

# SafeSupervisor

YOUR FRONT-LINE MANAGER SAFETY RESOURCE SINCE 1929

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## Top 10 Motivators

How should you motivate others? Does it take a cheerleader's yell or an inspirational speech? Should you hold out a carrot or a threat?

The answer is *none of the above*. People must motivate themselves. You as a supervisor, however can create an environment where self-motivation is possible. Your mission is to encourage others to do their best for their own and advanced responsibility — whatever drives them. The key to creating this environment is simple business management sense.

TIP 1. Ensure that your team members know what is expected of them, in general and on the specifics of the project. Be clear when you give them instructions or outline the results you expect.

TIP 2. Know that people need meaningful work. Nothing can kill a good employee's spirit faster than an overload of useless duties. Variety and responsibility keep workers motivated and teams high in morale.

TIP 3. Stay quiet. Listen to the opinion of others. Give them due respect and listen to every word. Don't think silently about why they are wrong or what you are going to say next.

TIP 4. Praise people for their efforts, even if they fall short of your expectations. Explain what should be done better next time.

TIP 5. Include everyone appropriate in the decision process. Ask others for their advice and opinions. Give credit where it is due.

TIP 6. Encourage your people to make suggestions for improving the workplace. Then implement those suggestions whenever possible.

TIP 7. Respect your co-workers. Consider everyone's job and everyone's feelings to be as important as your own.

TIP 8. Recognize accomplishments adequately. Be sure your people know that you have noticed they have done a good job.

TIP 9. Provide opportunities for your people to learn new skills. Back them up when they ask for help with education, both inside and outside the company.

TIP 10. Encourage others to do their best and to reach for their personal goals. Remember; people do things for their own reasons, not yours. Get to know what they are.

## Carbon Monoxide Poisoning Risks

**15,200** Estimated annual number of persons treated with confirmed or possible non-fire-related CO exposure

**480** Number of persons who die from non-fire-related CO poisoning each year on average

**69** Average number of CO poisoning fatalities in January (compared to 21 in June)

**2,511** Average number of nonfatal CO poisoning in the month of January (compared to 510 in June)

**64%** Percentage of nonfatal CO exposures that occur in the home

**2.7%** The average number of men that die of CO poisoning for each female CO fatality

**18.5%** CO exposure incidents associated with faulty furnaces

**9%** CO exposure incidents associated with motor vehicles

**9.3%** Percentage of patients that had a CO detector at home

**100%** Percentage who reported that they were alerted by the CO detector



Source: *The Journal of the American Medical Association*

# Train Workers to Risks of Carbon Monoxide Poisoning

By Guest Expert: Gerald A. Edgar

After over 25 years of preaching and teaching it, I've come to realize that safety is a culture, not just a workday activity. It is a part of our lives. Accordingly, successful safety programs need to address not just workplace but home injuries. As the weather turns cold, there is one important home safety topic that I take up with my employees: Carbon monoxide (CO) poisoning. Here's what I tell them.

**High Cost of Fuel Increases CO Risks** This year, the CO threat is especially acute. News reports are warning that home heating costs – such as natural gas in the Midwest – are likely to increase this winter. Consequently, many people are expected to use alternative heating sources to cut down on their bills. That makes it especially imperative to get word out about the dangers of CO poisoning.

**Warning Symptoms** CO is known as “the silent killer.” That's because it kills without warning. CO gas is odorless and colorless. CO displaces the oxygen from your blood stream (thus the red face) and exposure to high levels can be fatal.

Symptoms of CO poisoning can easily be mistaken or explained away as lack of sleep or mild flu. So the first thing you need to do is warn your employees and make them aware of the symptoms of CO poisoning, including:

1. Headaches
2. Weakness
3. Dizziness
4. Disorientation
5. Unusually red cheeks

If anyone in your household is experiencing these symptoms, move them to a well-ventilated area and get medical attention.

**Inspect for Sources of CO** To reduce the risk of CO poisoning in your home or shop, you should conduct a pre-winter inspection of common CO sources, such

as:

- Furnaces
- Fireplaces
- Space heaters (other than electric ones)
- Gas-fired appliances, including stoves or grills
- Hot water heaters

As part of your inspection:

- Have a qualified technician inspect and clean your heating system (even a new furnace may have a cracked heat exchanger)
- Ensure that chimneys and flues are clear of animal or bird nests
- Ensure that summer junk isn't blocking vents, flues or the immediate area around space heaters.

