative lighting and window washing connections. The day was overcast and wet but not raining. The fire was started by an electrical short in the decorative lighting. This lighting was located in a cove that was made up of stone, metal, and fiberglass. The fiberglass is on the outside so that the lighting could show through it and also reflect on the building. The fire fuel was composed of the electrical wiring, lighting housing, and the fiberglass enclosure. The fiberglass ignited quickly and made spectacular black smoke. This contributed to the perception that the entire top floors of the building were on fire.

To access the fire area, the fire fighters went through the 27th floor chiller room, step over a three foot high wall to enter the microwave area, down a ladder and through a doorway to the small parapet area. The parapet itself is small with only the lighting and window washing davit connections. Thanks to the quick response by the fire department, the fire was confined to this area and did not enter the inside of the building.

Clean Up

11:30 a.m. the fire is out and the LA City Fire Department is cleaning up. The LA City Fire Department escorted me up to the floors so that I could assess the damage and make arrangements for clean up. The LA City Fire Department had done a fantastic job of protecting the interior furnishings of the building. On floors 24 and 25, they put sheets of plastic over desks full of papers and moved furniture out of the way. Due to the fire department diligence, the furniture was not damaged and very few papers got wet. They mopped up the excess water on floors 24 and 25 as well as in the 27th floor chiller room.

The fire was located right above and outside the LA Metro's CEO's office who happened to be holding a meeting at the time of the fire. LA Metro's executive staff are located on the 25th floor on the fire side of the building. The 24th floor offices affected were the legal and budget executive offices. After the 1:30 p.m. all clear, building occupants were allowed back into the building. However, those assigned to floors 23 and above were not allowed back to their offices until Monday morning. They were escorted by security and only allowed to pick up their personal belongings and then leave.

Now it is my turn to view the building damage both interior and exterior and to make arrangement for clean up. Evidence of water was on the carpet, ceiling tiles and along the walls. A restoration firm was able to start that afternoon on the water clean up and mitigation of the 23, 24, and 25th floors.

The exterior windows on the fire side of the building were covered with burned fiberglass and water. Our contracted window washers were requested to pressure wash the building and windows on the fire side of the building. They also assisted in sweeping up the fire debris on several balconies.

The limestone along with the caulking on the outside of the building was damaged due to extreme heat and then cold. For safety reasons, a row of stone was removed and plastic put in its place.

Debriefing and lessons learned

Everyone evacuated safely without panic or alarm. In fact, most occupants thought it was just another evacuation drill. However, the evacuees did not know where to go because they had only practiced going down five floors. Instead of going to the safe refuge area, they milled outside the building.

After re-occupancy of the building on the day of the fire, a Recovery Task Force convened in the EOC to coordinate closure of outstanding issues. A Lessons Learned Task Force was convened to discuss what went right, what went wrong and to make recommendations to enhance the building emergency preparedness program.

In Retrospect

Being part of the building management team, I received firsthand experience on how a building with all modern equipment and up to the very strict building codes can experience a disaster. This experience allowed me to view our emergency procedures in action and observe if the emergency training being provided was adequate. With the fire incident, we were able to practice process improvement for the building emergency preparedness program. I was able to question if there were areas that needed improvement or expansion.

We are constantly refining and improving our emergency processes and procedures. Our plan does not sit on the shelf gather dust. It is a living document and is constantly being reviewed and updated.

Summary

Once an emergency plan has been developed, you need to continue to improve the plan. But the two most important essential items that are required to ensure the life and safety of the building occupants are:

COMMUNICATE, COMMUNICATE, COMMUNICATE

PRACTICE, PRACTICE, PRACTICE