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The health hazards found in the pattern shop, core room, molding area and sand handling room of foundries are listed in order of importance for each area. The hazards include noise, gases, solvent and epoxy vapors, mineral, silica and other dusts, microwave radiation, and metal fumes. Each hazard is described and identified, and information given on how exposure can be reduced. The worker's responsibility for using good work practices and having medical examinations are explained. A list of do's and don'ts for a healthy work environment and some brief first aid information are given.

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Air pollution
Electromagnetic radiation
Dust control
Atmosphere contamination control
Safety engineering
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PATTERN SHOP, CORE SHOP, MOLDING SHOP AND SANDHANDLING DEPARTMENT HEALTH HAZARDS IN A FOUNDRY

DHEW (NIOSH) Publication No. 77-102

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
Center for Disease Control
National Institute for Occupational Safety and Health
Division of Technical Services
Cincinnati, Ohio
December 1976

SO YOU WORK in a FOUNDRY

Then this book should be of interest and a help to you. It discusses the general health hazards which occur most frequently in foundries. It tells about the hazards in

- the Pattern Shop
- the Core Room
- the Molding Area
- the Sand Handling Department

that may harm your health if you don't know what they are, and how to watch out for them.

The first section will tell you about the health hazards you might find in particular areas of any foundry. These hazards are listed in the order of importance. Next, each of these health hazards is described and identified so that you could spot them, if they exist, in your work area. Information is also provided about how exposures can be reduced. The third section describes what you can do to help—by using good work practices and keeping track of your health with medical check-ups. Finally, a list of "do's" and "don'ts" is presented to help you review.

Because operations vary, not all hazards that may be present in your particular foundry are discussed. If, after reading this book, you have questions about the hazards you are exposed to, ask your foreman, supervisor, or union representative to explain them to you.

INTRODUCTION

Businessmen, unions, people in government, and workers in industry are working together to become aware of possible health hazards on the job so that the hazards can be eliminated.

Under the Occupational Safety and Health Act (OSHA), it is management's responsibility to provide healthful working conditions, but you should help management to meet this responsibility. It's *your* responsibility to follow proper procedures and to wear protective equipment where it's required. Because you work in the area where hazards may exist, you are in a better position to spot health hazards and to report them to your supervisor or foreman.

What can you do, as a foundry worker, to identify health problems where you work?

1. Know what health problems may be found in your area.
2. Know how to spot the health hazards.
3. Know the right action to take when you think you have spotted a health hazard.

There is a list of important terms and definitions at the end of this book that you may find useful.

That's what this book is about—to help you recognize some of the most common health hazards found in the Pattern Shop, Core Room, Molding Shop, and Sand Handling Department.

WHAT ARE THE HEALTH HAZARDS–

in the Pattern Shop

HAZARD	SOURCE	SEE PAGE
Noise	Woodworking Machinery Ventilation Systems	18
Solvent Vapors Xylene Toluene Mineral Spirits Methyl Ethyl Ketone	Spray Painting	14
Epoxy Vapors	Gluing Operations	15
Dust Wood Dusts Plastic Dusts "Inert Dusts"	Woodworking Machinery	12

in the Core Room

HAZARD	SOURCE	SEE PAGE
Mineral Dusts Silica Dust	Automatic Core Molding Core Sand Mulling Core Finishing	9
Gases and Vapors	Core Molding	13
Formaldehyde	Core Curing	16
Isocyanates	Core Curing	16
Ammonia	Core Curing	16
Phenol	Core Curing	14
Carbon Monoxide	Core Curing	16
Noise	Automatic Core Molding	18
Non-ionizing Microwave Radiation	Core Curing	21

in the Molding Area

HAZARD	SOURCE	SEE PAGE
Dusts	Molding	9
Silica Dust	Applying parting compounds	
Asbestos	Cutting asbestos riser sleeves	13
Fumes	Metal fumes if located near the pouring floor or near the furnaces	
Gases and Vapors Carbon Monoxide Aldehydes	Drifting into your area from an adjacent pouring floor	13
Noise	Sand Slinging Squeeze jolt molding	18

in the Sand Handling Department

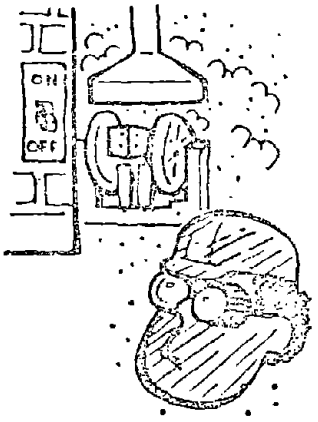
HAZARD	SOURCE	SEE PAGE
Mineral Dusts	Rail car & truck unloading Bin tending Sand washer Foundry sand mulling	9
Noise	Vibrators on sand bins Sand washing Bag houses	18

HOW TO SPOT POTENTIAL HEALTH HAZARDS IN YOUR AREA

This part of the book is designed to help you identify the health hazards that occur most frequently in your work area.

