Emergency Action Plan – Stats and Facts

DID YOU KNOW?

Emergency evacuations are more common than many people realize, including evacuations in the workplace. According to the U.S. Department of Homeland Security (DHS) Federal Emergency Management Agency (FEMA), the most frequent causes of evacuations in the U.S. each year are fires and floods. In addition, a wide variety of emergencies, both man-made and natural, may require a workplace to be evacuated. These emergencies may include explosions, earthquakes, hurricanes, tornadoes, hazardous/toxic material releases, radiological and biological accidents, civil disturbances and workplace violence.

Emergency Evacuation is the immediate and urgent movement of people away from a threat or actual occurrence of a hazard.

This web page provides workers and employers guidance on planning for safe evacuations and shelter-in-place procedures during emergencies that may affect their workplace.

Deciding whether to shelter-in-place or evacuate to safety (i.e., get away from a threat or hazard) is among the most important decisions that must be made during an emergency. Employers should understand and plan for both scenarios. In any emergency, the local authorities may or may not be able to provide information immediately to assess the situation. Employers should consider how the situation might impact workers sheltering-in-place at a job site versus workers attempting to evacuate to safety.

If local authorities or the on-scene coordinator (e.g., incident commander or other official in charge) specifically give instructions to evacuate or seek medical treatment, do so immediately. In very hazardous situations, local officials may require mandatory evacuations. During other times, local officials

may advise, or workers and employers may decide, to evacuate to avoid situations they believe are potentially dangerous.

Watch TV, listen to the radio, or check the Internet often for information or official instructions as it becomes available. Additionally, specific instructions and guidance from local officials may also be provided through mass media, sirens or other public address/alert systems, text alerts, emails, or telephone calls.

The construction industry is known for being one of the most dangerous fields to work in. Out of every 5,000 private-industry worker fatalities, 20 percent are in construction. That means one out of every five worker deaths is construction-related!

Construction also results in many non-fatal injuries that cost companies millions of dollars per year. This makes safety paramount in the industry. While safety measures and precautions, like those outlined by OSHA, can be costly upfront, their ROI can be massive.

A successful construction business will maintain effective safety programs, stay updated on OSHA regulations and pay the expenses involved even when business is slow. Not only because OSHA violations can range anywhere from a warning to $70K per incident, but because they care about their employees.

To illustrate the importance of worksite safety, we've compiled 25 construction safety statistics that cover the high number of injuries and fatalities, the cost of these accidents and the benefits of safe practices.

There were 5,250 fatal work injuries in the US in 2018, with falls a leading cause of death – and cuts in government oversight

Thousands of Americans die at work each year

The Bureau of Labor Statistics (BLS) reported 5,147 workplace fatalities in the US in 2017. Among these fatalities, 887 were due

to fatal falls, the highest level reported in the 26-year history of the Census of Fatal Occupational Injuries.

There are two different categories for fatal falls: falls on the same level, such as slips or trips, and falls to a lower level. Both increased in 2017, with the majority, 713 fatalities, a result of workers falling to a lower level. In 2018, the latest year data is available, fatal falls decreased to 791, though overall workplace fatalities increased from the prior year to 5,250.

The US consistently outpaces other industrialized nations in workplace fatalities:

- The average rate of workplace fatalities in the United States has hovered at 3.5 deaths for every 100,000 workers over the past decade.
- In comparison, workplace fatality rates in the UK have remained under 1.0 death for every 100,000 workers over the past decade, and under 1.5 deaths for every 100,000 workers on average for the 15 earliest member states of the EU.

Transportation incidents are responsible for the highest number of deaths at work, and for more than a third of all work fatalities.

The majority of fatal workplace falls regularly occur in construction and disproportionately impact Hispanic workers, though fatal fall increases in 2017 are attributed to a wide range of industries.

