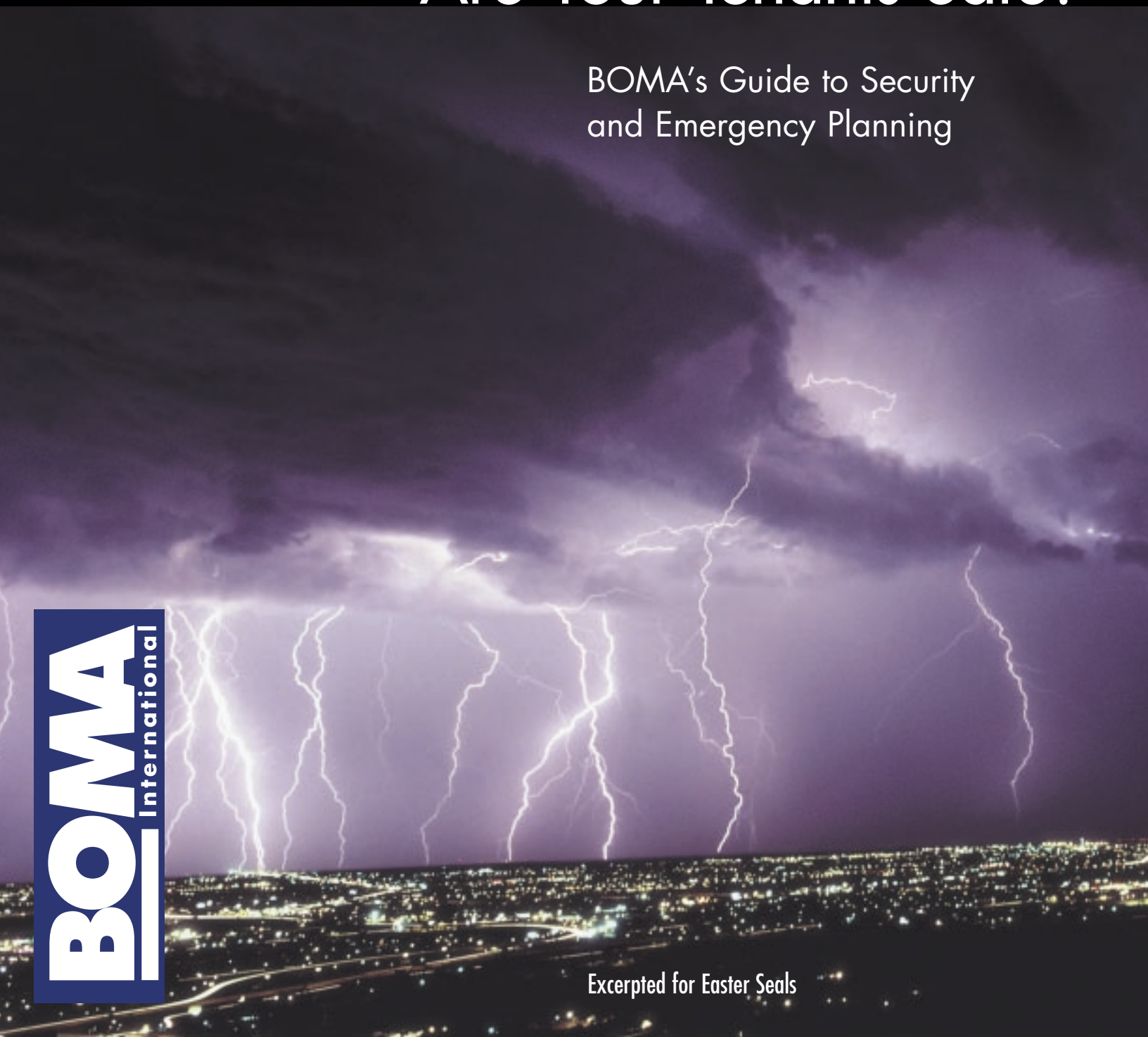
Are Your Tenants Safe?

BOMA's Guide to Security and Emergency Planning



BOMA International

Excerpted for Easter Seals

Dear Friends,

Keeping tenants safe and secure has always been a top priority for building owners and managers throughout the world, but following the September 11 tragedy, it took on an even greater importance.

Building owners and managers immediately began re-evaluating emergency and evacuation plans, and many of my colleagues implemented new policies and procedures that would ensure the safety of all of their tenants.

Many tenants, of course, require additional assistance and care during emergencies, particularly those with long- and short-term disabilities. In order to better understand their unique needs, I am pleased that the Building Owners and Managers Association (BOMA) International is teaming up with Easter Seals — one of the oldest organizations devoted to helping people with disabilities in communities nationwide — so that together, we can help both tenants and property managers better understand how to best aid their disabled colleagues in the event of an emergency.