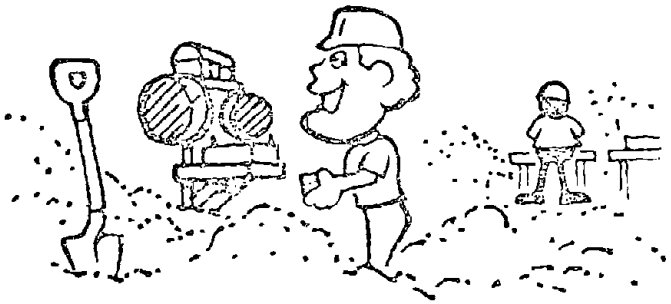
Dust Hazards

Foundry sand usually contains silica. If you breathe too much silica dust, you may develop a lung disease known as silicosis. The silica dust particles that cause this disease are so small that you can't see them. The only way to be sure that there isn't a high concentration of silica in the air is by having an industrial hygienist take air samples and evaluate your work area. So, if you see a lot of airborne dust in your area, ask if it's been checked.



The symptoms of silicosis are not easily recognized. This kind of disease usually takes from 5 to 20 years of overexposure to develop, although extreme overexposure has produced symptoms after one year.

If you work in the sand-handling areas of the foundry, or if you think you have been overexposed to silica dust, you should have a thorough examination by a doctor. The examination should include a chest x-ray and breathing tests. If you have silicosis, continued exposure to the dust will make it worse.



Controls

1. Use of local exhaust ventilation on mullers, conveyor transfer points, and core molding machines.
2. The use of NIOSH or MESA approved respirators for short duration exposure to high concentrations of dust. See the respirator section of this book for a detailed discussion.

Indications of inadequate ventilation include:

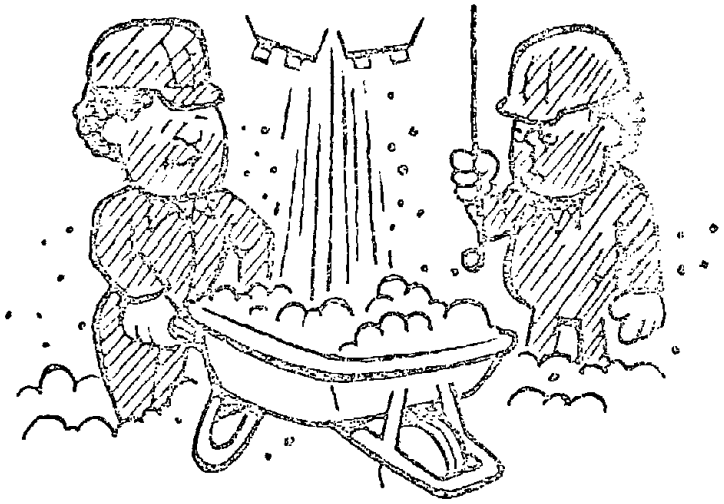
1. Draft in doorways—not enough make-up air.
2. Dust not being drawn into hoods.
3. Poor location of vent hood.
   Note: The hood should be located so it will pull the contaminant away from you.
4. Exhaust stack of the vent system located so that dirty air is returned to your work area through ventilators, heaters, doors, windows, or other openings.
5. Vent system in poor repair; leaking or clogged with dirt.
6. Local exhaust hoods not pulling as well as when initially installed.

Workers at the following operations may have high exposures to dust containing silica:

MULLERS—when the mullers are not enclosed or equipped with exhaust ventilation.

RAIL CAR AND TRUCK UNLOADING—if working downwind from the drop point of the sand, and not wearing respirators.

SAND BINS—if conveyor drop points are too high, or if conveyors are not enclosed, dust can get into the air.

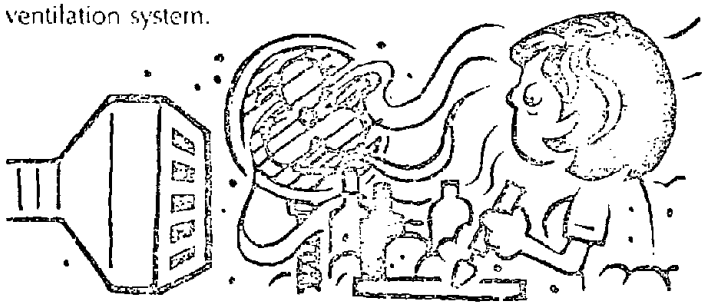


MOLDING—from powdered mold release compounds, usually not from the foundry sand (because it's usually damp at this point).

CORE MAKING—from sand shooting out from mold boxes that do not close completely or from badly worn boxes, from open overhead conveyors, leaking exhaust ducts, and from open or leaking storage bins.

The clues that there may be high concentrations of silica dust in the air include:

1. Dust escaping the effect of the ventilation system.
2. Lack of a daily housekeeping program to remove dust buildup.
3. Floor fans blowing dust at you, or away from the exhaust ventilation system.



4. Buildup of settled dust on machinery, rafters, and window sills.
5. Large amounts of dust caught in your nose.
6. Dust leaking from elevator enclosures or conveyors.
7. Puffs of dust at conveyor drop points.
8. Dust being blown out of core boxes.
9. Open foundry sand mullers with no ventilation.

Wood Dust

If you work around wood working machines in the pattern shop, you may be exposed to high concentrations of wood dust or plastic dust. The health effects of these dusts haven't been fully determined. There have been some cases where workers exposed to wood dusts have developed respiratory disorders. Dust may also be a fire and explosion hazard, so a good housekeeping program is important.

Controls:

1. Local exhaust ventilation on stationary woodworking machinery such as table saws, sanders, band saws, planers and shapers.
2. Portable tools with exhaust system "built-in".

Asbestos

Asbestos may be used in the molding department as a riser sleeve in the finished mold. If you cut asbestos tube stock, you may be exposed to asbestos fibers. Prolonged, repeated exposure to asbestos can cause serious lung disorders. Generally, you are exposed for a short time and to low levels of asbestos fiber.

