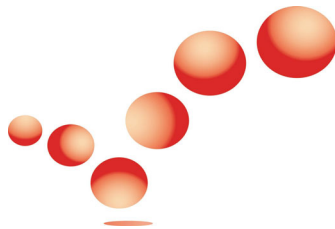


Essential Emergency Planning Basics

How to Develop a Successful Emergency Action Plan



Presented By

The Carlyle Consulting Group

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What You Must Do to Keep Your People & Buildings Safe

Before You Start

Before you can begin to undertake the creation of a corporate emergency action plan, you'll need to think about the following issues:

Determining Your Objectives & Scope

- What do I want this plan to do?
- Why do we need a plan?
- Who will this plan have jurisdiction over?
- What events present the greatest liability?

Identifying Your Resources

- Time
- Money
- People

Understanding The Costs Involved

- Non-billable time while producing the plan
- Support from administrative (typing, editing & copying)
- Printing the emergency plan
- Distribution of the plan
- Training and drills
- Revisions to the plan

Understanding Your Business

The Occupational Safety and Health Act requires employers to evaluate the hazards that exist at their buildings and then they must create an emergency plan specific to their business. For instance, a health care facility worker will be exposed to hazards that other workers will not be. Exposure to bloodborne pathogens, needle sticks and sharps are a very real concern for healthcare workers and must be addressed in the corporate safety plan.

You need to evaluate your business and the hazards that are produced by your building use and develop an emergency plan that addresses these hazards. Where is the property located? In a flood zone perhaps? Do you own the building or is it leased? What kind of business are you conducting? What functions of your organization are most critical to its survival? These are the types of questions that must be asked when developing your emergency action plan. To develop a useful emergency plan, you must understand your business.

Cost of Business Interruption

Here are a few of the questions that need to be answered at a strategic level:

- What is the daily cost of unproductively?
- How long can we absorb a business interruption?
- Will the inability to provide product or service affect our future market share?

- Will the inability to provide product or service affect our reputation in the industry?
- Does it make sense to acquire insurance to protect lost productivity?
- Does it make sense to create financial reserves for business continuity?
- Is the cost of flexible, contingent office space a viable option?
- If we are leasing the space, what assurances do we have that the property owner will move quickly to repair the property?

Understanding Your Property Leased Versus Owned

The relationship between lessor and lessee can create a number of emergency management questions. The tenant may feel that total responsibility for emergency planning and recovery belongs to the landlord. In turn, the landlord may expect each tenant to be responsible for their own emergency planning. This disconnect is never realized until its too late. To prevent misunderstandings, at the time of lease signing and at least annually thereafter the owner of the property should meet with representatives of the tenants and review the emergency plan. This would be a great time to schedule evacuation drills and elect floor captains. It is critical that a chain of command be established.

Here are additional questions that should be considered:

- Who is responsible for staging evacuation drills?
- Is each tenant responsible for their own emergency plan?
- Who makes the decision to return to the building after an evacuation?
- What happens to the lease if the property is uninhabitable for an extended period of time?
- What kinds of insurance policies are required and in what amounts?
- Is the landlord, tenant or both parties required to acquire insurance?
- How much damage must be assessed before the property is considered uninhabitable by the insurance provider?

Geographic Location

The geographic location of your building is perhaps the greatest indicator of the types of emergencies that you must prepare for. It seems that each area in the country is susceptible to its own unique emergency events; and if we live in a certain area, we understand these hazards and prepare for them accordingly. This is where the real danger lies. If we are not careful, we will focus on the obvious events that could occur and overlook the unusual, but very possible emergency events. For instance, it has snowed in Florida. Terrorist bombs have rocked the quiet mid-west. Floods have occurred in the desert and earthquakes can strike in Boston, Massachusetts.

When performing a risk analysis on a building based on its geographic location, we sometimes focus on the natural, weather related events. True, these events are more common and the damage is often more costly, but do not forget to analyze all emergency events that could occur. For instance, is your building located near a nuclear power plant, refinery or a chemical manufacturing

plant? If it is you should have a specific plan in place to deal with these potential liabilities. This isn't news to most of us. We realize the dangers that exist when located in close proximity to these types of businesses; but lets take this example a bit further. Here are a few questions to consider:

- Is your building located near a highway?
- Is your building located near a railway
- Is your building located near a navigable waterway?
- Is your building located near a dam?
- Is your building located near a plant that produces hazardous chemicals?

Other risk factors outside of your immediate control might include:

- Sporting events
- Political rallies
- Flood zones
- Water dams
- Large metropolitan areas
- Airports

In a multi-tenant environment, the business being conducted by other tenants can have a negative impact on your organization and employees. In fact, in some scenarios your business continuity or even the lives of your employees are in danger. For example, abortion clinics are frequently the target of demonstrators. If your company shares space with an organization with a bad perception, you could have problems. Issues range from impeded access due to demonstrators, verbal abuse, vandalism and even injury or death. If this is a concern for your organization, you must address the problem. It will be necessary to distance yourself from the target organization. Speak with the organizers of the demonstrations and express your concern as an uninvolved third party. If they are legally demonstrating, you have no recourse but to try to make the best of a bad situation. Perhaps identification can be worn that would distance you from the target. Stress your organizations desire to remain neutral in such affairs.

