

Workplace Safety and Health Guidelines

Cleaning and Custodial Services



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1. Introduction

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The cleaning and custodial services industry plays a crucial role in maintaining sanitary standards. Activities that employees carry out on a daily basis include sweeping, mopping, washing, and collecting and disposing refuse.

During the course of their work, employees are exposed to numerous occupational hazards such as; chemicals, loud noises, sharp objects, slippery surfaces, and poor work postures. The nature of their work also exposes them to the potential of falling from heights, as well as sustaining injuries such as cuts, electrocution, burns and crush by objects.

We should also look out for our older workers who may be more prone to risks that are a result of aging; such as reduced flexibility and physical strength, declining eyesight and hearing and chronic health conditions like diabetes and high blood pressure.

Employers need to recognise that all hazards can be appropriately and effectively managed and thus avoid all injury and ill-health. Besides employers, employees can also play their part to strive toward zero harm in their daily work. This guideline serves as a resource for all, providing guidance in identifying work hazards and sharing advice on plausible preventive measures.

2. Workplace Safety and Health Act

The Workplace Safety and Health (WSH) Act aims to cultivate good safety and health habits and practices in all corporations and working individuals, extending from the top management down to the last worker. Everyone should take reasonably practicable steps within their capacity to minimise and manage exposure to WSH risks at work. Failure to do so can result in penalties listed in Annex A.

Duty of occupier of workplace

It shall be the duty of every occupier of any workplace to take, so far as is reasonably practicable, appropriate measures to ensure that the following are safe and without risks to health, to every person within those premises, whether or not the person is at work or is an employee of the occupier.

- (a) the workplace;
- (b) all means of access to or egress from the workplace; and
- (c) any machinery, equipment, plant, article or substance kept on the workplace.

Duties of employers

- It shall be the duty of every employer to take, so far as is reasonably practicable, such measures as are necessary to ensure the safety and health of his employees at work.
- It shall be the duty of every employer to take, so far as is reasonably practicable, such measures as are necessary to ensure the safety and health of persons (not being his employees) who may be affected by any undertaking carried on by him in the workplace.
- The measures necessary to ensure the safety and health of persons at work include:
 - providing and maintaining for those persons a work environment which is safe, without risk to health, and adequate as regards facilities and arrangements for their welfare at work;
 - ensuring that adequate safety measures are taken in respect of any machinery, equipment, plant, article or process used by those persons;
 - ensuring that those persons are not exposed to hazards arising out of the arrangement, disposal, manipulation, organisation, processing, storage, transport, working or use of things:
 - (i) in their workplace; or
 - (ii) near their workplace and under the control of the employer.
 - developing and implementing procedures for dealing with emergencies that may arise while those persons are at work; and
 - ensuring that those persons at work have adequate instruction, information, training and supervision as is necessary for them to perform their work.

- Every employer shall, where required by the regulations, give to persons (not being his employees) the prescribed information about such aspects of the way in which he conducts his undertaking as might affect their safety or health while those persons are at his workplace.

Refer to Annex A for general penalties under the WSH Act.

Duties of employees

- It shall be the duty of every person at work:
 - to use in such manner so as to provide the protection intended, any suitable appliance, protective clothing, convenience, equipment or other means or thing provided (whether for his use alone or for use by him in common with others) for securing his safety, health and welfare while at work; and
 - to co-operate with his employer or principal and any other person to such extent as will enable his employer, principal or the other person, as the case may be, to comply with the provisions of this Act.
- No person at work shall wilfully or recklessly interfere with or misuse any appliance, protective clothing, convenience, equipment or other means or thing provided (whether for his use alone or for use by him in common with others) pursuant to any requirement under this Act for securing the safety, health or welfare of persons (including himself) at work.
- Any person at work who, without reasonable cause, wilfully or recklessly does any act which endangers the safety or health of himself or others shall be guilty of an offence.
 - Any person at work who, without reasonable cause, does any negligent act which endangers the safety or health of himself or others shall be guilty of an offence and shall be liable upon conviction to a fine not exceeding \$30,000 or to imprisonment for a term not exceeding 2 years or to both.
- Any person who contravenes subsection (1) or (2) shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$1,000 and, in the case of a second or subsequent conviction, to a fine not exceeding \$2,000.

