Fact Sheet

ENVIRONMENTAL
HEALTH & SAFETY

# Safety Instruction

## Asbestos Awareness

### Introduction

Asbestos awareness training is taken by custodial and building maintenance staff; training is required per BISD CKA Legal policy. This training module is designed to provide an overview of asbestos and its associated hazards and provide information to management. It is important for employees who work in building-related maintenance to know where asbestos is likely to be found and how to avoid exposure.

**Topics covered include:**

- What is Asbestos?
- Where is Asbestos Found?
- When is Asbestos Dangerous?
- How to Avoid Asbestos Exposure

### What is Asbestos?

The term Asbestos refers to a family of six naturally occurring minerals that are mined throughout the world:

- Chrysotile (white)
- Amosite (brown / off-white)
- Crocidolite (blue)
- Tremolite
- Actinolite
- Anthophyllite

Of these six, Chrysotile is the most common, but it is not unusual to encounter Amosite or Crocidolite as well.

All types of asbestos tend to break into very tiny fibers. These individual fibers are so small that many must be identified using a microscope. In fact, some individual fibers may be up to 700 times smaller than a human hair. Because asbestos fibers are so small, once released into the air, they may stay suspended for hours or even days.

Asbestos fibers are also virtually indestructible. They are resistant to chemicals and heat, and they are very stable in the environment. They do not evaporate into air or dissolve in water, and they are not broken down over time. These characteristics make Asbestos ideal for many building materials and it has been used in over 3,000 different products.

Usually asbestos is mixed with other materials during the manufacturing process. Floor tiles, for example, may contain only a small percentage of asbestos. Depending on what the product is, the amount of asbestos fibers in asbestos containing materials (ACM) may vary from 1%-100%. An ACM is any material that contains 1% or more asbestos fibers.

### Where is Asbestos Found?

Asbestos may be found in many different products and locations. Examples of ACMs include:

- Wall and ceiling insulation
- Siding shingles on old residential buildings
- Putties, caulks, and cements (such as in chemical carrying cement pipes)
- Sprayed-on fire proofing and insulation in buildings
- Joint compound in older pipes and boilers insulation
- Wall and ceiling texture in older buildings and homes
- Floor tiles
- Ceiling tiles
- Roofing shingles
- Buildings and homes
- Brake linings and clutch pads
- Old fume hoods and lab benches

**At BISD, asbestos is most likely to be found in**:

- Insulation around pipes and boilers
- Sprayed-on insulation in locations such as various mechanical rooms, steel reinforcing beams, and some ceilings in older buildings

- Ceiling tiles in buildings built prior to 1981
- Many 12" floor tiles in buildings built prior to 1981
- Most 9" floor tiles in buildings
- Interiors of fire doors
- Older mastic (glue) for floor tiles, baseboards.

## When is Asbestos Dangerous?

The most common way for asbestos fibers to enter the body is through breathing. Asbestos containing material is not generally considered to be harmful unless it is releasing dust or fibers into the air where they can be inhaled or ingested. Many of the fibers will become trapped in the mucous membranes of the nose and throat where they can then be removed, but some may pass deep into the lungs, or, if swallowed, into the digestive tract. Once they are trapped in the body, the fibers can cause health problems.

Asbestos is most hazardous when it is **friable**. The term "friable" means that the asbestos is easily crumbled by hand, releasing fibers into the air. For example, sprayed on asbestos insulation would be considered friable, while an Asbestos floor tile would not.

Asbestos-containing ceiling tiles, floor tiles, undamaged laboratory cabinet tops, shingles, fire doors, siding shingles, etc. **will not release asbestos fibers** unless they are disturbed or damaged in some way. If an asbestos ceiling tile is drilled or broken, for example, it may release fibers into the air. If the tile is left alone and not disturbed, it will not.

Damage and deterioration will increase the friability of asbestos-containing materials. Water damage, continual vibration, aging, and physical impact such as drilling, grinding, buffing, cutting, sawing, or striking can break the materials down making fiber release more likely.

### Health Effects

Because it is difficult to destroy asbestos fibers, the body cannot break them down or remove them once they are lodged in lung or body tissues, and remain in place where they may cause disease.

