When Disaster Strikes

What to do BEFORE the Emergency Happens

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This paper discusses how being prepared for an emergency may help prevent it turning into a disaster. It includes checklists of information that the facility professional can have prepared, so that the information can be readily provided to the emergency responders before or at the outset of an emergency. In the aftermath of 9/11, every facility professional has the responsibility to be as well prepared as he or she can be for every likely emergency, to protect lives, property and the livelihood of the people working in their facilities. As an advantage, this preparation may help satisfy the insurance provider's concerns.

Emergency versus disaster

What exactly is an emergency and how is it different from a disaster? Both contain a major implication of threat to well-being. The Cambridge Dictionary of American English On-Line defines an emergency as "*a dangerous or serious situation, such as an accident, that happens suddenly or unexpectedly and needs immediate action."* In this definition, there are four separate aspects: danger, suddenness, unexpectedness and the need for immediate action. So emergencies are, by definition, dangerous, unplanned and unscheduled, they happen suddenly and they require an immediate response. Every emergency contains within it the potential to become a disaster. Often, immediate and appropriate response makes the difference.

The same dictionary defines a disaster as "an event causing great harm, damage or suffering." Disasters do not have the same necessary connotations of suddenness or unexpectedness as emergencies, although they may be sudden and unexpected. They are events that are beyond the potential to do harm - the harm, damage and suffering they cause are real.

When people are faced with emergencies, they may panic. Panic is not common but it is contagious. More often, they react irrationally, emotionally or impulsively. The type of reaction will depend to a large degree on how well – or how poorly – they have prepared for the emergency they face. An inappropriate reaction, or freezing – no reaction – can turn an emergency into a disaster. Planning can help in making the right decisions, taking the correct actions and avoiding the worst consequences of the situation.

You CAN do something

Many people are aware of the potential for disaster around them, but are less aware of the fact that they can do something to prepare for emergencies to minimize the effect of a disaster. Here is what the Federal Emergency Management Agency (FEMA) found in a survey in 2001:

"The majority of Americans are aware that disasters threaten their communities, but most underestimate their ability to reduce disaster related damage.

"According to the survey, 86% of homeowners thought their community was at risk for some disaster - such as tornadoes, floods, hurricanes, earthquakes or wildfires. Unfortunately, more than half (52%) of the homeowners surveyed didn't know there was something they could do to protect their home.

"Understanding your risk is the first step to disaster prevention," said Cindy Taylor, national public affairs manager for Project Impact. "It is vital that Americans learn how powerful they are to stop disaster damage before it strikes. Disaster prevention does work and there are steps every homeowner can take to reduce damage to their homes."[1]

While this quote is about homeowners, the same concept can be applied to businesses. You can do something, often a lot, to minimize the effect of a disaster. Planning, and keeping information current and accessible, are major parts of the process.

Classic disasters

Disasters can sometimes be foreseen, need not be sudden, will always be unpleasant and can be catastrophic. Famines, droughts and floods can often be predicted but not prevented. The spring flood in North Dakota and Manitoba in 1997 that flooded downtown Grand Forks and sparked a fire that destroyed or damaged 11 buildings in three blocks was expected. What was not expected was the flood crest at 58 feet, the sheer volume of the water flowing north, or the size and devastation of the fire. At one point the Red River in Manitoba was over 25 miles wide – about as wide as Lake Ontario.

Disasters from natural causes

Disasters can be from natural causes – earthquake, fire, hurricane, ice storm, tornado, flood - or they can be caused by humans, either deliberately or accidentally. The devastation and loss of life from natural disasters can be enormous. A single earthquake in China in 1976 killed a quarter-million people. A hurricane and storm surge in Galveston in 1900 killed over 6,000. The San Francisco earthquake of 1906 killed 480, while the Chicago fire of 1871 killed 250.

Could they happen again? Of course. Will they happen again? Of course. We consistently underestimate the raw power of nature. We don't control nature; we have scarcely begun to understand it. The cost and loss of life in future natural disasters will depend to a great extent on how well prepared we are.