Controls:

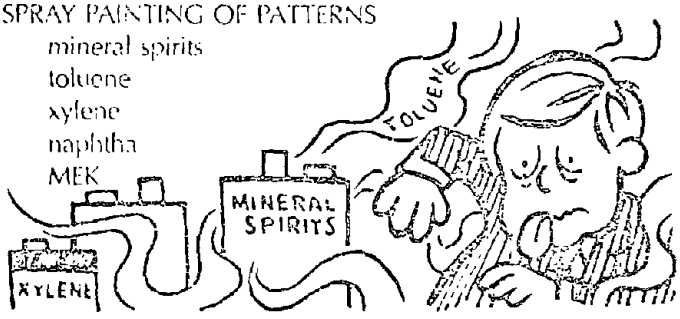
1. Use of local exhaust ventilation on the asbestos tube stock power saw.
2. Use of a knife or scissors to cut stock, rather than a saw.
3. Use of NIOSH or MESA approved respirators for protection against asbestos fibers for emergency or other permitted exposure.

Solvent, Gas, and Vapor Hazards

The operations which will present a possible exposure to solvents, gases, and vapors are:

SPRAY PAINTING OF PATTERNS

mineral spirits
toluene
xylene
naphtha
MEK



GLUING OF PATTERNS
epoxy resins and solvents
SHELL CORE MOLDING (Hot Box Molding)
formaldehyde
ammonia
carbon monoxide
phenol
OIL CORE BAKING
carbon monoxide
phenol
COLD BOX CORE MOLDING
TDI
MDI
Dimethyl ethyl amine
Triethylamine

Solvents

Solvents can be taken into your body by breathing the vapors, by direct skin contact with the liquid, or by accidentally swallowing the liquid.

Some solvents you may be exposed to in the pattern shop and core room are:

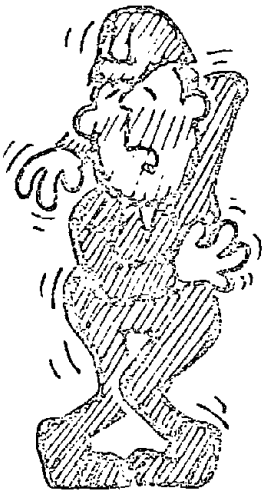
toluene	xylene
mineral spirits	MEK (methyl ethyl ketone)
phenol	alcohols

Exposure in high enough concentrations may have effects on your nervous system, causing symptoms such as:

• dizziness	• nausea
• lightheadedness	• nose and throat irritation
• headaches	• a congested, "tight" feeling in your chest

Contact with liquid solvents such as toluene, xylene, MEK, and phenol may produce skin problems such as rashes, red or dry cracked skin. This condition is called dermatitis.

Epoxy Glues



Epoxies are called sensitizers. That is, the first exposure to them may not affect you at all, but additional exposure, a few days later, may cause an allergy-type reaction, such as asthma, or a severe case of dermatitis.

In areas where epoxies are mixed, you can also be exposed to harmful solvents. Both the epoxy resins and the solvents used to mix them are very flammable.

Note: A heated automatic epoxy gluing operation produces more vapors than a manual cold gluing operation.

Controls:

1. Using local exhaust ventilation on cold box core molding machines, shell core molding machines, the run-out racks of core baking ovens, epoxy mixing stations, and at spray painting areas where these solvents are in the paint.
2. Substitution of less toxic materials.
3. Wearing rubber gloves when handling epoxies.
4. Using solvent safety storage and dispensing cans.
5. Using approved chemical cartridge respirators for short term exposure.

Gases

Gases, like vapors, are quick-acting; you may notice the effects of being exposed to them in a short time. Just because you smell the gas doesn't mean that you will be affected. The

concentration of gas must be high enough. But, don't trust your sense of smell to warn you—some gases such as carbon monoxide have no odor at all.

Carbon monoxide is produced at core molding operations and from the exhaust of gasoline- or LPG-powered industrial trucks. Exposure to carbon monoxide will result in headaches, blurred vision, dizziness, lightheadedness, and a queasy stomach. Very high concentrations of carbon monoxide will cause death.

Ammonia and formaldehyde are irritants, and may be present near shell core machines or in ovens used to bake the oil cores. Ammonia is very irritating to the nose, throat, and eyes. Formaldehyde has a sharp odor, too, but you'll notice its effects first as watery, burning eyes. TDI vapor (toluene diisocyanate) is given off at cold box core molding, and TDI is a sensitizer like the epoxies and may cause an asthma-like reaction.