Generally, any internal combustion engine or anything burning a fossil fuel should be inspected.

**Other Pointers** In addition to inspecting CO sources, there are other ways you can reduce the risk of CO poisoning in your home:

- Even in emergencies, do not use your kitchen stove as a heater
- Don't grill with propane or charcoal indoors
- Avoid running any internal combustion engine inside a garage or shed. If you do a lot of vehicle work, try this trick used by most commercial garages: place a small covered hole in your garage door and run a hose from the exhaust pipes through the hole.

**Conclusion** Invest in your family's safety by buying a carbon monoxide detector for the home, garage and the workshop—one that is warranted and has UL approval. Or buy a smoke detector that has a CO detector built-in. Some insurance companies will you give a credit for having a CO detector. At a cost of somewhere between \$20 and \$70 (US), it's money well spent. The life saved may literally be your own!

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# Hearing Protection Checklist

Here's a Checklist you can adapt and use to evaluate your own hearing protection program. You should be able to answer YES to each listed measure. For any item to which you answer NO, include an explanation and/or corrective action in the far right box.

Item	Yes	No	Comment/Corrective Action
Hearing protectors made available to workers whose 8-hour TWA(2) noise exposure is 85dBA or above			
Workers given opportunity to select from a variety of appropriate hearing protectors			
Workers fitted carefully with special attention to comfort			
Workers receive thorough initial training			
Workers receive thorough training at least once a year			
Training covers at least the following topics: <ul style="list-style-type: none"> <li>▪ Why hearing protection is necessary—i.e., <i>the workplace hazards that threaten their hearing</i></li> <li>▪ How the earplugs or earmuffs will protect them</li> <li>▪ The limitations of the hearing protection</li> <li>▪ When they must insert or wear the hearing protectors</li> <li>▪ How to adjust earmuff parts for a comfortable and effective fit, or form the earplugs to fit their ears</li> <li>▪ How special earmuffs fit over a worker's corrective lenses</li> <li>▪ How to clean and disinfect the hearing protection</li> </ul>			
Protectors checked regularly for wear or defects			
Protectors found to have wear or defect are immediately replaced			
Replacements readily available to workers that use disposable hearing protectors			
Workers understand and apply proper hearing protector hygiene practices			
Appropriate corrective actions are taken and treatment provided when workers develop ear infections or irritation as a result of using hearing protectors			
Alternative types of hearing protectors considered in response to problems with current equipment			
New types of potentially more effective hearing protectors considered as they become available			
Workers who experience noise-induced hearing loss receive appropriate counseling			
Individuals who fit and supervise wearing of hearing protectors are competent to perform these functions and deal with hearing protector problems that may arise			
Immediate action is taken in response to workers' complaints about hearing protectors—including complaints about comfort, interference on ability to do the job, interference with ability to hear instructions, warning signals, etc.			
Workers that engage in noisy activities outside the job encouraged to take their hearing protectors home			
Effectiveness of hearing protector program regularly evaluated			
At-the-ear protection levels evaluated to ensure that over or under protection is balanced according to anticipated ambient noise levels			
Each user of a hearing protector required to demonstrate understanding of how to use and care for the protector			
Records kept to show that each user of a hearing protector has demonstrated understanding of how to use and care for the protector			

# Safety Talk: Stop Work-related Hearing Loss

### What's at Stake?

If you work in a noisy setting and are not regularly using hearing protection, you're asking for hearing loss. And once your hearing is damaged and gone, you can't get it back.

### What's the Danger?

Problems faced by workers who have diminished hearing include difficulty hearing warning signals and alarms, trouble hearing directions, and an inability to determine where sounds are coming from (how close or far away they are).

Here's an example of how hearing loss can affect safety. A logging truck driver, known to have a hearing disability, was waiting for his truck to be loaded. He, and two other drivers were standing and waiting outside of their trucks at a warm-up fire.

The main cable used to move the logs snapped. The broken end whipped around the landing where the loading was taking place. The co-workers recognized the sound of the line breaking and took cover. But the truck driver apparently didn't hear the line break. It hit him in the face and threw him 50 feet. He died instantly.

### How to Protect Yourself

The most effective way to protect workers' hearing is to reduce or remove hazardous noise from the workplace. This may be done

by putting acoustic barriers around noisy processes, installing sound reducing mufflers on equipment, or by removing the source of the noise entirely.