For more information on the Workplace Safety and Health Act, refer to the Singapore Statutes Online on the Attorney-General's Chambers website.

3. Responsibilities

Employer

Employers have a duty to ensure that their contractors and employees are able to carry out their work safely and healthily. This duty also extends to anybody within the premises of their workplace. They have the authority and resources to develop and implement the framework for workplace safety and health (WSH). This may include, but is not limited to, the following:

- Setting up and executing a WSH and risk management system.
- Providing a safe workplace and implementing good work processes.
- Providing safe machinery, equipment, articles, and substances.
- Drafting a contingency plan for emergencies.
- Providing employees with adequate instructions, information, training, supervision and personal protective equipment.
- Reporting incidents to the Ministry of Manpower (MOM) according to the WSH (Incident Reporting) Regulations at www.mom.gov.sg.

Employee

Employees are duty-bound to follow the safety and health regulations and any instructions conveyed by their employers. They are equally accountable for their own safety, and should utilise safety devices and personal protective equipment appropriately. They usually have first-hand experience when encountering or observing any hazards or unsafe acts being carried out, from carrying out their daily work. Therefore they should report those immediately to their superiors or give feedback or suggestions for improvements.

4. Risk Management

Safety, health and wellbeing should be managed holistically at the workplace. Workers and managers have to collaborate in a continual improvement process to protect and promote the health, safety, and wellbeing of all workers and the sustainability of the workplace.

Under the WSH (Risk Management) Regulations, organisations are required to conduct Risk Assessment (RA) to identify, evaluate and control safety and health risks posed to any person who may be affected by the activities in the workplace, prior to the commencement of the work. The systematic process for implementing Risk Management is summarised in Figure 1 below.

