ARD 002124

COASTAL

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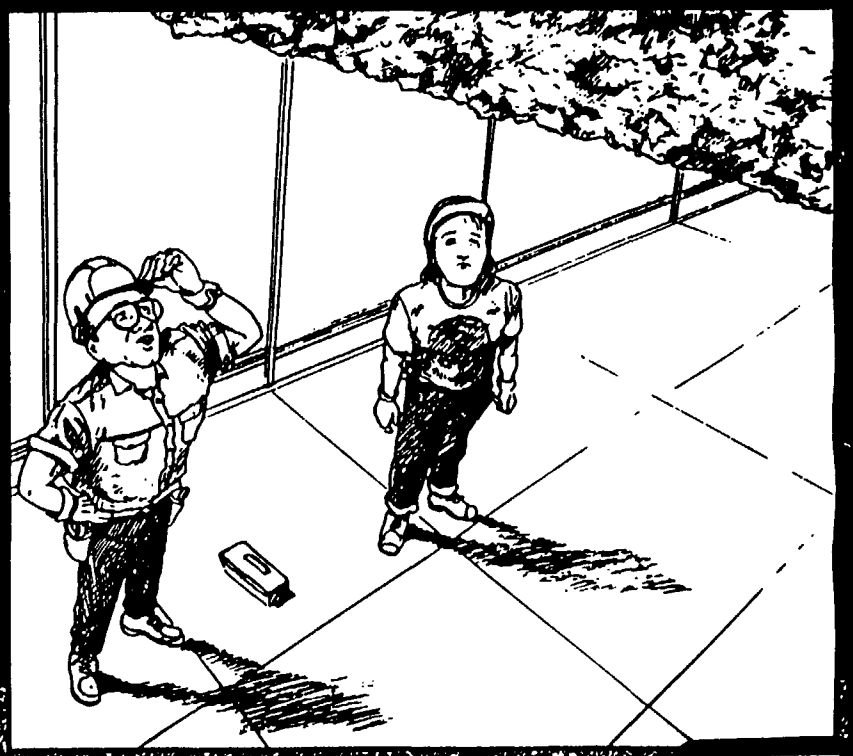
Asbestos

AWARENESS



PLAINTIFF'S EXHIBIT

AL-235

ASBESTOS AWARENESS

This employee handbook is one of a series of fully-illustrated employee handbooks, informative posters and broadcast-quality video training programs produced by Coastal Video Communications Corporation. Each product is the result of painstaking analysis, design, development and production by the instructional designers and technical specialists on our staff.

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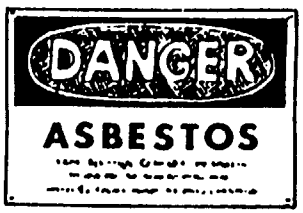
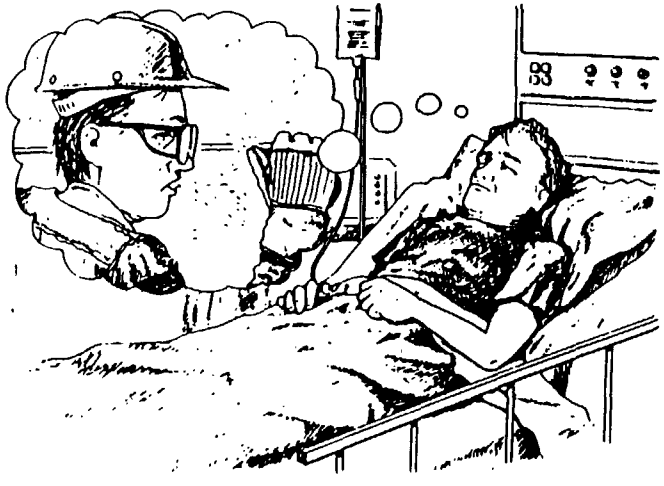


Introduction

For years asbestos was known as the "material of a thousand uses." It was used for insulation, fireproofing and soundproofing in offices, homes and theaters around the country, as well as a host of other applications.

