Safety Training Topics

July 2024

Fire Evacuation

Fire Prevention

Class I Precautions

Class II and Class Ill Precautions

SAFETY TRAINING TOPIC

Fire Evacuation

PREPARATION

When entering any work area, note the location of fire exits and fire extinguishers. You will need an exit to get out of the building, and you may need an extinguisher to get to the exit.

To locate exits, look for exit signs on the perimeter. Report to your foreman any doors that are locked with any device other than a breakaway lock. Such locking is a violation of federal law and has often been a death sentence for workers.

Locate more than one exit. If yon are on a floor other than the ground floor, you will be exiting into a stairwell.

If any exit is not clearly marked, notify your foreman. If the path to an exit is not supplied with the necessary emergency lighting and exit signs with arrows, notify your foreman.

To locate extinguishers, look for red stripes on columns or similar indications. Find the extinguisher and note its type. Typically, you will want a Type B or Type C, which both use an extinguishing gas. Check to see if the extinguisher is fully charged or not. If not, notify your foreman so the work area can be made safe.

ESCAPING

If you hear a fire alarm while in an equipment room, leave immediately. Rooms that contain generators often have automated fire doors that trap inside, and the extinguishing agent will asphyxiate you.

Your primary goal is to get out of the building and to an assembly area. If you don't smell smoke and can quickly shut off power to machinery near you, shut it off. If you do smell smoke or cannot find the shut-off, leave the machinery and evacuate as quickly as possible.

You can use an extinguisher to make an escape route through the flames, rather than using it to put out the flame. If you need to make an escape route through the flames, then smoke inhalation is a real danger. Stay as low as possible.

You can use the extinguisher bottom to break glass or door latches if you can't find another suitable object. Take care to aim the valve away from people, as this kind of action may damage the extinguisher.

Before going through any door, touch it with your fingertip. If it doesn't feel hot, touch it with your hand. If the door is hot, there is flame on the other side and opening the door is likely to cause the flame to burst forth to feed on the new oxygen on your side of the door. Look for a different route out. If there is no other route, you may need to open the door in a manner that keeps you out of the flame path. Once it's open, use the extinguisher to clear a way out.

INJURED OR DISABLED OCCUPANTS

Assist others in evacuating as best you can. Use teamwork. For example, two people can carry a wheel-chaired person in the chair.

Do not stop to apply first-aid to injuries that aren't immediately life-threatening. Get the injured person out of the building. It is very likely EMTs are already on site or on the way.

POST EVACUATION

Meet in the designated assembly area. Don't forget where this area is.

If you end up in an assembly area other than your own and can't get to that area or are confused because of the commotion, notify others around you what company you are with and that you need to contact your assembly area leader or your foreman.

Once you are at the designated assembly area, try to discern who in your crew is not yet there.

Do not go back into the building to rescue a missing crew member. Leave that job to people who are trained and equipped for it.

Stay clear of rescue personnel, equipment, and operations.

Do not smoke, eat, or drink in the fire operations area, until given the OK by the rescue personnel. You have no idea what airborne contaminants you may ingest by smoking, eating, or drinking.

REVIEW AND DISCUSSION

- What should you note the location of when entering a work area? How?
- What should you do if an exit is not clearly marked?
- What should you do if an exit is chained and locked?
- What is your primary goal when evacuating?
- What should you do if a closed door blocks your exit path?
- What are some ways you can help disabled people out of the building?
- Suppose a coworker has fallen and broken his arm, and his nose is bleeding. Should you wrap the arm and stop the bleeding? Why or why not?
- Where should you go after you evacuate, and what should you do when you get there?
- What if you don't make it to your assembly area-perhaps you get out on the wrong side of the burning building? What should you do?
- What other emergency situations might require special considerations?

SAFETY TRAINING TOPIC

Fire Prevention

FACTS AND FIGURES

Workplace fires and explosions kill more than 200 workers each year and injure another 5,000.

21.5% of industrial fires are from electrical causes.

Smoking causes 17% of industrial fires, while cutting and welding cause 5.5%.