September 11 will forever be remembered as a catastrophic blow to our nation, but through education and compassion, we can together take steps to safeguard our nation's office buildings and tenants in the future.

Sincerely,

Sherwood Johnston, III
President, BOMA International

C.5 Evacuation

Certain emergencies may warrant either complete or partial evacuation of the facility. A complete evacuation involves the removal of all occupants from the building, with the possible exception of emergency team members. A partial evacuation may involve either the relocation of occupants to unaffected areas or removal from the building of only those occupants in affected areas. Note that this phase deals only with the movement of people. In certain situations, evacuation or relocation of building contents may be called for – such efforts will be discussed separately under control/mitigation.

The initial tasks for the planning team include determining whether evacuation might be required for each type of emergency, whether evacuation would need to be partial or complete and how urgent the need to evacuate might be. These factors will need to be considered together to determine the evacuation scenarios that may arise for each emergency.

- A medical emergency would not typically require evacuation (other than the individual requiring medical attention).
- A fire could require either partial or complete evacuation, depending on the building size and construction, fire department regulations and the size and location of the initial fire.
- A tornado warning might warrant immediate relocation of occupants from perimeter offices.
- A hurricane warning might warrant total building evacuation, but might allow time for securing or removal of valuable contents.
- A power failure, if of extended length, might require building evacuation, but occupants would not be exposed to any immediate threat; therefore, evacuation could be staggered.

For each emergency for which evacuation might be required, the following questions need to be answered:

- Who will order evacuation?
- When will the order be given?
- How will notification be made? (Review notification, communication.)
- Who will supervise evacuation?
- How long will evacuation take?
- How will evacuation routes be maintained? (Review building components.)
- How will any occupants with special needs be accommodated?
- Who will verify that evacuation is complete?
- Where is evacuation location?
- How long will people need to remain in evacuation area?
- What provisions will be needed at relocation areas?

There may also be some situations where occupants should not evacuate the building. Such instances should also be identified at this time. For these situations, the following questions should be used to determine the relevant issues to remaining in place. For example, rather than identifying the means of evacuation notification, the issue will be ensuring notification of the order to remain in place.

- During and after an earthquake, the interior of a building designed for seismic forces will typically be safer that the exterior.
- In a transportation or weather-related emergency, authorities may request that occupants remain where they are, or that a staggered departure be used, to avoid overloading available transportation facilities.
- During a civil disturbance in front of a building, doors may be locked and all entry or exit may be prohibited.

Who will order evacuation?

The order to initiate evacuation may come from a variety of sources, depending on the situation. For each situation where evacuation may be necessary, the entities that will have the authority to initiate evacuation must be identified. In various situations, the decision to evacuate can be made by a regulatory component, the building emergency team leader, an individual member of the emergency team or any individual in the building.

- Local emergency management authority may order evacuation of areas where severe flooding is expected.
- Fire department may order evacuation of all floors above the floor where a fire is growing.
- Emergency team leader may order evacuation after a bomb threat is received.
- Floor warden may order floor evacuation if conditions on the floor deteriorate and communication is unavailable.
- Individual discovering a fire should leave the area and also tell other individuals nearby to evacuate. (Note: Other actions may also be necessary, like closing doors to fire areas, activating manual fire alarm, calling fire department, etc.)

When will order be given?

The timing of the evacuation order should relate to the immediacy of the threat. Some emergencies pose a threat so immediate that evacuation or relocation must be ordered as soon as the situation is detected. Other situations will warrant monitoring and a heightened level of attention, so that if evacuation becomes necessary, it can be expedited.

- A hazardous materials release may require immediate evacuation both of those people within the area of initial release and also those people occupying facilities downwind.
- A fire in a high-rise building may warrant immediate evacuation of a specified number of floors to remove occupants at risk and to clear areas needed for fire department operations.
- A fire in a high-rise building may warrant notification of the incident to occupants on floors not affected by the incident so they are made aware of the situation, are reassured

that the situation poses no immediate threat and will be ready to evacuate should it become necessary.

In many cases, the decision to order evacuation will not be an easy one. The entity responsible for making the decision will need to weigh the inconvenience to those evacuated against the likelihood that the emergency could cause serious consequences. However, consider that any embarrassment to building management (or local government) because a potential threat did not escalate to a major incident will be minor when compared to the implications arising from injuries or deaths resulting from a decision not to evacuate.

- In a bomb threat situation, those in authority will need to assess the likelihood that the threat is real. Evacuation could be ordered immediately, or a search for suspicious packages could be initiated with evacuation only if such an object is found. (In landlord/tenant situations, the parties should determine during this planning phase which party will have the authority to order evacuation.)
- A local government orders evacuation of an area downwind from a vehicular accident involving possible hazardous materials release.