There are three primary diseases associated with asbestos exposure:

- Asbestosis
- Lung Cancer
- Mesothelioma

### Asbestosis

Asbestosis is a serious, chronic, non-cancerous respiratory disease. Inhaled asbestos fibers aggravate lung tissues, which cause them to scar. Symptoms of asbestosis include shortness of breath and a dry crackling sound in the lungs while inhaling. In its advanced stages, the disease may cause cardiac failure.

There is no effective treatment for asbestosis; the disease is usually disabling or fatal. The risk of asbestosis is minimal for those who do not work with asbestos; the disease is rarely caused by neighborhood or family exposure. Those who renovate or demolish buildings that contain asbestos may be at significant risk, depending on the nature of the exposure and precautions taken.

### Lung Cancer

Lung cancer causes the largest number of deaths related to asbestos exposure. The incidence of lung cancer in people who are directly involved in the mining, milling, manufacturing and use of asbestos and its products is much higher than in the general population. The most common symptoms of lung cancer are coughing and a change in breathing. Other symptoms include shortness of breath, persistent chest pains, hoarseness, and anemia.

People who have been exposed to asbestos and are also exposed to some other carcinogen -- such as cigarette smoke -- have a significantly greater risk of developing lung cancer than people who have only been exposed to asbestos. One study found that asbestos workers who smoke are about 90 times more likely to develop lung cancer than people who neither smoke nor have been exposed to asbestos.

### Mesothelioma

Mesothelioma is a rare form of cancer that most often occurs in the thin membrane lining of the lungs, chest, abdomen, and (rarely) heart. About 200 cases are diagnosed each year in the United States. Virtually all cases of mesothelioma are linked with asbestos exposure. Approximately 2 percent of all miners and textile workers who work with asbestos, and 10 percent of all workers who were involved in the manufacture of asbestos-containing gas masks, contract mesothelioma.

People who work in asbestos mines, mills and factories, manufacture and install asbestos insulation, or work in other high-exposure industries such as shipyards, have an increased risk of mesothelioma. So do people who live with asbestos workers, near asbestos mining areas, near asbestos product factories or near shipyards where use of asbestos has produced large quantities of airborne asbestos fibers.

**Other Cancers**

Evidence suggests that cancers in the esophagus, larynx, oral cavity, stomach, colon and kidney may be caused by ingesting asbestos. For more information on asbestos-related cancers, contact your local chapter of the American Cancer Society.

**Determining Factors**

Three things seem to determine your likelihood of developing one of these asbestos related diseases:

1. **The amount and duration of exposure** – the more you are exposed to asbestos and the more fibers that enter your body, the more likely you are to develop asbestos related problems. While there is no "safe level" of asbestos exposure, people who are exposed more frequently over a long period of time are more at risk.
2. **Whether or not you smoke** – If you smoke and you have been exposed to asbestos, you are far more likely to develop lung cancer than someone who does not smoke and who has not been exposed to asbestos. If you work with asbestos or have been exposed to it, the first thing you should do to reduce your chances of developing cancer is to stop smoking.
3. **Age** – cases of mesothelioma have occurred in the children of asbestos workers whose only exposures were from the dust brought home on the clothing of family members who worked with asbestos. The younger people are when they inhale asbestos, the more likely they are to develop mesothelioma. This is why enormous efforts are being made to prevent school children from being exposed.

## How to Avoid Asbestos Exposure

In order to avoid being exposed to asbestos, you must be aware of the locations it is likely to be found. **If you do not know whether something is asbestos or not, assume that it is** until it is verified otherwise. Remember that you cannot tell if floor or ceiling tiles contain asbestos just by looking at them.

BISD Environmental Health and Safety (EHS) office and Maintenance/Facilities Department have licensed asbestos abatement contracted firms who can take samples from materials in order to determine whether or not they contain asbestos. If you need to have materials analyzed or tested for asbestos, please contact EHS or Maintenance/Facilities Department. **Never try to take a sample yourself** unless you are licensed to do so.

If you have reason to suspect that something is asbestos, either because it is labeled as such, or because it is something that is likely to contain asbestos (9" floor tile, for example) Please, **DO NOT DISTURB IT**.

