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Safety Clothing

SAFE CLOTHING may be any type of clothing that is clean, in good repair and suitable for the job. Most garments offer some protection against minor hazards.

Safety clothing refers to specific garments designed for certain hazardous jobs where ordinary work clothes do not provide sufficient protection.

Proper fitting is essential in all work clothing. Loose sleeves and neckties may not caught in machinery. Trouser cuffs may cause tripping.

Clothing soaked in oil or flammable solvent is ignited easily. Both flammable and non-flammable solvents may cause skin irritation. Cleanliness is also an important aid to morale.

Laundried overalls, coveralls, aprons, smocks, and other garments are furnished by companies for occupations where extreme cleanliness is necessary because of the product or because of health-hazardous processes.

Exposures that require special protective garments include moisture, high temperatures, hot or corrosive substances, flying particles, sharp or rough edges, etc. See chart on page 108 for types of garments and materials for various hazards.

The following are essential in all work clothes:

1. Adequate protection
2. Comfort and freedom of movement.
3. Durability
4. Appearance



Flameproofed garments resist heat sparks thrown off by burning torches.

Appearance of clothing is particularly important with women employees, but men are not indifferent to it.

Standards. Specifications established by the Federal Government have provided widely used standards for many years. During the war the American Standards Association approved a series of War Standards for Protective Occupational Clothing—Series L18. These are still accepted standards.

Specifications cover protection against sparks, molten metal, infrared and ultra-violet rays, and limited impact forces. Details of pattern, design, workmanship and range of sizes are also included.

Protective Materials

Asbestos is preferred for protection against intense heat and flame. Many garments are made of this material, including complete suits for fire-fighting and rescue work.

Airplane crash fires have focused attention on protection for fire-fighters and rescue crews. These suits use not only insulating material against conductive heat but also a radiation barrier of reflective material, such as aluminum foil. Suits of this type have been developed by the U. S. Air Force.

Wool clothing should be worn under asbestos garments where intense heat is encountered.

Leather of various grades is used for protective garments. Chromed leather affords protection from sparks, molten metal splashes, and infra-red and ultra-violet rays. Leather, however, deteriorates under continued exposure to heat. For severe exposure, asbestos should be used.

Leather provides protection against limited impact. Padded leather or fabric aprons and hard fiber or metal protectors for the abdomen absorb much of the force of hard blows.

Leather reinforced by metal stitching or wire staples is resistant to cuts and abrasion.

Impervious materials of many types provide protection against dust, vapors, mists, moisture and corrosive liquids. They are useful in handling materials which would cause dermatitis or burns. This type of material includes rubber, neoprene and vinyl films and fabric coated with them.



What the safety dressed construction worker should wear is modeled at Carnegie Institute, Pittsburgh in an exhibit of industrial safety armor and modern safety armor. Equipment was supplied by Dravo Corp., whose safety director, Gerald O. Griffin, is adjusting his belt on model. Other equipment includes safety shoes, protective gloves, eye shield and hard hat.

Rubber is widely used because it resists acids, caustics and other corrosive substances. Garments of rubberized fabric are used when handling low concentrations of acids and non-caustic liquids and for protection against weather. Rubber's high dielectric strength makes it useful for protective equipment where electricity is used.

Neoprene has numerous applications in safety equipment. It forms a tough durable film resistant to oils, solvents, acids and alkalis. It has high dielectric strength.

Flame-resistant duck, a lightweight fabric, is quite strong and will outwear ordinary material used in work clothes. For protection against extreme heat, asbestos should be used.

Water-resistant duck is recommended in exposures to water and non-corrosive liquids. It combines strength and durability with light weight.

Vinyl plastic has many uses in safety equipment. For some garments the plastic is rolled or calendered onto fabric. For others the strong pliable film is used without backing.

Synthetic fabrics, such as dycel, orlon and vinyon, are used for durable work clothing. These fabrics resist acids, caustics, mildew, abra-

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INDUSTRIAL HEALTH



Abstracts of current literature
on Industrial Hygiene, Medicine, and Nursing

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Tuberculosis in Industry

Tuberculosis Control in Industry, by Harold A. Vonachen, M.D., Milton H. Kronenberg, M.D., and Dan Morse, M.D. Industrial Medicine and Surgery 23, 9-12 (January, 1954).