When noise cannot be reduced to a safe level, your employer must provide hearing protection. It is your responsibility to wear it whenever you are in a hazardous noise situation. Some options include:

1. Ear plugs. These work by sealing the ear canal from the source of noise.
  - Ear plugs are easy to use, but must be inserted correctly to provide the best protection.
  - Some are designed for one-time only use and others are designed for repeated use.
    - Foam ear plugs are designed to be worn only once and thrown away after use.
    - Many plastic ear plugs are designed to be re-used.
2. Canal caps. These are a variation of ear plugs designed to fit over the top of the ear canal.
  - Some people prefer canal caps because they aren't inserted into the ear canal and are more comfortable.
  - Canal caps don't provide as much protection as ear plugs, but are a good option when you must put on and take off hearing protection frequently.
3. Ear muffs. Ear muffs can last a long time if properly cared for and are generally easier to fit and wear.
  - They work by sealing the entire ear with a cushioned cup.
  - Ear muffs can also be worn over ear plugs to provide extra protection.

### Final Word

Without proper hearing protection you put yourself at risk for hearing loss. Talk to your supervisor or safety person about finding the right hearing protection for you.



### Fatality File

#### 24 Foot Fall from Roof

A 39-year-old male employee was fatally injured when he fell approximately 24 feet to the sidewalk below. On the day of the incident the victim, an Iron Worker, was installing metal roof panels on a pre-fabricated metal building.

The victim was working west to east on the northeast corner of the roof installing screws through the roof panels and into the purlins. He took a step backwards and fell off the northeast corner of the roof.

During the investigation it was determined employees were trained to wear harnesses and be tied-off

100% of the time when working at 15 feet and above. But there were no anchor points for a safety line on which to connect a safety harness on the site, nor was there any other forms of fall prevention, for example rails, nets, etc.

According to the foreman on site, the victim had worn his safety harness early in the day, but in the afternoon left his safety harness in his truck.

Investigators cited the company for not protecting workers from fall hazards using guardrail systems, safety net systems, personal fall arrest systems, positioning device systems or fall restraint systems.



Northeast corner of the roof designated by the red arrow where the victim stepped off the roof falling approximately 24 feet.

### Picture This

#### Walking the Plank - Without Fall Protection

Ingenuity at its finest or accident waiting to happen?

The walking space on the plank is limited and awkward which makes any movement dangerous. Reach back for the hammer, lose balance, slam into the stair guardrails on the way to concrete floor below.

Falls from heights injure or kill at least one worker every day in North America. In the construction industry, falls are the leading cause of worker fatalities in both the United States and Canada. If you are lucky enough to survive a fall, you are often left disabled, paralyzed, or unable to work or enjoy activities outside of work with your family and friends.





# Be A Better Supervisor - Teaching Fall Protection - How to Make an Impact

Fall protection is a complex subject. It takes hours, if not days, just to come to grips with the regulatory requirements. And the regulations represent only a minimum standard. As safety professionals, we should be concerned with not just meeting the regulations but going beyond them. That might involve implementing voluntary standards from organizations such as ANSI and CSA. And, of course, we must also consider the recommendations of the PPE and equipment manufacturers.

When you teach fall protection, regulatory requirements are one of the things to cover. But also try to present a more holistic view—to put the fall protection issue into perspective in a way that is meaningful to the workers. Here's an approach you can use.

**Start with the Facts** When training workers, your goal should be to make sure they know how to assess the risks associated with their job. You don't want employees to follow safety training only during the 30 minutes that you're there. You want them to do it all the time because it's the safe thing to do. To get this result, you have to impress upon the crew the seriousness of falls. Fall protection is not a topic to be sugar-coated. Start your training sessions with these facts:

- Falls are the greatest cause of fatalities in construction;
- 50% of falls over 11 feet result in fatalities. (Since this is an average, some falls under 11 feet are also fatal.); and
- It takes just one second to fall 16 feet.

You can deliver this last statistic as a pop quiz: "How long does it take to fall 16 feet?" Pause a few seconds, then snap your fingers with the response. "That's it—one second!"

**Debunk the Myths** After delivering the statistics, remove the mental safety net many workers rely on. Tell the class: "If you go over the edge, that's it, you are gone! Your buddy may feel sorry for you, but he is not going to be able to grab you to pull you back." Of course, there's always someone who thinks they will catch something on the way down. But talk with workers who have fallen with no fall protection (including through scaffolding). Odds are not one of them said they were able to grab something to stop the fall. All they did was beat themselves up on the way

down.

To emphasize the point, stand with one arm straight out from your shoulder, and ask what would happen if you fell from 100 feet and grabbed something halfway down. The answer is always that you'd pull your arm off.

