

# Michigan Municipal Workers' Compensation Fund Safety and Health Resource Manual

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## Housekeeping Practices

### Overview

Good housekeeping is essential to fire safety for each type of occupancy from the simplest dwelling to the most sophisticated industrial complex. Housekeeping is the maintenance of an orderly, clean and neat work place. Good housekeeping practices, both indoors and outdoors, reduce the danger of fire. They can control the presence of unwanted fuels, obstructions, and sources of ignition that can create extremely hazardous exposures both to life and property.

It is not practical or possible to discuss every aspect of good housekeeping. Some aspects of housekeeping are common to practically all occupancies; others are peculiar to a particular occupancy and require special procedures. Although a cliché, the statement "a place for everything and everything in its place" captures the best approach to assuring good housekeeping practices.

### Principles of Good Housekeeping

Housekeeping consists of the simpler aspects of building care and maintenance:

- Maintaining operational tidiness and order,
- Properly controlling waste, and
- Regulating activities such as smoking that can lead to hazardous conditions.

To be successful, housekeeping requires organization and continuous monitoring.

### Responsibility for Housekeeping

No matter what the area of operation, work activity creates waste materials and obstructions to orderly movement throughout the premises. It is essential that every organization have a system for removing them. It is not enough to be aware that waste accumulates and obstructions to movement can occur and then remove them when they become unwieldy or a nuisance. Developing a systematic approach is the only way to make sure that housekeeping activities achieve their goal: an orderly work place that contributes to fire safety.

It is essential to develop a disciplined approach to prescribed housekeeping practices, so that workers remove debris and trash regularly and store materials and equipment neatly. The same is true for routine building maintenance chores. Without a systematic approach, workers may neglect the chores and property can suffer. This may also indicate that the organization is neglecting the routines for maintaining fire defenses.

In a large organization, management usually assigns housekeeping to a maintenance staff charged with the routines involved in housekeeping and maintenance. Direction for the overall effort, however, remains with management. Management communicates how important and urgent good housekeeping routines are if efforts are to be effective. Without direct and vigorous management support, housekeeping goals and objectives can become a low priority.

In a smaller organization without a maintenance staff, good housekeeping is more an individual effort. Yet the principles are the same: Management must lead workers and convey to them how important vigorous and systematic attention to the tenets of orderliness and cleanliness is.



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### Basics of Good Housekeeping

Except for the somewhat specialized activities of basic building maintenance, there are three factors required for good housekeeping:

1. Adequate space, proper layout and equipment.
2. Correct materials handling and storage.
3. Cleanliness and orderliness.

Good housekeeping is certain to result when the organization pays proper attention to establishing routines for these three factors.

### Layout and Equipment

An adequately designed work area has adequate working space, adequate and proper storage facilities, and the right equipment for moving material. Otherwise good housekeeping falters as the work area becomes clogged, materials back up waiting for processing, and the messy surroundings result in a decline of overall cleanliness. A careful review of space requirements for the actual operations being carried on may suggest ways to rearrange the space. A better arranged space can improve the levels of housekeeping considerably.

### Materials Handling and Storage

The lack of adequate equipment to move and to arrange materials in convenient storage areas results in haphazard storage. This compounds the housekeeping problem. It can easily result in blocked exit paths and obstruct access to fire extinguishers, small hose stations, and automatic extinguishing system control valves. Other fire protection equipment, such as fire doors, can become inoperable. Poorly organized storage may result in the collection of debris and trash in neglected corners and cul-de-sacs.

### Cleanliness and Orderliness

No matter what the occupancy, an organization can immeasurably improve the level of fire safety by paying attention to the fundamental need to keep all areas as clean and neat as possible. The most important defense against unsightly and dangerous accumulations of unwanted materials and trash is each individual's personal sense of responsibility and desire to keep the surroundings neat and clean. Management must support workers by providing efficient and timely waste removal programs.

### Building Care and Maintenance

There are several noteworthy procedures for the proper care and maintenance of buildings. These procedures apply regardless of occupancy. They either address inherent fire hazards or work to reduce the fire danger to the building.

### Cleaning and Treatment of Floors

Cleaning and refinishing floors may present a fire hazard if workers use flammable solvents or finishes or if the process produces a sufficiently large combustible residue. For example, many fires have resulted from use of gasoline to clean garage floors.

Cleaning or finishing compounds that contain solvents with flash points below room temperature are too dangerous for ordinary use except in very small quantities. The hazard depends upon the conditions under which individuals use solvents and on what precautions they take. Fire testing laboratories have listed many cleaning compounds that present little or no hazard.