Building Use

Consideration must be given to the kind of property you are managing and the tasks that are performed there. Each property will have its own unique issues and concerns. An aware emergency planner would have a good understanding of these issues and would customize the emergency plan to address these issues. The planner would also consider the building occupants and their attitudes or physical and mental limitations. Based on the planners observations, details would be added to the emergency plan that address these issues as well. A number of different building classifications exist but we are going to examine just four types – the industrial, commercial, educational and healthcare facilities.

Industrial Facility: Industrial facilities tend to house equipment and chemicals that could produce hazards if used improperly. Chemical spills and fires are not uncommon in such buildings and therefore must be addressed in the emergency plan. Questions to ask include:

- Is an industrial fire brigade necessary?
- Can we contain and cleanup a chemical spill?
- Is the audible alarm able to be heard over the machinery?
- Have all shifts been trained in emergency procedures?
- Have employees been trained in shut down procedures in the event of an evacuation?
- Do we have a way to safely store flammable and toxic chemicals?

Commercial Property: Multi-story, multi-tenant commercial buildings present a number of communication and logistical problems when emergency planning is concerned. Too often commercial tenants view emergency procedures and evacuation drills as an unnecessary and time wasting experience. The emergency planner should be aware of these attitudes and work towards changing these perceptions. Questions to ask include:

- How would all occupants be notified?
- Has a chain of command been specified?
- Have all tenants been trained in emergency evacuation procedures?
- What kinds of flammable or toxic chemicals are the tenants storing?
- Do they have all current MSDS documentation?
- Have emergency responsibilities and expectations been added to the lease agreement?
- Who is responsible for alarm testing, fire extinguishers and other related equipment?
- Does the emergency planner have after hours phone numbers for the tenants?
- If tenants make changes to the building structure or floor space, have the changes been added to the as-built drawings?

Educational Facility: Educational facilities present a number of challenging issues and each of those should be addressed in the emergency plan. Pre-school and elementary schools are not likely to have many of the hazards that higher grade educational facilities might have, but the lower comprehension level must be addressed. High schools, technical schools and colleges will have labs that use chemicals and machinery that could malfunction and create an emergency event. Evaluation of facilities should take into account both

the hazards that exist and the comprehension level of the students. Because of the young age of the majority of the occupants in an educational facility, the administration must provide an increased level of direction and hands on assistance when evacuations are required. Questions to ask include:

- Have we established specific staging areas for each classroom?
- How will we handle bomb threats?
- How will we handle false alarms?
- How will we communicate with parents?
- How will we account for students that are picked up by parents?
- Can transportation be brought in to take students to a safe location?
- Have we addressed the potential for violence?
- Is the school facility near any hazardous sites that might force an evacuation?

Health Care Facility:

Although health care facilities can expose workers to some of the most dangerous hazards, the industry is also highly regulated. Agencies such as the Occupational Safety and Health Administration (OSHA) and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) speak directly to the unique hazards present in health care environments. These regulations will have bearing on your emergency planning and recovery activities. Questions to ask might include:

- Would we be able to handle chemical or biological exposure?
- Do we have procedures for bloodborne pathogen exposure?
- How long can we operate without utilities?
- How would we handle an evacuation?
- How can we practice evacuations without impacting the patients?
- Does the facility have safe "areas of refuge" that patients can be moved to?

Of course, these are not the only questions you would ask when developing an emergency action plan. These questions represent just a sampling of the issues that must be addressed. The emergency planner must play the role of detective, looking for weaknesses in the current plan or its processes. It's ok to play devils advocate. Its important to role play emergency scenarios and don't be afraid to ask the hard questions. So far we've discussed the property, its geographic location and the business it conducts. Usually these are issues that we can control. We should now change our focus to those external events to add to our risk.

**Understanding Your Risk
The Risk Assessment Matrix**

A logical starting point for determining risk would be to list any hazard that may occur. Upon completion of that list you would then rank the hazards in order of probability.

After determining the probability of an event occurring, you should also determine the liability and the cost. A high probability, low liability event such as temporary loss of electrical utility may not warrant much consideration. However, a low probability, high liability event such as extended loss of utility must be planned for. A third component to consider is cost. Is the cost of the emergency event elimination or reduction worth the trouble? Is the return on investment worthwhile? For instance, you could construct a totally storm proof, fire proof, and secure building, but at what cost? Is that cost too high based on the liability or probability of an emergency event. These are the factors that must be considered when performing a risk analysis.

The Federal Emergency Management Agency (FEMA) has created an excellent matrix for performing a risk analysis. The matrix is effective because it allows you to assign a probability factor, human, property and business impact in addition to an internal and external resource scale. You would grade each of these components based on a scale of one to five. After grading out each emergency event, you simply add the number from left to right with the total tallied in the right hand column. The higher the number the greater the concern. This matrix forces you to evaluate potential emergency events against a consistent measuring stick. It focuses your attention on the greatest needs and concerns.

Type of Emergency	Probability	Human Impact	Property Impact	Business Impact	Internal Resource	External Resource	Total
	Hi Lo 5 ←→1	Hi Lo 5 ←→1	Hi Lo 5 ←→1	Hi Lo 5 ←→1	Weak 5 ←	Strong → 1	
Fires							
Severe weather							
Hazardous material spills							
Transportation accidents							
Earthquakes							
Terrorism							
Utility outages							
Other							

Creating The Emergency Action Plan What Does It Contain?