**Never...**

- Drill
- Hammer
- Cut
- Saw
- Break
- Damage
- Move
- Disturb

**...any asbestos-containing materials or suspected materials.**

BISD Environmental Health and Safety (EHS) office and Maintenance/Facilities Department have surveyed most locations in BISD buildings for the presence of asbestos. If you need to do work that might involve asbestos (lifting ceiling tiles, repairing insulated pipelines, etc.), check to find out what can be done safely.

For example, before moving any ceiling tiles to perform maintenance work, it will be necessary to ensure they do not contain asbestos. If they do contain asbestos, they will need to be removed by licensed asbestos abatement workers before the work may be performed.

**Housekeeping**

Housekeepers and custodians should never sand or dry buff asbestos-containing floor tiles, and only wet stripping methods may be used during stripping operations. Low abrasion pads should be used at speeds below 300 rpm.

Broken and fallen ceiling tiles should be left in place until identified. Only after they have been identified as safe may they be removed. Asbestos tiles will be removed by asbestos abatement workers.

Broken and damaged asbestos floor tiles must also be removed by asbestos abatement workers. Report any suspect broken tiles to Facilities Services.

**Dislodged Material**

**It is important to report any damaged asbestos-containing materials to BISD Environmental Health and Safety (EHS) office and Maintenance/Facilities Department immediately**. If, for example, you discover some sprayed-on asbestos insulation has been knocked off of a ceiling or wall, this would need to be cleaned up immediately by asbestos abatement workers.

**Do not attempt to clean up potential asbestos material yourself!** Disturb the material as little as possible. Also report damaged pipe insulation, ceiling tile, 9" floor tile, fallen clumps of sprayed-on insulation, etc. Take measures to prevent others from disturbing the spill until the EHS team arrives.

By knowing where asbestos is likely to be located and then taking measures not to disturb it, you will protect yourself and others from exposure to this hazardous substance.

Fact Sheet

# Back Injury Prevention

The back is the body part most often hurt in work-related injuries with lost time. The bones, discs, joints, ligaments, and muscles in the back are vulnerable to pain and injury when not used properly. Help employees keep their backs healthy and pain-free with these basic rules for proper posture, exercise, and lifting.

## At Work

- **Maintain good posture**. Slouching and other awkward postures can strain joints and ligaments. Whether employees sit or stand, they can reduce stress on the back with a neutral posture (the back's natural 'S' curve).
  - Remind employees to sit without slouching and to stand tall, with head up and shoulders back.
  - Try changing work heights so employees can handle items with their backs in the correct position.
  - When driving, an employee should keep his or her back straight against the seat and close enough to the wheel so that knees are bent and slightly higher than hips.

• **Reduce repetition**. Discourage repeated, sustained motions that put stress on back muscles and joints and cause fatigue and injury, especially when combined with excessive force or poor posture. Use materials-handling devices, such as carts, skid loaders, conveyor systems, robotics, or sliding racks. Let employees vary their tasks and body positions throughout the day and let them take frequent stretch breaks.

- **Establish a safe lifting policy**. Develop procedures and training to let employees know how to lift correctly to avoid back injuries.
  - Train employees to plan a lift in advance by considering the object's weight and the distance it will be moved. If an object is too heavy, awkward, or bulky for one person to lift safely, use a two-person lift or mechanized lifting method, such as a cart or dolly, or divide the load.
  - Assess whether any hazards should be eliminated before lifting. For example, make sure the work area has enough space to move freely. The area should be dry; even; and have stable flooring and enough light.
  - When possible, push materials instead of lifting them.
  - If employees must lift an object, they should:

    Align themselves in front of the load with their feet straddling it, one foot slightly in front of the other for balance. Then they should squat slowly, bending the knees instead of the back and stomach. Using both hands, an employee should grab the load firmly and bring it as close to the body as possible to distribute the load's weight over the feet.

Tighten stomach muscles to help protect the lower back.

Lift with the legs, not the back. With the load close to the body, an employee should slowly straighten his or her legs until upright. Make sure the load isn't blocking the view before walking slowly toward the destination. Move the feet, not the waist, to turn to the side.