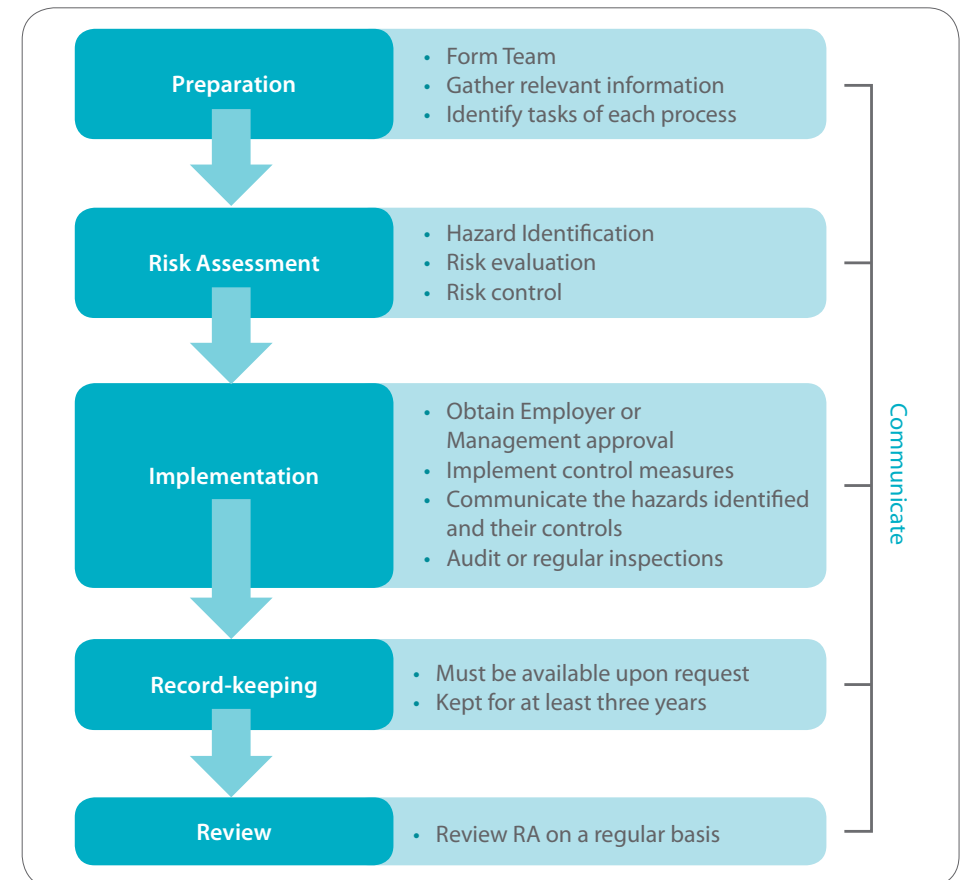


Figure 1: Risk management process

Preparation

A multi-disciplinary RA team should be formed, comprising personnel with different job responsibilities and personnel who are familiar with the potential hazards and risks of the work activities. Such personnel can include WSH officers, healthcare professionals and human resource representatives. Relevant information pertaining to the work and operations such as a list of work activities should also be collated beforehand to facilitate better understanding by the team.

Risk Assessment (RA)

RA is a three-step process that begins after forming a RA team and defining its scope of duties. Priority should be given to identifying and controlling hazards in the upstream processes, as identifying risks early will reduce the amount of exposure from those hazards. After mitigation, hazards can be reduced to more acceptable and manageable levels, and redefined as residual risks.

A sample of a RA Form can be found at Annex B. Extracts are taken from this sample to describe the three steps of risk assessment.

Step 1: Hazard identification

When identifying hazards, three aspects should be considered and evaluated comprehensively.

The three aspects are:

- a) Physical work environment and processes,
- b) Work organisation and;
- c) Individual health factors.

Identify as many hazards associated with each work activity as possible, with an emphasis on health-related hazards for older workers. The potential accidents or ill-health that could result from these hazards should be listed out (see table 1 below).

Example:

Hazard identification		
Sub-activity	Hazard	Possible injury/ Ill-health
Mopping floors	Slips and falls due to slippery surface / wet floors	Head and other bodily injuries
	Improper technique, over-exertion, or excessive work duration	Muscular injury

Table 1: Hazard identification section in RA form

Step 2: Risk evaluation

For each identified hazard, estimate the severity and the likelihood of occurrence by giving it a numerical value from one to five. Multiply the two values to derive the Risk Prioritisation Number (RPN), as shown in Table 2 below. Refer to the 5x5 risk matrix using the RPN to determine if the risk is at an acceptable level. Hazards with higher RPN should be given priority when implementing control measures.

Example:

Risk evaluation			
Existing risk controls	Severity (S)	Likelihood (L)	Risk prioritisation number (RPN)
- Wear non-slip safety shoes - Place warning signs for wet floors - Avoid running and horse-playing	3	4	12
- Mop away from wet surface - Provide adequate resting time - Set a maximum number of working hours	2	3	6

Table 2: Hazard identification section in RA form

Step 3: Risk control

Based on the risk level or RPN determined, risk controls should be implemented to reduce the risk to an acceptable level. Table 3 on the next page suggests the acceptability of risk for the different risk levels and the recommended actions.

According to the Hierarchy of Control, the most effective way to reduce risk is to manage the risk at the source. This can be achieved through upstream risk controls starting by eliminating the risk, followed by substitution, and implementation of engineering controls. Table 4 on the next page shows the risk controls implemented for each hazard, and their corresponding RPN.

Risk level	Risk acceptability	Recommended actions
Low	Acceptable	- No additional risk control measures may be needed. - Frequent review and monitoring of hazards are required to ensure that the risk level assigned is accurate and does not increase over time.
Medium	Tolerable	- A careful evaluation of the hazards should be carried out to ensure that the risk level is reduced to as low as reasonably practicable (ALARP) within a defined time period. - Interim risk control measures, such as administrative controls or PPE, may be implemented while longer term measures are being established. - Management attention is required.
High	Not acceptable	- High Risk level must be reduced to at least Medium Risk before starting work. - There should not be any interim risk control measures. Risk control measures should not be overly dependent on PPE. - If practicable, the hazard should be eliminated before starting work. - Management review is required before starting work.