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**Sweeping Compounds:** These compounds, that consist of sawdust or other combustible material treated with oil, are hazardous. The degree of danger depends upon the character of the oil. The use of sawdust or similar materials to absorb oil spillage increases the fire hazard unnecessarily since non-combustible oil-absorptive materials are available for this purpose.

**Floor Oils:** Compounds containing oils and low-flash-point solvents are a hazard particularly when freshly applied. The oils are subject to spontaneous heating. To promote safety, organizations should require employee to store oily mops and wiping rags in metal or other non-combustible containers. The excessive use of any combustible oil increases the combustibility of the floor. Oil soaked floors, resulting from years of use and cleaning, also show increased combustibility.

**Waxes:** Low-flash point solvents are hazardous, especially when used with electric polishers. Water emulsion waxes are preferable.

**Furniture Polishes:** Polishes that contain oil subject to spontaneous heating become hazardous when individuals do not properly dispose of polish soaked rags.

**Flammable Cleaning Solvents:** Organizations should not use these since a number of non-hazardous cleaning agents are available. There are a number of relatively safe materials that have high flash point, stability, and low toxicity. There are several commercial-type stable solvents available that have flash points from 140° to 190°F and have a comparatively low degree of toxicity.

Safe materials are available for most of the preceding purposes.

### Chimney Cleaning

Chimneys need periodic cleaning. The frequency depends on the fuel used and how carefully workers operate boilers and furnaces. Soft coal and wood fuels may make annual cleaning necessary. Mechanical cleaning is best, but finding experienced chimney sweeps can be difficult. As a substitute, an employee may wrap a brick in an old piece of carpet material. He or she then ties a rope to the wrapped brick and slowly drops it down the flue. The employee may use a piece of chain, bunched, instead of the brick.

Various proprietary products are available for removing soot. Some of the products work by promoting combustion of the soot and disposing of it by specially controlled burning. Other soot removing compounds that contain oxidizing agents have caused explosions when thrown into stoves or furnaces. The National Bureau of Standards has run tests that indicate that using chemical means to remove soot is, at best, of uncertain value.

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### Housekeeping for Occupancy and Process

#### Rubbish Disposal

Rubbish handling is essential to the housekeeping process. Its success depends primarily upon having and observing a satisfactory routine. Most important is the proper and regular disposal of combustible waste materials. In industrial-type operations, the removal of combustible waste at the end of each day's work or at the end of each work shift is a common practice. Sometime, however, even more frequent waste disposal is necessary.

In other operations, collecting waste, storing it safely pending disposal, and the routines for disposal vary with the nature of the property use. Regardless of the routine, having an adequate waste collection and disposal program is a fire safety essential. Keeping a place tidy also depends on providing enough wastebaskets, bins, cans, and other proper containers so that building users will find tidiness convenient.

#### Receptacles

Disposal of waste and rubbish should be in non-combustible containers. This applies to small receptacles such as ashtrays and wastebaskets and to larger units such as those used on commercial properties. Industrial waste barrels should be of metal and be equipped with a fitted cover. Organizations must make sure that workers avoid mixing waste materials where such mixing can create additional hazards.

Plastic wastebaskets of varying sizes are widely available. These baskets are popular because they are quiet, attractive, and scratch and dent resistant. Some plastic baskets readily melt and burn. These baskets create a comparatively serious fire exposure problem by collapsing and spilling their burning contents as well as adding fuel to the fire. Other baskets may contribute relatively little fuel to the fire while maintaining their shape fairly well.

If an organization prefers plastic baskets, it should evaluate the various brands and types carefully. Many manufacturers now provide information on their products' burning characteristics.

### Housekeeping Hazards

Many occupancies pose special housekeeping problems because of their operations. Specific planning and arrangements are necessary to address these.

**Drip pans** are essential for many operations. In particular, workers must place pans under some motors, under machines using cutting oils, bearings, and where work involves borings and turnings that may contain oil. Pans should be of non-combustible material. Workers can best handle spills and drips by using oil-absorbing compounds that consist primarily of diatomaceous earth. These compounds are commercially available and are preferable to sawdust or sand. Regular removal of oil soaked material is essential.

Organizations should anticipate **flammable liquid spills** whenever operations required the use of such liquids. The materials -- oil absorbing compound and appropriate tools -- to handle spills should be close at hand and readily available. Workers should receive training in the appropriate steps to cut off sources of ignition, to ventilate the area, and to safely dissipate any flammable vapors.