**Teach Basic Risk Assessment** Now you have the class actually thinking about falls. For the remainder of the class, ask them to consider:

- What is required (what the regulations say); and
- What should be done (what is the safest or best industry practice)?

Then ask: When should you use / or need fall protection? It usually takes about 3 or 4 minutes before they come up with the desired response, "When you can fall and get hurt!"

To make the point that they should not concentrate on the "Minimum Standard of 10 feet," it's time for another pop quiz: If a person is six feet tall and they are on a ladder with their feet at the five-foot level and they fall, how far do they fall?

Answer: 11 feet (their head falls 11 feet to the floor), which may put them in the 50% fatality category!

This is the thinking part to which you have led the class and now they should be ready to participate in a meaningful lesson on fall protection details.

\* OSHA requires fall protection be provided at elevations of four feet in general industry workplaces, five and six feet in the construction industry. In many jurisdictions in Canada, the minimum standard for construction is 10 feet or 3 meters.

### Conclusion

The main point here is to get people to think for themselves and to develop as second nature two basic concepts when working at heights:

- The primary goal is not to fall.
- The secondary goal is to fall the least distance possible.

If your crew follows these lessons, they won't have to worry about remembering all of the regulatory technicalities.

## Workplan - 13 Step Compliance Game Plan

All workplaces contain some form of fall hazard. That's one reason falls are the leading cause of workplace injuries. Falls are also a leading source of regulatory fines—3 of the 10 most frequently cited Standards are related to fall hazards, including scaffolding, fall protection and ladders. Unfortunately, the rules governing fall hazards tend to be technical. But when you boil it down, they require you to take 13 sets of measures to prevent fall

injuries.

### Regulatory Requirements for Fall Hazards

The first order of business is to figure out which regulatory fall rules apply to you. That's not as simple as it might sound. In the safety industry, many use the term "fall protection" to refer to fall hazard prevention. The problem is that under regulations, "fall

protection” refers to fall prevention and arrest systems and their accompanying PPE contained in regulations covering construction, maritime and other industries. Companies in so called “general industry” are subject to more general rules which, for regulatory purposes are described not as “fall protection” but by the name of the set of standards in which they’re contained, i.e., Walking-Working Surfaces.

**Step 1: Use Housekeeping to Minimize Slip, Trip and Fall Hazards** Housekeeping requirements include general measures like keeping:

- Passageways, storerooms and service rooms clean, orderly and sanitary;
- Floors as clean and as dry as possible;
- Keeping floors, working place and passageways free of slip, trip and fall hazards like protruding nails, holes and loose boards.

**Step 2: Keeping Fall Hazards Out of Aisles and Passageways**

Such requirements include keeping aisles and passageways clean, in good repair and unobstructed. You must also maintain sufficient safe clearances for aisles, at loading docks, through doorways wherever mechanical handling equipment is used and ensure aisles and passageways are clearly and permanently marked.

**Step 3: Using Covers and Guardrails to Prevent Falls into Things Below**

You must provide covers and guardrails to protect your workers and other personnel from hazards of open pits, tanks, vats, ditches, etc.

**Step 4: Ensuring Floors Can Support their Loads** To ensure that floors don’t collapse, you must securely attach in a conspicuous place special plates that list the load capacities of floors used for industrial, storage and other purposes.

**Step 5: Guarding Floor Holes and Openings** “Floor holes,” i.e., openings less than 12 inches but more than 1 inch in its least dimension and “openings,” i.e., of 12 inches or more in its least dimension that a person may fall into must be guarded appropriately.

**Step 6: Guarding Wall Holes and Openings** “Wall holes,” openings less than 30 inches but more than 1 inch high of unrestricted width, in any wall or partition such as a ventilation hole or drainage scupper, and “wall openings,” i.e., of at least 30 inches high and 18 inches wide, in any wall or partition, through which persons may fall; such as a yard-arm doorway or chute opening that anyone may fall into must be guarded appropriately.

**Step 7: Protecting Open-Sided Floors, Platforms and Runways** You must provide adequate fall protection to any worker at risk of falling 4.0 feet (1.2 m) to a lower level by ensuring that:

- Every open-sided floor or platform 4 feet or more above the adjacent floor or ground level is guarded by a standard railing or equivalent protection;
- The railing also has a toeboard whenever, beneath the open sides whenever persons can pass, there’s moving machinery or equipment with which falling materials could create a hazard;

- Every runway is guarded by a standard railing, or equivalent protection on all open sides 4 feet or more above floor or ground level; and
- There are toeboards on each exposed side if tools, machine parts or materials actually are or are likely to be used on the runway.