PREVENTION STEPS

Use the proper circuit protection on equipment. Never bypass protection "just this once." Temporary bypasses are easily forgotten and are too dangerous even when they are not forgotten.

Smoking is the number two cause of industrial fires. It is the number one cause of premature baldness and male impotence. It is a leading cause of cancers of the bones, bladder, testicles, bowels, brain, tongue, and lungs. It is a leading cause of heart attacks, emphysema, and other illnesses. Think about this when you decide to light up. If you light up in the workplace, you endanger everyone.

To reduce the fire danger from smoking, smoke only in approved areas and use the ashtrays provided. A carelessly flicked ash or tossed butt can easily roll under an ignitable and cause a fire. It is also easy to ignite a trail of fuel fumes, which can then ignite the fuel from a considerable distance.

Pick up all food wrappers, beverage containers, napkins, and other disposable items used at meals and breaks. Dispose of them properly to prevent attracting rodents and insects.

Clean up any oil, fibers, or dust on or around equipment and machinery.

If an oil spill is too big to clean up easily, report the spill to your foreman. If you must leave the area to report the oil, leave some kind of marker-an oil pig or other absorbent material is sufficient-so others can see the spill.

If fueling a portable generator or heater, use an approved fuel can and dispenser. Do not, for example, use a paper funnel when adding fuel. Try to do the refueling outside, away from ignition sources.

Store flammable and combustible materials in appropriate containers away from heat sources. For example, place touch-up paint in yellow lockers made for storing such materials.

Dispose of flammables-solvents, fuel, oil, and the like-according to established guidelines. Most likely, this will be in a container just for flammables.

Dispose of ignitables – paper, cloth, cardboard, and the like – according to established guidelines. Most likely, this will be in a regular trash container. Never leave open flames unattended.

Before using spark-producing equipment, such as a welder, ensure the work area is free of flammables.

Before using flame-producing equipment, such as a cutting torch, ensure the work area is free of ignitables.

Arsonists are a reality. Support suspicious activity to your foreman and to security.

FIRE HAPPENS

Keep fire exits and escape routes clear and well-marked.

Know the location of alarm boxes and fire extinguishers.

REVIEW AND DISCUSSION

- What is the number one cause of industrial fires?
- What are some ways to prevent electrical fires?
- What is the number two cause of industrial fires?
- What are some cautions about smoking?
- Why shouldn't you eat in electrical rooms?
- What should you do about oil leaks?
- What should you do about small oil spills? Big ones?
- What are some cautions about fueling portable equipment?
- Where should you store flammables?
- What is the difference between fire prevention and fire protection?

SAFETY TRAINING TOPIC

Class I Precautions

DEFINITION OF CLASS I

The National Electrical Code defines Class I environments as "those in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive or ignitable mixtures."

A LOCATION IS CLASS I IF

- Enough flammable gases or vapors may be present in the air to create ignition.
- Ignitable concentrations of gases or vapors can exist under normal operating conditions.
- Ignitable concentrations of gases or vapors may exist frequently because of leakage, or because of repair or maintenance operations.
- The breakdown or faulty operation of equipment or processes might release ignitable concentrations of gases or vapors.
- People are handling volatile flammable liquids.
- Any of several other conditions, listed in the NEC Article 500.5, apply.

HAZARD PREVENTION

Prior to starting work in a Class I environment, you need to review NEC Article 501. Be sure to discuss any questions you have with your foreman; do not assume.

Absolutely no smoking in a Class I location. If you are a smoker, go to a designated smoking location. Standing just beyond the edge of a Class I location is not sufficient.

Do not bring welding equipment into a Class I location without a welding permit that specifically addresses the Class I concerns.

Do not bring any communication devices, sparking tools, regular flashlights, PDAs or other electronic equipment into a Class I location without approval from the site safety director. If in doubt, ask your foreman.

Ensure motors, receptacles, and communications equipment are rated for Class I locations.

Check any arcing devices you will install to ensure they are approved for Class I use. Such devices include breakers, switches, motor controllers, and fuses. Ensure luminaires are explosion-proof and guarded against physical damage.