How will notification be made?

Because notification and communication issues have already been outlined in previous sections, the means of providing notification of an evacuation order should already be identified. A review of the previous sections should provide information for verifying that adequate notification can be made.

Who will supervise evacuation?

In almost all cases, evacuation procedures will be supervised by a regulatory component, the building emergency team, or a combination of both. Where only one of these groups is involved, supervisory procedures will be fairly simple.

- If shutdown of a portion of a building is ordered by management due to a heating or cooling system failure, the building emergency team will supervise evacuation.
- If a regional evacuation has been ordered, regulatory components will supervise evacuation, including staging, evacuation routes and shelters.

Situations where both regulatory components and the building emergency team will be involved will require the most analysis. Regulatory components should be able to determine what their roles would be for various types of emergencies. It is important to identify the capabilities and the limitations of each group so duplication of effort, conflicts and gaps in supervision will not occur.

- Will the fire department utilize an in-place floor warden system for evacuation, or will fire department personnel be dispatched throughout the building?
- Can authorities provide personnel to assist in evacuation of occupants with special needs (children, elderly, people with disabilities), or will building personnel be expected to provide such assistance?

How long will evacuation take?

An estimate of the amount of time needed for evacuation should be made. The time necessary will depend on a variety of factors:

- Number of people to be evacuated
- Building configuration
- Impact of incident on building, including evacuation routes
- Number of people needing assistance

The amount of time needed for evacuation may affect other portions of the evacuation phase. For example, if the amount of time needed for evacuation exceeds the time available prior to the situation reaching a critical phase, options could include improving detection or notification, or ordering evacuation earlier in the incident.

A closely supervised evacuation will move quicker than an "every person for himself or herself" approach. Evacuation in a high-rise building without close monitoring will take excessive amounts of time. Certain exits may become overcrowded, which will slow or stop egress, while other exits may be underutilized. Strategically placed members of the emergency team can guide occupants to the appropriate exits, control access into exit stairs to prevent overcrowding, and adapt the evacuation procedures if needed due to changing conditions resulting from the emergency.

The time required for evacuation will also depend on whether a complete or partial evacuation or relocation is ordered. Partial evacuation or relocation should only be considered when one or more of the following conditions apply:

- The emergency poses no threat to other parts of the facility.
- Time is not available for complete evacuation.
- Occupants in other areas will be able to evacuate later if the incident grows in size.

How will evacuation routes be maintained?

The answers to this question should be found among the "building components" that were identified in the initial phase of the planning process. Any component that may serve to provide a safe and secure evacuation route should be included here. Some examples of building components that may affect evacuation routes include:

- Lighting
- Emergency lighting
- Smoke removal system
- Stair pressurization system
- Fire resistant walls and ceilings
- Smoke resistant walls and ceilings
- Exits
- Auxiliary generator
- Elevators

Certain human components may also influence the effectiveness of the evacuation routes. Emergency team members can ensure that exit routes do not become obstructed by too many people leaving too quickly.

How will occupants with special needs be accommodated?

As discussed in the initial phase, there may be a variety of occupants who may require some type of assistance to evacuate. This group could include restrained individuals, incapacitated individuals (because of the emergency or for other reasons), children, elderly people and people with disabilities.

Where there is a known, regular population of occupants with special needs, developing a procedure for providing any required assistance will be fairly simple.

- A medical tenant who performs procedures involving anesthesia is directed to ensure that staff is capable of assisting with evacuation of people who may require such assistance.
- Operators of a day care facility provide adequate staffing to evacuate all occupants of their tenant space.
- An individual who uses a wheelchair is asked about his/her needs and preferences in the event evacuation is necessary; several "helpers" (preferably co-workers of the individual) are trained to provide the assistance needed for that individual.

The more complicated situations will involve those people with special needs who are not regular occupants. While both restrained individuals and any visiting children will typically arrive at a building with supervisor(s) and such supervisor(s) could be expected to provide any required assistance, a person with a disability could be visiting a building alone or with another visitor who is incapable of providing evacuation assistance. In addition, some individuals may be injured during the initial incident and may require assistance to evacuate. This presents a broad group of occupants that may potentially require varying degrees of assistance. The varied nature of possible scenarios points to the value of having a well-trained emergency team in place throughout the building. In the event of an evacuation order, any individual requiring assistance can be directed to an emergency team member who can provide (or summon people trained to provide) the needed assistance. However, due to the unknown nature of the assistance that may be needed, a good deal of training will be required for those team members who will provide assistance. Alternatively, emergency team members could use the emergency communication system to summon trained personnel in most cases, but still receive some general training so that anyone in imminent danger can be immediately moved.