Construction Fatality Statistics

1. One in five worker deaths annually is in construction.
2. Workplace fatalities that were crane-related fell to their lowest level recorded in 2017 with 33 deaths.
3. Construction workers accounted for 1008 (47 percent) of all fatal work injuries in 2018.
4. The “Fatal Four” leading causes of private sector working fatalities in the construction industry are falls, being

struck by an object, electrocution and being caught in something or between two objects. These accidents are responsible for 58.6 percent of construction worker deaths.
5. Companies with 10 or fewer employees and those who are self-employed account for nearly half of all deaths on construction sites.
6. Of all industries, construction sees the most fatal falls, accounting for 51 percent of all falls in the United States.
7. During a 45-year career, there is a 1 in 200 chance that a construction worker will die from a work-related incident.

Non-Fatal Injuries in Construction

8. One in every 10 construction workers is injured annually.
9. Construction sees non-fatal injury rates that are 71% higher than any other industry.
10. Around half of serious workplace injuries go unreported each year.
11. Lifting, using a tool or machine, and carrying heavy objects are the leading causes of strain injuries in construction.
12. Workers who are between the ages of 35 – 34 are the most likely to be injured while working in construction.
13. Construction worker illnesses and injuries are down from 10.9 incidents per 100 workers in 1972 to 2.8 per 100 workers in 2017.
14. The Cost of Jobsite Injuries
15. One fatal injury costs an average of $991,027 in hospital costs.
16. The construction industry sees a 71 percent higher spend on workers' compensation than all goods-producing industries combined, more than twice the mean cost for the average employer in other industries.
17. 15 percent of overall workers' compensation costs are spent on workers who were injured at a construction site.
18. Work-related injuries have caused companies to lose 103,000,000 production days in 2018.
19. Indirect costs for injuries in the construction industry can be as much as 17 times more than direct costs.

20. Purvis Home Improvement Co. Inc was fined $1.79 million for a preventable fatal fall, the highest fine of 2019.
21. It Pays to Practice Safety
22. Construction companies can save an average of $32,000 for each medically consulted injury they avoid.
23. Construction companies can save $4 – 6$ in indirect costs for every $1 invested in direct costs by evading an injury in the workplace.
24. Construction site injuries account for 6–9 percent of project costs, while safety and health programs only account for 2.5 percent of project costs.
25. A company must sell an additional $1,667,000 in services to offset $50,000 in losses from injuries, illness or damage and still make a 3% profit.
26. Better and more frequent training, regular inspections and regular health and safety meetings with construction supervisors result in lower costs, fewer lost-time injuries and more profits.
27. Getting rid of the “Fatal Four” causes of construction worker deaths would save 591 lives in the U.S. each year.

KEEP IN MIND

A workplace emergency is an unforeseen situation that threatens your employees, customers, or the public; disrupts or shuts down your operations; or causes physical or environmental damage. Emergencies may be natural or manmade and include the following:

- Floods,
- Hurricanes,
- Tornadoes,
- Fires,
- Toxic gas releases,
- Chemical spills,
- Radiological accidents,
- Explosions,
- Civil disturbances, and
- Workplace violence resulting in bodily harm and trauma.

The objective of the Emergency Action Plan is to comply with the Occupational Safety and Health Administration's (OSHA) Emergency Action Plans Standard, 29 CFR 1910.38, and to prepare employees for dealing with emergency situations. This plan is designed to minimize injury and loss of human life and company resources by training employees, procuring and maintaining necessary equipment, and assigning responsibilities.

Develop a Plan Ahead of Time

Many disasters are no-notice events, meaning that there is no warning before they occur. These types of events do not allow time for people to gather even the most basic necessities. Therefore, pre-planning is critical.

Workers may need to be trained to respond differently to different threats. For example, workers may be required to assemble in one area inside the workplace if threatened by a tornado or on an adjacent highway if threatened by a chemical spill. Moreover, a fire may require workers to evacuate to a pre-determined exterior location.