**Step 8: Installing Stairway Railings and Guards** Every flight of stairs with 4 or more risers must be equipped with standard stair railings or handrails of specific dimensions depending on the width of the stairway. Winding stairways must be equipped with a handrail offset to prevent walking on all portions of the treads of less than 6 inches wide.

**Step 9: Ensuring Fall Safety of Fixed Industrial Stairs** Interior and exterior stairs around machinery, tanks, and other equipment, and stairs leading to or from floors, platforms or pits must meet specific design and use specifications and be equipped with proper safety equipment like handrails.

**Step 10: Ensuring Ladder Safety** The WWS includes detailed requirements governing the design, construction and use of different kinds of ladders, including:

- Portable wood ladders;
- Fixed ladders.
- Portable metal ladders; and

**Step 11: Ensuring Scaffold Safety** Scaffolds are subject to design, construction and use requirements. There are specific requirements covering 20 kinds of scaffolds, including:

- Wood pole scaffolds;
- Tube & coupler scaffolds;
- Tubular welded frame scaffolds;
- Outrigger scaffolds;
- Masons’ adjustable multiple-point suspension scaffolds;
- Two-point suspension (swinging) scaffolds;
- Stone setters’ adjustable multiple-point scaffolds;
- Single-point adjustable scaffolds;
- Boatswain’s chairs;
- Carpenters’ bracket scaffolds;
- Bricklayers’ square scaffolds;
- Horse scaffolds;
- Needle beam scaffolds;
- Plasterers’, decorators’ & large area scaffolds;
- Interior hung scaffolds;
- Ladder-jack scaffolds;
- Window-jack scaffolds;
- Roofing brackets;
- Crawling board or chicken ladders; and
- Float or ship scaffolds

**Step 12: Ensuring Safety of Mobile Scaffolds and Work Platforms** As with ladders and scaffolds, there are detailed equipment-specific requirements that apply to scaffolds and work platforms that are “mobile,” i.e., manually propelled.

**Step 13: Ensuring Fall Safety of Other Working Surfaces** Such surfaces for which special rules apply include:

- Dockboards, i.e., bridge plates;
- Forging machine areas; and
- Veneer machinery areas.

# Safety Talk: Your Fall Protection Equipment - Your Lifeline

### **What's at Stake?**

Falls are one of the oldest causes of injuries and death. A worker is most at risk if working at heights of four feet or more; above running machinery, water and hazardous liquids, or exposed to an opening in a work surface. Fall protection equipment can mean the difference between life and death.

### **What's the Danger?**

The risk of falling and exposure to fall hazards is typically higher on construction sites, but fall deaths occur in most industries. Fall hazards include working on sloping rooftops or roofs and floors with deteriorating materials, unprotected edges and unfavorable weather conditions. Even more dangerous, is lack of awareness which can lead to using inadequate or damaged fall protection equipment. For example, borrowing and using a, possibly defective, body harness without inspecting it.

### **How to Protect Yourself**

Fall protection comes in many forms, including scaffolds, guardrails, safety nets, and personal fall arrest systems. However, the fall protection you wear is your direct lifeline when it comes to stopping you in the event of a fall. All equipment shares similar safety components for the protection they give. To detect damages and prevent equipment failure while working at heights, a familiarity of these components is necessary.

- Hardware is any metal part like a D-ring, used for connecting parts of fall protection equipment.
  - ▶ Attachments should overlap and move freely, ensure locks are working.
  - ▶ Inspect for damage, cracks, rust, bends, dents, sharp edges, corrosion and distortions.
- Webbing is the woven fabric used for producing straps and belts like in a harness.
  - ▶ Inspect for cuts, holes, loosening, burns, tears, scraping, wearing, stretching, dirt, chemical damage and discoloration.
- Stitching (impact indicator): This is a section of the webbing with a special stitch pattern designed to release when the harness receives impact.
  - ▶ Inspect for ruptured stitches, pulled or cut fibers and discard if noticed.
- Ropes are specially blended synthetics or wires built for strength and stress resistance, normally used for descent control.
  - ▶ Inspect for cuts, burns, abrasion, knots, excess dirt, discoloration, broken wires, corrosion, twists and separated strands.
- Shock absorber is a unit of the lanyard with a built-in woven

inner core that expands during a fall to reduce the force.