Table 3: Recommended action for risk levels

Example:

Risk control			
Additional controls	Severity (S)	Likelihood (L)	Risk prioritisation number (RPN)
Dispose waste water at wash area gully	2	3	6
Schedule routine job rotations	3	3	9

Table 4: Risk control section in RA form

Hierarchy of Control

When selecting control measures, the Hierarchy of Control can be used as a guide, as seen in Figure 2 below. The control measures need not be mutually exclusive and can be used in tandem with other measures to improve effectiveness.

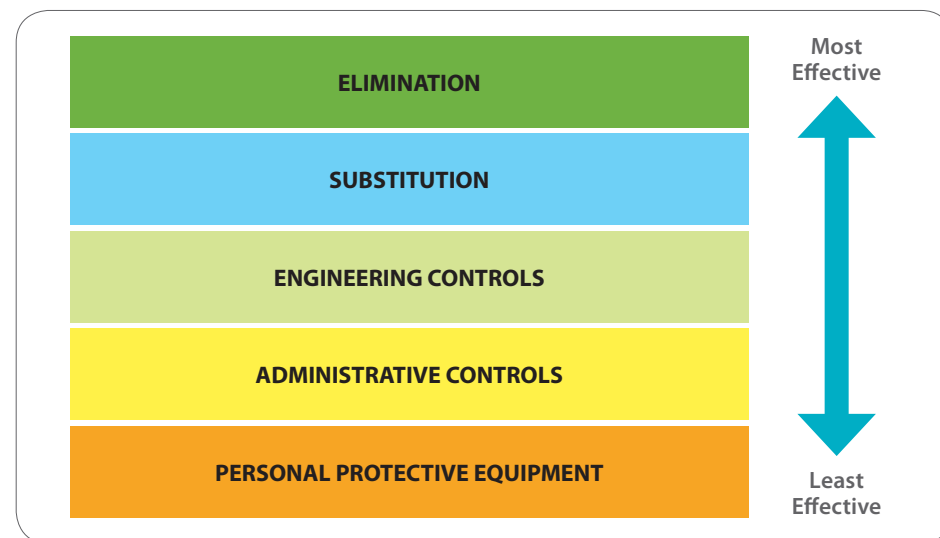


Figure 2: The Hierarchy of Control.

Elimination

Elimination is the most effective form of control measure as it removes the hazard from the work process permanently and consequently all risks associated with that hazard.

Example: Eliminate the need to use a ladder by using a telescopic handle to clean high corners.

Substitution

This method involves replacing an element in a work process with a less harmful alternative, so that the hazard presents a lower risk.

Example: Using a harmless mineral oil instead of paint thinner to remove paint on a person's skin.

Engineering controls

These are structural installations or equipment that physically reduces the impact of the hazard by changing the work environment or work process.

Example: Using a high-pressure water jet to clean floors, instead of manual scrubbing.

Administrative Controls

This reduces or eliminates exposure to hazards via strict adherence to specific procedures or instructions. Documentation should emphasise all steps in the work processes and controls needed for work activities to be carried out safely.

Example: Scheduling duty rosters to increase frequency of job rotation and reduce the amount of time spent on a specific task.

Personal Protective Equipment (PPE)

The proper use of PPE can help mitigate risks. However, this should always be used in addition to other control measures or when all other measures are not feasible or practical. PPE can also be considered for short-term contingencies such as emergencies, infrequent maintenance or repair work. It should be properly administered throughout the duration of hazard exposure, and should fit the worker well. Regular cleaning, maintenance and proper storage should be observed to keep the PPE in good working condition.

Implementation and Review

The risk control measures once approved by the management should be implemented immediately.

For risk management (RM) to be effective, the hazards and their control measures must be communicated to the employees involved in the work. The manager who oversees the work area, function or activity where the risks exist should ensure that all persons who will be exposed are informed about the risks and the associated mitigating measures before commencing work.

Regular inspections or audits can be carried out to verify the effectiveness of the control measures put in place. This will ensure that the measures are current and working to manage the risks at the workplace.

RA must be reviewed or revised at least once every three years. It must also be reviewed after an accident, incident or occurrence of an occupational disease as a result of exposure to a hazard, a significant change in the work processes that could affect the safety and health of employees.

Record-Keeping

All WSH RAs and related documents should be kept for at least three years and must be made available upon request by the Commissioner for WSH.

