

LIABILITY LOSS CONTROL MANAGEMENT EMERGENCY EVACUATION PLANS

INTRODUCTION

When a disaster strikes, injuries and property damage can be prevented or limited by advanced preparation. Even though the potential for a disaster is universal, many businesses have not developed a preplan of emergency action. The time, effort, and cost of developing and implementing an emergency plan can be easily justified when compared to the cost potential of being unprepared. When an effective emergency plan is in place the potential property and personal losses due to accidents, fires, floods, earthquakes, and other catastrophic events can be greatly reduced.

TYPES OF EMERGENCIES

Fire

When a fire occurs at a business or plant, there is usually little time to organize an evacuation. Since most fire emergencies begin small, actions in the first five minutes are considered critical. Evacuating occupants, notifying the fire department, and extinguishing activity must take place as soon as possible after the fire is discovered. Small fires can be extinguished with little effort. Prompt action by a small group of trained personnel can prevent a fire from growing beyond the "small fire" or incipient stage. Good housekeeping, proper fire equipment, fundamental training, and common sense precautions also help keep a small fire from growing to disaster proportions.

Bomb Threats

Bomb scares are usually accompanied with some type of warning by the individual posing the threat. Because of worldwide political unrest and uncertainty of bomb threat situations, it is important to take quick action to evacuate the building. When a bomb threat is telephoned to a facility it is important that the person receiving the call follow established procedures. This includes:

- Alert management for initiation of the evacuation plan.
- Obtain maximum amount of information about the bomb location, size, and time it is set for.
- Keep the caller on the line as long as possible to help determine the location the call is placed from.
- Listen for background sounds, conversations, names, etc., as clues as to who has placed the call.
- Prompt notification of the police department is necessary.

Tornado

Damage resulting from tornados is inflicted quickly with very little warning. The damage is usually restricted to a small geographic area, but the destruction can be extensive along with serious or fatal injuries. Prepare a management plan to relocate occupants to emergency shelters or safe refuge areas located close to the work areas.

Hurricanes

Ample warnings can usually be given for protection of property and for instituting relocation procedures should a hurricane strike. A hurricane-tracking map can be very beneficial for facilities regularly exposed to this type of disaster. Be prepared to take preventive measures such as taping windows and glass doors, or securing them with storm shutters or other barricades. Prepare occupants to relocate to emergency shelters or safe refuge areas. Provide basic supplies/resources that may be in short supply or difficult to obtain after the storm passes.

Earthquakes

Unlike most other natural disasters, earthquakes can strike at any time. They give no warning and last only a few seconds, but they create serious safety problems. They can cause building collapse, fire, communication interruptions, and personal injury. Businesses need to assess the potential for earthquakes in their specific geographic area and develop an action plan to deal with this natural disaster potential.

Floods

Except for "flash" floods, there is usually time to take protective measures when flooding seems imminent. Assess the potential for flooding in your area and develop an emergency action plan to prevent or limit losses due to flooding.

DEVELOPING AN ACTION PLAN

Two courses of action are needed in emergency plans for safety to personnel and other occupants:

Evacuation- requires all occupants to leave the building in an orderly fashion through designated emergency evacuation routes. This plan would be followed in the event of fire or bomb threat.

Relocation- requires all occupants to remain inside the building, but to move to a designated safe area. This plan would be followed in the event of rapidly approaching severe weather conditions (i.e., tornados).

Develop an emergency action plan to address all potential types of disasters to which a business is exposed. The individuals assigned to develop and implement the plan must have complete support of top management for the plan to be effective. Include assignments for carrying out the plan with both a primary and a back-up person for each duty. Write and distribute the plan to all personnel and building occupants. Conduct initial and periodic training for all participants in the plan to assure its effectiveness.

An effective emergency action plan typically consists of the following basic elements; other items may be needed based on the specific location:

- Written policy and procedures
- Initial and periodic training
- Audible and visual alarm systems
- Communication system
- Adequate and well maintained routes of egress
- Elevator procedures
- Posted map routes and signs
- Emergency lighting and power provisions
- Emergency response team
- Regular drills
- Emergency control headquarters and shelter/relocation area
- First aid provisions
- Plant shutdown procedures
- Police and fire department orientation procedures
- Periodic review and inspection procedures
- Post incident critique of actual events and near misses

WRITTEN POLICY AND PROCEDURES

A written emergency evacuation and relocation plan that is publicized and supported by top management is the most effective type of plan. Include the following in the formal program procedures:

- Who to call in the event an emergency situation is detected.
- Complete explanation of the alarm system. This includes both transmission of alarms to fire/police department and appropriate response to alarms.
- Restrictions on the use of elevators and escalators.
- Maps to designate exit routes.
- Special evacuation/relocation instructions as required.
- Guidelines for extinguishing fires.