- ▶ Inspect for elongation, tears and excess dirt.
- Label is a small piece of paper, fabric or plastic attached to equipment that carries important information.
  - ▶ Ensure labels are in place, clean and readable.

Equipment built from the above components include:

- Full body harness is secured around the body to distribute fall arrest forces over the thighs, pelvis, waist, chest, and shoulders.
  - ▶ Inspect hardware, webbing, stitching and label.
- Lanyards: Lanyard is a flexible line of webbing or rope, used to attach a body belt or full body harness to a lifeline or anchor.
  - ▶ Inspect hardware, webbing, rope, stitching and shock absorbers.
- Descent control device is used to safely lower a worker down.
  - ▶ Inspect hardware, pulleys, and ropes.
- Self-retracting device, like a car's seatbelt, releases when pulled gently and locks when speed or force is applied. This stops the downward motion of somebody falling.
  - ▶ Inspect hardware: (screws, fasteners, housing, anchors, hooks), labels, webbing and stitching.
  - ▶ Locking action and retraction by pulling out the lifeline and allowing it to retract.

Finally, keep your equipment working well and lasting long by following these guidelines.

- Follow manufacturer's instructions for care, storage, and use.
- Wipe off dirt with clean, wet sponge and repeat cleaning with water and detergent.
- Rinse webbing in clean water, wipe with a clean cloth and hang to dry.
- Store equipment away from dirt, direct heat, prolonged sunlight, fumes, corrosion and sharp edges.
- Always inspect equipment before use, replace defective equipment immediately, and do not use if in doubt.
- Ensure equipment is inspected at least annually by an authorized person.

### **Final Word**

Your fall protection equipment is your lifeline. Inspecting it before use is a must. For quality inspection, an understanding of fall protection equipment, their uses and components to be inspected is essential.



# Workplan

## 12 Step Hearing Conservation Plan

Excessive levels of sound can cause workers to lose some or all of the hearing. Although it can also happen in a single “traumatic” incident like an explosion, work-related hearing loss typically occurs gradually as a result of long, continuous exposure to dangerous noise levels. OHS rules are designed principally to protect workers from such gradual hearing loss.

### 12 Steps to Take

#### Step 1: Determine If Hearing Protection Is Required

The first step is to figure out whether noise levels at your workplace are dangerous. Explanation: Whether a noise is hazardous depends on:

- **Frequency**, the rate at which sound waves vibrate (perceived as pitch);
- **Amplitude**, how strong the sound signal is (perceived as loudness); and
- **Time pattern**, whether the sound is continuous or fluctuates (excessive noise is more hazardous when it’s continuous).

Regulatory bodies require you to calculate noise levels using formulas that account for these factors.

#### Step 2: Limit Noise Exposure to Permissible Levels

Table G-16 of the standard lists permissible noise exposure levels by number of hours per day:

**TABLE G-16 – PERMISSIBLE NOISE EXPOSURES**

Duration per Day (in hours)	Sound Level dBA Slow Response
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

The standard sets out a hierarchy of controls that you must consider using to get exposure to the Table G exposure limit, in order of preference:

- If feasible, use engineering or administrative controls; and
- If engineering and administrative controls don’t get the sound levels at or below Table G-16 limits, provide workers PPE.

#### Step 3: Figure Out If You Need a Hearing Conservation Program

The hardest part of complying with the standard is developing and implementing a so called hearing conservation program. Such programs are required whenever worker noise exposures is at or above the so called “action level,” i.e.:

- An 8-hour time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response); or
- An equivalent noise dose of 50%.

In each case, you must calculate noise exposure as if workers aren’t using PPE.

**Instructions:** If you **don’t** need a hearing conservation program, you can stop reading now; if you **do** need a program, you have to follow the remaining steps of this compliance game plan.

#### Step 4: Implement a Hearing Monitoring Sampling Strategy

Your hearing conservation program must include a monitoring program when noise exposure “may” equal or exceed an 8-hour TWA of 85 decibels. Monitoring must be based on a sampling strategy to determine which workers to include in the hearing conservation program and generate data for selection of proper hearing protection. The options:

- Area monitoring of sound levels; and/or
- Representative personal sampling where circumstances like high worker mobility, significant variations in sound level or a significant component of impulse noise make area monitoring inappropriate.