Finally, set the load down correctly. After reaching the destination, employees should reverse the above steps. If setting the load on the ground, they should squat by bending the knees and positioning the load in front of the body. If setting the load down on a table, they should do so slowly and keep contact with the load until it is securely on the surface.

## Personal Habits

Use your wellness program to encourage employees to take care of their backs when they are off the job.

- **Reduce Stress**. Encourage workers to use your employee assistance program when dealing with personal or professional stress. Stress and mental distractions can increase the chances for back injury when employees don't pay attention and neglect safety.
- **Exercise**. The muscles that support the spine's vertebrae are the most common source of back pain – especially if muscles are weak, tight, or tired. Encourage employees to maintain strong back and stomach muscles by stretching and doing strengthening exercises, and to check with a doctor to determine the best exercise plan for them. Exercise is a proven stress reducer.
- **Maintain a healthy weight**. Extra weight puts more force on back and stomach muscles, so maintaining a healthy weight can reduce the risk of strain and pain. A doctor can provide advice on maintaining a healthy weight for individual employees.
- **Get a good night's sleep**. Employees should choose a firm mattress or place plywood between the mattress and box spring. The best sleeping position for back health is on the side with knees bent, or on the back with a pillow under knees.

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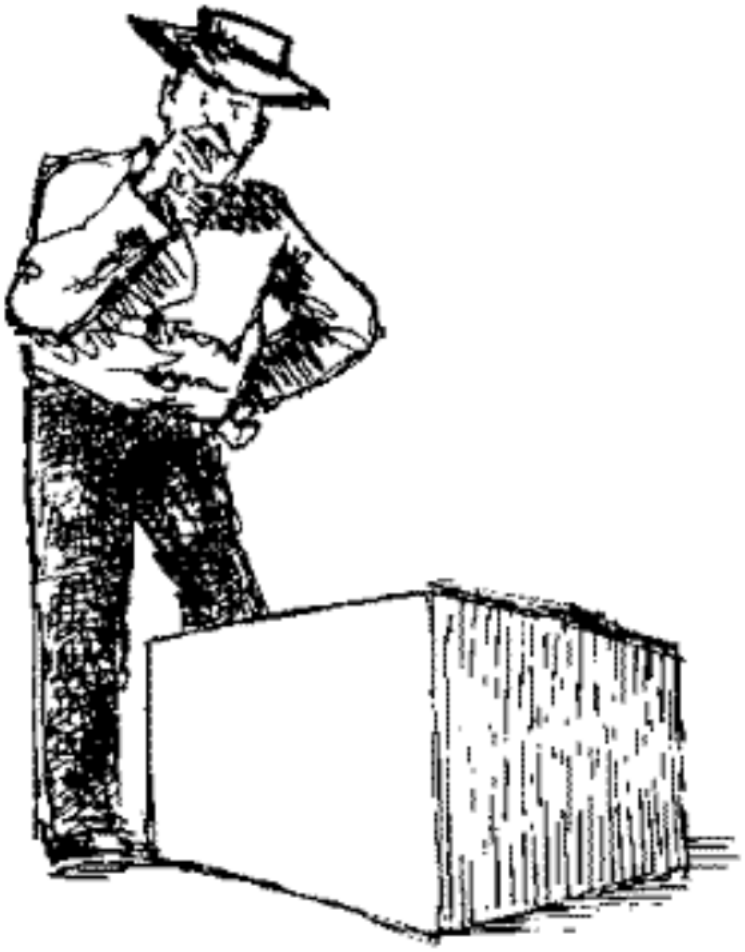
This document was produced by the Division of Workers' Compensation (DWC) and is considered accurate at the time of publication.

For more free DWC publications on this and other safety topics and for free occupational safety and health audiovisual loans, visit the TDI website at www.txsafetyatwork.com, call (800) 252-7031, option 2, or email resourcecenter@tdi.texas.gov.

# Back Injury Prevention



Back Injury Prevention

Division of Workers' Compensation
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## RESOURCES

The Division of Workers' Compensation (DWC) also offers several free Agriculture safety publications online at http://www.tdi.texas.gov/wc/safety/videoresources/index.html.