But in recent years asbestos has been found to cause chronic and often fatal lung diseases, including asbestosis and certain forms of lung cancer.



To help protect you, the Occupational Safety and Health Administration (OSHA) has established three new standards for reducing hazardous exposure to asbestos.

Besides protecting those who work directly with asbestos, the OSHA standards also cover workers who may come in contact with asbestos-containing materials in buildings. This includes:

- Maintenance and custodial staff
- Outside housekeeping services
- Trade contractors such as electricians, plumbers, and heating and air conditioning workers.

Forms and Uses

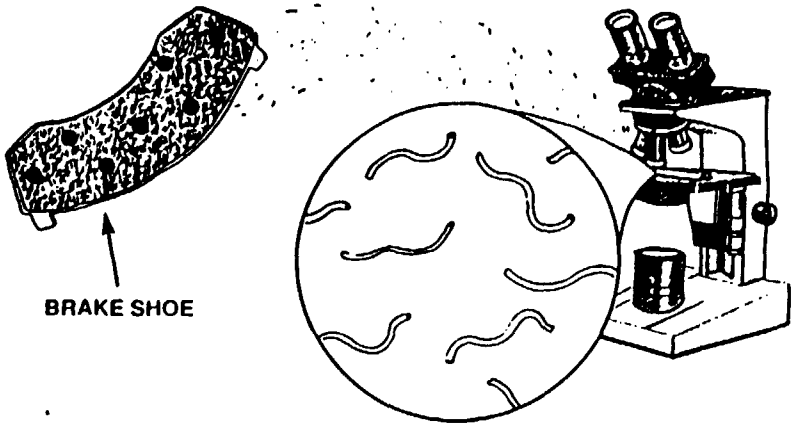
Asbestos is a naturally occurring family of minerals formed by combinations of magnesium and silicon. These minerals take the form of hollow, microscopic fibers which are nearly indestructible and can be densely packed — making a tough, flexible and very useful material.



The forms of asbestos covered by the final OSHA standards include:

- **Chrysotile,** or white asbestos — used as insulation, fireproofing and soundproofing
- **Amosite,** or brown asbestos — used in high-friction applications such as brake shoes and clutches
- **Crocidolite,** or blue asbestos — not as common as the other two forms
- **Compounds of "asbestiform" minerals** — bond chemically with asbestos.

Since its earliest use, asbestos surfacing material was applied for decorative and acoustical purposes in buildings and was later applied as insulation coating to protect structural steel during fires.



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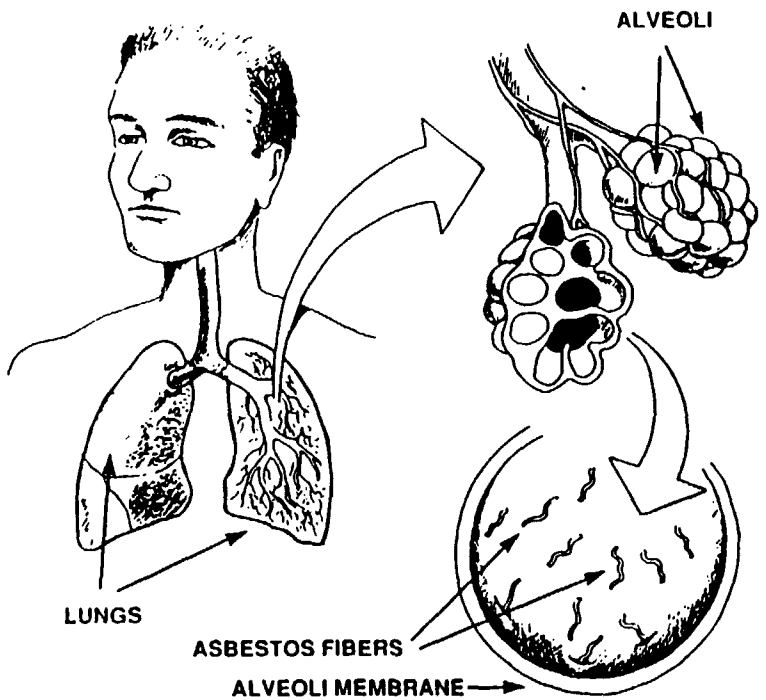
Health Effects