#### Step 5: Repeat Monitoring After Changes Potentially Affecting Exposure

Monitoring isn’t one-and-done but must be repeated whenever there are changes in production, process, equipment or controls increases noise exposures that potentially cause:

- Additional workers to be exposed to noise at or above the action level; or
- The attenuation, i.e., muffling effect of noise provided by the hearing protection that workers are using to fall below the requirements for PPE in the standard, i.e., the changes cause the PPE to no longer get noise exposure to permissible levels in Table G-16.

...continued on page 10

## Step 6: Notify Exposed Workers

You must notify each worker who's exposed at or above an 8-hour TWA of 85 decibels of the results of monitoring. You must also give affected workers or their representatives a chance to observe any noise measurements conducted under the standard.

## Step 7: Provide Audiometric Testing for Exposed Workers

Your hearing conservation program must include audiometric testing of all workers exposed to sound levels equal or above an 8-hour TWA of 85 decibels. Audiometric testing must be provided at no cost to workers by a licensed or certified audiologist, otolaryngologist, other physician or certified technician using test instruments that meet the requirements of the standard and consist of:

- A **baseline audiogram** taken within 6 months of the worker's initial exposure to noise at or above the action level.
- An **annual audiogram** taken at least once a year after the baseline audiogram for as long as the exposure continues.
- An **evaluation** in which the worker's annual audiogram is compared to his baseline to determine if the audiogram is valid and whether a standard threshold shift, i.e., a change in hearing threshold relative to the baseline audiogram of an average of 10 dB or more at 2000, 3000 and 4000 Hz in either ear, has occurred.
- **Follow-up procedures** after a standard threshold shift has occurred, including:
  - Notifying the worker within 21 days;
  - If the worker isn't already using it, fitting him with hearing protection and training him in its proper use and care;
  - If the worker is using hearing protection, refitting it and/or providing stronger hearing protection; and
  - Referring the worker for additional testing, if necessary.

## Step 8: Provide Proper Hearing Protection to Exposed Workers

You must make (and replace as necessary) at no cost to workers hearing protectors available to all workers exposed to an 8-hour TWA of 85 decibels or greater or to sound above permissible levels set out in Table G-16. Hearing protection must attenuate, i.e., reduce, noise exposure to at least an 8-hour TWA of 90 decibels—85 decibels or below for workers who have experienced a standard threshold shift. The different methods you must use to evaluate the adequacy of hearing protector attenuation:

- The Noise Reduction Rating method developed by the U.S. Environmental Protection Agency (EPA); and/or
- National Institute of Occupational Safety and Health (NIOSH) methods No. 1, No. 2 and No. 3.

## Step 9: Re-Evaluate Effectiveness of Hearing Protection

You must re-evaluate the adequacy of hearing protection attenuation whenever worker noise exposures increases to the extent that the hearing protection provided may no longer provide adequate attenuation. You must also provide more effective hearing protection if the re-evaluation shows that current hearing protection isn't reducing noise to safe levels.

## Step 10: Provide Noise Safety Training

Another key part of the hearing conservation program is to provide safety training and information to each worker exposed to noise at or above an 8-hour TWA of 85 decibels informing them of:

- How noise affects hearing;
- The purpose of hearing protection, including the advantages, disadvantages and attenuation of various types of hearing protectors;
- Instructions on selection, fitting, use and care of various types of hearing protection;
- The purpose of audiometric testing; and
- An explanation of the test procedures.

## Step 11: Update and Revise Safety Training

You must update the information you provide in the training program to keep up with changes in protective equipment and work processes. You must also repeat the training program at least once a year.

## Step 12: Keep the Right Records

You must keep the following records:

- Accurate records of all worker exposure measurements;
- All worker audiometric test records; and
- Accurate records of the measurements of the background sound pressure levels in audiometric test rooms.

Retain the records in accordance with this table:

Records	Retention Period
Noise exposure measurements	At least 2 years
Audiometric test records	Duration of affected worker's employment

You must provide all records required by the standard, upon request, to workers, former workers, representatives designated by the individual worker. Last, but not least, if you stop doing business, you must transfer all records required to be maintained by the standard to the successor employer. The successor employer must retain them for the remainder of the retention period for the particular record listed in the table above.



# Nine Ways Stress is More Dangerous Than You Think

Some people believe stress makes them perform better. But that's rarely true. Research consistently shows the opposite — that stress usually causes a person to make more mistakes. Besides making you forget where you put your keys, stress also can have dramatic negative impacts on your health. Here are nine examples:

**Stress makes it difficult to control your emotions** It's no secret that stressed people can fly off the handle. But new research reveals just how little stress is required for you to lose your cool. A 2013 study by neuroscientists found that even mild levels of stress can impair our ability to control our emotions. In the study, researchers taught subjects stress control techniques. But after participants were put under mild stress — by having their hands dunked in icy water — they could not easily calm themselves down when shown pictures of snakes or spiders.