**Flammable liquids waste disposal** can often be troublesome. Organizations should never drain waste liquids, such as automobile crankcase draining, into sewers. Instead workers should place such waste in metal drums until proper disposal take place. Where such facilities exist, organizations should recycle such waste. There are companies that specialize

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in collecting waste petroleum products and refining them for further use. Organizations should burn flammable liquid wastes only in containers designed or adapted for this purpose. Many fire departments like to receive waste oils for training firefighters in handling flammable liquid fires.

**Coatings and lubricants** such as paint, grease and similar combustibles are widely used. Good housekeeping requires the collection and safe disposal of combustible residues. Experts recommend the use of non-sparking tools for cleaning spray booths and associated exhaust fan blades and ducts to prevent igniting combustible residues. It is essential to maintain sprinklers free from deposits. There are two effective methods. The first is to applying a thin coating of grease to sprinklers and then to clean them frequently. Another is to enclose each sprinkler in a light paper bag that workers change daily. Organizations should locate air ducts so vapors from spray booths vent directly to the outside and residues do not accumulate.

**Clean cotton waste** is mildly hazardous, chiefly because it is readily flammable when not baled. In addition, if dirty waste or small amounts of certain oils become mixed with them spontaneous heating can result.

Although clean waste presents only a small fire hazard, it is a good practice to handle it in the same manner as dirty waste. Storage of large supplies of clean waste should be in metal bins or in metal-lined woodbins. Bins should have covers and workers should close them except when removing waste. Organizations should provide an adequate number of bins if supplies are large or if it stores different kinds of waste. The bin covers should have counterweights so that the covers are easy to lift and lower. Experts recommend that the counterweight rope have a fusible link so that the cover closes automatically in the event of fire. Storage of local supplies of clean waste should be in small, properly labeled waste cans.

Local supply points have the advantage of discouraging workers from keeping clean waste in lockers, drawers, benches, and other areas. This practice can be dangerous because someone might inadvertently store dirty waste in these areas and a fire might result.

**Oily waste** on wiping rags, sawdust, lint, clothing, etc. -- particularly waste containing oil subject to spontaneous heating -- is extremely dangerous. Storage of all such materials in ordinary quantities should be in a standard waste can. When selecting cans, organizations should look for a label indicating that a recognized laboratory has tested and approved them. Storing large amounts requires heavy metal barrels with covers. Good housekeeping includes emptying cans containing oily waste daily and keeping wiping rags in covered metal containers until laundered.

**Packing materials** are generally combustible and, therefore, hazardous. Workers should treat burlap, straw, excelsior, and similar materials as clean waste unless the organization uses large quantities. If this is the case, the organization may need special vaults or storerooms. Fire safety experts recommend automatic sprinklers in areas where workers store or handle large quantities of packing materials even if the rest of the building lacks this protection.

Promptly removing and disposing of used or waste packing materials and crating from receiving and shipping rooms is essential to minimize the danger of fire. Workers should be orderly when they pack and unpack to minimize scattering of materials around the area.

## Lockers and Cupboards

When **lockers** are not clean and when workers use them as storerooms for waste material, they are fire hazards. This is particularly true if the stored items include oily rags, cloths or clothes smeared with paint.

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Pipes and cigars that workers do not completely extinguish before placing them in lockers are very dangerous; so is the careless storage of matches in lockers. Metal lockers reduce the danger of fire spreading from one locker to another. Organizations should conduct regular inspections if they use wooden lockers. In addition, solid construction can help to confine a fire to a locker. Therefore, lockers should have solid backs and solid dividing partitions rather than expanded metal or wire screen ones. Lockers stacked in two tiers, one upon the other, is not a good choice. They do not allow workers to hang their clothes so they do not wrinkle. As a result, workers often hang their clothes outside the locker or place them haphazardly into the locker. The latter practice can increase the danger of spontaneous heating if clothes are oil or paint spotted.

If lockers have mechanical exhaust ventilation, the organization should follow NFPA No. 91, Blower and Exhaust Systems, to avoid the danger of spread of fire originating in a locker.

If it provides and washes protective clothing, fire safety experts suggest that the organization install a system of wire baskets, suspended from the ceiling by a small chain running over a pulley. Each employee should have his or her own basket. This system has proved successful in maintaining cleanliness, thereby reducing the fire hazard.

If the locker area has automatic sprinklers, lockers should have expanded metal or screen tops so water from sprinklers reaches the locker contents. If necessary, workers can cover the top with paper to protect their belongings from dust. Using the tops of locker for storage is a bad practice both from fire and accident prevention standpoints. Sloping tops solve this problem because workers cannot place items on the top.