For more information on Risk Management, refer to the *Code of Practice on Workplace Safety and Health (WSH) Risk Management* from the Workplace Safety and Health Council website at www.wshc.sg

5. Hazards in Cleaning and Custodial Services

Employees in the cleaning and custodial services are exposed to a variety of hazards every day. These hazards can cause either immediate injuries or lead to chronic health conditions that require long-term and costly treatment. In some unfortunate cases, loss of life may also occur. However, early hazard recognition and intervention can protect employees from harm.

To facilitate hazard identification and intervention, a reporting system should be in place to facilitate employees' feedback. Employee should be trained on how to properly identify unsafe acts and work-related injuries and diseases. Supervisors and management staff will require training to identify symptoms of work-related injuries and to carry out investigations, so that effective preventive measures can be taken.

Table 5 below lists out the work activities (non-exhaustive) that are relevant to cleaning services and indicate which hazards are commonly associated with those activities.

Hazards	Work activity							
	Mopping	Sweeping	Wiping	Dusting	Scrubbing	Disposal of refuse	Leaf-blowing	De-silting drains
Slips, trips and falls	✓	✓				✓	✓	✓
Musculo-skeletal injury	✓	✓	✓	✓	✓	✓	✓	✓
Handling of chemicals	✓		✓		✓			
Working at heights			✓	✓	✓			
Electrical hazards							✓	
Exposure to noise							✓	
Biological hazards	✓		✓		✓	✓		
Crushing hazards			✓	✓	✓	✓		✓
Impact hazards						✓		✓

Table 5: Work activity and hazard matrix

5.1 Slips, trips and falls

Employees in the cleaning and custodial services industry are susceptible to slips, trips and falls due to the nature of their work environment. Wet and soapy floors during mopping, tripping over obstacles when clearing waste, or falling from height when cleaning high places on elevated platforms are some of the hazards faced by employees on a daily basis.

There are numerous factors that contribute to these hazards and just as many precautions that can be taken to mitigate them. Employers are responsible for providing a safe workplace, or tools to make the work safer. Employees can also do their part by paying close attention to their work environment, reporting any potential hazards, and using the work tools properly (See table 6 below).

Employers	Employees
• Ensure sufficient lighting (natural and/or electrical) • Install guardrails / handrails on elevated platforms • Provide appropriate PPE for each work activity; – Gloves (e.g. rubber, or cut-resistant) – Non-slip shoes – Safety harness with lifeline • Conduct regular maintenance on; – Safety fixtures – Electrical equipment • Schedule adequate job rotations	• Practise good housekeeping – Keep the equipment storage area tidy • Practise good personal hygiene; – Wash hands after work – Wash hands when in contact with chemicals • Wear PPE properly during work • Clean and store PPE properly after use • Place warning signs when floor is slippery • Report any potential hazards

Table 6: List of good practices for employers and employees

5.2 Musculoskeletal Injuries

Example: Backaches due to poor posture adopted when cleaning hard-to-reach areas, or lifting heavy loads.

Musculoskeletal disorders (MSDs) affect the muscles, joints, and connective tissue. Many injuries leading to MSDs are the result of extended exposure to awkward postures, repetitive movements, long working hours and manually handling heavy loads. See table 7 for list of factors pertaining to work-related MSDs and its common causes.

Work-related Musculoskeletal Disorder		
Injury-prone areas	Symptoms	Common causes
• Neck • Shoulder • Back • Arms • Elbows • Wrists • Fingers • Knees • Ankles	• Pain • Numbness • Tingling sensation • Weakness • Joint stiffness	• High repetition • Heavy lifting • Bending and twisting • Uncomfortable positions • Over-exertion • Long working hours • Hot/cold working environment • Psychosocial factors

Table 7: List of factors pertaining to work-related MSD

Adhering to good work practices can help reduce work-related MSDs in employees. Employers should learn to identify the signs of MSDs and re-design work processes to reduce the chance of getting MSDs. On the other hand, employees who sustained injuries should also be encouraged to come forward and report it to the management. The different cleaning activities are described in this section, along with some recommendations to mitigate MSD.