Emergency evacuation plans are developed to ensure the safest and most efficient evacuation. The evacuation plan must identify when and how workers are to respond to different types of emergencies. When developing the plan, it is important to ask questions and plan for worst-case scenarios. What would happen if the worksite caught fire, the nearby river flooded, or a chemical release occurred in the facility?

When developing an emergency action plan, it is important to determine:

- Conditions under which an evacuation would be necessary
- Conditions under which it may be better to shelter-in-place
- A clear chain of command and designation of the person in the workplace authorized to order an evacuation or shutdown
- Specific evacuation procedures, including routes and exits
- Specific evacuation procedures for workers in buildings (including high-rise buildings)

- For Workers
- Specific evacuation procedures and responsibilities for employers in buildings (including high-rise buildings)
- For Employers
- Specific evacuation procedures on construction sites or non-fixed facilities
- Procedures for assisting visitors and workers to evacuate
- Designation of which, if any, workers will remain after the evacuation alarm to shut down critical operations or perform other duties before evacuating
- A means of accounting for workers after an evacuation
- Special equipment for workers, such as appropriate respiratory protection

An **Emergency Action Plan (EAP)** is a written document required by some OSHA standards (including 29 CFR 1910.38(a) and 29 CFR 1926.35) to help facilitate and organize employer and employee actions during workplace emergencies. See OSHA's Emergency Action Plan Checklist for more assistance in developing an EAP.

- Appropriate personal protective equipment (PPE)
- Procedures that address special needs workers, such as those that may have physical limitations
- Any special actions for evacuation during an active shooter or other dangerous intruder situation

When to Evacuate

The emergency evacuation plan should identify the different types of situations that will require an evacuation of the workplace. As mentioned before, these may include explosions; earthquakes, hurricanes, tornadoes, and other natural disasters; releases of chemical, radioactive, or biological agents; and civil disturbances and workplace violence. The extent of evacuation may be different for different types of hazards.

The type of building employees work in may be a factor in the decision to evacuate during an emergency. Most buildings are vulnerable to the effects of disasters, such as tornadoes, earthquakes, floods, or explosions. The extent of the damage

depends on the type of emergency and the building's construction. Modern factories and office buildings, for example, are framed in steel and may be more structurally sound than older structures. In a major disaster, however, nearly every type of structure will be affected. Some buildings will collapse and others will be left with weakened floors, walls, and roofs.

Evacuations during an Active Shooter or other Dangerous Intruder Situation

Active shooter and other dangerous intruder situations are unpredictable and evolve quickly. Typically, the immediate deployment of law enforcement is required to stop the shooting and mitigate harm to victims. Because active shooter situations are often over within 10 to 15 minutes, before law enforcement arrives on the scene, individuals must be prepared both mentally and physically to deal with an active shooter situation. Evacuation may be one option during an active shooter situation. This web page also describes sheltering in place during an active shooter situation in the "Shelter-in-Place" section below.

The Department of Homeland Security (DHS) provides the following guidance for evacuation during an active shooter situation:

If there is an accessible escape path, attempt to evacuate the premises. Be sure to:

- Have an escape route and plan in mind
- Evacuate regardless of whether others agree to follow
- Leave your belongings behind
- Help others escape, if possible
- Prevent individuals from entering an area where the active shooter may be
- Keep your hands visible
- Follow the instructions of any police officers
- Do not attempt to move wounded people
- Call 911 when you are safe

For more information, visit DHS's website for Active Shooter Preparedness.

Clear Chain of Command

It is common practice to select a responsible individual, with appropriate training or certifications, to lead and coordinate the workplace emergency plan and evacuation. It is critical that the employer ensures that the workers know the identity of the coordinator, as well as understand that the coordinator has the responsibility for making life saving decisions during an emergency. The coordinator should be responsible for assessing the situation to determine whether an emergency exists, activating the emergency procedures, overseeing emergency procedures, notifying and coordinating with outside emergency services, and directing the shutdown of utilities or plant operations, if necessary.