Tuberculosis control in industry is of importance chiefly because the industry is usually located in the urban areas where the incidence of tuberculosis is usually relatively high and where there is, consequently, the maximum probability of getting employees with undetected cases of active tuberculosis.

Since the X-ray is the only effective way of finding tuberculosis cases, pre-employment X-rays should be used on all prospective employees. This should be done both as a protection to fellow workers who will be protected from contagious disease, as a protection to the company and the insurance companies, and, finally, as a protection to the prospective employee who has a chance to have his case diagnosed and gotten under treatment while it is still in a minimal and curable stage.

At the Caterpillar Tractor Company, between 1947 and 1952, 65 cases of active tuberculosis and 10 cases of pleural effusion were discovered in just under 65,000 pre-employment X-rays. In addition to these, there were discovered 103 arrested and inactive cases of tuberculosis and 22 cases which required further diagnostic procedures.

All of the 103 arrested cases and most of the 22 suspected cases were permitted to work in the company but they were kept under medical supervision and kept out of types of employment which would be apt to cause a flare-up of their tuberculosis. They were also required to have periodic X-rays throughout the period of employment.

To check up on the possible cases of tuberculosis developing within the group of employees, it would be desirable to have annual X-rays. This is being done in some industries but

not in all. In Peoria, the State Health Department has provided mass X-ray surveys from time to time, and Caterpillar employees have had an opportunity to be X-rayed in 1944, 1947, and 1951.

In the 1944 survey, 22 active cases of tuberculosis were found among 13,000 employees; in 1947, there were 2 cases among 16,000 employees; and in 1951, one case among 23,000 employees who volunteered to have an X-ray. The 23,000 X-rayed in 1951 represented 96% of all the available personnel.

Caterpillar cases of tuberculosis have shown a greater decrease than in other industries in the same area who also have the mass X-ray surveys. The reason for this is probably the pre-employment X-rays which Caterpillar has had since late in 1945.

When X-ray surveys are made, there should be no reluctance to hire inactive and arrested cases of tuberculosis. Such a refusal to hire people who have been in the tuberculosis sanitarium has long been one of the most severe handicaps in tuberculosis control. Of the 103 arrested and inactive tuberculosis cases hired by Caterpillar over the six year period, only 3 have broken down and all of these have been off temporarily and then returned to work.

One reason for this is the highly organized rehabilitation departments now existing in the Peoria area which gets people ready to go to work prior to being discharged from the sanitarium and the sheltered work shop where they start out on a restricted schedule of activity and work up to the ability to do a full day's work.

An effective job placement system is of the greatest importance in handling arrested cases of tuberculosis. They should not be where there is excessive dust from any cause, whether or not it is silica dust and they should not be expected to do heavy lifting, pushing or pulling, or any other heavy labor, although

really heavy labor has almost disappeared from most large industries. It is necessary that they not be transferred from job to job without consulting the medical department.

The final part of a good tuberculosis control program is tuberculosis health education for all employees. There should be pamphlets available for employees and occasional articles on tuberculosis control in the plant publication and materials available through the local tuberculosis control association should be distributed by the management and posted on bulletin boards from time to time.

Cases of tuberculosis found either in mass surveys or in pre-employment surveys should, of course, be reported to the local community tuberculosis control associations and every effort should be expanded to get them under observation and treatment as soon as possible.

Labor's Medical Plans

Union Health Centers, by the Committee on Medical Care for Industrial Workers of the Council on Medical Service and the Council on Industrial Health of the American Medical Association. The Journal of the American Medical Association 154 361-363 (January 23, 1954).

UNION HEALTH CENTERS are a comparatively recent development in the United States, although the earliest one, that of the International Ladies Garment Workers Union in New York City was organized in 1913. This was the only union health plan in existence for about 23 years. The present rather large union interest in health plans arose in 1942 when the price and wage freeze attendant on World War II essentially altered the wage increases, but increased benefits for workers in the form of health and welfare services. These services could be added on to the extent of not more than five per cent of the payroll.

The interest in health plans has remained active even since the wage controls have been discontinued.

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