Mopping

Wet mopping can place considerable stress on the shoulders, wrists and back because of the tendency to adopt a poor working posture and execute repetitive motions. The following suggestions in Table 8 and 9 can help alleviate the problems employees face with mopping. Figures 3 and 4 illustrate the correct postures to adopt and wrong postures to avoid during mopping.

Equipment	Features and uses
Bucket	• A low, wide base for better stability • Four large wheels for easy manoeuvring • Moulded hand grips for ergonomic handling • Separate compartments for dirty and clean water • Lightweight wringers for easier carrying
Mop	• Durable mop threads • Smaller mop heads; lighter and easier to wring • Telescopic handles for adjustable length to improve work posture • Rubber-cushioned handles for comfortable and non-slip gripping
Gloves	• Made with impervious material (rubber or plastic) • Additional cotton gloves can be worn inside for added comfort • Proper size and fit
Footwear	• Non-slip shoes, to avoid slipping on wet surfaces

Table 8: Safety features to look out for in mopping equipment

Activity	Safe work practices
Wringing	• Choose to use a mop wringer instead for wringing manually. • If wringing manually, bend your knees instead of your back to lower yourself • Manual wringing can be more manageable by wringing the threads of the mop head in sections.
Mopping	• Put up a warning sign before commencing work • Mop half a passageway and allow it to dry before mopping the other half, so the passageway is still safely accessible for passers-by during mopping • Plan direction of mopping such that worker avoids stepping on wet areas • Alternate gripping positions of left and right hands • Maintain a straight back and neutral shoulder position • Avoid exerting on wrists when mopping • Avoid repeatedly twisting or stretching the back • Rely on leg muscles to generate the mopping force

Table 9: Safe work practices for mopping

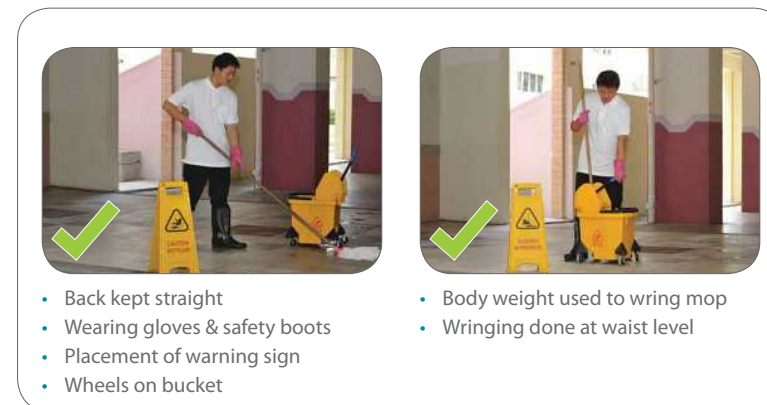


Figure 3: Safe work practices for mopping



Figure 4: Unsafe work practices for mopping

Sweeping

Similar to mopping, sweeping floors may involve awkward wrist positions and prolonged contact pressure on the hands. Also, when sweeping, the back and neck are often bent forward in an awkward posture, placing these parts of the spine under unnecessary strain. The following suggestions in Table 10 and 11 can help alleviate the problems employees face with sweeping. Figures 5-6 show the correct postures to adopt and wrong postures to avoid during sweeping.

Equipment	Features and uses
Broom and dustpan	• Lightweight for easier handling • Telescopic handles for adjustable length to improve work posture • Rubber-cushioned handles for comfortable and non-slip gripping
Tongs	• Long handles for picking up refuse off the floor
Gloves	• Made with impervious material (rubber or plastic) • Additional cotton gloves can be worn inside for added comfort • Proper size and fit

Table 10: Safety features to look out for in sweeping equipment

Activity	Safe work practices
Sweeping level ground / dry leaves	• Stand upright and keep back straight • Alternate gripping positions of left and right hands • Always wear gloves during work • Use tongs to pick up refuse
Sweeping staircases	• Adopt a stable position by standing on two steps (see Figure 5) • Descend the steps slowly • Look at the steps before stepping down
Sweeping canopies and link way roofs	• Check if structure is able to bear the weight of worker • Use safe and proper access channels • Use safety harness and travel restraint during work
De-silting scupper drains	• Wear anti-slip foot wear when sweeping drains, especially when it is wet • Use tools to lift drain covers to avoid getting fingers caught • Get help from a co-worker when lifting drain covers • Use brooms and dustpans with long handles • Use tongs to pick up refuse that are difficult to sweep away • Use proper warning signs when working near roads