Quite simply, your emergency action plan should contain all pertinent information that will allow you to plan, survive and recover from an emergency. This will require an evaluation of your building, type of business and geographic location. The plan must contain names and phone numbers of employees that are able to offer assistance in the event of an emergency. In 29 CFR 1910.38(a)-(b), OSHA has developed regulations that identify the minimum requirements of an emergency action plan, including:

- Emergency escape procedures
- Description of potential hazards
- Emergency escape routes
- Procedures to be followed by employees who remain to operate or shut down critical building operations before they evacuate
- Procedures to account for all employees after evacuation has been completed
- Rescue and medical duties for those employees assigned to perform them
- The preferred means of reporting fires and other emergencies
- Names or job titles of employees who can further explain the emergency action plan

OSHA also requires that each facility have a fire prevention plan in place. This plan is specifically tailored toward the threat of fire. The employer is required to train employees in aspects of the plan that pertain to their exposure. Components of the plan include:

- A list of fire hazards that exist in the workplace
- Names or titles of employees who are responsible for fire source hazards
- Names or titles of employees who are responsible for fire alarms and fire fighting equipment
- Housekeeping procedures that limit fuel sources
- Employee training techniques and frequencies

In addition to these minimum OSHA requirements, a good emergency action plan would include the following additional items:

- Statement of policy, also known as a mission statement
- Floor plans with exits, fire extinguishers, pull stations, first aid stations and other important features.
- Location of MSDS information
- Names and numbers of external emergency service providers
- Inventory lists of emergency supplies
- Maintenance schedules for generators, fire sprinkler, alarm systems and other related emergency equipment.
- Chain of command established for emergency events

The Emergency Management Team

Every good plan is supported by a team of dedicated people. The plan is just a reference manual. Decisions still need to be made. Direction must be given. Human interaction and leadership is a necessity. The plan comes to life when somebody picks it up and actually uses it. Furthermore, the emergency management function is not a one-person job. Instead, a team of people will be involved, each with a specific purpose.

Identifying Team Members and Responsibilities

When developing your emergency management team be sure to include a diverse roster of employees. In addition to the obvious goal of saving lives and reducing injuries, your goal is to identify critical business functions that may be interrupted as a result of an emergency event. This is not usually accomplished through the eyes of a single individual. Once the diverse team membership of subject matter experts has been finalized, assignments and a hierarchy should be developed. During a crisis there must be a clear line of responsibility and command. Listed below are samples of some of the expertise needed on your team:

- Risk Management Specialist
- Logistics and Procurement Manager
- Media Relations Contact
- Human Resources Personnel
- Facilities Maintenance Manager
- Legal Counsel

Listed below are a few of the assignments that should be given:

- Emergency Director
- Business Continuity Manager
- Command Post Leader
- Group Leader
- Floor Captains
- Fire Brigade
- Evacuation Assistants
- Runners

Internal and External Support

The risk analysis matrix discussed earlier includes a column for internal support and a column for external support. Although you'll want to take advantage of your internal resources and employees, that may not always be possible. Key to surviving any emergency event will be the support of external resources and vendors. Early identification of these resources is essential as well as involving them in the planning process.

When identifying resources both internal and external give consideration to how quickly the resource will be available. This plays an important role when discussing internal resources. You may have an excellent staff of highly trained maintenance technicians who are skilled at solving building related problems, but the emergency event may cause them to be unavailable. In the event of labor unrest, your internal resources may not be willing to cross a picket line. When an emergency event occurs your employees and their families may be directly affected and therefore unavailable, so make plans for a backup.

Identifying Vendors and Contractors

Contractors come and go, it is therefore imperative that you review your list of contractors with active purchase orders annually at a minimum. Be certain that you have updated office and cell phone number. In heavily populated metropolitan areas, area codes tend to change on a regular basis, so make sure you have the latest area code prefix as well. An excellent form for tracking contractor availability is depicted in the Contractor Availability Form.

Identifying a good contractor is just a starting point. A contractor may agree to offer assistance after the emergency event, but because of circumstances out of their control, they may not be available. Access roads could be blocked, their office could be heavily damaged or some other logistical problem might exist. For this reason, you need to have alternate contractors available. The Contractor Availability Form includes tabs for alternate contractors.

Because much of the help you use will not be your primary contractors, you'll be tapping into companies that may not meet your usual company expectations. Specifically, insurance requirements come to mind. Do you feel comfortable contracting with companies that carry inferior amounts of liability insurance? It's a risk and you must weigh that risk against the restoration needs you face. Be very careful with this decision. Remember, after an emergency unusual and dangerous conditions will likely exist. If this contractor does not have adequate insurance for normal working conditions how can you feel comfortable using them in a dangerous environment? Instead of lowering your standards, spend more time locating quality alternate contractors that already have the required coverage in place.