**Stress can promote disease** Some people are more prone to certain diseases, and chronic stress can give these conditions the green light. Stress has been linked to illnesses that include cancer, lung disease, fatal accidents, suicide, and cirrhosis of the liver. Researchers at Johns Hopkins University have discovered that children exposed to chronic stress are more likely to develop a mental illness if they are genetically predisposed.

**Stress can affect your love life** Sex is a pleasurable and effective way to relieve stress. But stress can also get you out of the mood quicker than you think. A 1984 study found that stress can affect a man's body weight, testosterone levels, and sexual desire. Numerous studies have shown that stress — especially performance anxiety — can lead to impotence. High levels of stress in pregnant women also may trigger changes in their children as they grow, specifically behavioral and developmental issues.

**Stress can ruin your teeth and gums** Some people respond to stressful situations through nervous tics or by grinding their teeth. While people often grind their teeth unconsciously or when they sleep, it can do lasting damage to your jaw and wear your teeth thin.

**Stress can ruin your heart** Stress can physically damage your heart muscle. Stress damages your heart because stress hormones increase your heart rate and constrict your blood vessels. This forces your heart to work harder and increases your blood pressure. According to the American Institute of Stress, the incidence rate of heart attacks and sudden death increases after major stress inducing incidents, like hurricanes, earthquakes, and tsunamis.

**Stress can make you gain weight** In the ancient days of hunter-gatherers, harsh conditions forced people to eat as much as possible when food was available in order to store up for lean times. That compulsion lives on inside us and comes out when we are stressed. Researchers at the University of Miami found that when people find themselves in stressful situations, they are likely

to consume 40 percent more food than normal. Those scientists recommended turning off the nightly newscast before eating dinner, to keep bad news — and overeating — at bay.

**Stress can make you look older** Chronic stress contributes significantly to premature aging. Researchers at the University of California, San Francisco, discovered that stress shortens telomeres — structures on the end of chromosomes — so that new cells can't grow as quickly. This leads to the inevitable signs of aging: wrinkles, weak muscles, poor eyesight, and more.

**Stress weakens your immune system** The connection between mind and body is often underestimated. But everyone has experienced a cold when they can least afford to. That's because the high demands stress puts on the body make the immune system suffer, which makes you more vulnerable to colds and infections. The American Psychological Association (APA) recommends calming exercises, as well as social outlets, to relieve stress.

**Stress can lead to long-term disability** The potential dangers created by even mild stress should not be underestimated. They can lead to long-term disability serious enough to render you unable to work. Researchers reached this conclusion after their five-year study of 17,000 Swedish working adults, ages 18 to 64, published in 2011 by the Journal of Epidemiology and Community Health. One in four study subjects in the Stockholm area who had mild stress were awarded disability benefits for physical conditions like angina, high blood pressure, and stroke. Nearly two-thirds drew benefits for a mental illness.

## HOW TO CALCULATE THE COST OF WORK-RELATED STRESS: TURNOVER COSTS

Use this worksheet to calculate how much turnover caused by workplace stress cost your business last year.

**STEP 1: Calculate Employee Turnover Cost** (Number of employees lost in the last year:     ) X (Average Salary/Benefits Package Layout: Put Average Salary/Benefits right on top of each other) X 150 percent = \* Total stress-related employee turnover cost \$                     

**STEP 2: Calculate Supervisor Turnover Cost** (Number of supervisors and middle managers lost in the last year:     ) X (Average Salary/Benefits Package Layout: Put Average Salary/Benefits right on top of each other) X 200 percent = \* Total stress-related supervisor turnover cost \$                     

**STEP 3: Calculate Sr. Mgr Turnover Cost** (Number of senior managers lost in the last year:     ) X (Average Salary/Benefits Package Layout: Put Average Salary/Benefits right on top of each other) X 250 percent = \* Total stress-related senior manager turnover cost \$                     

**STEP 4: Calculate Total Turnover Cost** Add up the totals from Steps 1, 2 and 3 above: \* Total turnover cost \$                     

**STEP 5: Calculate % of Turnover Cost Due To Stress** Total turnover costs (from Step 4) X 0.4 = \* Total stress-related turnover cost \$