

Fire Safety and Evacuation Plans

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A Chinese proverb states, “When planning for a year, plant corn. When planning for a decade, plant trees. When planning for life, train and educate people.” That proverb should be modified to “when planning for *saving* life,” when it comes to fire safety and evacuation planning, since the best way to avoid injury or loss of life in an emergency is to “train and educate people” who occupy a facility. But before you can train and educate, you must plan.

Unfortunately, many people do not take the time to accomplish the simple process of planning for an emergency—whether in the home or in the workplace. In the workplace, if you were to ask your employers about an emergency and fire plan, it is likely that they either tell you they do not have a plan or, if one exists, they could not tell you where a copy of the plan is located. For either response, the implication is that the employer is probably in noncompliance with federal, state, or local laws.

OSHA and Emergency Planning

The Occupational Safety and Health Administration (OSHA) establishes requirements for emergency action plans (EAP) in 29 CFR 1910.38 and for fire prevention plans (FPP) in 29 CFR 1910.39. What may not be understood by employers, especially those with small businesses, is that many employers may be required to prepare an EAP and FPP. According to the diagram in OSHA’s *How to Plan for Workplace Emergencies and Evacuations*,¹ EAPs are required when the business falls into one or more of the following situations:

1. Business uses one of the exceptions to 29 CFR 1910.157, *Portable Fire Extinguishers*, to avoid providing extinguishers within the workplace, or provides fire extinguishers but still requires some employees to evacuate.
2. Business has a fixed fire suppression system that either uses total flooding of extinguishing agents that exceed concentration levels in 29 CFR 1910.162(b)(5) and (b)(6), or if the devices or alarms are delayed by more than 30 seconds.
3. Business is required to comply with 29 CFR 1910.119, *Process Safety Management for Highly Hazardous Chemicals*.
4. Business is required to comply with 29 CFR 1910.1047, *Ethylene Oxide*; 1910.1050, *Methylenedianiline*; or 1910.1051, *1,3-Butadiene*.
5. Business is required to comply with 29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response*, paragraphs (1), (p)(8), or (g).
6. Business is required to comply with 29 CFR 1910.272, *Grain Handling Facilities*.

FPPs are only required when items 1 and 4 apply. For most businesses, the first item in the above list would be the trigger that requires compliance to prepare an EAP and FPP. Under OSHA, portable fire extinguishers are required; however, two exceptions are permitted: 1) if the employer prepares an EAP that outlines procedures for full evacuation of employees upon a fire alarm signal and prepares a fire prevention plan in accordance with 29 CFR 1910.39; or 2) if the employer prepares an EAP that restricts the use of portable fire extinguishers to certain employees. However, OSHA is not the only source of

¹ <http://www.osha.gov/Publications/osha3088.pdf>

requirements for portable fire extinguishers—the building and fire codes also establish requirements.² But, as with portable fire extinguishers, OSHA is also not the only source for requirements on emergency planning.

Fire Codes and Emergency Planning

In addition to a building code, most jurisdictions also adopt a fire code. Although similar in intent—protection of life and property—there is a distinct difference between the two codes. Building codes establish requirements for the construction of new buildings and the renovation/alteration of existing buildings, focusing on “structural strength, means of egress, sanitation, adequate lighting and ventilation, accessibility, energy conservation and life safety,” as stated in the 2009 *International Building Code* (IBC). On the other hand, the 2009 *International Fire Code* (IFC) emphasizes “fire prevention, fire protection, life safety and safe storage and use of hazardous materials.” Although the IFC is used during building design, it also sets forth requirements for maintaining the life safety features of a building once it is occupied, including the requirements for emergency planning.

The provisions for fire safety and evacuation plans in the IFC are found in Section 404. Unlike the OSHA regulations for EAPs and FPPs, which place the responsibility for preparation on the employer, the IFC does not specify an entity responsible for preparing fire safety and emergency plans. However, it does establish the type of occupancies that require fire safety and evacuation plans, which include all occupancy groups except R-3.

Even though fire safety and evacuation plans apply to most occupancy groups, they are not required in every case. For some occupancy groups the IFC sets minimum thresholds that must be reached before a plan is required. These limited applications include:

- Group A: Includes all buildings except for those used exclusively for religious worship and have an occupant load less than 2,000.
- Groups B, F, and M: Includes all buildings with an occupant load of 500 or more, or with a total occupant load of 100 or more located on floors above or below the lowest level of exit discharge.
- Group R-2: Includes only college and university buildings.

Additionally, certain building types, regardless of the limitations indicated above, require fire safety and evacuation plans. These include:

- High-rise buildings (defined as buildings with an occupied floor located more than 75 feet above the lowest level of fire department vehicle access).
- Covered malls exceeding 50,000 square feet in aggregate floor area.
- Underground buildings (defined as buildings with an occupied floor located more than 30 feet below the lowest level of exit discharge).
- Buildings with an atrium and having a Group A, E, or M occupancy.

Fire Safety and Evacuation Plan Content

As the name implies, the plan is prepared in two major parts: the fire safety plan and the fire evacuation plan. The fire safety plan identifies the procedures for reporting a fire or an emergency, establishes emergency evacuation routes and assembly locations, identifies major fire hazards associated

² See The Code Corner No. 31, *Portable Fire Extinguishers*, Spring 2010.

with the building, outlines procedures for personnel who must remain to operate critical equipment, and assigns maintenance responsibilities to personnel for fire protection equipment and control of fuel hazard sources. The fire evacuation part of the plan establishes procedures to follow when a fire or other emergency is identified.