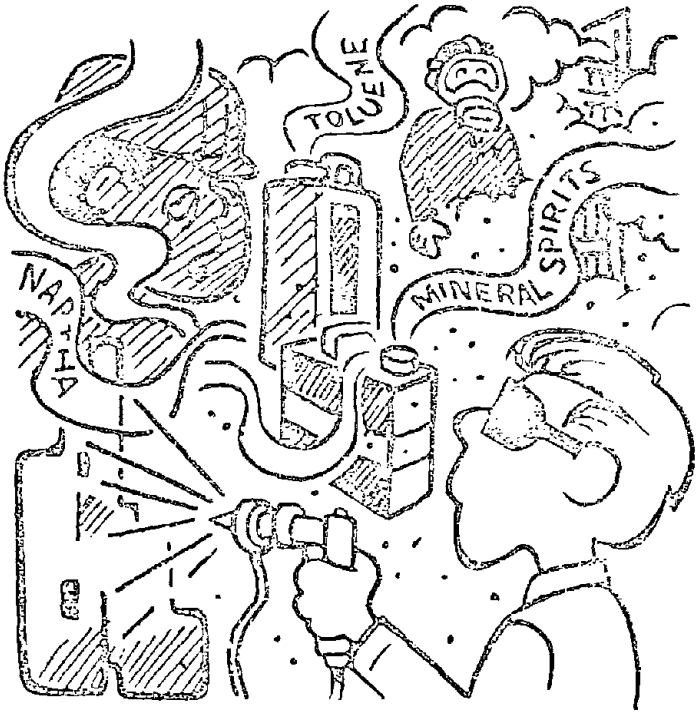
Controls:

1. Using local exhaust ventilation on shell core machines, cold box core machines, and core ovens.
2. Performing regular tune-ups of gasoline and LPG-powered industrial trucks.
3. Using approved chemical cartridge respirators for brief exposures to high concentrations of gases.

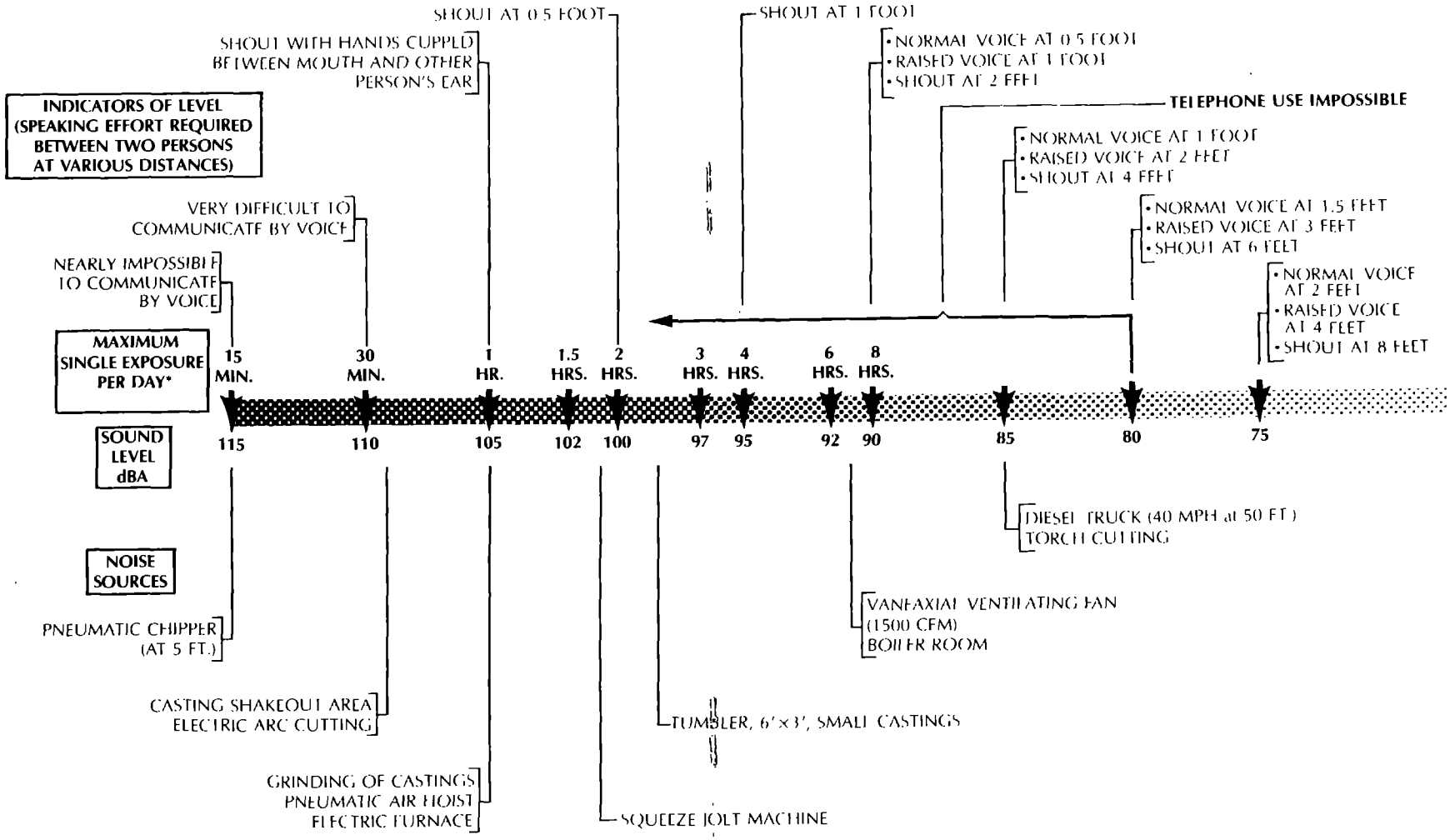
To spot potential gas or vapor hazards look for:

1. Irritating odors.
2. Haze in the workroom that gets worse as the shift progresses.
3. Open containers of solvent.
4. Frequent dermatitis problems.
5. Washing of hands and skin with solvents.