DWC features a free occupational safety and health audiovisual library. For more information, call 512-804-4620 or visit the TDI website at http://www.tdi.texas.gov/wc/safety/videoresources/avcatalog.html.


Division of Workers' Compensation

Resource Center • 512-804-4620 • resourcecenter@tdi.texas.gov

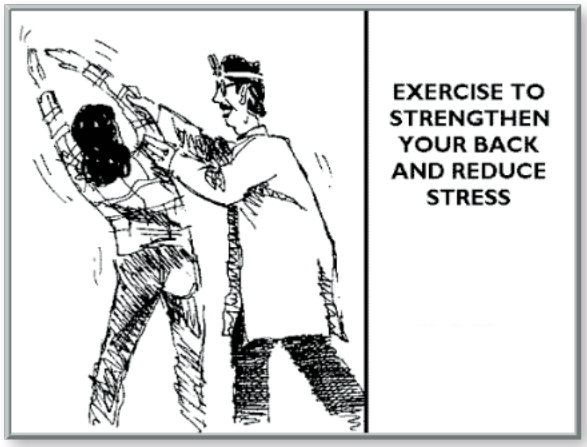
Safety Violations Hotline • 1-800-452-9595 • safetyhotline@tdi.texas.gov

## LEARN TO PREVENT BACK INJURY

Preventing a back injury is much easier than repairing one. Since your back is critically important to your ability to perform all daily activites including your job. Most pain arises from using your back improperly, so learning a few basic rules about lifting, posture and proper exercise can help keep your back in good shape.

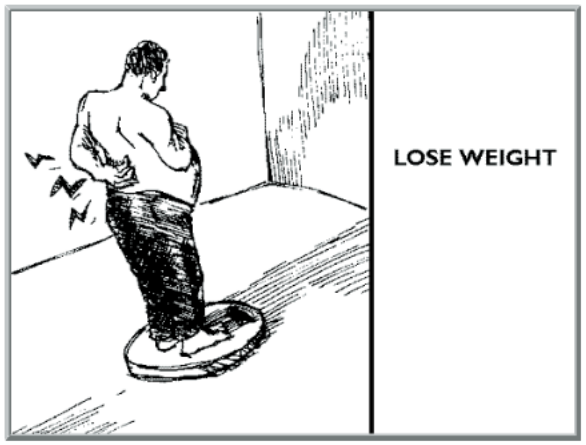

## EXERCISE TO STRENGTHEN YOUR BACK AND REDUCE STRESS

Having strong back and stomach muscles is important in order to support the work your back is put through each day. By doing simple back-toning exercises, you not only strengthen your back, but can also reduce stress and improving your posture. Check with your doctor as to the best exercises for you.



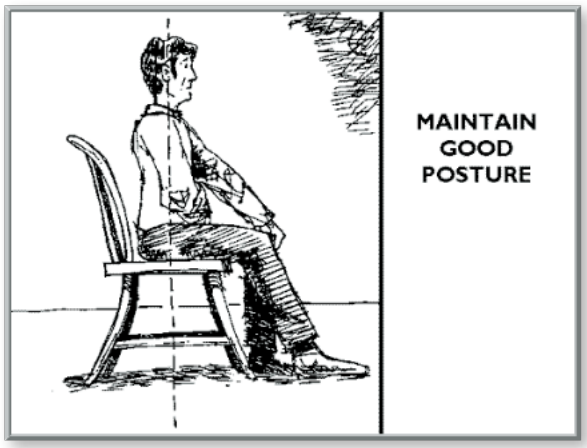

## LOSE EXCESS WEIGHT

Excess weight puts extra force on back and stomach muscles. Your back tries to support the weight in front by swaying backwards, causing excess strain on the lower back muscles. By losing weight, you can reduce strain and pain in your back. Check with your doctor for the most sensible diet plan for you.