[1] A survey commissioned by the Federal Emergency Management Agency's (FEMA) Project Impact: Building Disaster Resistant Communities, reported on the FEMA Web site (www.fema.gov) on 21 May 2001.

Human-caused disasters

Accidental human-caused disasters include Chernobyl in Russia – a 1986 nuclear reactor explosion and release of radioactivity that killed 31 immediately and left about 3 million people living in a contaminated area; the Johnstown, Pennsylvania flood of 1879 that killed 2,200, caused by a collapsed dam upstream; a release of toxic fumes in 1984 from a Union Carbide facility in Bhopal in India that killed between 6,000 and 8,000 people; and the 50,000 acre forest fire in 2000, deliberately set by the National Park Service to burn some brush, that very nearly wiped out Los Alamos National Laboratory in New Mexico – and did destroy some historic buildings.

Could an incident like Bhopal happen here? Nearly five thousand U.S. chemical facilities are storing greater quantities of extremely hazardous substances than were released in the Bhopal chemical accident, according to the report, "Accidents Waiting to Happen: Hazardous Chemical Storage in the U.S."[2] Every state except Vermont has at least one facility storing greater amounts of hazardous substances than were released at Bhopal. Should you be concerned? A majority of these firms have not yet linked contingency planning to community emergency services such as police, fire and rescue, or hospitals.[3]

Deliberate human-caused disasters include terrorist attacks like the aircraft striking the World Trade Center, the 1995 attack on the Murrah federal building in Oklahoma City which killed 169, including children in a day-care center in the building, the release of a nerve gas in the Tokyo subway that left 10 dead, or people run amok like the Columbine shootings. In 1999 alone, there were at least eight mass shootings in U.S. office or school buildings, with 35 dead and 50 injured. Man-made deliberate disasters seem to be more horrifying because of the deliberate nature of the act.

What can we do?

Disasters, natural or human-caused, will continue to happen. We do not have the knowledge or skills to prevent natural or accidental disasters and we do not have the social knowledge, skills or collective will to be able to predict or prevent deliberate acts of violence. But that does not mean that we do nothing.

The “first responders”

Since no-one is able to be on the alert all the time, or able to have the skills and tools necessary to handle all emergencies, in our societies we have developed systems to deal with emergencies. From very early days, we have had specialized people:

- to handle fires - the firefighters
- to control those unruly elements among us who cannot or will not follow the agreed rules of behavior – the police

[2] U.S. Public Interest Research Group (PIRG) and the Working Group on Community Right-to-Know - Website http://commondreams.org/

3 report prepared by the Texas Engineering Experiment Station's (TEES) Mary Kay O'Connor Process Safety Center headquartered at Texas A&M University in College Station.

- to help those in medical crisis – the para-medics.

Collectively, we identify them as the "first-responders." They have all completed specialized training and have very specialized equipment to assist them. We even have special rules of social behavior to help them get to where the emergency is more readily – the lights they flash, the sounds their vehicles make, the different rules about traffic lights. There are other first responders, as well; field staff for the utilities, O&M staff in most buildings, corporate security staff, facility managers – and the person in the next cubicle or office when someone is having a medical incident, such as choking or fainting.

All of this does not mean, however, that the first responders will always be first on the scene. In a major and widespread disaster, such as a powerful earthquake, they will not likely get to your location quickly – and they may not arrive for days. What this means is that the preparation that you are doing now to help them may be more useful to you than you anticipate.

All of this is to accomplish simple and important goals: to prevent or minimize the loss of life, to reduce the severity, extent and impact of injury, and to minimize the loss of or damage to buildings and their contents. These are all valid societal goals, but the first responders cannot achieve them alone. They need help from those of us whom they are helping – and, while certainly not alone, facility managers can and should play a key role in helping first responders.

It makes good sense to get to know the first responders in your area. The more they know about your building and about your organization, the better able they will be to advise you on how to limit your exposure to all kinds of risks, natural and otherwise. The more that you know about how they work and the guidelines within which they conduct themselves, the better able you will be to help them work effectively and efficiently to keep an emergency from turning into a disaster.