The indemnity agreement should be a standard document signed by all contractors, regardless of their insurance amounts. This document protects your company from suits and judgments as a result of the contracted assignment. As a last resort, you may elect to use contractors with inferior coverage amounts if they agree to sign an indemnity agreement. This document does not provide total protection, but at least it is a start. Of course, when signing legal contracts, always consult with your legal counsel beforehand. An example of an indemnity agreement coupled with a safety clause may look like this:

"Contractor hereby agrees to indemnify and hold harmless {company name} its agents, officers, successors and assigns against any and all claims, suits, judgments and damages of any kind resulting from this contract or the work supplied by the contractor, its employees or subcontractors".

"Furthermore, contractor shall be solely responsible for supervising its employees, providing personal protection equipment, training its employees, recordkeeping and adhering to all Federal Occupational Safety and Health Act regulations or state equivalent".

Stocking Emergency Supplies

Items that have a limited shelf life such as food, batteries and fuel need to be rotated out of storm inventory and into common inventory. This best occurs at the end of storm season. For instance, if you have stored three dozen AAA batteries for your radios and you have not used them at the end of storm season, use them elsewhere. Don't make the mistake of sitting on those batteries for five years and find that they have expired when you really need them. Don't make the inventory more complicated than it needs to be but remember, the golden rule of inventory management - First In = First Out.

In preparation for emergency events, it may be necessary to store a limited amount of food supplies. This can present a problem as the shelf life of most foods is very limited. Other foods require preparation including cooking. A popular solution to this dilemma is the use of MRE's (Meals ready to eat). MRE's are fully cooked meals originally developed for the military. Depending on storage temperatures, the shelf life of an MRE can exceed ten years without refrigeration. The food is not freeze dried, and each item is cooked and sealed in individual high strength pouches. Full meal MRE's typically include a main entree, a side dish, a desert, crackers and spread, beverage base, a spoon, and an accessory packet. Although cooking of MRE's are not required, some foods taste better if heated. Chemical MRE heaters are available that will effectively heat your food in just a matter of minutes using only a little water.

A number of organizations produce and package MRE's. You do not need to be a member of the military or other governmental agency; in fact, many personal households keep MRE's in stock in the event of an emergency or for family camping trips. MRE packages can be purchased that include lights, batteries, personal hygiene products and first aid supplies.

For an excellent source of a full range of MRE products, contact:

Epicenter
384 Wallis #2
Eugene, OR 97402
(541) 684-0717 Voice
<http://www.geoduck.com/epicenter>

Blueprints and As-Builts

A number of tools exist that can assist emergency teams during search and rescue missions after an emergency event. Most of these tools are readily available to the planner, such as floor plans annotated with exits, fire extinguishers and first aid kits. When creating your emergency plan, start by acquiring an updated copy of the buildings floorplan. In a leased building you will need to speak with the property owner or its agents. If the building is company owned, you should speak to the facility management department. Over the years buildings are renovated so the floorplan that you have may not be an accurate representation of the buildings configuration. Take time to insure the accuracy of the floorplan. If you cannot locate any floorplan information, or if the plan is hopelessly outdated, it would be advisable to create a basic revised floorplan. If you have the tools and expertise in-house, use them to create a basic floorplan. It's not necessary to go into great detail on your floorplans; remember, the purpose is not to build the structure. The purpose of this floorplan is to identify windows, doors, emergency exits, alarm panels, fire pull stations and other emergency related items. A basic single line floorplan minus the dimensions, details and other non-essential items will be sufficient. When developing an emergency floor plan, remember to include important details such as:

Drainage

- Storm drains
- Roof drains

Egress Concerns

- Designated escape routes
- Stairways
- Windows
- Doors
- Emergency exits
- Evacuation staging areas

Fire Safety

- Fire alarm pull stations
- Fire extinguishers
- Fire pull stations
- Smoke detectors
- Water sprinkler testing valves
- Alarm panels

First Aid

- First aid kits and stations
- Automated External Defibrillators (AED)
- Eye wash stations

Specialty Areas

- Mechanical Rooms
- Telecommunications Rooms
- Haz-Mat storage locations
- MSDS locations
- Restricted areas

Utilities

- Gas mains & valves
- Utility shutoffs
- Water lines & valves
- Sewer lines

Power Systems

- Generator and switchgear locations
- Generator powered circuits
- Uninterruptible power system location

Take pictures or video of the facility and its assets before and after an emergency event. This documentation will prove beneficial when dealing with insurance adjusters.

Critical Building Information

Critical building information must be made available during and after emergency situations. This is usually not a problem if company employees are available. Facility management or maintenance personnel are a ready source of critical building information, but what would happen if the emergency event occurred after hours? For instance, what if a fire was to start in your building after hours? When the fire department arrives, will they have keys to your building? How will they locate a floorplan? Will they be able to locate your MSDS information? If the fire department does not have keys, they will enter your building forcefully, but considering the emergency that will be the least of your problems. The floorplan would be helpful but again, not necessary. The MSDS information however is very important to the firefighters. Without an idea of what chemicals are being stored on the premises, the firefighters are putting themselves in a very dangerous situation. Of course, fighting the fire is dangerous enough, but fighting a fire where flammable and combustible chemicals exist is extra dangerous. It would be unfair to ask any rescue personnel to enter your building without first identifying the hidden hazards.