Distribute the policy and procedures or a summary to all facility personnel and provide training. Formal, written procedures are important to assure continuity of the program as staff members change.

TRAINING

In conjunction with distribution of the formal policy, provide initial training for all employees involved in the actual implementation of the procedures. To assure each assigned team member knows his/her role in the emergency evacuation/relocation plan, training can be done by the General Program Administrator or designated alternate. Conduct periodic training as team rosters change.

AUDIBLE AND VISUAL ALARM SYSTEMS

Provide an alarm system in all buildings, with the signal indicating an emergency situation distinct from all other signals. The alarms and controls should be easily accessible and protected from accidental operation. Have a secondary power source consisting of a storage battery and charger or an engine driven generator. Generating equipment should have at least four hours capacity available. Consider connecting the alarm to the local fire department, to a central station alarm company located off the premises, or to an on-premises proprietary system.

Use of separate alarm signals allows occupants to distinguish between an emergency evacuation or relocation alarm. When a distinctive fire alarm signal is used to notify building occupants to evacuate, the use of a national standard fire alarm evacuation signal is recommended to facilitate quick and positive recognition of the signal. The recommended signal is a temporal pattern with a series of pulsating on and off bursts repeated for not less than three minutes as adopted by American National Standards Institute, ANSI S3.41, Audible Emergency Evacuation Signal (also known as ISO 8201). In contrast, the relocation signal should be audibly distinctive, to clearly warn building occupants of severe weather or other natural disaster condition.

Because of the need to make public buildings accessible to the handicapped, fire alarm systems in such buildings often include visual alarm signals for those with impaired hearing. Combination horn/light units have become popular for this purpose. These units consist of an alarm horn and a high intensity strobe light. When the unit is energized, the horn sounds and the light flashes. There are also individual strobe light units for retrofit into existing buildings or for installation where the use of alarm horns for fire alarm evacuation signal is not preferred. When visual signals are included in the fire alarm system, care must be taken in placing the devices so they can be seen from every point in the building.

COMMUNICATION SYSTEMS

A central communication system connected to emergency back-up power is recommended as an additional means of communicating emergency procedures to building occupants. This link is typically a public address or annunciation system which allows direct one way or two-way communication in the event of an emergency. These systems are especially effective in high rise buildings with large occupancies on upper floors.

ROUTES OF EGRESS

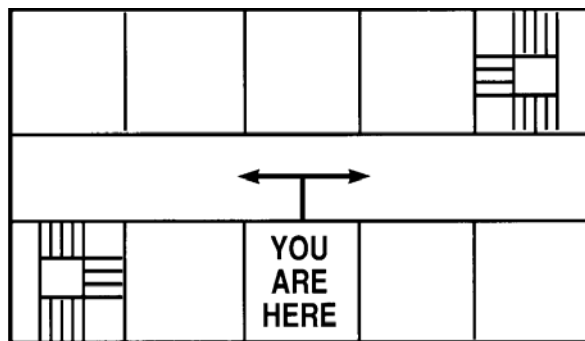
Designing a means of egress involves more than numbers, flow rates, and densities. Safe exit from a building requires a protected path of escape from fire and products of combustion, arranged for ready use in case of emergency and sufficient to permit all occupants to reach a safe place before they are endangered by fire, smoke, or heat.

Some desirable provisions for routes of egress in virtually any type facility are as follows:

- All means of egress are clearly identified.
- There are at least two remote means of egress from each floor.
- All exit stairwells are enclosed with both fire rated doors and walls.
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- The exit path of travel is illuminated by both ordinary and emergency lighting systems.
- Doors open in the direction of exit travel.
- Exit discharge level is clearly indicated.
- At least 50% of exits discharge to the outside of the building.

MAP ROUTES AND SIGNS

Develop clear, easy-to-read maps and post them in visible locations throughout the facility. Maps will assist occupants in locating evacuation routes and relocation areas. Provide maps that clearly indicate the location of the nearest exits and recommended paths of travel.