Table 11: Safe work practices for sweeping



Figure 5: Safe work practices for sweeping



Figure 6: Unsafe work practices for sweeping

Wiping and dusting

Employees in the cleaning and custodial services industry frequently need to wipe surfaces, which in itself poses a hazard due to the repetitive actions. Employees may also tend to over-reach and strain themselves when cleaning places which are less accessible. They usually stay in such compromised postures for extended durations and hence can develop MSD. The following suggestions in Table 12 and 13 can help alleviate the problems employees face. Figures 7 to 8 show the correct postures to adopt when wiping and dusting and wrong postures to avoid.

Equipment	Features and uses
Cloth	• Choosing an appropriate size for cloth – Smaller cloths for easier wringing and rinsing – Larger cloths for more efficient cleaning
Mop / Squeegee	• Use lightweight mop/squeegee for easier handling • Extendable handles for better reach
Ladder	• Use taller ladders to avoid standing on the top rung or tip-toeing
Gloves	• Made of impervious material (rubber or plastic) • Additional cotton gloves for added comfort • Proper size and fit

Table 12: Safety features to look out for in wiping equipment

Activity	Safe work practices
Wringing cloths	• Avoid twisting action to protect wrists • Maintain neutral position by squeezing cloth with both hands, with one hand positioned above the other
Wiping surfaces	• Use effective cleaning products rather than strength to remove stains • Alternate arms when wiping
Cleaning lift walls, notice boards, hard to reach places	• Stand upright and keep back straight • Use lightweight mop/squeegee with telescopic handle • Alternate arms when cleaning • Use legs to exert force for cleaning • Limit the time spent in arm-over-shoulder positions • Rotate job frequently between co-employees • Use step ladders to increase reach during work

Table 13: Safe work practices for wiping

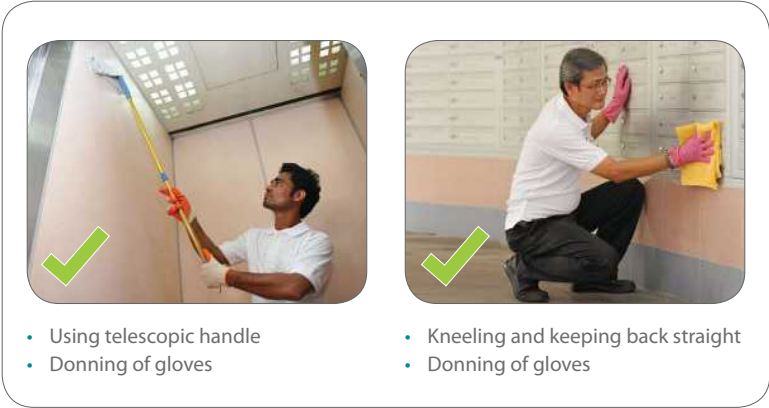


Figure 7: Safe work practices for wiping

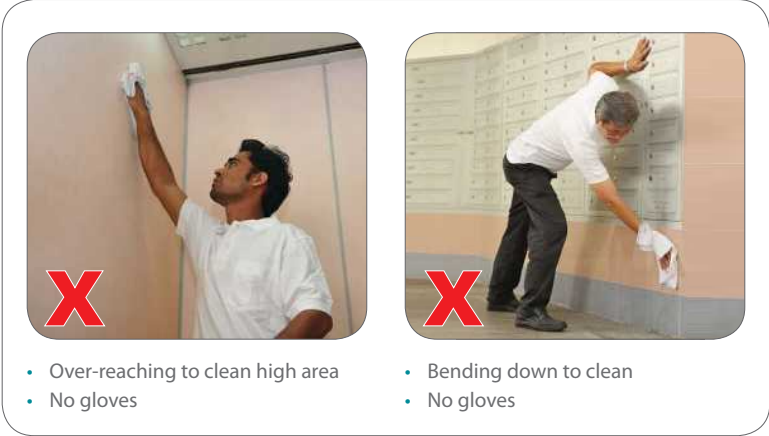


Figure 8: Unsafe work practices for wiping

Disposal of refuse

Refuse collection can pose ergonomic hazards which can lead to MSD because the bins and chutes are normally heavy. If not careful, employees can strain their backs from over-exertion. Employers can help mitigate these hazards by providing machines to mechanise work processes where possible, which will also improve work efficiency.