Emergency Training

Emergency training will not be a one-time event. It will be an ongoing event, with a goal of preparing those taking the lead. Specific training formats include:

Orientation training should be delivered to new members of the emergency action plan. Each member should understand not only their responsibilities but also the responsibilities of the other team members. At the orientation, team members should be assigned a copy of the emergency action plan book. The book will be their personal property and if they leave the team or the company, they must return the emergency action plan. The team member will be responsible for updated the plan as revisions are produced.

Tabletop exercises are an excellent way to train members of the emergency action team without disrupting the normal day-to-day activities of the organization. In a typical tabletop training exercise, members of the team sit in a conference room and pull emergency scenarios from a hat. Circling around the conference room table, each member would then explain their responsibilities to the group. A second pass around the table would allow team members to ask questions of other team members. If a weakness is discovered or an opportunity to improve is noticed, the entire team would work together to improve the emergency plan.

Walk-through drills allow the emergency action team to more accurately perform their emergency responsibilities. During a walk-through drill, members of the emergency action team visit areas that are crucial to a successful plan implementation. Such areas might include shut-off valves, alarm panels, automated external defibrillators, first aid stations and exterior employee staging areas. The walk-through drills are essential for building familiarity and can be performed with impacting normal business productivity.

Pre-evacuation drills are an extension of the walk-through drills. The pre-evacuation drill involvement is limited to members of the emergency action team. Participants are instructed to evacuate the building, paying particular attention to the signage, exit routes, doorways and staging areas. This is a perfect opportunity to evaluate the evacuation process without impact the entire workforce. Participants should quickly evacuate as if an emergency is present. During the evacuation, notes should be taken, but that may force the participants to stop and write down their observation. A solution to this problem would be to provide participants with mini tape recorders. As they evacuate the building they would simply record their observations into the tape recorder without even stopping. After the exercise is completed, the participants would play back their recorded observations and make adjustments as necessary.

Full-scale exercises are useful in many organizations. The purpose of a full-scale exercise is to closely simulate an actual emergency event as possible. This necessitates the involvement of emergency response personnel, employees, and community response organizations. Because of the involved nature of the full-scale exercise, this option may not be easily implemented. You'll need the

corporation of a number of different agencies and they are usually not able to fulfill all requests. As an option, you may wish to have your emergency management team participate in another organizations full-scale exercise. This option won't address your organizations specific needs but it will allow you to "go live" and experience a staged emergency event. The experience gained can be of tremendous value and should not be overlooked.

The orientation training should be delivered to new team members at the time of their assignment. Thereafter, training should be provided to all team members at least annually thereafter. Other occasions when training, or at least an update, would be required include:

- When a process or responsibility is revised
- When policies affecting emergency planning & recovery change
- When a change to the layout of the physical building occurs
- When new equipment is introduced that may affect emergency planning (i.e. generator or chemical storage)
- When key personnel changes
- After each emergency

Training the Employees

Members of the emergency action team are not the only employees that should be trained. In order for a plan to be successful, all employees must be trained. In addition to new-employee training, worthwhile employee training might include:

Tabletop exercises are an excellent way to train the general employee population without disrupting the normal day-to-day activities of the organization. In a typical tabletop training exercise, employees and select members of the emergency management team sit in a conference room and pull emergency scenarios from a hat. Circling around the conference room table, each employee would then explain how they would react to the emergency event. A second pass around the table would allow employees to ask questions of the emergency action team members. If a problem is discovered or employees are uncertain what they should do, the emergency action team members would retrain as necessary. In these tabletop exercises, many excellent ideas and improvements have come from the employees. Typically the employees will challenge the members of the emergency action team with questions and issues that were not discussed previously. Don't miss out on this low impact – high reward training opportunity!

Announced evacuations are a great way for the employees and the emergency management team to gain confidence in one another. The problem with most evacuation drills is the timing. People are busy and rarely is the evacuation considered a priority. When the evacuation drill does occur, people are confused, meetings are interrupted, deadlines may be impacted and more time is spent performing the evacuation because of the unfamiliarity with the procedures. If you announce the evacuation you allow the employees

to prepare for the event. You also allow the employees to find the emergency exits prior to being evacuated. You have a chance to explain the evacuation routes, staging areas and other related procedures. Eventually, as the employees become more familiar with the evacuation procedures they will be ready for the unannounced evacuation.

Unannounced evacuations more accurately simulate an actual emergency event. When faced with an emergency we often forget the obvious. Where do we go? Where is the closest emergency exit? Where is the secondary exit? Who needs assistance in evacuation? Where is our staging area? Who performs the employee's roll call? Questions like these are easy to answer during a tabletop exercise, but when the unannounced evacuation occurs, we often get rattled. By conducting unannounced evacuations you provide employees with the opportunity to work out the kinks. The unannounced evacuation should not be conducted until your employees are comfortable with the announced evacuations.

Getting Everybody Out Safely Evacuation Routes & Drills

Regular evacuation drills are a critical component of a successful emergency action plan; but who can afford the impact of evacuating an entire building during a single drill? The good news - a total evacuation is not necessary, nor is it recommended. Smaller drills have proven to be quite effective and they provide the training necessary for the employees to gain confidence in the event of an actual emergency.

When developing evacuation plans for any building, especially high rise buildings; you must take time to consider the results of any decisions made by the emergency management team. One of the best ways make this happen is to follow this simple advice:

"Before you conduct an evacuation drill, do a walk through. Before you have a walk through, have a talk through".