When bonded together, asbestos fibers pose little hazard. But if they are released from their bonding material — or matrix — these fibers can break down into microscopic "fibrils" as small as five microns (five millionths of a meter) in length.

These tiny fibers are what make asbestos so dangerous. If you inhale them, they can enter your lungs and lodge in tiny air sacs called "alveoli." It is through these air sacs that oxygen enters the blood and carbon dioxide is removed.

When asbestos fibers enter the alveoli, they irritate the thin alveoli membrane, leaving scar tissue which oxygen cannot penetrate. This condition is called asbestosis. As more and more of the alveoli are affected, oxygen starvation sets in, resulting in severe disability or death.



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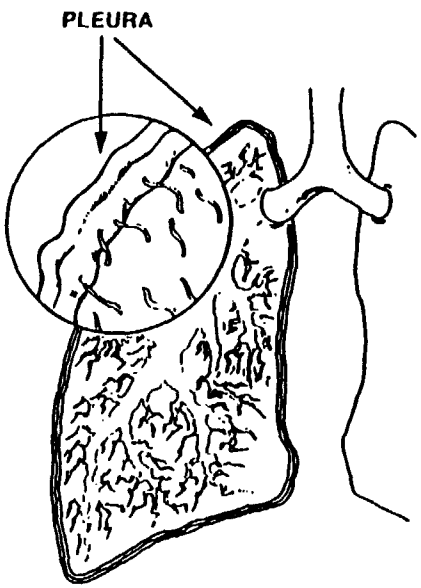
Health Effects

Another area which can be affected in the pleura — the membrane lining the lungs. Asbestos fibers may migrate from the lungs into the pleura and cause a rare form of cancer called *malignant mesothelioma.*



There are no warning signs that asbestos is causing problems in your body. It doesn't have any acute or short-term symptoms to alert you. In fact, many harmful effects do not appear for 20 years or more.

Smoking can further increase the risk from asbestos exposure. Asbestos fibers may irritate the lungs, making them even more sensitive to the risk of cancer from cigarette smoke. In fact, smokers who have worked with asbestos face as much as 90 times the risk of cancer as non-smokers.

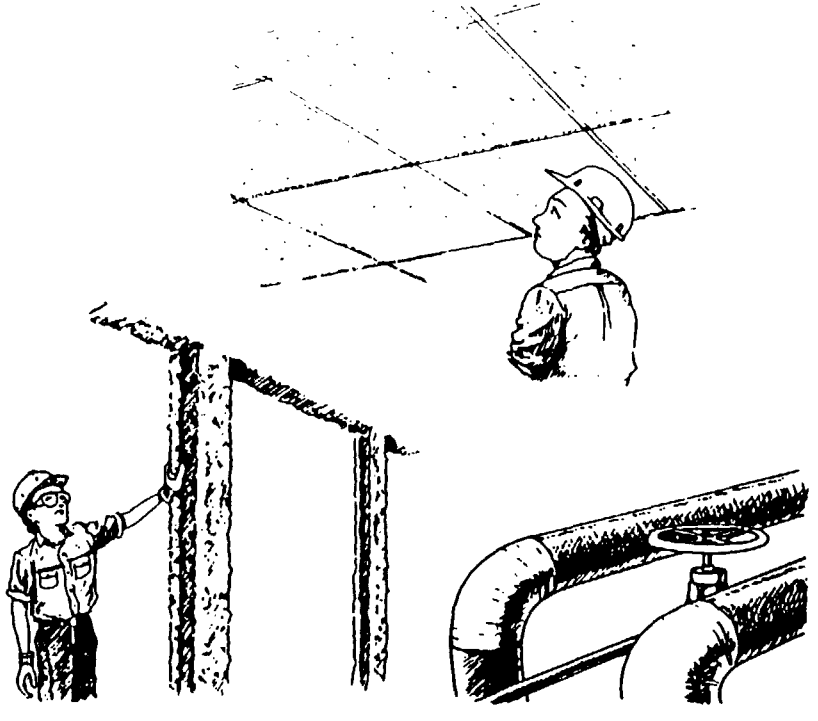
If you are a smoker who works with asbestos — and you stop smoking — your chances of getting lung cancer will be reduced by 50 percent in just five years.