Use signs to clearly indicate exit doors, stairways, fire escapes, paths to an exit and doors or paths that do not lead to exits. Provide signs that are illuminated by a reliable light source and have the word "EXIT" in legible letters (6" high, 3/4" strokes).

EMERGENCY LIGHTING AND POWER PROVISIONS

Emergency lighting is needed for illuminating the means of egress based upon occupancy criteria. Well designed emergency lighting, using a source of power independent from the normal building service, should be arranged such that the necessary exit path illumination will be maintained in the event of failure of the normal lighting, with no appreciable interruption of illumination during the changeover.



Where a generator is provided, a delay of up to ten seconds is considered acceptable. Individual battery powered emergency lights have the advantage of being independent devices so if one fails, others are still likely to operate. However, battery capacity is limited and seldom lasts for more than 2 hours, often less, an ample amount of time if evacuation is started immediately.

EMERGENCY RESPONSE TEAM

Establish an emergency response team consisting of representatives from all departments, floors, shifts, and areas of the facility. Prominently display a team roster on all bulletin boards and communication centers along with the purpose and authority of the team.

The size and complexity of the facility usually determines the size and scope of the emergency response team. An example of an emergency response team structure and duties follows, although not all positions are necessary for every facility. Facilities with high hazard exposures, high-rise structures, places of assembly, and high occupant load all may have unique emergency considerations incorporated into the plan. Note that an emergency response team may assist in other safety activities.

With appropriate training, the team can be familiarized with portable fire extinguishers for extinguishing small fires, to react to small chemical spills, be a first response to medical emergencies, etc.

Team Organization

There should be one person whose general duties are overall plan maintenance and administration. This may include regular updating of the program, planning, supervising and evaluating emergency drills, and communication with and training of team members and plan participants. The administrator should also plan how a roll call can best be taken to account for those who have not evacuated/relocated with their usual group.

Building coordinators are particularly useful in building complexes with multi-story or multiple buildings. The building coordinator would be responsible for carrying out the emergency program within the assigned building, and the following duties:

- Maintaining a current emergency team roster.
- Maintaining communication with the administrator.
- Supervising and evaluating the evacuation and relocation drills for the assigned building.
- Identifying handicapped individuals or those who will need special assistance and seeing that appropriate provisions are made.

Some individuals may be assigned as floor captains or department wardens. These individuals are responsible for emergency activities in a designated department or area of a particular floor. They take responsibility for making and verifying the completion of the following assignments:

- Group leaders for each exiting group (department, location, etc.).
- Searchers and their designated search area.
- Exit guards assigned to a nearby exit door.

Group leaders must be familiar with the various alarm signals and types of emergency procedures in place. A group leader will be responsible for the safe evacuation or relocation of their small, assigned group. The group leader assures the group exits in an orderly, controlled fashion, and is aware of all the primary and secondary routes of egress.

Exit Guards will be assigned to a designated exit door. Guards are to permit or deny entry through an exit door depending on the type of emergency. Alarm signals such as a pulsating or continuous signal will typically indicate an evacuation or relocation. When evacuating, exit doors are to be held open, in the direction of exit travel, by guards.

Searchers are assigned a designated search area such as washrooms, offices, storerooms, etc., by the floor lieutenants. During an emergency, it's the searcher's job to assure everyone is evacuated/relocated from these areas.

DRILLS

Drills instill habit in time of emergency, and they develop skill and confidence in handling emergency situations. Announce rehearsals to prevent panic. Conduct them under realistic conditions that simulate an actual emergency.

Schedule drills to teach both relocation and evacuation procedures. An evacuation would encompass such emergencies as fire and bomb threats. A relocation would be used under tornado or severe weather conditions. Use a different sounding alarm to identify each situation. Holding drills on a regularly scheduled basis can help ensure the proper action is taken under actual emergency situations. Time and evaluate drills as to their relative success in evacuating or relocating occupants. Set and meet a goal during each drill conducted. Evaluate and correct any deficiencies to assure the emergency program's effectiveness.

EMERGENCY CONTROL HEADQUARTERS AND SHELTER AREAS

Locate the emergency control headquarters in a well-equipped and easily accessible area, preferably on the first floor. Provide an adequate number of telephones, public address system controls, a diagram of the plant layout, emergency lighting, two-way radios for communication, and first aid supplies in the room. Flashlights, spare batteries, rope, megaphones, hard hats, gloves, and safety glasses are other emergency equipment which may be needed and kept in the control headquarters and shelter areas.