Health care facilities present unique, but not impossible, evacuation challenges. Its not likely the emergency planner will walk to a fire alarm pull station, trigger the alarm and expect to evacuate the building occupants. Given the sensitive nature of the work being conducted in a healthcare environment, it is impossible to conduct evacuation drills. How can healthcare employees be trained in proper evacuation techniques in the event of an actual emergency? In the healthcare industry, tabletop exercises have largely taken the place of full scale evacuations. Employees gather in a conference room and are given emergency scenarios. The employees must discuss the sequence of events following the emergency? Which sections of the building should be evacuated? What alternate sources of power are available? How will employees

communicate if phone and electric service is lost? Where can we safely move patients in the event of a fire in the east wing? These types of questions will provide mission critical employees the training they need without negatively impacting the safety or quality of their work. These same tabletop exercises can be used in a number of different scenarios, including tall buildings where it would be impractical to evacuate employees from the seventy-sixth floor.

Alerting the Building Occupants

OSHA requires employers to devise a method for notifying employees of an emergency. In most scenarios this is accomplished via an audible alarm that can be triggered manually or automatically. But think for a moment about the problems with an audible alarm. Those with hearing disabilities may not hear them. In a loud shop area, the alarm may not be able to be heard over the noise level of the equipment. When evaluating your alarm system, make sure you take these issues into consideration. If excessive noise or those with hearing limitations are present, you should devise a secondary alarm warning system. For instance, an audible alarm coupled with a visual alarm such as a flashing strobe would provide much better protection. Consider also areas in your building that may not be covered by the audible alarm. These areas might include basements, restrooms and non-renovated portions of the building.

OSHA also suggests that distinctive alarm tones may be helpful. For instance, if your building has an organized fire brigade, they will need to know if the alarm is for a fire or if it is for another emergency that does not require them to assist. For a fire, the alarm may be a siren, while an alarm for an approaching tornado might be a series of horn blasts. Its not recommended that you have a distinct alarm tone for each type of emergency. Given the number of different types of emergencies, it would become difficult to remember what each alarm means.

Scripting For Evacuation Notification

(READ, REPEAT, WAIT 90 SECONDS AND REPEAT AGAIN)

"We have received an alarm in _____ building. As a precaution, we are requiring evacuation of all employees in _____. Please immediately proceed in an orderly fashion to your assigned exterior staging areas".

For this example and based on the location of the problem, it has been decided that a partial evacuation is all that is necessary, so we would fill in the blanks with the pertinent information and read it over the public address system:

"We have received an alarm in the north wing of the building. As a precaution, we are requiring evacuation of all employees in the north and west wings. Please immediately proceed in an orderly fashion to your assigned exterior staging areas".

Notice that this script does not provide space to discuss the details of the alarm. Does it matter if the emergency is a fire, bomb threat or chemical spill? They are

all emergencies and the evacuation should occur immediately and in an orderly fashion. By providing details, you risk frightening the building occupants. When this happens, people get careless, they run for the exits and those with disabilities are left behind. If you've conducted evacuation drills in the past, the occupants will know exactly what to do; there is no need to scare them into leaving the building. Notice also the language used. The second sentence begins, "As a precaution . . ." This is calming language meant to reassure the building occupants and remind them of their safety. However, at the risk of this alarm sounding unimportant and perhaps voluntary, we follow up with "we are requiring evacuation of . . ." The last sentence encourages the building occupants to "immediately" and "orderly" leave the building. Finally, a reminder is given to go to "your assigned exterior staging areas." This is a good all purpose script that can be adapted as you see necessary. A variation of the above script is to change the last sentence to read:

"Please grab your personal belongings and immediately proceed in an orderly fashion to your assigned exterior staging areas".

This change is recommended in bomb threat scenarios. By reminding the building occupants to take personal belongings such as purses, briefcases, duffel bags, jackets and lunch boxes, you remove many of the items that would have to be searched during the bomb sweep. This slows the bomb search down and solves the problem of possible liability when searching personal items.

Floor Captains & Brigades

Floor captains can be very beneficial in the event of an emergency. Their purpose is to assist the employees and visitors in safely and efficiently evacuating the building. They may be trained in first aid and basic fire extinguishing techniques. Floor captains provide special attention to those with disabilities and they ensure that everybody has left the building. In some businesses, both floor captains and a fire brigade have been established. The responsibilities of a fire brigade are greater and require more advanced training. OSHA defines a fire brigade as "an organized group of employees who are knowledgeable, trained and skilled in at least basic firefighting operations." Fire brigade's are utilized when the nature of a business exposes its employees to unusual danger and the delay in response from the local fire department would cause further risk. For example, a nuclear power plant may find it prudent to establish a fire brigade to commence the firefighting process prior to the fire departments arrival.

Fire brigades are not required by OSHA, but if you do elect to create a fire brigade a few regulations do exist. One regulation in particular suggests that pre-fire training should be conducted by the local fire department in conjunction with the company's fire brigade so the fire brigade will be familiar with the workplace and potential hazards. This meeting and training also fosters cooperation between the local fire department and the fire brigade so they will be able to work together in the event of an emergency. If you desire to create a fire brigade, consult with your local fire department and review OSHA's regulations at CFR 29 1910.156.