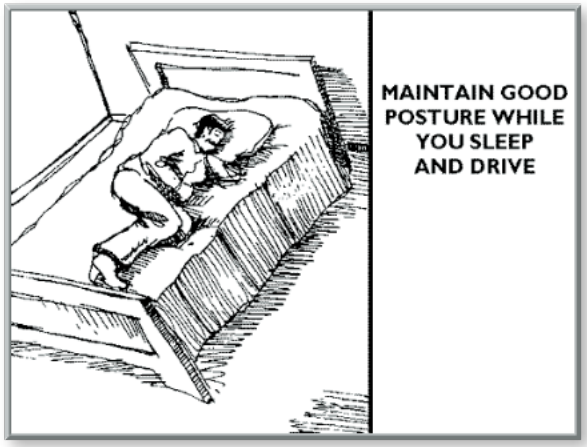
## MAINTAIN GOOD POSTURE

You can prevent many back pains by learning to sit, stand and lift items correctly. When you sit down, don't slouch. Slouching makes the back ligaments, not the muscles, stretch and hurt, thus putting pressure on the vertebrae. Learn to stand tall with your head up and shoulders back.



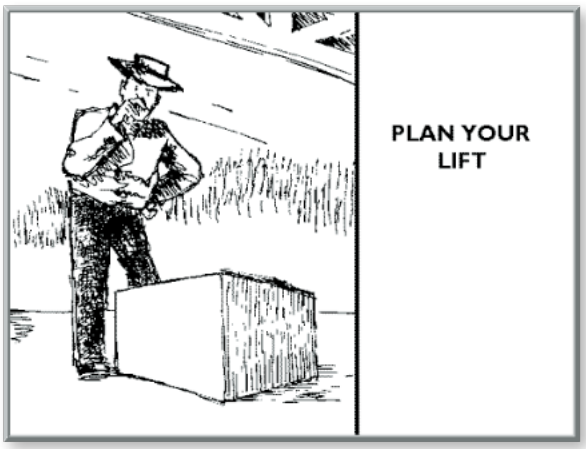

## MAINTAIN GOOD POSTURE WHILE YOU SLEEP AND DRIVE

Sleep on a firm mattress or place plywood between your box spring and mattress for good back support. If your mattress is too soft it could result in a back sprain or sway back. Sleep on your side with your knees bent or on your back with a pillow under your knees for support. Drive with your back straight against the seat and close enough to the wheel so your knees are bent and are slightly higher than your hips.



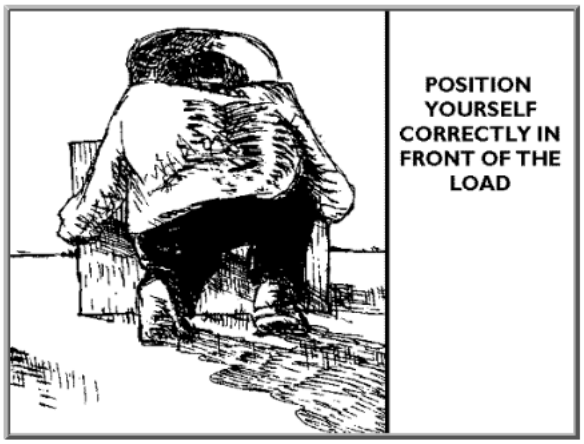

## PLAN YOUR LIFT

Lifting objects is often a mindless task, and unfortunately many people perform lifts incorrectly, resulting in unnecessary strain on their back and surrounding muscles. In order to lift correctly and reduce strain on your back, it's important to plan your lift in advance. This means to think about the weight of the object you will be moving and the distance you will be moving it. Is it bulky? Will you need help? Do you see any hazards that can be eliminated? Think about this whenever you do any lifting.



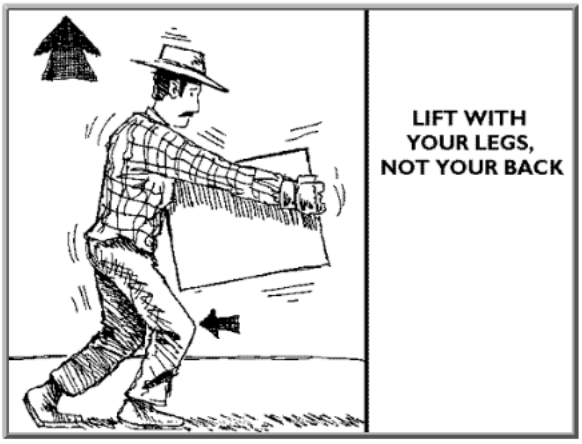
## POSITION YOURSELF CORRECTLY IN FRONT OF THE LOAD

Once you have planned your lift, the next important step is to align yourself correctly in front of the load with your feet straddling the load, one foot slightly in front of the other for balance. Slowly squat down by bending your knees, not your back and stomach. Using both hands, firmly grab the load and bring it as close to your body as you can. This will help distribute the weight of the load over your feet and make the move easier.




