Floor Openings Meeting Kit

What’s At Stake

FLOOR OPENINGS

Floor openings on a job site can occur during construction, renovations, or repairs. There may be floor openings as each new floor in a building is added, for personnel and material access, and for stairwells, elevators, or skylights.

What’s the Danger

HAZARDS/DANGERS OF FLOOR OPENINGS

Floor openings are hazardous because workers may fall through them and/or may be struck by objects that fall through openings. Workers should know about floor openings, guarding, and covers, and understand and use the fall protection appropriate to their worksites and job duties.

A fall could cause injuries as minor as a sprain or strain to as serious as broken bones or even result in death! Another hazard is being struck by objects failing through the floor hole.

HOW TO PROTECT YOURSELF

FLOOR OPENING PROTECTION

Guardrail: A standard guardrail with a toe board provides a good physical barrier. If you use wood, both posts and top rail must be of at least 2″x4″ stock and the mid rail of 1″x6″ stock. If you choose pipe railings, posts, top and intermediate railings must be of at 1 ½” nominal diameter pipe. For structural steel railings, posts, top and mid rails shall be of 2″x 2″ x 3/8″ angle or equivalent. In all cases posts must be spaced not to exceed 8′ on center, and toe boards shall be a minimum of 4″ in vertical height and securely fastened. All standard guard rails must be able to

withstand 200 pounds of force with a minimum of deflection in any direction.

Smaller openings may be protected with a floor hole cover, capable of supporting the maximum intended load and must be installed so as to prevent accidental displacement. Covers and their supports located in roadways and vehicle aisle ways for conduits, trenches and manholes must be signed to carry the rear axle load of two times the maximum intended load.

Many deaths occur each year because floor hole covers are removed and not replaced, or they were constructed of materials that could not support the weight of the person or load. Toe boards prevent materials from falling through the opening and striking a worker below. For new construction, identify floor holes as they are created; for existing structures survey the site prior to starting work and continue to check all areas as renovation, repair and alteration proceeds. Install guardrail or hole covers immediately, as needed.

Temporary Flooring: One of the first ways to protect against floor opening hazards is to build floors or place temporary flooring below each level of work. This ensures that every worker has a covered floor not more than two stories below his/her worksite. Operations involving erection, riveting, bolting, welding or painting, require flooring directly underneath the work area.

Protective Flooring: Wood planks or metal decking can serve as protective flooring. Flooring components should be tightly laid together to avoid gaps in which people, tools or materials could fall through. For areas where the flooring cannot reach, wire mesh or plywood may be used to close the gaps. The flooring should be of the proper thickness, grade, and span to carry the working load, assumed to be at least 25 pounds per square foot. The flooring should be tightly secured to avoid displacement by high winds or other forces.

Fall Protection: In buildings or structures that can’t accommodate temporary floors, scaffolding or fall protection devices should be used. Safety nets should be installed if scaffolding and fall

protection aren’t used, and whenever the potential fall distance is more than two stories or 30 feet.

Barricades: If construction work in progress requires floor openings to be temporarily uncovered, access to the area should be strictly controlled at all times. The floor area near the floor opening should be barricaded or covered when it’s not attended by authorized personnel doing the work. A qualified person, prior to each shift and after strong wind conditions, should verify the placement of floor opening covers.

Planning Materials: All planking and other materials used to cover these temporary floor openings should support 400 pounds or twice the weight of the employees, equipment, and materials that may access one square foot area of the cover at any time. The floor covering should overlap the surrounding structure by 12 inches. It should have a sign that says, “Floor Opening-Do not Remove” in bold letters.

BEST SAFETY PRACTICES TO PREVENT FALLS THRO’ FLOOR OPENINGS

- It is important for construction workers to know where holes are located and that they do not become too familiar with dangerous surroundings. Familiarity can lead to accidents when workers let down their guard.
- Safety precautions begin with proper signage. Warning signs should use bright, bold colors and standard warning symbols. Proper railings and toe boards on all exposed parts of a floor or opening are also important. A guard rail should also be used as a protective barrier around any openings in the floor. Rail barriers should stand about 42 inches tall and be able to handle the force of someone or something walking or falling against it.
- Covers are easy and effective safeguards that help prevent workers from falling through holes in the floor. These covers must be sturdy enough to withstand a great deal of weight. They also should be well marked.
- Structure safety nets are also used to catch a worker in case of a fall. These nets can be installed 30 feet below an opening in a floor. Some work sites use them instead of—or

with—guard rails, especially when drops are greater than six feet.

- When a hole or opening in the floor must be uncovered while work is being performed, (OSHA) calls for temporary guard to be in place or a person be stationed at the site to warn others of the danger. Leaning over a hole, for any reason, can be dangerous. A worker pulling on a rope with their back to a floor opening also puts them at risk for falling through that hole.
- Construction workers face significant dangers from floor openings and holes on job sites. With the installation of sturdy covers, guard rails, nets and signage, the danger from falls is dramatically decreased.
- Floor hole covers must be constructed from a material that is capable of supporting the maximum weight required, especially if they’re located in a roadway. The covers should be secure and not easily dislodged. The same is true for smaller openings.
- If you’re working in new construction it’s a good idea to identify floor holes as they’re created by installing guardrails and/or hole covers immediately.
- If you are working around a floor opening you are at risk. Leaning over a hole to tighten or loosen a bolt or pulling on a rope with their back to a floor opening is dangerous. One moment of forgetfulness or loss of balance might send you falling through the opening.

FINAL WORD

Construction workers face significant dangers from floor openings and holes on job sites. With the installation of sturdy covers, guard rails, nets and signage, the danger from falls is dramatically decreased.