Potential Locations

Asbestos can be found in many places in a building. Some of them include:

- Thermal system insulation (TSI) on furnaces, ducts, boilers and hot water pipes
- Sprayed-on or troweled-on surfacing materials on ceilings and walls
- Resilient asphalt and vinyl flooring
- Suspended ceiling tiles
- Fireproof drywall
- Fireproof drapes and curtains
- Roofing felts and shingles
- Exterior siding shingles
- Sprayed-on fireproofing on metal beams and columns
- High-temperature gaskets and valve insulation.



Hazard Communication

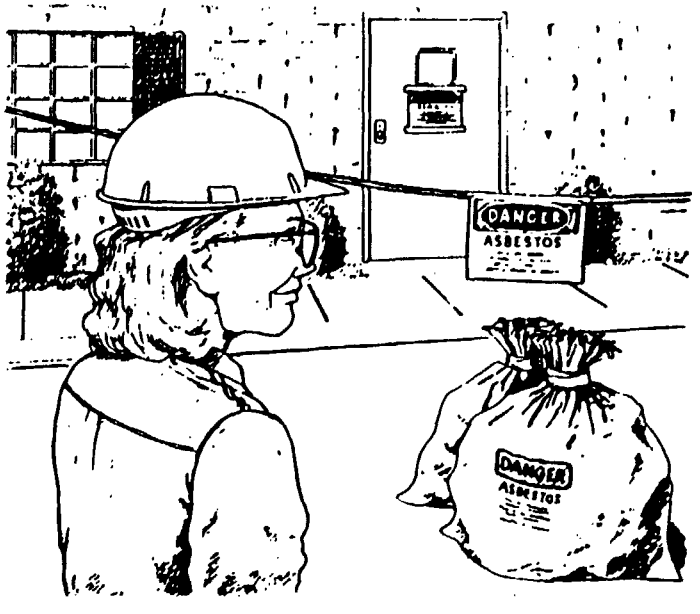
Employees in public and commercial buildings with installed asbestos-containing materials (ACM) should know whether building components may expose them to asbestos.

Under the OSHA standards, building owners and employers must maintain records of the presence, location and quantity of ACM and inform employees who will perform housekeeping activities in these areas. Notification methods may include:

- Warning signs
- Warning labels
- Material Safety Data Sheets (MSDSs).

Warning signs must be placed at all entrances to asbestos work areas regulated by the OSHA standards. These signs help prevent accidental or unauthorized entry.

In order to alert building occupants, warning signs or labels must be placed on previously installed building materials containing asbestos.