6. No local exhaust ventilation at automatic heated epoxy gluing operations.
7. No ventilation on shell core and cold box molding machines, or on the core baking oven and run-out rack.
8. Shell or oil cores cooling in the workroom with no ventilation.
9. Clouds of smoke escaping exhaust hoods at core ovens or shell core machines.
10. Spray painting with harmful solvents outside of an exhaust-ventilated booth.
11. Inadequate spray booth filter replacement program.



PERMISSIBLE NOISE EXPOSURES



*EXPOSURE FOR REMAINDER OF DAY MUST BE LESS THAN 90 dBA

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Noise:

Noise is a problem if

YOU CAN'T HEAR YOUR BUDDY TALKING IN A NORMAL VOICE AT ARM'S LENGTH.

Too much noise (noise is measured in decibels—dB) over too long a time will cause a hearing loss. One sign of exposure to too much noise is that you will not be able to hear as well for a few hours after leaving your work area. Another sign is that people have to talk louder to you, and you aren't able to understand every sound you hear.

Operations at which there may be too much noise are:

1. Unloading scrap or sand.
2. Saws, planers, sanders, shapers, and routers in the pattern shop.
3. Squeeze jolt molders, and compressed air used to blow off the pattern and mold in the molding area.
4. Shell core (hot box) molding and cold box molding machines, and pneumatic tampers in the core making and molding areas.
5. Fans and collectors for the ventilation system and air compressors.

Heat Hazards

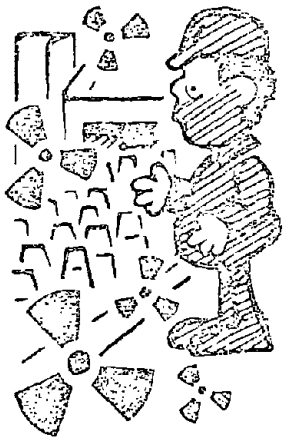
Exposure to excessive heat may cause an illness known as heat cramps or heat prostration, due to the loss of water from your body from sweating. This problem is increased in the summer months. The operation which may present this kind of exposure in your area of the foundry is the shell core molding operation.

Control

1. Shielding of a shell core operation with heat screening.
2. Pedestal fans directed at the operator in a manner not to interfere with the local exhaust ventilation system.
3. Drinking plenty of water to replace fluids lost due to heat exposure and using salt as appropriate.

Radiation

Microwaves may be used to cure cores. Microwaves can heat up body tissue the same way they heat up sandwiches in the lunchroom! Your eyes are more easily injured by microwaves than any other part of your body. A person wearing an "on demand" pacemaker runs the risk of having the microwaves interfere with the heartbeat.



Is Your Exposure Dangerous?

You can do *your* part in spotting what may be a health hazard by noticing symptoms of what might be overexposure in yourself, and by observing conditions and equipment in your work area. If you think that a health problem exists, tell your supervisor and/or union representative and ask to have it checked. They'll refer the problem to an industrial hygienist.

The industrial hygienist can provide the answer to the question, "Is there an unhealthy condition that the foundry worker is exposed to?" The industrial hygienist may ask you and your co-workers to wear sampling equipment to measure the amount of a contaminant that you have come in contact with. It's the industrial hygienist's job to evaluate the hazards that you've spotted. If possible, observe what the industrial hygienist is doing and ask for an explanation. The results of the study will not be available until the samples are analyzed. Ask to have the results explained to you.

ACTIONS YOU SHOULD TAKE IF YOU THINK A HEALTH HAZARD EXISTS IN YOUR WORK AREA

This book is written to help you spot health hazards in your work area. This book cannot tell you if your exposures are too high—only a qualified person with special training and equipment can determine that.

The following are actions you can take to limit your exposure to health hazards:

1. Report your problem. If you think that you have a health hazard in your area, it is in your best interest to report it to your supervisor and/or union representative.

2. Use engineering controls. Engineering controls include: local exhaust ventilation, noise reduction devices (such as enclosures), vacuum systems, and special production equipment.

The selection of these controls can only be made by management as a result of plant engineering studies.

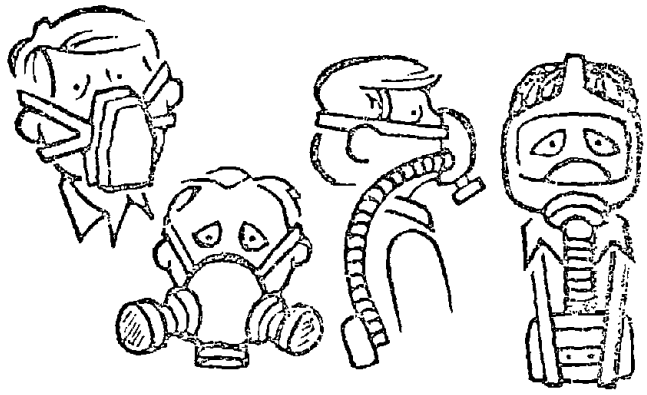
3. Wear protective equipment when required.

Respirators--sometimes respirators aren't comfortable, but they do protect your health, and it is your responsibility to wear them:

- **a.** during brief exposures to high concentrations of contaminants when ventilation is not feasible.
- **b.** until effective engineering controls—such as local exhaust ventilation—can be installed.
- **c.** in an emergency.

All approved respirators have a NIOSH/MESA seal on the side of the box and on the respirator itself which explains what the respirator will filter out. Most respirators will only filter out specific chemicals and not all of the chemicals you are exposed to.