Wooden supply **cupboards** present a fire hazard in such places as machine and paint shops if the woodwork becomes oil or paint soaked and if workers leave clothes or oily waste in the cupboards. Regular inspections of such cupboards can verify that workers are maintaining an appropriate level of cleanliness. Steel is the ideal material for cupboards that store tools and similar materials.

## Outdoor Housekeeping

Good housekeeping is as important out-of-doors as it is inside homes and buildings. Inadequate housekeeping may threaten the fire security of exposed structures and items stored out-of-doors. Accumulations of rubbish and waste and overgrown grass and weeds adjacent to buildings or stored items are probably the most common hazards. Inspecting the grounds and correcting problems is essential.

### Weed and Grass Control

Dry weeds and grass around buildings and along highways and railroad properties present a clear fire hazard. Destroying the vegetation has always been the aim of those responsible for maintaining such areas.

Applying a chemical solution that acts as a poison on the weeds is a frequent removal method. However, some chemicals can create hazards. For example, chlorate compounds, particularly sodium chlorate, are oxidizing agents. Although they do not burn themselves, they optimize conditions for fire or explosion when they come in contact with combustible materials. Using sodium chlorate solutions on dry grass and weeds has resulted in many fires during hot periods in the summer. Sodium chlorate solutions are suspect in numerous other fires in buildings and on properties where workers may have spilled such solutions. A personal hazard arises when a person's clothing becomes soaked while using such solutions.

Sodium arsenite and other compounds containing arsenic are efficient herbicides but are poisonous and are not recommended.

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Various proprietary weed-killers do not pose fire or serious toxic hazards. Calcium chloride and agricultural borax, applied dry or in solution, are effective non-hazardous weed killers. Ammonium sulfamate and various other commercial chemical weed killers also have little or no fire hazard and only a slight toxic hazard. The amounts of various chemicals needed for effective weed killing, and the duration of their effect, vary depending upon the weed-killing agent used, the character of the vegetation, and atmospheric and soil conditions. Manufacturers' directions indicate the amounts that workers should use under various conditions.

Burning as a method for removing dry grass and weeds frequently ignites buildings when grass fires spread out of control. Controlled burning at the proper time of the year under direct fire department supervision largely avoids this hazard. A good method is to cut grass and remove it or, if environmental regulations allow burning out of doors, burn it in piles. Fire-extinguishing equipment should be adequate and available. Although flame-throwing torches can be useful, the organization should use them only when the vegetation sufficiently moist so that it cannot propagate fire readily beyond the area reached by the flame-thrower. However, the torches can introduce a hazard if not carefully operated.

Organizations should always obtain a permit from the fire department before burning grass and brush. First, having the permit is a legal requirement. Second, the permit application process allows the fire department the opportunity to educate the public about safe burning. Third, the application process provides the department with an opportunity to prohibit burning during hazardous periods and to provide control of burning during other periods.

### Refuse and Rubbish Disposal

If the organization keeps materials and equipment outdoors, good housekeeping requires keeping combustibles and obstructions out of the passageways between storage piles. Keeping passageways clear permits efficient fire fighting should the need arise. Organization should locate storage areas at sufficient distances from buildings of combustible construction or from other combustible storage to prevent fire spread. Housekeeping focuses on maintaining these separations by prohibiting even the temporary introduction of objects such as contractors' shacks, discarded crates, or other combustibles. Proper housekeeping also requires prohibiting smoking in areas of outdoor storage. The organization should provide suitable warning signs and non-combustible receptacles for the disposal of smoking materials before entering a "no smoking" area.

When it must store combustible materials from industrial operations out doors until disposal, the organization should locate the storage area at least 20 ft. (and preferably 50 ft.) distant from buildings. They should also be and at least 50 ft. from public highways and sources of ignition, such as incinerators. A secure non-combustible fence of adequate height should enclose the area.

For most organizations, the regular collection of rubbish is the most satisfactory solution to the unavoidable accumulation of waste. Burning rubbish is generally unsafe and most urban areas do not permit it.

Dumping rubbish creates a fire danger even in landfills. Sparks from a dump fire or a bonfire can carry fire long distances. This can also occur if the organization burns rubbish in an incinerator that lacks an adequate spark arrestor.

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In most parts of Michigan, there are certain days when dry conditions make burning is dangerous. Usually night and early morning are the safest time to burn rubbish because of there is more moisture. This helps to reduce the chance of ignition from sparks.