Routes and Exits

Most employers create floor diagrams with arrows that designate all exit route(s). These diagrams should include locations of exits, assembly points, and equipment (such as fire extinguishers, first aid kits, automated external defibrillators (AEDs), and spill kits) that may be needed in an emergency.

Exit routes must be:

- Clearly marked and well lit
- Wide enough to accommodate the number of evacuating personnel
- Unobstructed at all times
- Unlikely to expose evacuating personnel to additional hazards
- Designed to avoid potentially hazardous areas or operations

What should Employers Do Before and

During an Emergency Evacuation?

When there is an emergency, getting workers out of buildings (including high-rise buildings) may pose challenges. Preparing in advance to safely evacuate the building is critical to the safety of workers who work there.

For Employers

Before an emergency occurs:

- Employers must ensure doors are not locked from the inside and ensure that doorways, hallways, and stairways remain unobstructed or unblocked at all times.
- Regularly test all back-up systems and safety systems, such as emergency lighting and communication systems, and repair them as needed.
- Develop a workplace evacuation plan, post it prominently on each floor, and review it periodically to ensure its effectiveness.
- Identify and train floor wardens, including back-up personnel, who will be responsible for sounding alarms and helping to evacuate workers.
- Conduct emergency evacuation drills periodically.
- Establish designated meeting locations outside the building for workers to gather following an evacuation. The locations should be a safe distance from the building and in an area where people can assemble safely without interfering with emergency response teams.
- Identify personnel with special needs or disabilities who may need help evacuating and assign one or more people, including back-up personnel, to help them during an emergency.
- Ensure that during off-hour periods, systems are in place to notify, evacuate, and account for off-hour building occupants.
- Post emergency numbers on or near telephones.

Some businesses may be required to establish Emergency Action

Plans meeting certain requirements (see 29 CFR 1910.38 and OSHA's compliance policy for emergency action plans and fire prevention plans, CPL 2-1.037, for more information).

When an emergency occurs:

- Sound appropriate alarms and instruct workers to leave the building.
- Notify police, firefighters, building security, and other appropriate emergency personnel.
- Ensure a person is designated to account for workers at pre-determined meeting locations, and promptly notify emergency response personnel of any workers that are absent.
- Report to arriving responders the incident location, conditions, and the status of occupants (including any missing workers).
- Ensure that routes for emergency vehicles and paths for emergency responder access are clear.
- Inform arriving emergency responders of the incident location and conditions.
- Have knowledgeable workers available to advise emergency responders.

What should Workers Know Before and Do During an Emergency Evacuation?

For Workers

What should workers know before an emergency occurs?

- Be familiar with the worksite's emergency evacuation plan.
- Know the pathway to at least two exits from every room/area at the workplace.
- Recognize the sound/signaling method of the evacuation or other alarms and their different meanings.
- Understand who to contact in an emergency, as well as the specific procedures they will be expected to use.
- Know how many desks or cubicles are between their workstations and two of the nearest exits to escape in the

dark, if necessary.
- Know where the fire/evacuation alarms are located and how to use them.
- Report damaged or malfunctioning safety systems and back-up systems.
- Report changes in health that may affect their ability to safely evacuate, to their supervisor.

What should workers do when an emergency occurs?

- Listen carefully for instructions over the building's internal communication system and follow the instructions.
- When instructed, leave the area quickly, but in an orderly manner, following the work site's emergency evacuation plan.
- Do not use elevators when evacuating a burning building, unless they are properly designed and designated "occupant evacuation elevators."
- Report to the designated meeting place, and ensure they make contact with the person charged with worker accountability.
- Do not re-enter the building until directed to do so by authorities.

What should workers do if trapped?