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Recognizing Friable Asbestos

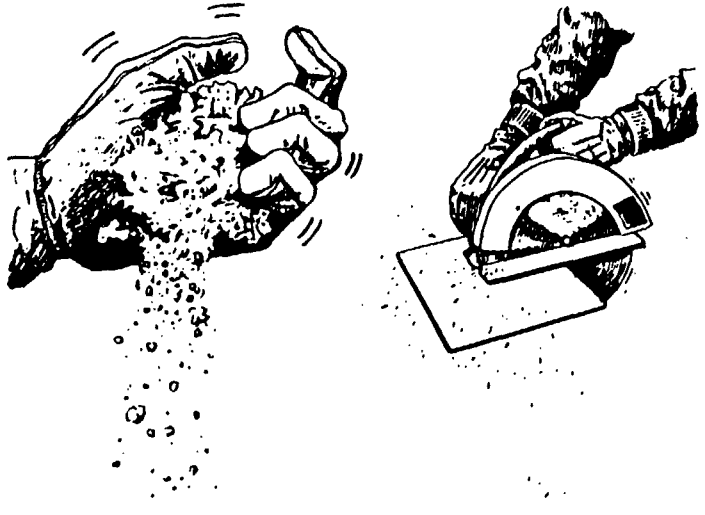
OSHA records show that almost all asbestos products may in time become hazardous, especially if their bonding material — or matrix — is disturbed.

Although all ACM may release fibers when their matrices are disturbed, certain minerals are known to be more easily damaged or to suffer more deterioration, and thus cause higher airborne fiber levels than others.

OSHA exposure standards are based on the kind of asbestos work you do, the type of ACM and the likelihood that its fibers will break loose and become airborne — known as its "friability."

- **Friable asbestos** can be reduced to powder by hand pressure when it is dry. Sprayed-on asbestos insulation falls into this category.

- **Non-friable asbestos** is usually found bonded into other materials. Its fibers are harder to break down into powder but can still be released by cutting, grinding or sanding.



FRIABLE ASBESTOS **NON-FRIABLE ASBESTOS**

Damage and Deterioration

TSI and surfacing ACM are potentially more friable, are much more common and have more maintenance and repair activities performed on them than other ACM. Remember, every removal activity involving these materials is capable of releasing friable airborne fibers at hazardous levels.

Always avoid any contact with ACM that:
- Disturbs its position or arrangement
- Disrupts its matrix or renders it friable
- Generates any visible debris from it.

Visibly damaged, degraded or friable ACM in the vicinity are **always** indicators that surface debris or dust could be contaminated with asbestos. OSHA standards require you to assume that such dust or debris contains asbestos fibers.

Some sources of damage resulting in fiber release include:
- Impact from other objects
- Exposure to the elements
- Vibration
- Fans and blowers
- Chemical spills, leaks or fumes.



ARD 002129

Who is at Risk?

You don't have to work directly with asbestos to be at risk from exposure to airborne fibers. You may also be exposed to asbestos if you work in a building that contains the material.

Your risk increases if:

- Your work area contains friable asbestos, such as sprayed-on insulation.
- You work near a construction or renovation area which contains asbestos.
- You are engaged in maintenance or custodial activities in areas containing asbestos.

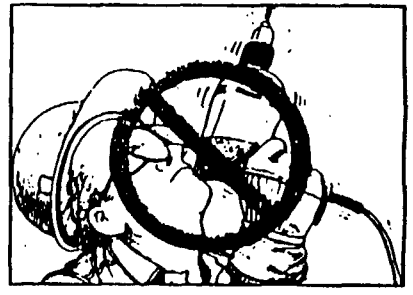
If you work in a building that contains installed asbestos products, be alert to detect any deterioration of ACM and report it to the building superintendent.

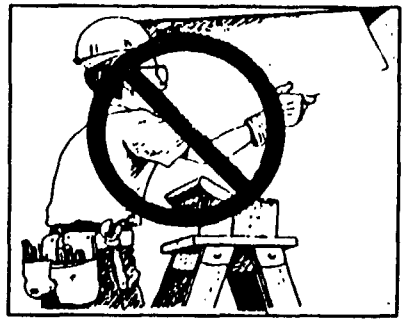


Protecting Yourself

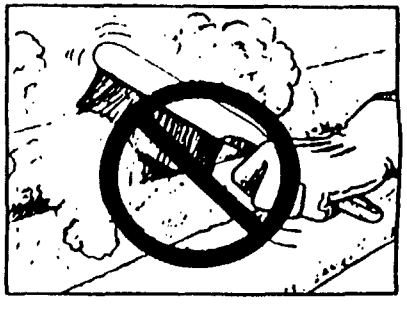
Remember these simple rules for your personal protection:

- Never hang plants from insulated pipes or otherwise cut through pipe insulation.
- Never drill holes or hammer nails in ceilings or surfaced walls.
- Don't remove ceiling tiles or light fixtures from suspended ceiling grids.