Designate shelter areas for use during emergency relocation (i.e., tornadoes, severe weather conditions) situations. Locate the areas safely away from exterior walls and windows. Where available, basements are good emergency storm shelter areas. Additional shelter areas from fire and smoke are needed for handicapped persons who are not able to evacuate, or because of needing special assistance, will experience an extended evaluation/relocation time. Provide ready access to these areas at all times.

FIRST AID PROVISIONS

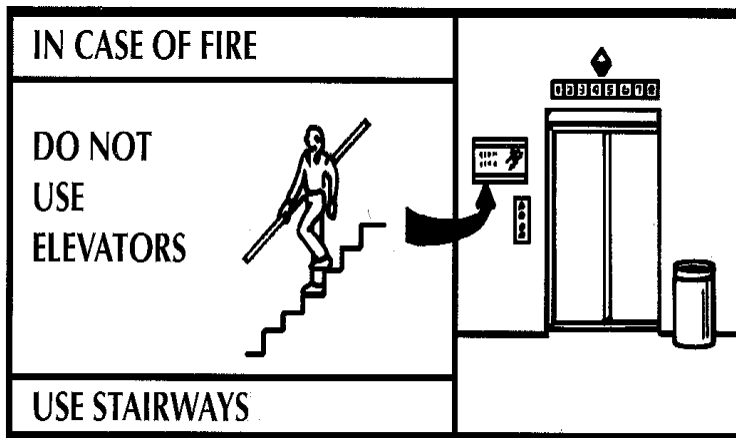
The company doctor, nurse, or trained first aider should head the emergency medical program, and should be responsible for the first aid station. Provide a station stocked with basic first aid supplies and equipment. Internal medications should not be a part of the first aid kit. Arrange for a consulting physician to approve supplies and equipment if there is no company doctor. Maintain additional first aid kits at all designated shelter areas. Post and maintain a list of all currently trained first aid personnel.

POLICE AND FIRE DEPARTMENT ORIENTATION PROCEDURES

Include police and fire department orientation activity as part of an effective emergency response program. Emergency services orientation is important to assure both police and fire officials are adequately informed as to potential hazards, exposures, and protection systems at a particular facility. Orientation will usually take the form of a complete tour and inspection of the facility. It is important that emergency officials understand any hazardous operation, machinery, equipment, chemical storage, or other unique exposures in order to properly respond to an emergency. Officials may also discuss ways in which facility protection systems or physical conditions may be improved. Notify police and fire officials when major changes are made.

ELEVATORS

Elevators pose a special hazard during any emergency evacuation or relocation procedure. As a general rule, do not use elevators in any emergency evacuation or relocation. During an actual emergency, elevators may suffer loss of power with occupants trapped between floors or may open onto a floor with a fire already in progress. Clearly post signs at all elevator banks on every floor indicating to use the stairs for evacuation, not the elevators.



In addition, equip elevators with the following safety features for emergency situations:

- Emergency alarm in each car.
- Intercom or telephone connected to a constantly attended station.
- Automatic car return to first or alternate floors when detectors, alarms or protection systems are activated.
- At least one elevator connected to emergency power with car switching ability.
- Controls which allow fire department override.

EARTHQUAKE PREPAREDNESS

In regions where earthquake activity is expected, an earthquake preparedness plan can be beneficial. A plan is especially critical when large numbers of building occupants may be involved and potentially cut off from support systems due to severe damage. Instruct employees as to relocation areas. Most of the emergency response procedures and provisions already discussed would apply. In addition, consider maintaining the following earthquake survival provisions and activities:

- Bottled water and non-perishable foods (in cans) in sufficient quantities for the occupancy (recent rescue efforts in earthquake disasters have found survivors several days after the event).
- Selected personnel must be trained to quickly locate and shut down systems such as gas, water, and electricity as needed.
- Contact local, state, and/or federal emergency organizations to obtain detailed preparedness information.

CONCLUSION

Emergency response procedures and disaster control measures are important for both property protection and protection of lives. Develop action plans for your particular facility to address specific needs and exposures to disasters and associated losses. A properly developed and implemented emergency evacuation and relocation program is a critical element in any successful safety program.

The information and suggestions contained in this discussion have been developed from sources believed to be reliable. However, Arch Insurance Group makes no warranties, either expressed or implied, nor accepts any legal responsibility for the correctness or completeness of the material or its applications to specific factual situations.