Means of Egress – Quick Tips

Do your employees know how to escape in an emergency? Do you have enough exits for prompt evacuation? Have your exit routes, discharges and accesses been properly designed and constructed?

The Occupational Safety and Health Administration's (OSHA's) emergency evacuation requirements are contained under Subpart E of the General Industry Standards, 29 Code of Federal Regulation (CFR) Part 1910.

Under the umbrella of Subpart E, employers will find OSHA's requirements for exit routes, as well as their standards for both emergency action and fire prevention plans. In addition to OSHA's emergency egress requirements, employers must be cognizant of the emergency egress requirements of their local fire department. Local fire departments and Fire Marshals will typically be enforcing the emergency evacuation requirements of the National Fire Protection Association (NFPA). The local Fire Marshal or fire department inspector is considered to be the local Authority Having Jurisdiction (AHJ). And as noted below, OSHA recognizes compliance with the NFPA's egress guidelines as meeting OSHA's standards.

OSHA breaks down their exit route requirements within Subpart E as follows:

- Compliance with Alternate Exit-Route Codes (1910.35),
- Design and Construction Requirements for Exit Routes (1910.36), and
- Maintenance, Safeguards, and Operational Features for Exit Routes (1910.37).

In addition, under 1910.34, OSHA provides definitions related to egress. It's here that the scope of the Subpart E is called out under 1910.34(a), where it states that every employer within general industry is covered by the requirements, with the exception of mobile workplaces such as vehicles or vessels.

Alternate Exit-Route Codes

OSHA recognizes some employers may be following the emergency evacuation requirements of other regulatory agencies. It acknowledges and accepts this under 1910.35 where it states, "OSHA will deem an employer demonstrating compliance with the exit-route provisions of NFPA 101, Life Safety Code, 2009 edition, or the exit-route provisions of the International Fire Code, 2009 edition, to be in compliance with the corresponding requirements in 1910.34, 1910.36, and 1910.37." Both the NFPA 101: Life Safety Code® and the International Fire Code were last updated in 2015.

Design and Construction Requirements for Exit Routes, 1910.36

A couple key definitions are important to understand prior to reviewing OSHA's emergency egress design and construction requirements. These definitions are found

in 1910.34:

- **Exit**– means that portion of an exit route that is generally separated from other areas to provide a protected way of travel to the exit discharge. An example of an exit is a two-hour fire resistance-rated enclosed stairway that leads from the fifth floor of an office building to the outside of the building.
- **Exit Access**– means that portion of an exit route that leads to an exit. An example of an exit access is a corridor on the fifth floor of an office building that leads to a two-hour fire resistance- rated enclosed stairway (the Exit).
- **Exit Discharge**– means the part of the exit route that leads directly outside or to a street, walkway, refuge area, public way, or open space with access to the outside. An example of an exit discharge is a door at the bottom of a two-hour fire resistance-rated enclosed stairway that discharges to a place of safety outside the building.
- **Exit Route**– means a continuous and unobstructed path of exit travel from any point within a workplace to a place of safety (including refuge areas). An exit route consists of three parts: The exit access; the exit; and, the exit discharge. (An exit route includes all vertical and horizontal areas along the route.)
- **High Hazard Area**– means an area inside a workplace in which operations include high hazard materials, processes, or contents.
- **Occupant Load**– means the total number of persons that may occupy a workplace or portion of a workplace at any one time. The occupant load of a workplace is calculated by dividing the gross floor area of the workplace or portion of the workplace by the occupant load factor for that particular type of workplace occupancy. Information regarding the “Occupant load” is located in NFPA 101-2015, Life Safety Code, and in IFC-2015, International Fire Code.

Under 1910.36, OSHA covers the basic design and construction requirements for exit routes and offers additional details in the following areas:

- Number of exit routes needed
- Exit discharge requirements
- Locking considerations for exit doors
- Design requirements for exit doors
- Capacity and size requirements for exit routes
- Considerations for outdoor exit routes

Exit routes must be a permanent part of the workplace and exits themselves must be separated by fire resistant materials. In facilities where an exit connects three or fewer stories, the materials used to construct the exit must have a one-hour fire-resistance rating; for four or more stories a two-hour fire- resistance rating is required for exit construction materials.

In addition, openings to an exit are limited to only those from occupied areas of the workplace or into the exit discharge. All openings into an exit must be protected by a self-closing approved fire door that remains closed or automatically closes in an emergency. The fire door, frame and hardware must be listed or approved by a nationally recognized testing laboratory.

At least two exit routes must be available unless the number of employees, size of the building, its occupancy or the arrangement of the workplace is such that all employees would be able to evacuate using a single exit route. Where more than one exit route is present in a workplace, they must be located as far away from each other as possible to prevent all egress routes from being blocked by smoke or fire during an emergency. More than two exit routes must be available if the number of employees, the size of the building, its occupancy, or the arrangement of the workplace is such that all employees would not be able to safely evacuate during an emergency.

As noted in the definition above, the exit discharge must lead to a space with access

to the outside. It must also be large enough to accommodate the anticipated number of building occupants likely to use it. And if it contains stairs that continue beyond the level at which the exit discharge is located, it must contain a door, partition or some other effective means to clearly indicate direction of travel leading to the exit discharge.