If You Are Exposed To:	You Should Wear:
Dust	An approved dust respirator with mechanical filter.
Solvent Vapors	An approved organic solvent vapor respirator—chemical cartridge.
Dust and Solvent Vapors	An approved organic solvent vapor respirator-chemical cartridge with a mechanical dust filter (prefilter).
Gases	A chemical cartridge or chemical canister respirator approved for the particular type of gas.



WATCH OUT!—Surgical type gauze masks do not provide adequate protection.

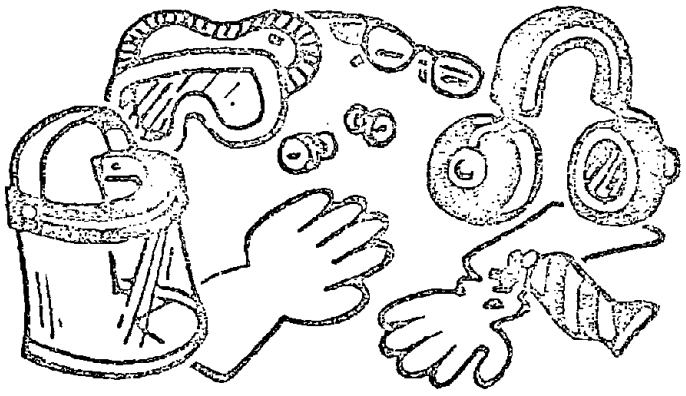
Remember these points:

— Cartridges must be changed periodically, especially if you begin to taste or smell the vapor or gas, if you have difficulty in breathing through them, or if the specified useful lifetime of the cartridge has expired.
— Respirators must be stored in a clean area.
— They must be disinfected daily, especially when you have a cold.
— Respirators must fit properly. Beards and mustaches may interfere with the face seal.
— You must be trained in the proper use and care of the respirators.

Gloves and Barrier Creams—to protect the skin from chemicals such as solvents and epoxies that can cause dermatitis.

Face Shield and Goggles—must be used while sand slinging, sawing, and routing to keep particles from the eyes.

Ear Plugs or Muffs—prevent hearing loss from high noise exposures while engineering controls are being installed.



Note: Some workers say they can't hear warning bells or other workers when they are wearing hearing protection. You can actually hear better with hearing protection, since more of the noise around you is masked out. You may find hearing protectors uncomfortable at first, but after a few days you will get used to them. You may then find the noise in the area to be uncomfortable when protectors are not worn.

Remember

— Ear plugs must be properly fitted because one size does not fit everyone.
— Plugs should be washed frequently with warm, soapy water.
— Plain cotton is not effective protection.
— Keep your ears clean.
— The side frames of glasses may prevent ear muffs from giving proper protection. You may have to get glasses with special side frames.

4. Housekeeping

Housekeeping in foundries is important! Dust that settles on the floor, pipes, rafters, and equipment can be blown into the air by passing vehicles, drafts from open windows and doors, sweeping, fans, and other equipment. The better job *YOU* do of keeping your work place cleaned up, the better chance you will have of keeping dust out of the air you breathe.

Naturally, it's best to vacuum, but if you must sweep, do so carefully. Don't blow off equipment with compressed air.

Other housekeeping points you should be aware of are:

- Filters on paint spray booths should be changed before they get caked with overspray.
- Solvents should be kept in closed containers.
- The doors on all mullers should be kept closed after charging.
- The dust traps of ductwork should be cleaned regularly.

5. Personal Hygiene

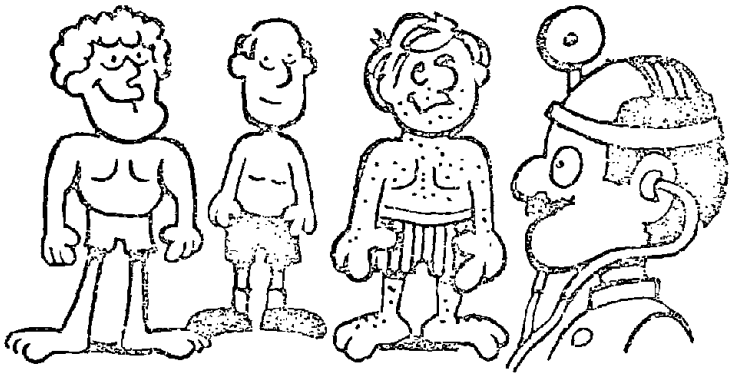
It's tough to stay clean in a foundry. But good personal hygiene is more than just staying clean. It's a way of protecting yourself: against health hazards, against breathing or swallowing harmful materials, from skin problems, and from overexposure to heat.

Remember

— Wash your hands and face before eating, drinking, smoking, or using the toilet.
— Eat, drink, or smoke only in permitted areas.
— Carry smoking materials in a closed case.
— Store your lunch away from the work area and hazardous materials.
— NEVER heat food on furnaces.
— Don't wear contaminated work clothes home.
— Launder work clothes separate from the family wash.
— NEVER wash with solvents.
— Drink plenty of water to replace liquids you may lose due to exposure to heat. For work in hot areas, increase your salt intake (unless on a low salt diet). Try salting your food a little more than usual.

6. Medical Examinations

In addition to recognition of a hazard through industrial hygiene studies, another way of determining if you are over-exposed to some contaminants is through periodic medical examinations—by your company doctor or family physician.



A full-size chest x-ray every two to three years can show if silicosis is developing. Also, the doctor will probably ask you to take a breathing test. This test will show how much air your lungs can hold, because silicosis may cause shortness of breath.