- Never install curtains, drapes or blinds in a way that damages any potential ACM.
- Try to avoid scraping floor tiles, walls or ductwork when moving furniture.
- Never remove ventilation system filters or shake the filters to remove dust.
- Don't dust, sweep up debris or vacuum carpets in areas that may contain asbestos-contaminated waste.
- If you find any material that you suspect may contain asbestos, notify your employer.
- Heed the labels on asbestos products or asbestos waste that warn against causing dust and breathing airborne fibers.



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Housekeeping Requirements

If your duties require you to perform maintenance and custodial operations around installed asbestos products, you must follow these general OSHA housekeeping requirements.

- **Dust Collection** — Keep all surfaces as free as possible of dust and waste that contain asbestos.
- **Spills** — Clean up all spills and sudden releases of ACM as soon as possible.
- **Compressed Air** — Never use compressed air to clean surfaces contaminated with asbestos.
- **Vacuuming** — Always use special asbestos vacuums equipped with high-efficiency particulate-air (HEPA) filters and empty them in a manner that minimizes the re-entry of airborne fibers into the workplace.
- **Wet Methods** — Never shovel, dry-sweep or use other dry clean-up methods for asbestos debris unless vacuuming or wet cleaning methods are not feasible.
- **Waste Disposal** — Dispose of all waste, scrap, debris, empty containers, equipment and clothing contaminated with asbestos only in sealed, impermeable bags or containers. Warning labels must be placed on airtight containers of asbestos waste before they are transported.



Floor Care

OSHA and EPA have found that many workers who perform custodial work such as stripping and buffing asphalt or vinyl flooring have developed asbestos-related disease.

To reduce exposure caused by stirring up asbestos fibers, OSHA standards require the following specific housekeeping methods for care of all resilient flooring materials:

- Never sand or scrape asphalt or vinyl flooring.
- Strip floor finishes only by wet methods, using low-abrasion pads at speeds lower than 300 revolutions per minute (rpm).
- Never burnish or dry-buff asbestos-containing flooring unless it has sufficient finish so that the pad can't contact the bare floor.



- Never dust, dry-sweep or use a regular vacuum on any type of floor in an area that contains TSI, surfacing ACM or visibly deteriorated ACM.

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Controlling Exposure

OSHA believes that employee training is a vital component of any successful program to control exposure to asbestos.

Your employer's Asbestos Awareness Program will help you:

- Understand the OSHA rules and work practices for asbestos
- Protect yourself against unnecessary exposure to airborne asbestos fibers.

Your employer is required to notify you if you are at risk from exposure to asbestos and take certain steps to protect you. However, you have a responsibility to work with your employer.

- Follow your workplace safety procedures and pay attention to asbestos warnings in your work area.
- Always heed the labels on asbestos products or asbestos waste that warn against causing dust and breathing airborne fibers.
- And remember that good housekeeping practices are very effective in reducing your exposure to asbestos.

Awareness of potential hazards and training in how to avoid them will keep you safe on the job.