The fire safety plan shall include drawings and diagrams that visually identify the fire safety features of the building. On a site plan, the areas where building occupants should assemble after evacuation, fire hydrant locations, and fire department access points shall be identified. On plans of each floor, primary and secondary evacuation routes shall be identified, directing occupants to building exits, which also includes accessible egress routes, areas of refuge, and exterior areas for assisted rescue. Also located on the floor plans shall be fire alarm manual pull boxes, portable fire extinguishers, hose stations, and fire alarm annunciator and control panels.

The fire evacuation plan shall include step-by-step procedures for notifying occupants of a fire or an emergency, for evacuating the building, for accounting of personnel, and for assisting persons unable to use general evacuation routes. This part of the plan also identifies personnel who can provide rescue or emergency medical aid to building occupants if needed, and the contact personnel for inquiries regarding the fire safety and evacuation plan. Finally, the plan shall include a description of the alert tone or preprogrammed voice messages that the alarm system will generate when activated.

Comparison of OSHA and IFC Planning Requirements

When viewed side-by-side, there are very few differences between the requirements established by OSHA and the IFC. It is likely that the International Code Council (ICC) used OSHA regulations as the basis for creating its fire safety and evacuation plan requirements in the IFC. However, the IFC requirements provide more specificity than the OSHA requirements for EAPs and FPPs. At a minimum, OSHA requires the following:

Emergency Action Plans

- Procedures for reporting a fire or other emergency.
- Procedures for emergency evacuation, including type of evacuation and exit route assignments.
- Procedures to be followed by employees who remain to operate critical plant operations before they evacuate.
- Procedures to account for all employees after evacuation.
- Procedures to be followed by employees performing rescue or medical duties.
- The name or job title of every employee who may be contacted by employees who need more information about the plan or an explanation of their duties under the plan.

Fire Prevention Plans

- List of major fire hazards, handling and storage procedures for hazardous materials, potential ignition sources and control, and fire protection equipment to control each hazard.
- Procedures to control accumulation of flammable and combustible waste materials.
- Procedures for regular maintenance of safeguards installed on heat-producing equipment.
- Names and job titles of employees responsible for control of fuel source hazards.

The problem boils down to determining which plan format is applicable to an employer. If the employer is subject to the requirements of OSHA, but not the IFC, then compliance with the OSHA format is all that is required. The reverse situation also applies if the employer is subject to the IFC requirements, but not OSHA's. However, if both are applicable, a single document that addresses the content required for both formats would be desirable rather than creating two separate documents.

In almost all cases, whether under OSHA or IFC requirements, the plan is required to be written. But for employers employing ten or fewer employees, the OSHA plans may be oral. If compliance with both IFC and OSHA is required and the employer has ten or fewer employees, then the plan must still be in writing, since the IFC has no provision for oral plans.

Planning for Buildings with Multiple Tenants

There are many situations where a single building includes multiple tenants, which means multiple employers. In these types of situations—specifically under OSHA regulations that require employer-prepared plans—a single building with multiple tenants would mean multiple plans. As a consequence, multiple plans without coordination could lead to problems when an emergency does occur. OSHA does not require coordination, but it does recommend it in *How to Plan for Workplace Emergencies and Evacuations*.

In such cases, as an option to each employer preparing a plan, it might be preferable to have a single entity prepare the plan, such as the building's owner, management company, or leasing office. Since the application of the IFC fire safety and evacuation plan is based on occupancy and/or building type, this option fits well with IFC requirements; additionally, the IFC requires in Section 404.5.1 that the plan "be distributed to the tenants and building service employees by the owner or owner's agent." However, having a single entity prepare the plan will not be totally successful if each tenant is not given the opportunity to provide input during the plan's preparation. For OSHA compliance, employers may want to develop their own plan for their unique circumstances, if any, and have it reference the overall building plan.

Getting the Plan Done

For most employers, the process of preparing an EAP is not difficult. By utilizing OSHA's Expert System, an employer can quickly develop an EAP as required by OSHA in about fifteen to thirty minutes. OSHA does not provide a similar program for the FPP, but the information from the EAP can be expanded to include the FPP-required information.

The information for the EAP and FPP can be used to develop the IFC's fire safety and evacuation plan, if one is required. There are many examples of fire safety and evacuation plans available on the internet. However, a word of caution; duplicating another plan may not be the best solution since the plan must be modified for the specific needs of the business. If the business has complex emergency and fire issues, it might be prudent to hire a consultant to prepare the plan.

Training and Educating

Even the best prepared plan will not be effective if the people responsible to implement and follow the plan are not informed of its contents. Therefore, employers must train their employees on the procedures contained in the plan.

OSHA and IFC requirements differ slightly regarding the training of employees. OSHA requires training of all employees when the plan is completed, when new employees are hired, when an employee's responsibilities are changed under the plan, and when the plan is changed. The IFC requires

that new employees are trained on the plan and annually thereafter. If fire extinguishers are available for employee use during a fire, OSHA and the IFC require that employees must be trained on their proper use.

The IFC further requires that evacuation drills be conducted for those occupancies and buildings required to have a fire safety and evacuation plan. These fire drills must be conducted monthly, quarterly, or annually, with participation by either employees only or all occupants, depending on the building's occupancy group. For occupancies with employees working on shifts (*i.e.* I, R-1, and R-4), the drills must be conducted for each shift. The evacuation drills are required to be “no notice” and under varying conditions.

When the plan is completed and the training conducted, one can rest easy knowing that one has complied with the applicable laws. But that should not be the end; the plan must be maintained by revising it when elements of the plan are affected by changes in the business, and employees must continually be trained in accordance with the requirements. If this is done, then in times of emergency, the plan may be the key to saving a person's life.

To comment on this article, suggest other topics, or submit a question regarding codes, contact the author at ron@specsandcodes.com.

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