Blood and/or urine tests will measure your exposure to certain vapors such as phenol, or to metal dusts and fumes like lead.

If you work in a high noise area, a hearing test called an audiometric test may be given.

These medical records are confidential and can only be released as required by law or with your permission. The examinations and records will document your present state of

health and can be used in diagnosing a possible future illness and then prescribing a course of treatment.

Don't be afraid of these examinations—they're meant to be an early warning for any possible health problems as part of a good preventive medical program.

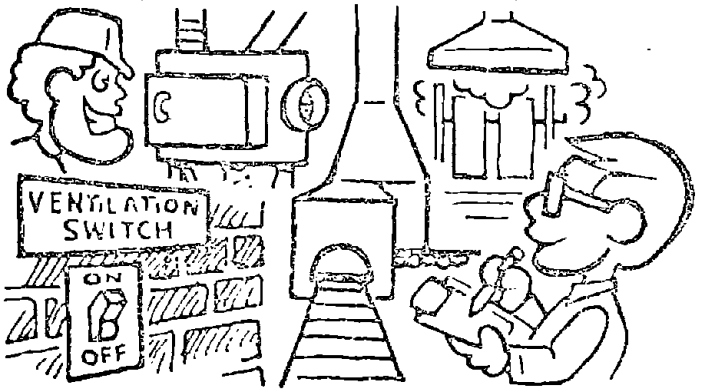
DO'S AND DON'TS FOR A HEALTHY WORK ENVIRONMENT IN THE PATTERN SHOP, CORE ROOM, MOLDING AREA, AND SAND HANDLING DEPARTMENT

The Do's!!

1. Make sure the ventilation system is turned *on* and *operating*. Things which may be wrong include:
   a. Motor is turning, but the belt to the fan is disconnected.
   b. Fan is reversed; the hood is not working effectively.
   c. Floor fans are blowing the contaminant away from the hood.
   d. Hood is too far from source of contaminant.
   e. Hoods and ducts are clogged, restricting air flow.
   f. Supply air duct is drawing contaminated air from the exhaust duct. Open windows can do the same thing.
2. Tell your supervisor of any irritation, discomfort, or rash you suspect may be caused by a foundry contaminant.
3. Dispense and store solvents in safety dispensing cans.
4. Keep the muller enclosure door shut when not adding ingredients.
5. Clean off ledges and machinery above your head. Vacuuming is better than sweeping.

6. Wear personal protective devices when needed—

   a. Dust respirators for silica dust.
   b. Chemical cartridge respirators for gases and organic solvents.
   c. Barrier creams and gloves—perhaps face shields and aprons when handling solvents or working with epoxy adhesives.
   d. Ear plugs or muffs for noise exposures.
   e. Face shields at sand slinging.
   f. Eye protection if there is a possibility of an eye injury from flying particles, chips, or splashes.
7. Eat only in designated lunch room areas.
8. See your doctor or the company doctor for periodic physical examinations and tests.
9. Discuss industrial hygiene hazards and ways to correct them at your safety meetings.
10. Clean up spills of solvents or chemicals quickly.



The Don'ts!!

1. Don't spray paint outside the spray booth.
2. Don't use leaking cold box or shell core boxes.

3. Don't dispense or store solvents in open containers
4. Don't use solvents to clean hands.
5. Don't allow dust to build-up in aisles, on overhead structures, or on machinery.
6. Don't eat in areas having airborne contaminants.
7. Don't heat food in work areas.
8. Don't overlook symptoms you suspect may be caused by health hazards.
9. Don't misuse personal protective equipment.

First Aid

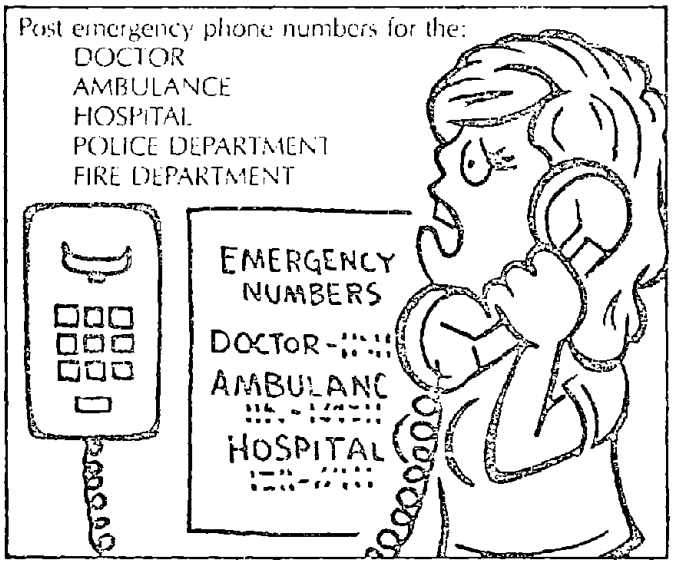
In foundries, the word is fast—FAST AID.

If a solvent, acid, or resin gets into your eyes, immediately flush your eyes with water. Hold the lids open with your fingers to make sure the water washes away all of the material. Send someone for medical help.

Although it is always unexpected, foundry workers may suddenly become unconscious from extreme overexposure to solvent vapor, carbon monoxide gas, or extreme heat.

Remove the victim from the exposure. But—always put on protective equipment first—don't become a "victim" yourself. If you know how to give artificial respiration, you might revive someone who is unconscious and who has stopped breathing. This could prevent death or brain damage.