What the first responders need to know

When an emergency occurs, what the first responders need to know is:

- What is the nature of the emergency?
- Where is it?
- How many people are involved?
- How do we get there?
- When we get there, how do we get in?
- Who has the facility knowledge and the keys?
- Who is in charge?
- What is on site that will make our task easier and safer?
- What is on site that will make our task harder or more dangerous?

Some of this information, such as what is the emergency and how many people are involved, you cannot know until the emergency occurs. Much of the information, however, is such that, PRIOR to the emergency, the prudent facility manager can have it prepared in advance and make it available to the first-responders before the event or as soon as they arrive at the scene.

Laws, by-laws and regulations

Most jurisdictions have in place laws, by-laws or regulations that require certain information to be prepared in advance for fire-fighters or other first-responders. For example, in Ontario, Canada, the Ontario Fire Code requires that a Fire Safety Plan be prepared for all buildings which have a Fire Alarm System. You will know what the regulations are for your jurisdiction. These Fire Safety Plans can be very comprehensive documents and sometimes are prepared only to meet the letter of the law. They are supposed to be kept current but often are neglected in the press of other demands on people's time.

Understanding what the facility manager can prepare in advance

What is really important is to understand what information you, as a facility professional, can and should have prepared in advance, so that an emergency does not turn into a disaster. You cannot assume that you will be on-site or available to answer all the questions that the first responders might have.

What-if?

What if you are off-site during the day or after hours or a weekend and there is some kind of emergency that prevents you from getting into the building? What if you are off in Aruba celebrating your anniversary? What if you cannot be reached? How will the first responders be able to find out the details of your facility, information that can save lives?

Let's first look at the information you can have prepared in advance, listed as questions that might be asked by the first responder:

Where is the emergency and how do we get there?

- What is the name of the building?
- What is the address of the building?
- What are the GPS coordinates (for a large building or a complex of buildings)?
- What is the preferred route?
- If there are alternate routes, what are they?
- On which side of the building is the main entrance?
- How will we recognize the main entry point?
- Are there other access points to the building?
- Is a digital photo of the building available?
- Are digital photos of the main and alternate entry points available?
- Where is a safe place for emergency vehicles?
- Where is a safe place outside the building for emergency triage of casualties?
- Are there transient conditions that may pose a threat?

When we get there, how do we get in?

- Is there 24/7 access to the building?
- If not, are there security guards on duty?
- Is there a key box?
- If not, will someone be there to let us in?

Who has the facility knowledge and the keys?

- What is the name of the primary contact and how can this person be contacted during and after duty hours?
- When the primary contact is not available, what are the names of the secondary and tertiary contacts and how can these persons be contacted during and after duty hours?

Who is in charge?

- Who is the senior decision-maker on site and how can this person be recognized?
- Which other people have responsibilities, what are their responsibilities and how can they be recognized?

What will make our task easier and safer?

- Where is the primary and backup Emergency Operations Center, when activated?
- How many floors are there?
- How many levels are there below grade?
- What is the layout of each floor and level below grade?
- Where are all the building access and egress points?
- Where are the vertical access methods: elevators, stairs, escalators?
- What levels are served by which elevators?
- Which elevators have fire fighter controls?
- Which floors are cross-over (the stair access doors are not locked from the stair side on these floors)?
- Are any windows operable?
- Are there any balconies?
- Which stairwells have roof access?
- Is there a safe helicopter pad on the roof?
- Are there hard points on the roof (for rappelling rope tie-offs)?
- Where are all doors, what are they made of, which are locked and in which direction do they open?
- What are the exterior and interior walls made of (for police security)?
- Where are fire evacuation routes?
- Where are the refuge areas for physically challenged occupants?
- Are there reinforced areas for refuge from tornado, earthquake, etc.? If so, where are they?
- Are there boxes of earthquake supplies pre-positioned in the building?

- What is the location and contents of the spill response kit?
- Where are emergency first aid equipment and supplies?
- Where is the loading dock?
- Are there freight elevators (for stretchers)?
- Where is the fire alarm panel located?
- Where is the annunciator panel located?
- Is there an emergency voice communication system?
- Is there a standpipe and hose system? How recently has it been checked?
- How big is the standpipe?
- Where are the fire pumps and reservoirs?
- Are there portable fire extinguishers throughout the building? How recently have they been checked?
- Is there a sprinkler system? Does it serve all floors and all areas? Is it a wet or dry system?
- Are there photos of all building occupants?
- What companies are tenants or occupants of the building?
- Are there antidotes stored in the building for any hazardous materials?
- Are there any medical supplies in the building?
- Are NFPA standard fire safety symbols used in drawings?