Ensure instrumentation and controls are either in their own Class I housings or are mounted in Class I enclosures.

Apply seals as required per NEC Article 501.

Use only heavy-use industrial grade flexible cords. Typically, these will be thermoset-jacketed rather than thermoplastic or thermoplastic elastomer. Ensure the cord has the grounding pin intact, and the jacket is free of cracks or other deformities. Support the cord so there is no tension on the terminal connections. Provide suitable seals where these enter boxes.

Ensure all non-current carrying metal parts are bonded to ground. Where you have locknuts or bushings, install bonding jumpers. You cannot use a locknut or bushing as part of the grounding path.

REVIEW AND DISCUSSION

- What is a Class I location?
- What are some conditions or circumstances that would make a location Class I?
- Which NEC Article should you read and be familiar with prior to working in a Class I location?
- If you need to weld in a Class I location and your welding permit doesn't specifically apply to Class I, what should you do?
- Should you assume small equipment, such as a pager or cell phone, is safe for a Class I location? Why or why not? What should you do?
- What do you need to ensure about the rating of every item you install in a Class I location?
- In addition to being Class I rated, what other requirement must luminaires meet?
- If a piece of equipment comes with a flexible cord that is lamp cord, should you use it or replace it?
- How should you support flexible cords?
- What are some grounding and bonding issues that apply to Class I locations?

SAFETY TRAINING TOPIC

Class II and Class Ill Precautions

DEFINITION OF CLASS II AND CLASS III

While Class I locations contain combustible gases, Class II locations contain combustible dust, and Class III locations contain ignitable fibers.

A LOCATION IS CLASS II IF

- Enough combustible dust may be present in the air to create ignition.
- Ignitable concentrations of combustible dust exist under normal operating conditions.
- The breakdown or faulty operation of equipment or processes might release ignitable concentrations of combustible dust.
- Any of several other conditions, listed in the NEC Article 500.5, apply.

HAZARD PREVENTION

Prior to starting work in a Class II environment, yon need to review NEC Article 502. Be sure to discuss any questions you have with your foreman; do not assume.

Prior to starting work in a Class III environment, yon need to review NEC Article 503. Be sure to discuss any questions you have with your foreman; do not assume.

Absolutely no smoking in a Class II or Class III location. If you are a smoker, go to a designated smoking location. Standing just beyond the edge of a Class II or Class III location is not sufficient.

Do not bring welding equipment into a Class II or Class III location without a welding permit that specifically addresses the hazards of that location.

Ensure motors, receptacles, luminaires, and communications equipment are rated for Class II or Class III locations, as appropriate. If in doubt, contact the supplier after reviewing the requirements in NEC Article 502 or 503 as appropriate.

Check any arcing devices you will install, to ensure they are approved for Class II or Class III use, as appropriate. Such devices include breakers, switches, motor controllers, and fuses. If in doubt, contact the supplier after reviewing the requirements in NEC Article 502 or 503 as appropriate.

Ensure instrumentation and controls are either in their own Class II or Class III housings or are mounted in Class II or Class III enclosures, as appropriate. Apply seals as required per NEC Article 502 or 503, as appropriate.

Ensure all non-current carrying metal parts are bonded to ground. Where you have locknuts or bushings, install bonding jumpers. You cannot use a locknut or bushing as part of the grounding path.

REVIEW AND DISCUSSION

- What are the differences between locations that are Class I, Class II, and Class Ill?
- What are some conditions or circumstances that would make a location Class II?
- Is smoking permitted in an undesignated location adjacent to a Class II or Class Ill location?
- Which NEC Article should you read and be familiar with prior to working in a Class II location?
- Which NEG Article should you read and be familiar with prior to working in a Class Ill location?
- If you need to weld in a Class II location and your welding permit doesn't specifically apply to Class II, what should you do?
- What do you need to ensure about the rating of every item you install in a Class II or Class Ill location?
- What do you need to verify about arcing devices you are to install?
- What are the requirements for instrumentation and controls in Class II and Class Ill locations?
- What are some grounding and bonding issues that apply to Class I locations?