## LIFT WITH YOUR LEGS, NOT YOUR BACK

Once the load is close to your body, slowly straighten out your legs until you are standing upright. Make sure the load isn't blocking your vision as you begin to walk slowly to your destination. If you need to turn to the side, turn by moving your feet around and not by twisting at your waist.

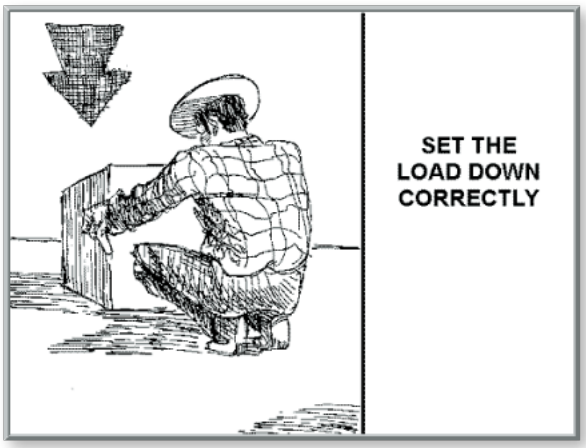



## GET HELP, IF NEEDED

If the load is too heavy, bulky, or awkward for you to lift alone, find a friend to help you carry it. If no one is available, is it possible to break the load into two smaller loads? Or, can you locate a cart or dolly to help you move it? Look for simple solutions to help make the move easier on you and your back.

## SET THE LOAD DOWN CORRECTLY

Once you have reached your destination, it's equally important that the load is set down correctly. By reversing the above lifting procedures you can reduce the strain on your back and stomach muscles. If you set your load on the ground, squat down by bending your knees and position the load out in front of you. If the load is set down at table height, set the load down slowly and maintain your contact with it until you are sure the load is secure and will not fall when you leave.

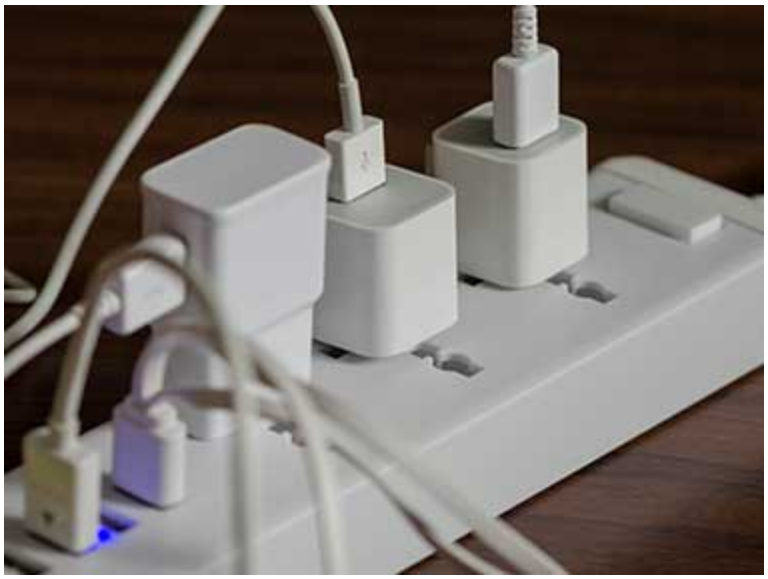


# Safety tips for your power strips

midamericanenergy.com/articles/power-strip-safety-tips

Even everyday electrical equipment like power strips can be a safety risk when not maintained or used properly. The Electrical Safety Foundation International reports that more than 3,300 home fires originate from power strips and extension cords each year.