One concept that has been the subject of much debate in recent years is that of "areas of refuge" (also known as "areas of rescue assistance," "areas of evacuation assistance" or "staging areas"). Essentially, this concept involves compartmenting a floor so that people with disabilities can move to the non-fire side and await evacuation. A 1992 study by the National Institute of Standards and Technology (NIST) determined that compartmentation is unnecessary in a sprinklered building, and in a non-sprinklered building areas of refuge may quickly become untenable unless substantial pressurization is provided. While this issue will be debated for several years, the following facts remain: Existing buildings without areas of refuge are abundant, there is no record of any fatalities resulting from people with disabilities being unable to evacuate. If the emergency plan can evacuate people with disabilities from areas that are severely threatened along with all other occupants, the hazard to the person with a disability is no greater than that to any other evacuating occupant.

(The following information is excerpted from *Emergency Procedures for Employees with Disabilities in Office Occupancies*, Pub. No. FA154, June 1995, by the Federal Emergency Management Agency and United States Fire Administration.)

Movement

By far, the greatest range of special needs exists in moving people to safe areas. People using wheelchairs, or with other obvious mobility disabilities, come immediately to mind. However, there are many people that may not appear to have a disability but will also require special assistance.

Permanent conditions such as arthritis or temporary conditions such as a sprained ankle or a broken leg can limit a person's ability to evacuate quickly and safely. Heart disease, emphysema, asthma or pregnancy can reduce stamina to the point of needing assistance when moving down many flights of stairs.

One major challenge is the identification of those individuals who may need special assistance. Consider people with emphysema, asthma and other respiratory conditions who may perform well in a drill but then experience problems in an actual emergency situation. This was learned in the World Trade Center evacuation as a result of the February 1993 bombing. People with respiratory conditions described the terror they experienced with the extreme exertion required to escape down many flights of stairs in unfamiliar and smoke-filled stair towers. They also explained that prior to that emergency evacuation they had never considered themselves as having a disability that would qualify them for inclusion in special assistance emergency evacuation plans.

How to proceed

Someone will always need special assistance in the event of a fire or other emergency requiring evacuation. Identifying these individuals is essential, but it's also important to realize that some of these people may not recognize their own needs for assistance. Allowances for visitors present in the building must also be made.

Once identified, individuals should be consulted about their specific limitations and how assistance can best be provided. Finally, assisting devices and methods for accommodation should be selected and discussed. This is necessary to assure a safe "emergency" evacuation from the building for the individual with a disability.

Discussion with the individual

Keep in mind that someone with a permanent or major impairment generally knows the best way to be assisted. A minute or so spent talking with the individual will provide crucial information. People providing assistance should be trained on how to help without causing injury to themselves or others. This is especially relevant if someone needs to be lifted or carried.

Movement aids/equipment

Another area where disabilities impact emergency egress is with mobility limitations. This is most frequently associated with wheelchair users. It's important to be sensitive to the fact that wheelchairs represent mobility and are frequently fitted to accommodate the specific physical needs of the user. Thus, whether evacuated with or without their wheelchairs, these people will need their own chairs when they reach safety – for both physical and psychological reasons.

Permanently installed systems

There are several types of controlled descent devices that can be permanently installed within stairways to accommodate wheelchair users. In some, the individual transfers from the wheelchair to the portable controlled-descent chair. Some models permit a relatively small person to transport a larger person, while with other devices the individuals ideally should be about the same weight. These chairs are designed to travel down stairs on special tracks with friction braking systems, rollers or other devices to control the speed of descent.

Another type of controlled descent device is designed so the wheelchair user moves the wheelchair onto the transport device and the wheelchair is secured. The advantage of this device is that the wheelchair user does not have to transfer from the chair – a situation that will be more comfortable and reassuring.

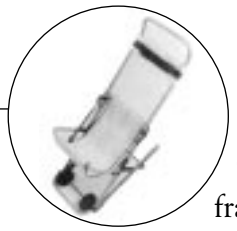
Always consult the wheelchair user as to the selection of an emergency evacuation chair. The advantages or disadvantages of these devices are dependent on the capabilities, acceptance and understanding of the end user(s). The effectiveness or failure of evacuation chairs as a rule can be attributed to the fact that the wheelchair user was not consulted on equipment selection. Chairs that do not accommodate the physical needs of the user create problems, which may lead to a refusal to use them in an emergency.

Evacuation assistance device

A three-person, assisted wheelchair-carry device, called "Evac-u-Straps," was developed by a wheelchair user. It consists of wide padded leather wristbands with Velcro closures equipped with large metal grasping hooks. The hooks are designed to attach to both sides of the front of the wheelchair. People on either side of the wheelchair grasp the straps and are assisted by a third person behind the wheelchair, keeping it slightly tipped backwards. The wheelchair user assists by hand-braking the wheels.

