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Ronny J. Coleman

Evacuation: Event or Process

There is a tendency among emergency workers to regard evacuation as an event, but in actuality it is a process that has three separate phases. They are the planning, implementation and the evaluation phase. Performing rescues of trapped people is not the same as planning the evacuation of occupants safely.

The responsibility for assuring the safety of workers and residents that have one or more disabilities falls on the shoulders of a wide variety of people ranging from the builder of a structure, through the facility manager and the fire service all the way to the individual themselves.

The evacuation process must be well planned in advance for both the evacuation of structures that are involved in fire, or from areas of catastrophic emergencies such as hazardous materials incidents, earthquakes and floods.

Studies have been conducted to examine normal behavior of occupants in dealing with the evacuation of specific structures. These studies have concluded that there are some definite observations about human behavior under these circumstances. Three major areas of differences in human behavior that were observed were: Differences in action upon becoming aware of the fire (emergency), criterion for a person to use in selecting escape routes, and the ability to reach an exit.

These same studies established that there were five patterns of action response to a given emergency, Occupants would either attempt to extinguish the fire before evacuating, or set off alarms and evacuate others before evacuating themselves, evacuate immediately without warning others, experience confusion and disorientation, then evacuate, or simply wait for firefighters till they arrive.

The actual selection of evacuation procedures used followed seven distinct patterns:

1. Some would evacuate immediately
2. Some will follow instructions of others
3. Some people make decisions to evacuate after checking out things themselves
4. Some occupants found the choice to be difficult, but decided to leave
5. Some wanted to evacuate, but stayed where they were
6. Some decided they were safer where they were, so they didn't move at all
7. Some were told by others not to evacuate so they took no action

The conclusions of the study were:

- Even with regular users of buildings they will act in a variety of ways, immediate evacuation is



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the normal pattern.

- Choice of evacuation routes seems to be dependent upon amount of smoke in a specific fire situation, but that sex, job and familiarity play role.
- Route of choice is often the way a person enters the building, for those that are not familiar they are most often relying upon others for orientation.
- If familiar with building the occupants don't have problems locating exits and stairs.
- In all phases of the evacuation process, familiarity with the building was found to be the primary determinant of speed and ease of evacuation.

If you add to this description of human behavior the element of disability the implications are clear. In the time of an emergency people will still do what is described above, but those with disabilities may be restricted to only one or two courses of action if proper plans have not been developed to assure that they have all options open to them.

There are many people with disabilities in the work force today. Some of them are working and living in very complex situations, such as large industrial complexes or high-rise buildings. While they function very well under these conditions it must be recognized that they may not have all of the options available for protective actions in an emergency.

Recent observations in a high-rise drill conducted in Japan concluded that: Selective evacuation may be more desirable than mass evacuation.

A Manual spelling out procedures in case of emergency must be distributed to all workers in building and repeatedly redistributed to occupants.

When individuals have disabilities the planning and education aspect takes on an even more important element. Occupancies that have workers or residents that possess any disability must have a well-defined plan of operation or the most valiant of efforts of the firefighters will have only a limited impact.

Further, the plan must be as simple as possible and it must be practiced to be effective. When an emergency occurs people tend to reproduce behavior that they have practiced. One of the very first considerations for the disabled is to recognize that conventional warning and alerting systems may not work as well for them.



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Secondarily, routine means of egress may be denied from them because of visibility or mobility impairments. Techniques for removing them safely cannot be improvised; they must be designed into the situation either in the form of structural considerations or in the form of specific techniques for removing the persons under stressful conditions.

A total life safety strategy for the disabled is a combination of built in fire protection features, proper education and training, proper facility design, and the presence of devices or techniques that will reduce their disability to a minimum when evacuating the premises.

Once a basic plan is put into place, one must evaluate the situation to determine if there are individuals that may have problems with carrying out the proper behaviors under fire conditions. Each disability has its own inherent impact on a fire or emergency scenario. Therefore, each and every disability has to be given proper consideration when evaluating the effectiveness of a facility plan.

The plan should have built in alternatives and some degree of flexibility to allow for the variables that can occur in an emergency. People should be informed of the intent of specific practices as well as the movements of the practice to keep them from getting into situations where their actions can endanger them further.

But, building and facility emergencies are not the only time that people with disabilities must be evacuated. Major evacuations can result from hazardous materials spills, floods or even conflagration type fires. A well-drafted evacuation plan will also consider how this will be accomplished.

Major evacuations involve moving large numbers of people from one geographical area to another.

There are three separate types of evacuations:

- Major
- Partial
- Limited

Any of these types of evacuations could impact institutional populations such as hospitals, boarding homes, rest care facilities and even schools for the disabled. The local emergency services organization should clearly have a plan of operation in place for moving these people. These plans might include the use of buses, emergency medical vehicles or other means. The most important part is that the facility and the local emergency services personal have to develop the logistics of the plan long before an actual emergency occurs.



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At-Home populations with restricted mobility are another problem indeed. Often emergency services personnel are not aware of the presence of such potential situations. One technique for overcoming this predicament is found in the providing of a mail-in card that identifies the location of such individuals. The system is often used in the vicinity of nuclear power plants, but could just as well be used in areas that are susceptible to potential evacuations, such around industrial areas, or along transportation corridors.

At any one time there can even be short term disabilities in existence because of injury or debilitating injury to people that are not otherwise considered disabled.

This system uses a computer to track the presence of these targeted individuals and can therefore be updated or revised as needed.

Evacuation of a single person with a disability may not be more difficult than another person without the disability. Moving large numbers of people with multiple disabilities need not be a major problem

The difference is in recognizing what can and must be done to assure their safety in the planning process. Facility managers should consider the planning and practicing of emergency procedures by disabled workers or residents to be as important as any other business practice.

The one thing about an emergency is that it sometimes gives the test before the lesson has been thoroughly taught.

References:

Earthquake Preparedness for People with Disabilities, FEMA 70

Horiuchi, S., Murozaki, Y., Hokugo, A. A Case Study of Fire and Evacuation in a Multi-Purpose Office Building, Osaka, Japan fire Safety Science, Proceedings of the First International Symposium, Hemisphere Publishing, New York, 1986

Kagawa, Mashiro, Kose, Satoshi, Morishita, Yasaboro, Movement of People on Stairs during Fire Evacuation Drill- Japanese Experience in a Highrise Office Building.

Pauls, Jake, Groner, Norman, Emergency Management Planning to Improve safety for People with Disabilities, Hughes Associates, Wheaton, MD, November, 1988

Preparedness for People with Disabilities, (Brochure), FEMA 75