Shut Down Procedures

When evacuating a building, it's usually not a good idea for everybody to just leave. Certain equipment and supply lines could present a major problem if left operational. For instance, suppose you have a natural gas service line entering your building. This line fuels four pieces of equipment. If these lines are left open during an evacuation for a fire, the risk of the fire being further fueled by the natural gas exists. A small fire could quickly get out of control and endanger the lives of the firefighters and other rescue personnel. To solve this problem it is advisable to assign knowledgeable personnel the responsibility to shut down lines and equipment that might interfere with recovery efforts prior to evacuating the building. This will require identification of potentially dangerous equipment, storage tanks, containers, supply lines and valves.

Don't fall into the trap of identifying only lines that carry flammable or combustible substances. Flooding due to a broken water service line could hamper business operations and therefore create an emergency event. Remember to locate all supply lines and valves, whether they be gas, diesel, propane, chemical, water or other.

The location of storage tanks and containers used to hold flammable or toxic chemicals must be communicated to the fire chief. This information will play a definite role in how they use their personnel and how they fight the fire. Attempting to explain the hazards and their locations without a floorplan is folly. To make the floorplan user friendly the following information should be prominently identified:

- Shut off valves
- Shut off switches
- Storage tanks & containers
- Supply lines
- Breaker panels

Even when a plan is available, in the haste and confusion of the emergency, important features could be difficult to locate. To solve this problem the visual floorplan must be cross referenced with a written location system. The location key (See page 20) is a good way to accomplish that. The location key is created in a table format. The critical points are identified in the left most column. The middle column identifies the location of the items. The location is derived from an easy to implement grid system. The grid system can be superimposed over the electronic version of the floorplan in a CAD system or you can simply draw a grid over a hard copy of the floor plan. The grid system works on an "X" and "Y" axis. The horizontal axis (X) would be divided into segments and be labeled with ascending letters of the alphabet. The vertical axis (Y) would also be divided into segments and labeled with ascending numbers. Much like a map, you can use

this grid system to quickly locate important items. The location key is most helpful when the items are arranged alphabetically. The final column includes a space for comments. This location grid should be attached, manually or electronically, to the actual hard copy floorplan.

Item	Location	Comment
Breaker panel	A-4	
Chemical Storage	K-2 / P-17	See MSDS / Inventory log
Natural gas shut off valve	H-12	
Water shut off valve	H-13	Valve key above valve

At the actual shut off locations, make certain the valve is clearly identified. A sign, with letters no less than 2" in height should identify the type of shut off. Have you ever been confused by how to turn a valve off? Do you turn the valve clockwise, or is it counter-clockwise? It's not always apparent, so be sure label (at the valve location) the correct directional rotation for on and off. It may be advantageous to color code the signage depending on its use. For instance, a red sign with white letters may be used for all flammable and combustible valve locations. A blue sign with white letters may represent water shut off valves, and so on. Finally, always be aware of special keys or wrenches that may be required to turn the valve. Valuable time will be wasted if you don't know where the key is located.

HVAC System Concerns

Due to the increase in chemical and biological threats, many building owners and managers have realized a need to shut down the building's heating, ventilating and air conditioning system in the event of an emergency. These agents can be quickly distributed throughout the building via the HVAC system; therefore it makes sense to create a single shut off switch for the HVAC system. To protect the HVAC system at its weakest point pay particular attention to the fresh air intakes. If left unprotected, dangerous substances could be introduced into to HVAC system via the air intakes. From one location, an entire building can be infested with chemical or biological agents. Fresh air intakes can be protected by in a number of ways. Simply installing security cameras at the intake location may be a good deterrent. A better way to protect the intake is to limit access to it. This can be achieved by installing fencing around the area where the intake is located. When installing fencing, remember that some chemicals, such as pepper spray, can be sprayed into air intakes from a distance. The installation of motion sensors within the parameters of the fence would serve as further protection. In a multi-story environment experts suggest moving the air intake up from ground level, perhaps as high as four or five stories from the ground level.

Assisting Those With Special Needs

The orderly evacuation of all occupants, including those with disabilities can be quite a challenge. Not an impossibility, but a challenge nevertheless. The Americans With Disabilities Act (ADA) offers many excellent suggestions for assisting those with disabilities during evacuation of a building. Those with hearing, visibility, mental and mobility issues need to be identified and egress from the building must be addressed prior to an emergency event, not during it.

The Staging Area

An orderly evacuation from a building during an emergency saves lives. Think for a moment about an evacuation. Upon notification, personnel will begin to file out of the building, following the appropriate exit signage and routes. Eventually, all of the building occupants, perhaps thousands or people, will be standing in the parking lot or some other location. Now imagine the fire truck or ambulance driving up to the building. Will they be able to access the site? Will people be endangered as they wander around the site? Will they interfere with the emergency responders? For these reasons and many more a staging area outside of the building must be developed.

- Employees should be instructed to move away from the exit doors.
- Ample staging area space should be provided for employees.
- Exit doors should not empty to parking spaces or streets.
- Inclimate weather such as rain, snow or heat should be addressed.
- Groups should be kept relatively small.