Garaventa Evacu-Trac. Developed in Switzerland. Convenient, top of stair storage. 1) Brake system engages when lever is released; 2) Adjustable safety belts; 3) Rubber tracks grip stairs; 4) Eight auxiliary wheels for smoother ride on flat surfaces, such as stair landings. Designed so a passenger's weight propels it down stairs. Governor limits the maximum descent speed.

Evac+Chair '300-H.' Folds for on-the-job storage. Can be readily available for emergencies. Unfolds/opens quickly and weighs only 15 pounds but has a 300 lb. capacity.



Cantilevered design places seat inches above stairs. Other features: sliding head rest, quick-release safety belt buckle and instructions permanently stamped on back. Changes the obstacle of fire stairs into usable escape route for all, e.g., pregnant women, frail persons, employees with limited stamina or someone with a temporary disability.

Scalamobil. Stairclimbing and power unit, invented in Germany. Three-step process for use. First, attach handles to the Scalamobil. Second, attach Scalamobil to wheelchair. Third, begin operation. 12V/12AH power base. Operator's safety features include: automatic mechanical security brakes on every wheel; variable speed control from six to 12 steps per minute and ability to park the wheelchair safely on any step during ascent or descent. Designed to negotiate most stairs, from the extremely narrow to curving circular stairs.

Elevators

Most people are familiar with the fact that elevators are not to be used for emergency egress and are so marked in most buildings. Elevator codes require that when smoke detectors in elevator lobbies activate, the elevator is recalled to the ground floor (as long as the ground floor smoke detector is not the one that alarmed) and is taken out of service. The fire department can operate the elevator with a special key and may use it to move its people and equipment, or for evacuation of occupants. This means that without the fire department, people with disabilities are relegated to the stairs or must await rescue.

In recent years (especially since the 1993 World Trade Center bombing), there has been a growing interest in providing elevators that can be used for emergency evacuation. In a study conducted for the General Services Administration (GSA), NIST found that the use of both elevators and stairs can improve evacuation times by as much as 50 percent over stairs alone.

However, elevators that are used for emergency evacuation need to be specially designed to assure their reliability and safety during a fire. NIST research has shown that it is feasible to design elevators that are safe to allow continued use in emergency evacuation as long as the following features exist: enclosed lobbies at each floor that are pressurized through the shaft so both remain smoke-free; dual power systems for reliability and water-resistant components to prevent failure due to flooding of the shaft by firefighting water. (Feasibility of Fire Evacuation by Elevators at FAA Control Towers, NISTIR 5445, 1994.)

Miscellaneous devices

A number of unique escape devices have been developed over the years. These include controlled-descent devices using cables and chutes of various types. The cable devices usually use a strap or chair secured to the cable by a device that is squeezed to allow descent. The more it is squeezed, the faster the descent. Letting go stops the descent. However, most people are reluctant to evacuate down the outside of a building.

The chutes may be solid or flexible fabric tubes that generally rely on friction to control speed. They have the advantage that they do not let the user see out, so they are more acceptable than cable devices. However, their acceptance in practice in the U.S. has been limited.

There is little information available as to the performance of these devices in emergency situations. These unique specialized escape devices generally have serious shortcomings. (Egress Procedures & Technologies for People with Disabilities. Final Report of a State of the Art Review with Recommendations for Action, ATBCB 1988.)

Providing Assistance

Identifying those with special needs

Before special accommodations can be made, people needing them must be identified. One strategy is to maintain a listing of individuals needing assistance and keep it current as part of the facility's emergency plan. At the beginning of a person's employment, during the orientation process, identify if the individual will need special assistance. Of course, since conditions change and people can become temporarily disabled, this system needs to be flexible.

Such lists must be accessible by the emergency personnel to assist in emergency evacuation. But it should be understood that there are many individuals who are protective of their rights to independence and privacy and who may be reluctant to have their names on such a list. Some disability categories are easily recognizable and in these cases the individual can be approached as to what can be done to assist them in an emergency evacuation.

Some emergency plans have directed all people with disabilities to go to the area of rescue assistance to await members of the emergency team to escort them to safety. As a general rule there is no reason that individuals who are blind or deaf cannot use the stairs to make an independent escape as long as they can effectively be notified of the need to evacuate and can find the stairway.

One of the lessons learned from interviews of people with disabilities following the 1993 World Trade Center bombing was that in the interest of privacy, or because they felt they did not need special assistance, some people had opted not to be identified as disabled in the emergency management plan. They realized after the incident that they did need assistance and that they had not realized how vulnerable they were outside of normal working hours when there were few co-workers around to provide such assistance.