We care about your safety. Follow these best practices to stay safe when using power strips, surge protectors and extension cords.



1. Power strips, surge protectors and extension cords are not a substitute for permanent wiring.
2. Power strips are meant for indoor use only (unless specially designed for outdoor use).
3. Keep children and pets away from all electrical cords and power strips.
4. At no time should a power strip or surge protector in your home be exposed to moisture.
5. Power strips should be plugged into a grounded wall outlet. Do not plug a power strip into an existing surge protector, power strip or extension cord.
6. There should only be one power strip or surge protector plugged into a double wall outlet.
7. Only use power strips for low-voltage electronics. Overloading a power strip can create a fire hazard.
8. Keep all power strips and surge protectors uncovered so that air around it may circulate freely.
9. If a power strip is hot to the touch, unplug and remove it immediately.
10. Check power strips and surge protectors regularly to ensure they are not damaged.

**Surge protectors protect you and your electronics**

While power strips and surge protectors often look similar and have common functionality, surge protectors offer a greater level of safety, both for you and the devices you connect to it. Their built-in systems help prevent power surges from damaging connected devices, making them great for electronics sensitive to changes in power levels, such as TVs and computers. This makes surge protectors a bit more expensive than power strips, which don't offer that protection. When you're selecting which device to purchase, surge protectors will label themselves as such on their packaging, or by mentioning features like surge protection or surge suppression.

**Advanced power strips protect your devices and help you save energy**

An advanced power strip (APS) not only works like a surge protector, but it also helps you save energy you might not even realize you're using. An APS reduces "phantom load," the electricity a plugged-in device uses even when switched off. With an APS, you choose one device to serve as the "control," such as your TV. That way, when you turn off your TV, other electronics plugged into the APS that you use with your TV – your sound system, media players, etc. – are automatically shut off completely without the need to unplug them or switch off the power strip to prevent phantom load. Using an APS with your home office or entertainment center saves you energy, time, effort, and money on your bill.

# Surge Protector and Power Strip Safety

A surge protector is an appliance designed to protect electrical devices from voltage spikes. It attempts to limit the voltage supplied to an electric device by either blocking or by shorting to ground any unwanted voltages above a safe threshold.

A power strip is a block of electrical sockets that attaches to the end of a flexible cable, allowing multiple electrical devices to be powered from a single electrical socket.

## Safety Tips

These important safety principles can help keep your home and/or workplace safe from electrical hazards:

- Use only surge protectors or power strips that have an internal circuit breaker. These units will trip the breaker if it becomes overloaded or shorted to prevent overheating.
- Surge protectors and/or power strips are not a substitute for permanent wiring and when it is not in use, unplug the unit.
- If at any time the unit is hot to the touch, evaluate the electrical load to ensure it is not overloaded. Immediately unplug it and throw it away. Reduce the electrical load and purchase and replace with a new unit.
- At no time should a unit be placed into a situation that will allow it to be exposed to a moist environment.
- Any unit that does not have an internal circuit breaker, has frayed wiring, or that is not working properly, should be replaced immediately.
- Do not plug into an existing unit. This practice is called “daisy chaining” or piggy backing” and can lead to serious problems.
- Ensure that all units are certified by a nationally recognized testing laboratory such as Underwriters Laboratories (UL), Canadian Standards Association (CSA), Factory Mutual (FM) or ETL Testing Laboratories/Intertek Testing Services (ETL) and read the manufacturer’s instructions carefully.
- There should only be one unit plugged into a single duplex electrical outlet.
- Do not place a unit in an area where the unit would be covered with carpet, furniture, or any other item that will limit or prevent air circulation.
- Do not staple, tack, or tape a unit.
- Visually inspect all units on a regular basis to ensure that they are not damaged or showing signs of too much wear or tear. During the inspection, ensure that the plug is fully engaged in the outlet.
- The unit should always have a three-prong grounded plug. Never use a three to the two-prong adapter to power the unit.
- Units should have a cord of no more than 6 feet in length.
- Never plug medical equipment into a unit unless it has been approved by the manufacturer for this purpose.