The last suggestion is important. A large congested group of people wandering the parking lot creates confusion and it difficult to account for who has exited and building and who remains.

Accounting For Employees and Visitors

When evacuating a building employees should have a specific area that they go to and remain until the decision is made to go back into the building or to leave the premises. This staging area serves a few purposes. First, the staging area keeps the crowd of building occupants away from the building and out of the way of emergency responders such as police, paramedics and fire fighters. Secondly, the staging area provides emergency team members with an organized way to account for employees and visitors. This directive is so important that the Occupational Safety and Health Act requires it. OSHA 29 CFR 1910.38(a)(2)(iii) states procedures must be in place to account for all employees after emergency evacuating has been completed. So think about the process. Where will employees gather? Who will perform the roll call? If somebody is unaccounted for do you have their cell phone or pager numbers? If somebody is missing, how will this information be related to the emergency rescue personnel? Who will give the "all clear" order? These are the types of questions that must be answered if you hope to conduct an orderly and safe evacuation.

In the event of an actual emergency, who will give the command to evacuate? What type of emergency warrants an evacuation? Is a partial evacuation sufficient or should the entire building be evacuated? These are the types of questions that must be considered when developing your emergency action plan. A chain of command must be established and an individual must take the lead. Time is precious and bad decisions can cost lives.

Evacuation Chain of Command

During an evacuation order must be kept. If not done in an orderly fashion, building occupants can be injured, time can be wasted, emergency response personnel can be injured and company liability will be increased. It's critical that a clear chain of command be established prior to any evacuations whether they be training drills or actual emergencies. Here are a few of the important roles that make up the chain of command and must be filled if an effective evacuation is to be conducted:

- Fire Brigade: The fire brigade will perform basic first aid and extinguish small fires in the event of an actual emergency. In an industrial environment they may fight more advanced fires if properly trained and supplied. They may also assist the floor captains by directed building occupants to the available evacuation routes, but this is not their primary responsibility.
- Floor Captains: The floor captains ensure that all building occupants have recognized the alarm and quickly head for the evacuation routes. Floor captains may also assist those with disabilities or those who do not speak English. Floor captains may be placed at stairway and elevator locations to monitor their use. Don't forget to check restrooms, loud locations and offices for who may not have heard the alarm.
- Group Leader: The group leader will gather employees in the preassigned location in the parking lot. They will take roll call and will call missing employees or visitors on cell phones or pagers. If contact cannot be made, they will relay this information to the runner.

Runner: The runner will serve as a liaison between the group leader and the command post leader. During the evacuation the runner visits each individual group and gets a status report from the group leader. The runner will then relay this information to the command post leader.

Command Post Leader: The command post leader collects employee status from each of the groups and compiles a list of unaccounted personnel. The command post leader would pass this information on to emergency response personnel such as firefighters. If the evacuation is a drill, the command post leader would announce the "all clear" and direct all employees back into the building. If an actual emergency occurred, the command post leader would base reenter or leave the premises decisions on the direction of emergency response personnel.

Since the group leader will be conducting a roll call, they must have a current list of employees and visitors. The list of employees is easy to compile. If the group is kept small, the list will be easy to keep current. It should include the employees name, cell phone, pager and home phone number. The list should be kept on a small wallet sized laminated card. If your group includes fire brigade members, floor captains or employees responsible for equipment shut down, they likely will not be exiting the building until they complete their assigned responsibilities and may not be in the staging area when the roll call is conducted.

After the Drill – Evaluating Performance

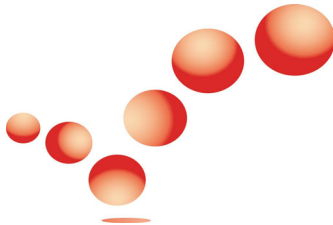
The emergency action plan should be evaluated on an annual basis at a minimum. No plan is ever perfect. Even if it were, people and processes change.

- Was the clocked time within the established benchmarks?
- Did they do better or worse than the last time the drill was practiced?

If it was better, share that success with the employees. They need to know that the effort they have expended has been worthwhile. If the timing was substantially worse, ask the group why they think the performance was poor. They may be able to provide valuable insight into problems and the corrective measures that should be taken. If you keep your building occupants apprised of the evacuation results they will take an interest. They will want to improve their evacuation timing the next time the drill is conducted. Most importantly, in the event of an actual emergency, the building occupants will have the confidence to evacuate without resorting to pushing, running or other inconsiderate and dangerous behavior.

One of the areas that frequently becomes outdated in most emergency action plans is the name and numbers of important support personnel. This may include employees within the organization and contractors or governmental agencies outside of the organization. The auditor could confirm that individuals listed are still in the organization and still have the responsibilities that caused them to be included in the plan. Both home, cell phone and work telephone numbers should be verified. In addition to names and numbers of support personnel, how would you answer the following questions:

- Does the organization have a formal plan for training its employees in emergency procedures?
- Is training being completed?
- Has your organization met with local community and governmental agencies and briefed them on your plan?
- Is the organizations insurance coverage adequate?
- Do you have updated photos or videotape of the facility and its assets?
- Does the plan reflect changes in the building layout?
- Does the plan reflect changes in policies and procedures?
- Does the plan reflect lessons learned from the drills and actual emergency events?



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