"Buddy" systems and fire wardens

Buddy systems are widely accepted and used but have inherent flaws. When setting up such a system in the workplace, consider the following potential problem areas and potential solutions.

To be effective, the person and the buddy must be able to make contact with each other quickly when the need arises. Situations that can prevent this include:

- The "buddy" is in the building but is absent from the customary work area.
- The "buddy" cannot locate the person with a disability because the person is absent from the customary work area.
- The employee with a disability is working late, etc., when the "buddy" is unavailable.

- The "buddy" has left the company and a new one has yet to be identified.
- The "buddy" has not been trained in what to do or how to assist.
- The "buddy" is inappropriate (not strong enough, etc.).
- The "buddy" is not acceptable to the employee with a disability.
- The "buddy" forgets or is frightened and abandons the employee with a disability.

Now consider the following potential solutions:

- Assign at least two "buddies" who are work associates. Alert the floor warden about the work location of the person with a disability.

If he/she cannot locate the assigned person, the "buddy" should alert the floor warden. Employees could be given pagers.

- Employees with disabilities should identify themselves to the officials in the emergency control center when in the building after hours. The officials coordinate immediate emergency response, call the employee and alert responding fire service.
- Employees with disabilities can be given the responsibility for selecting their own "buddies." Bimonthly emergency plan reviews should include checking the status of "buddies."
- The "buddy" is trained by the employee with a disability as soon as he or she is recruited.
- The employee with a disability is encouraged to select only "buddies" who are capable. Practice sessions are required to ensure that "buddies" can handle their assigned tasks.
- Employees with disabilities are encouraged to select only friends/colleagues as "buddies."

New York City leads the nation in a number of techniques for addressing fire safety in tall buildings, including the designation of fire wardens. Under Local Law 5, a fire warden is assigned for each floor of a building and is responsible for the safe evacuation of people on that floor. The fire warden knows who is and who is not at work that day, what visitors are present and who might need assistance in case of an emergency. New York fire wardens take required training at regular intervals. The law also requires a building fire safety manager whose full-time job is to keep fire emergency plans up-to-date and who coordinates the activities of the fire wardens with the fire service during an emergency.

Spontaneous assistance techniques

Vision impairments

When assisting people with vision impairments there are some basic rules to follow in order to be effective.

- Announce oneself; speak out when entering the work area.
- Speak naturally and directly to the individual and NOT through a third party. Do not shout.

- Don't be afraid to use words like "see," "look" or "blind."
- Offer assistance but let the person explain what help is needed.
- Describe the action to be taken in advance.
- Let the individual grasp an arm or shoulder lightly for guidance. He/she may choose to walk slightly behind the individual providing assistance; be sure to mention stairs, doorways, narrow passages, ramps, etc.
- When guiding to a seat, place the person's hand on the back of the chair.
- If leading several individuals with visual impairments at the same time, ask them to hold each other's hands.
- After exiting the building, ensure that individuals with impaired vision are not "abandoned," but are led to a place of safety where a colleague should remain with them until the emergency is over. Another of the lessons learned from the World Trade Center incident: Blind tenants complained after being escorted out of the building and unceremoniously left in unfamiliar environs outside in the midst of a winter ice storm. There, they had to negotiate ice-covered sidewalks and falling glass from overhead.

Suggestions when assisting owners of dog guides

- Do not pet or offer the dog food without the permission of the owner.
- When the dog is wearing its harness, it is on duty. If circumstances dictate that the dog is not supposed to guide its owner, ask the owner to remove the dog's harness.
- Plan for the dog to be evacuated with the owner.
- In the event you are asked to take the dog while assisting the individual, hold the leash and not the dog's harness.

Hearing impairments

When assisting people with hearing impairments, there are also some things to keep in mind. These include:

- Flick the lights when entering the work area to get the person's attention.
- Establish eye contact with the individual, even if an interpreter is present.
- Face the light, do not turn away, and never chew gum.
- Use facial expressions and hand gestures as visual cues.
- Check to see if the person understands, and repeat if necessary.
- Offer pencil and paper. Write slowly, and let the individual read as the message is written. Written communication may be especially important if the individual's speech is difficult to understand.
- Do not allow others to interrupt or joke with you while conveying the emergency information.
- Be patient, the individual may have difficulty comprehending the urgency of your message.

- Provide the individual with a flashlight for signaling his or her location in the event that he or she is separated from the rescuing team or "buddy," and to facilitate lip-reading in the dark.