Quiz

1. True (False) Asbestos is found only in sprayed-on insulation.
2. True (False) OSHA asbestos regulations apply only to people who work directly with asbestos.
3. (True) False Asbestos is a mineral made up of tiny fibers.
4. True (False) Blue asbestos is the most commonly used form of the material.
5. True (False) Asbestos usually enters the body through the skin.
6. (True) False Asbestos can reduce the transfer of oxygen to the bloodstream.
7. (True) False Asbestos exposure can lead to asbestosis and cancer.
8. (True) False Asbestos affects the membrane lining the lungs.
9. True (False) Asbestos-related diseases show several warning signs before they become dangerous.
10. (True) False If you work with asbestos and are a smoker, quitting smoking can cut your chance of getting cancer in half.
11. (True) False Warning signs are always placed at all entrances to asbestos work areas to prevent accidental or unauthorized entry.
12. (True) False Almost all asbestos products may in time become hazardous, especially if their bonding material — or matrix — is disturbed.

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13. (True) False "Friability" is the tendency of asbestos fibers to become airborne.

14. (True) False Non-friable asbestos can still be released into the air.

15. (True) False Visibly damaged, degraded or friable asbestos-containing materials in the vicinity are always indicators that surface debris or dust could be contaminated with asbestos.

16. True (False) You have to work directly with asbestos to be at risk from exposure to airborne fibers.

17. (True) False You should not drill or cut through materials containing asbestos.

18. True (False) If you find any material that you suspect may contain asbestos, it is not necessary to notify your employer.

19. True (False) Asbestos waste can be thrown away in regular trash bags.

20. (True) False Never sand or scrape asphalt or vinyl flooring.

ACKNOWLEDGEMENT OF TRAINING

I have read and understand the training handbook, **Asbestos Awareness.** I have also completed and passed the comprehensive quiz at the conclusion of this handbook.

Employee's Signature Date

Trainer's Name Date

NOTE: This record may be included in the employee's personnel or training file.

ARD 002133

ALSO AVAILABLE FROM COASTAL

INTERACTIVE CD ROM PROGRAMS

- Bloodborne Pathogens
- Confined Space Entry
- Electrical Safety
- Hazard Communication
- Lockout/Tagout
- Personal Protective Equipment

VIDEO BASED PROGRAMS

- Accident Investigation
- Anhydrous Ammonia
- Asbestos
- Back Safety Series
- Bloodborne Pathogens Series
- Chemical Handling Series
- Chlorine Safety Series
- Cold-Weather Safety
- Commercial Driver Series
- Confined Space Series
- Contractor Safety
- DOT Drug Testing
- Electrical Safety Series
- Emergency Planning Series
- Ergonomics Series
- Eye Protection
- Fall Protection Series
- Fire Safety Series
- First Aid on the Job
- Foot Protection
- Forklift Safety Series
- Hand Safety
- Hard Hat Safety Series
- Hazard Communication Series
- HAZWASTE Transportation Series
- HAZMAT Transportation Series
- HAZWOPER Training Series
- Hearing Protection
- Heat Stress
- Highway Work Zone Series
- Hydrogen Sulfide
- Indoor Cranes
- ISO 9000 Series
- Lab Safety Series
- Laser Safety
- Lead Safety
- Line Breaking
- Lockout/Tagout Series
- Low Lift Trucks
- Machine Guarding
- Motor Vehicle Awareness
- Off-the Job Safety Series
- Office Safety
- OSHA Inspection Series
- Personal Protective Equipment
- Pollution Prevention Series
- Proactive Safety Series
- Process Safety Series
- RCRA
- Respiratory Protection Series
- Safety Orientation
- Slips, Trips & Falls
- Smoke-Free Workplace
- Stairways & Ladders
- Static Electricity
- Substance Abuse
- Trenching & Shoring Series
- Tuberculosis Awareness
- Video Display Terminals
- Winter Driving
- Welding Safety Series
- Workplace Violence

ILLUSTRATED EMPLOYEE HANDBOOKS

- Asbestos Awareness
- Back Safety
- Bloodborne Pathogens Series
- Chlorine Safety
- Confined Space Series
- Contractor Safety
- Drum Handling
- Electrical Safety Series
- Ergonomics
- Eye Protection
- Fall Protection Series
- Fire Safety
- First Aid
- Foot Protection
- Forklift Safety Series
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