- Stay calm and take steps to protect yourself.
- Go to a room with an outside window.
- Use a telephone/cell phone to call for help if possible.
- Stay where rescuers can see you and wave a light-colored cloth to attract attention.
- Specifically, during fire events:
- Go directly to the nearest fire- and smoke-free stairwell, recognizing that in some circumstances the only available exit route may contain smoke or fire.
- Crawl low, under the smoke, to breathe cleaner air. Test doors for heat before opening them by placing the back of your hand against the door so you do not burn your palm and fingers. Do not open a hot door. Find another exit route. Keep "fire doors" closed to slow the spread of smoke and fire.
- Stuff wet clothing, towels, or newspapers around the cracks

in doors to prevent smoke from entering your room.
- Do not open or break windows unless absolutely necessary. Doing so could draw heat or smoke towards you.

Evacuation Procedures on Construction Sites or Non-Fixed Facilities

Typical construction site locations and the workers on such job sites are constantly changing, which in turn poses unique challenges during emergency evacuations. In this section, there are some specific emergency evacuation procedures for construction sites. An evacuation plan should meet the requirements of OSHA's Employee Emergency Action Plans standard (29 CFR 1926.35).

Construction employers subject to 29 CFR 1926.35 (including at multi-employer worksites) are required to establish a plan for the types of evacuation to be used in an emergency. Every attempt should be made to ensure that all exposed employees are safely evacuated in the event of an emergency. Employers subject to 29 CFR 1926.35 must designate and train personnel to assist in the safe and orderly emergency evacuation of employees.

All employers should ensure:

- All workers on the site are trained and aware of evacuation alarms, evacuation routes, and emergency assembly areas
- Personnel are designated who will sound the evacuation alarms
- The primary routes needed for egress and for responding emergency vehicles are not blocked
- Personnel are designated who will be responsible for making sure the job site /structure is cleared of all workers
- A head count is taken at the assembly areas to account for all workers
- Personnel are designated to notify emergency services/facilities during any emergency activity that warrants an evacuation
- Workers do not re-enter the job site/structure without clear indication that the area/facility is safe for re-entry

- Workers do not leave the job site (emergency assembly area) unless advised to do so by a designated foreman/supervisor
- Designated personnel are certified or trained in rescue and medical duties to promptly respond to identified emergencies

Effective method(s) of alerting and communicating with workers is a critical element on construction sites. These communication methods must be understood by all workers. It is recommended that employers train and drill workers (including contractors) and volunteers on these emergency communication methods and procedures to reduce injuries and fatalities, thereby saving lives on the job site.

Types of Alarm Systems that may be used on a construction site include:

- Verbal Communication
- Vehicle Horn
- Air Horns
- Cell Phone
- Radio
- Hand Signal

An emergency action plan on a construction site must be developed but may also require modification as conditions at the worksite change. All workers should be adequately trained on the importance of effective communication during emergencies, including those involving worksite evacuations. Training should be provided when the workers are initially assigned to the site and whenever there is a change on the site, which would affect the plan.

Assisting Visitors and Workers to Evacuate

Many employers designate individuals as evacuation wardens to help move workers from danger to safe areas during an emergency. Generally, one warden for every 20 workers should be adequate, and the appropriate number of wardens should be available at all times during working hours.

Wardens may be responsible for checking offices, bathrooms, and other spaces before being the last person to exit an area. They might also be tasked with ensuring that fire doors are closed when exiting. All workers designated to assist in emergency evacuation procedures should be trained in the complete workplace layout and various alternative escape routes if the primary evacuation route becomes blocked.

Workers designated to assist in emergencies should be made aware of workers with special needs (who may require extra assistance during an evacuation), how to use and instruct others to use the buddy system, and any hazardous areas to avoid during an emergency evacuation. Special tools such as evacuation chairs are available and may be used to assist workers with special needs.

Visitors also should be accounted for following an evacuation and may need additional assistance when exiting. Some employers require all visitors and contractors to sign in when entering the workplace; employers then use this list when accounting for all persons in the assembly area. The hosts and/or area wardens, if established, are often tasked with helping visitors safely evacuate.