Learning disabilities

People with learning disabilities may have difficulty in recognizing or being motivated to act in an emergency by untrained rescuers. They may also have difficulty in responding to instructions that involve more than a small number of simple actions. Some suggestions for assisting such people include:

- The person's visual perception of written instructions or signs may be confused.
- The person's sense of direction may be limited, requiring someone to accompany them.
- Directions or information may need to be broken down into simple steps. Be patient.
- Simple signals and/or symbols should be used (similar to the graphics used throughout this section).
- The person's ability to understand speech is often more developed than his/her own vocabulary. Do not talk about a person to others in front of him/her.
- The individual should be treated as an adult who happens to have a cognitive or learning disability. Do not talk down to them or treat them as children.

Mobility impairments

Someone using a crutch or a cane might be able to negotiate stairs independently. One hand is used to grasp the handrail, the other hand is used for the crutch or cane. Here, it is best NOT to interfere with this person's movement. To assist, offer to carry the extra crutch. Also, if the stairs are crowded, act as a buffer and "run interference."

Wheelchair users are trained in special techniques to transfer from one chair to another. Depending on their upper body strength, they may be able to do much of the work themselves. When assisting a wheelchair user, avoid putting pressure on the person's extremities and chest. Such pressure might cause spasms, pain and might restrict breathing. Carrying someone slung over one's shoulders (something like the so-called "fireman's carry") is like sitting on his or her chest and poses danger for individuals who have varying disabilities from neurologic to orthopedic.

Carry Techniques

One-person carry technique

The CRADLE LIFT is the preferred method when the person to be carried has little or no arm strength. It is safer if the person being carried weighs less than the carrier's weight.

Two-person carry technique – the "swing" or "chair carry."

To use this technique:

- Carriers stand on opposite sides of the individual.
- Wrap individual's closest arm around one partner's shoulder.
- Grasp carry partner's forearm behind the individual in the small of the back.
- Reach under the individual's knees to grasp the wrist of carry partner's other hand.
- Both carry partners should then lean in close to the individual and lift on the count of three.
- Continue pressing into the individual being carried for additional support in the carry.

The advantage of this carry is that the partners can support (with practice and coordination) a person whose weight is the same or even greater than their own weight.

The disadvantage is awkwardness in vertical travel (stair descent) due to the increased complexity of the two-person carry. Three people abreast may exceed the effective width of the stairway.

To assist in moving a wheelchair downstairs

When descending stairs, stand behind the chair grasping the pushing grips. Tilt the chair backwards until a balance is achieved. Descend frontward. Stand one step above the chair, keeping center of gravity low and letting the back wheels gradually lower to the next step. Be careful to keep the chair tilted back. If possible, have another person assist by holding the frame of the wheelchair and pushing in from the front. Do not lift the chair as this places more weight on the individual behind.

After working hours

Most office fire fatalities occur outside of normal working hours. Here, fires can grow unnoticed and people working alone can be cut off from the normal egress route. In many buildings, only a few people working late and the housekeeping staff are present at night. An employee with a mobility impairment, who relies on the elevator for access, may need help getting down the stairs, but trained "buddies" are unavailable. To compensate, the individual should alert building security upon entering the building. Someone will then be ready to search for the individual and assist him or her to safety if needed. Alternatively, the person could be instructed to alert telephone the fire department as to the individual's location when an emergency occurs.

Managers should ensure that shift workers and others who work on the premises outside normal hours (such as cleaners) are included. If there are employees whose knowledge of English is limited, training should be given in a manner they can understand. Non-English speakers and staff who have poor reading skills should be considered when written instructions are being prepared.

Who will verify that evacuation is complete?

There are two general methods of verifying that all people have completed the evacuation or relocation process. One method is to take a roll call at the location where evacuees are sent. The other method is to conduct a post-evacuation search of evacuated areas.

The roll call method may be acceptable for certain facilities, however, for the majority of buildings it has several major limitations. In a large facility, it will be difficult to keep evacuated people grouped by tenancy or by floor, which is needed if a roll call will be feasible. Also, if building tenants do not track the location of each employee, individuals who are home sick, on vacation or out of the office at a meeting may be listed as missing. Finally, this method cannot account for visitors, clients or customers who may be in the building when an incident occurs. This method is most appropriate in facilities with secured access, where all occupants must sign in and out, so there is an accurate record of who is in the building.

The post-evacuation search method overcomes the limitations of the roll call method. Rather than attempting to verify the location of every known occupant, this method focuses on the evacuated areas of the building. Regulatory components should be contacted to determine under what conditions the building emergency team may conduct such a search, and when the regulatory components must conduct the search. The primary limitation to this method is that a search may not be feasible in an area near the initial incident. However, regulatory components may have special equipment and training to enter areas that would not be safe for emergency team members. In cases where emergency team members will be conducting searches, they must be familiar with the building layout and must be trained to conduct a thorough search. Areas such as restrooms, sound-proofed rooms and rooms containing noisy equipment are examples of spaces where people may miss the evacuation order and therefore warrant special attention.