KNOW WHO THE TRAINED FIRST AIDER IS ON YOUR SHIFT



You've Finished Reading The Book. . .

Now, what can you do?

Getting rid of health problems in your foundry takes time and it takes people working together to help solve health problems.

If you've identified what you think is a health problem in your area:

- tell your supervisor or foreman
- tell your union representative
- ask to have an industrial hygiene study done in your work area
- understand what the results mean
- follow the rules and regulations that apply to you. And, if you have any further questions about health hazards:
- contact the nearest office of NIOSH or OSHA.

LIST OF TERMS

Audiometric Test—a hearing test.

Chemical Cartridge Respirator—a breathing device providing gas and vapor protection.

Decibel—a measurement quantity for sound level.

Dermatitis—inflammation of the skin.

Dust—small solid particles created by breaking up of larger particles.

Fumes—smaller solid particles given off where molten metals are used.

Gas—a substance which occurs as a gas at standard temperature and pressure.

Hood—the shaped inlet of a ventilation system designed to capture contaminated air.

Local Exhaust Ventilation—ventilation designed to remove contaminants at or near the point of origin.

Mechanical Filter Respirator—a breathing device for removing dusts, fumes, and mist.

Mineral Dusts—dusts of substances occurring naturally in the earth, such as silica and asbestos.

Noise—unwanted sound.

Nuisance or Inert Dust—dusts with minimal health effects.

Silicosis—a lung disease resulting from long term exposure to excessive concentrations of silica dust.

Solvent—an organic liquid that dissolves another material.

Vapor—the gaseous form of a substance, normally liquid at room temperature.

Vibration—a back and forth motion of matter.

NIOSH AND OSHA REGIONAL OFFICES

The following pages list NIOSH and OSHA regional offices which can provide information on the OCCUPATIONAL SAFETY AND HEALTH ACT including questions on standards interpretations, voluntary compliance information, copies of the *OSHA Standards, OSHA Act, Employee Rights Posting Notice,* and publications.

NIOSH REGIONAL OFFICES

DHEW, Region I
Government Center (JFK Fed. Bldg.)
Boston, Massachusetts 02203
Tel.: 617/223-6668/9

DHEW, Region II — Federal Building
26 Federal Plaza
New York, New York 10007
Tel.: 212/264-2465/8

DHEW, Region III
3525 Market Street, P.O. Box 13716
Philadelphia, Pennsylvania 19101
Tel.: 215/596-6716

DHEW, Region IV
50 Seventh Street, N.E.
Atlanta, Georgia 30323
Tel.: 404/881-4474

DHEW, Region V
300 South Wacker Drive
Chicago, Illinois 60607
Tel.: 312/886-3651

DHEW, Region VI
1200 Main Tower Building, Room 1700-A
Dallas, Texas 75245
Tel.: 214/655-3081

DHEW, Region VII
601 East 12th Street
Kansas City, Missouri 64106
Tel.: 816-374-5332

DHEW, Region VIII
19th & Stout Streets
11037 Federal Building
Denver, Colorado 80291
Tel.: 303/837-3979

DHEW, Region IX
50 Fulton Street (223 FOB)
San Francisco, California 94102
Tel.: 415/556-3781

DHEW, Region X
1321 Second Avenue (Arcade Bldg.)
Seattle, Washington 98101
Tel.: 206/442-0510

OSHA REGIONAL OFFICES

Region I
U.S. Department of Labor
Occupational Safety and Health Administration
JFK Building, Room 1804
Boston, Massachusetts 02203 ----------Telephone: 617/223-6712/3

Region II
U.S. Department of Labor
Occupational Safety and Health Administration
1515 Broadway (1 Astor Plaza), Room 3445
New York, New York 10036 ----------Telephone: 212/971-5941/2

Region III
U.S. Department of Labor
Occupational Safety and Health Administration
15220 Gateway Center, 3535 Market Street
Philadelphia, Pennsylvania 19104 ----------Telephone: 215/596-1201

Region IV
U.S. Department of Labor
Occupational Safety and Health Administration
1375 Peachtree Street, N.E., Suite 587
Atlanta, Georgia 30309 ----------Telephone: 404/881-3573/4 or 2281/2

Region V
U.S. Department of Labor
Occupational Safety and Health Administration
230 S. Dearborn, 32nd Floor
Chicago, Illinois 60604 ----------Telephone: 312/353-4716/7

Region VI
U.S. Department of Labor
Occupational Safety and Health Administration
555 Griffin Square Building, Room 602
Dallas, Texas 75202 ----------Telephone: 214/749-2477/8/9 or 2567

Region VII
U.S. Department of Labor
Occupational Safety and Health Administration
Federal Building, Room 3000, 911 Walnut Street
Kansas City, Missouri 64106 ----------Telephone: 816/374-5861

Region VIII
U.S. Department of Labor
Occupational Safety and Health Administration
Federal Building, Room 15010, 1961 Stout Street
Denver, Colorado 80202 ----------Telephone: 303/837-3883

Region IX
U.S. Department of Labor
Occupational Safety and Health Administration
9470 Federal Building, 450 Golden Gate Avenue
Post Office Box 36017
San Francisco, California 94102 ----------Telephone: 415/556-0584

Region X
U.S. Department of Labor
Occupational Safety and Health Administration
6048 Federal Office Building, 909 First Avenue
Seattle, Washington, 98174 ----------Telephone: 206/442-5930