What are the building's control systems (how do they work, how are they controlled)?

- Where is the main building control room and how do we get to it from the main entry?
- Are there other control rooms? If so, where are they? What do they control?
- How do we control the air handling systems (heating, ventilation, air conditioning (HVAC))?
- How do we control the electrical systems?
- What is the smoke management system?
- How does the firefighters' elevator access work?
- How do we control the lighting systems?
- How do we control the water systems?
- How do we control the waste management systems?
- How do we control the communications (voice and data) systems?
- Is there a video camera security system?
- How do we control the security systems?

What is on site that will make our task harder or more dangerous?

- Is there a facility history of emergencies or disasters?
- What hazardous materials are stored in the building?
- Are there any materials which, if burned, create noxious or toxic fumes?
- Are there gasses or fluids under pressure, either piped or in tanks?
- Are there halon or other potentially toxic fire suppression systems?
- Are there any drugs or other limited access materials stored in the building?
- Are there any weapons or ammunition stored in the building?

- Are there any chemicals that react violently with water?
- What are the hazardous locations in the building?
- Where are the physically challenged occupants? What problems will we encounter with them?
- Where are there high voltages in the building?
- Where are any devices that store energy, such as batteries and hydraulic devices (and could give it up explosively)?
- Are there individual occupants or groups of occupants who are at unusual risk of violence, abduction or hostage-taking?
- Are there any artifacts or unusually valuable or rare items in the building?
- Are there any original documents which must be protected?

Accessing the information where and when it is needed

If you have all this information gathered and collated so that you can access it easily when you are on-site – typically during working hours on weekdays, how can you access it the rest of the time? For information about the physical facility which is static and changes only infrequently, it may work to have hard copy off-site in another accessible place, such as with a consultant who provides services to your organization. If you have multiple sites, such as a campus of buildings or several buildings in the same city, then keeping emergency information for each building at each other building may be effective, provided that the emergency does not impact all sites. Perhaps the best location is at your home and at the homes of the secondary and tertiary contacts, since that is the most likely place for each of you to be during non-working hours.

Much of the information about the people in the facility changes rather more often. With churn rates often in the 40% per year range, hard copy data will rapidly be out of date. The use of an automated system, such as Computer Aided Facility Management (CAFM), may be invaluable for locating people. Again, this will be handy if you are on-site and can access the CAFM system. If not, then you must have some means of accessing the CAFM data from off-site. Keeping a current copy of the CAFM data in electronic format at your home, with a means to print it or view it easily, will be extremely useful in an emergency.

Providing information to the first responders

Once you have the data, in your hand or in your head, the final step is providing it to the first responders. If you can exchange information with the first responders in your community prior to an emergency, you can work out a method that will work for all the interested parties. Hard copy is always good, provided that the information is carefully selected. Floor plans are always in demand, but you need to provide on the floor plans just the information that is required. Ask the first responders specifically what they will be looking for on the floor plan or, better yet, provide a copy to them and ask them what is critical, what is useful, what is superfluous?

Using the Internet

The Internet is growing in capability at such a rate that you may now be able to access the necessary corporate facility data and provide it via the Internet to the first responders, but this capability depends on access to the power grid. Recent experience in California suggests that we should not count on this access. Since many emergencies include the loss of power, a notebook computer and printer that can operate on batteries may help you when you most need it. Be sure that you have paper and spare ink cartridges if you choose this method.

Conclusion

This is not intended to be a complete list of the information that you may be able to provide to first responders. It is intended to jog you into action to take the steps that you, as a facility professional, can take in advance to mitigate the effects of an emergency and to keep it from turning into a disaster. The first responders are there to help you. You have an opportunity to help them as well. Talk to them. Take full advantage of the opportunity - before the emergency arrives.