In some situations, individuals may be unwilling to evacuate if the threat is not immediately apparent. For example, a busy executive may be unwilling to "waste his or her time" by evacuating during what he or she perceives as a "minor" incident. In another instance, an employee may be instructed to stay behind to "guard the fort." Will tenants be responsible for ensuring that all occupants leave their spaces, or will building management control evacuation? If people refuse to evacuate, what will the consequences be to those individuals? People could be reported to the authorities, reprimanded by their employers, refused future entry or be required to sign a form releasing management from liability resulting from the refusal to evacuate. The methods that will be used to deal with people who do not evacuate should be determined during the planning stage, so in the event of an incident the appropriate measures are already in place.

Where is the evacuation location?

For any evacuation or relocation strategy, the location should be identified. The area should be safe from the emergency, located to avoid conflicts with control and mitigation efforts, and be large enough to accommodate the number of people being moved. When occupants are directed to leave the building, they should be given a specific destination so crowds do not

gather immediately outside the building exits. Such crowds could obstruct later evacuees, hinder arriving fire or rescue personnel, and be exposed to falling glass or other debris. Two examples:

- Occupants evacuated from the building should proceed to the north parking lot. If the parking area is full or unavailable, occupants should proceed down Main Street one-half block to the city park.
- Occupants on the floor of the fire alarm, the floor below and the two floors above should proceed to the exit stairs and travel down four floor levels, unless otherwise directed.

In the event that occupants are relocated within the building, the potential impact to operations on the floor of relocation must be considered. If a building contains a full-floor tenant with secured floor access and extremely strict security procedures, can occupants of an upper floor realistically be directed to relocate to that area? Any such potential conflicts should be identified and resolved so problems do not arise during an emergency.

In large-scale evacuations, such as those that might be ordered in a natural emergency, public shelters may be provided for people who do not have another place to go. The local emergency management office should be able to provide information regarding the sites that would be used for shelters. This information should then be included in the emergency plan.

How long will people need to remain in evacuation area?

Evacuated people will obviously need to remain away from their regular location for the duration of the emergency. However, in most cases when all or part of a building is evacuated, people will not need to remain at the evacuation site for long. People can simply be sent home if it becomes apparent that the incident will prevent re-entry to the workplace that day.

In some large-scale incidents, people may need to remain in evacuation sites for extended periods of time.

- Following an earthquake, occupants may need to remain in the building for up to 72 hours before emergency services are available.
- During and after a hurricane, people may need to remain away from the affected area or in shelters for several days.

What provisions will be needed at relocation areas?

At any area used for evacuation purposes, some general provisions should be available, including:

- First aid kit
- Drinking water
- Blankets
- Flashlights
- Portable radio
- Emergency communication system

In situations where people may need to remain for extended periods of time, some additional provisions should be provided, or potential users should be instructed as to what provisions they will need to provide.

- Food
- Bedding
- Medication

In large-scale incidents that can be predicted, like hurricanes, local government may provide public shelters equipped with sleeping and bathing facilities, meals and medical personnel. In the case of an earthquake, where a large-scale incident occurs without warning, local response capabilities may be overwhelmed for several days. Either on a building-wide or on an individual basis, provisions for several days worth of water and food should be provided. Building management should work with tenants to determine the best method for ensuring that these provisions are available.

Evacuation/relocation examples

Regulatory components

- Fire department requires complete building evacuation in any fire.
- Fire department allows partial or phased building evacuation.
- Authorities order evacuation because of approaching floodwaters.
- Authorities order evacuation in advance of approaching hurricane.

Building components

- Horizontal exits permit relocation to unaffected portion of floor.
- Fire rating and pressurization keep exit stairs free of smoke and fire.
- Elevators switched to "peak down" mode during certain emergencies.

Human components

- Occupants moved to interior rooms on lower floors during tornado warning.
- Floor wardens assist occupants with disabilities who require assistance.
- Floor wardens search floor to verify complete evacuation.

Business components

- Equipment moved to higher floors before floodwaters arrive.
- Records and equipment moved to building core during tornado watch.
- Staff instructed to report to alternative work site.

BOMA International

Founded in 1907, the Building Owners and Managers Association (BOMA) International is a dynamic international federation of 104 local associations. BOMA International's 18,000-plus members own or manage more than 8.5 billion square feet of downtown and suburban commercial properties and facilities in North America and abroad. The mission of BOMA International is to advance the performance of commercial real estate through advocacy, professional competency, standards and research. For more information, visit the BOMA International Web site at www.boma.org.

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