An exit route door cannot be controlled by any mechanical device that could fail causing the door to lock. Employees must be able to open the exit route door from the inside at all times without the use of keys, tools or special knowledge. The only exception to this would be exit route doors in correctional or mental health facilities. In those types of high security settings, supervisory personnel must be on duty at all times to ensure the facilities emergency egress plan can be safely implemented should the need arise.

In addition, exit route doors must be side-hinged. And if the room that the exit door is servicing is designed to be occupied by more than 50 people or is considered a high hazard area, the side-hinged door must swing out in the direction of egress travel.

Exit routes must support the maximum permitted occupant load for each floor served and the capacity of the exit route cannot decrease in the direction of travel toward the exit discharge. The ceiling of an exit route must be at least seven feet six inches high with any projection down from the ceiling not reaching less than six feet eight inches from the floor.

An exit access must be at least 28 inches wide at all points. And where there is only one exit access leading to an exit or exit discharge, the width of the exit and exit discharge must be at least equal to the width of the exit access. The width of an exit route must be sufficient to accommodate the maximum load capacity of each floor served by the route. Objects that project in must not reduce the width of the exit route to less than the minimum width required for the exit routes.

If an outdoor exit route is used, it must:

- Have guardrails to protect unenclosed sides if a fall hazard exits;
- Have a covering if snow or ice is likely to accumulate along the exit route;
- Have a reasonably straight design with smooth, solid and level walkways, and
- Not have a dead-end longer than 20 feet.

Maintenance, Safeguards, and Operational Features for Exit Routes 1910.37

During new construction, as well as facility repairs and alterations, employees cannot occupy a workplace until exit routes are in place and accessible. And during construction, repairs or alterations, employees must not be exposed to the hazards of flammable or explosive substances or equipment that are beyond the normal permissible conditions in the workplace, or that would impede egress.

Exit routes must be arranged so that employees will not have to travel toward a high hazard area, unless the path of travel is protected from the area by partitions or physical barriers.The exit routes must be free and unobstructed, and if they’re not “substantially level” (1910.37(a)(3)) stairs or a ramp must be provided. Also, exit routes must be kept free of explosive or highly flammable furnishings and the safeguards designed to protect employees during an emergency, such as sprinkler systems, alarm systems, fire doors, exit lighting etc., must be in proper working order at all times.

Exit access cannot go through a room that can be locked to reach the exit or exit discharge, nor can exit access lead into a dead-end corridor.

Proper lighting and marking of the exit routes are vital. Each exit route must be adequately lighted so that an employee with normal vision can see along the exit

route, and each exit must be clearly marked by a sign that reads “Exit.” Each exit route door must be free of decorations or signs that can obscure the visibility of the exit route door.

If the direction of travel to the exit is not immediately apparent, signs must be posted along the exit access indicating the direction of travel to the nearest exit and exit discharge. Additionally, the line-of- sight to an exit sign must be clearly visible at all times. Should there be a doorway or passage along the exit access that could be mistaken for an exit, it must be marked as “Not an Exit,” or be identified by a sign indicating its actual use.

Exit sign requirements are detailed in 1910.37(b)(6) and 1910.37(b)(7). **OSHA does not specify a mandatory color for exit signs**. What they do state is:

- Each exit sign must be illuminated to a surface value of at least five foot-candles (54 lux) by a reliable light source and distinctive in color. Self-luminous or electroluminescent signs that have a minimum luminance surface value of at least .06 footlamberts (0.21 candela/square meter (cd/m2)) are permitted.
- Each exit sign must have the word “Exit” in plainly legible letter not less than six inches (15.2 centimeters (cm)) high, with the principal strokes of the letters in the word “Exit” not less than three-fourths of an inch (1.9 cm) wide.

If there are flame retardant paints or solutions used along the exit routes, they must be reapplied as necessary to maintain their fire retardant nature.

Emergency Action Plans and Fire Prevention Plans 1910.38 & 1910.39

As indicated above, 1910 Subpart E also covers the employer’s requirements for both emergency action and fire prevention plans. For those employers who are uncertain whether they need an emergency action plan, OSHA’s created an easy to use and interactive eTool. Among the resources in *The Evacuation Plans and Procedures eTool*, is an “Expert Systems” tab. This tab includes a series of questions that allow employers to determine whether their facility requires an emergency action plan.

Commonly Asked Questions

Q: Is there a requirement for exit sign color? Some facilities have green while others have red.

A: There is no OSHA requirement for specific colors, however, OSHA states it must be distinctive in color from the background. NFPA 101 Section 7.10.1.8 states “Every sign required in Section 7.10 shall be located and of such size, distinctive color, and design that it is readily visible and shall provide contrast with decorations, interior finish, or other signs.” Some states or local jurisdictions may require a certain color. Always best to check with your local AHJ.

Q: When is a “No Exit ” sign required?

A: Under 1910.37(b)(5), OSHA states, “Each doorway or passage along an exit access that could be mistaken for an exit must be marked “Not an Exit” or similar designation, or be identified by a sign indicating its actual uses (e.g. closet).” The NFPA does specifically reference the “No Exit” verbiage under NFPA 101 Section 7.10.8.3.1. They state “NO EXIT” sign is needed where, “any door, passage, or stairway that is neither an exit nor a way of exit access and that is located or arranged so that it is likely to be mistaken for an exit.”

Sources

29 CFR 1910 Subpart E

29 CFR 1910 Subpart E Appendix

Source: Grainger Know How – https://www.grainger.com/know-how