In addition to ergonomic hazards, employees are also exposed to risks of cuts from sharp objects in the refuse that are not easily visible. The following suggestions in Table 14 and 15 can help alleviate the problems employees face. Figure 9 shows the correct postures to adopt and wrong postures to avoid.

Equipment	Features and uses
Gloves	• Puncture-resistant gloves for protection against cuts from sharp objects • Provides good grip • Additional cotton gloves for added comfort
Face mask	• Carbon-activated mask to alleviate odour
Tongs	• Long handled tongs for picking up refuse
Footwear	• Non-slip shoes to avoid slipping on wet surfaces • Steel-capped boots for protection against crushing by heavy objects
Helmet / hard hat	• Proper, comfortable fit • Chin straps for securing head gear • Head protection against falling refuse when emptying rubbish chutes and when working in a room with low hanging pipes or low ceiling

Table 14: Safety features to look out for in refuse disposal equipment.

Activity	Safe work practices
Emptying litter bins	• Tilt bin before lifting to check the weight • Visually check contents for any sharp objects • Avoid body contact with the trash bag when lifting • Bend knees and keep back straight, rely on strength of legs to lift bags • Alternate arms used to pick up and lower bins • Do not catch objects that fall out of bags with hands and use tongs instead • Empty the bins regularly to avoid accumulation of refuse
Emptying refuse chutes	• Seek help from a co-worker to lift chutes • Visually check contents for sharp objects • Avoid contact with the contents • Avoid using wrists when tipping the chute • Avoid overloading the bulk bin
Pushing bin carts	• Avoid overloading the cart with refuse or unnecessary tools • Distribute weight evenly around the cart to maintain stability • Avoid uneven surfaces on the path when pushing cart • Avoid pushing cart up-slope • If cart tips over, do not attempt to stop cart from toppling

Table 15: Safe work practices for refuse disposal



- Donning of gloves
- Lifting with both arms



- Using tongs to pick up loose refuse and sharps



- Hold bin away from body
- Keeping back straight



- Donning of gloves
- Multi-purpose cart to carry tools



- Donning of helmet & gloves
- Avoid cluttering the cart
- Distribute weight evenly



- Donning of helmet & gloves
- Keeping back straight
- Lean chute rim on bulk bin



- Avoid lifting arm above shoulder level



- Donning of helmet & gloves
- Covering refuse with canvas sheet

Figure 9: Safe work practices for refuse disposal

5.3 Handling of chemicals

Examples: detergents, cement removing solutions, insecticides

As a result of using cleaning products on a daily basis, employees are constantly exposed to many harsh chemicals contained in those products. Contact with these chemicals can cause chemical burns or allergies, and repeated exposure can lead to chronic skin conditions. Spills or splashes from the chemicals that come into contact with the eyes can even lead to blindness.

Solvents used in the products can vaporise easily and prolonged inhalation of these vapours can cause respiratory problems and occupational asthma. These vapours can also accumulate at higher concentrations when the work area is poorly ventilated, posing a threat to fire safety. Employees who do not practise good personal hygiene could contaminate their food with the said chemicals and ingest them accidentally.

Employers should seek alternatives to the chemicals they use, such that the risks may be eliminated or reduced. Employees should be educated about the chemicals that they are in contact with, and adopt safe work practices to protect themselves at work. See figure 10 for examples of how chemicals can enter the body and figure 11 on the safe handling of chemicals.

Employees should immediately report any accidental contact with or ingestion of hazardous chemicals to their employers and seek medical help. At the same time, employers should report the incident to the Ministry of Manpower (MOM) according to the *WSH (Incident Reporting) Regulations* at www.mom.gov.sg.

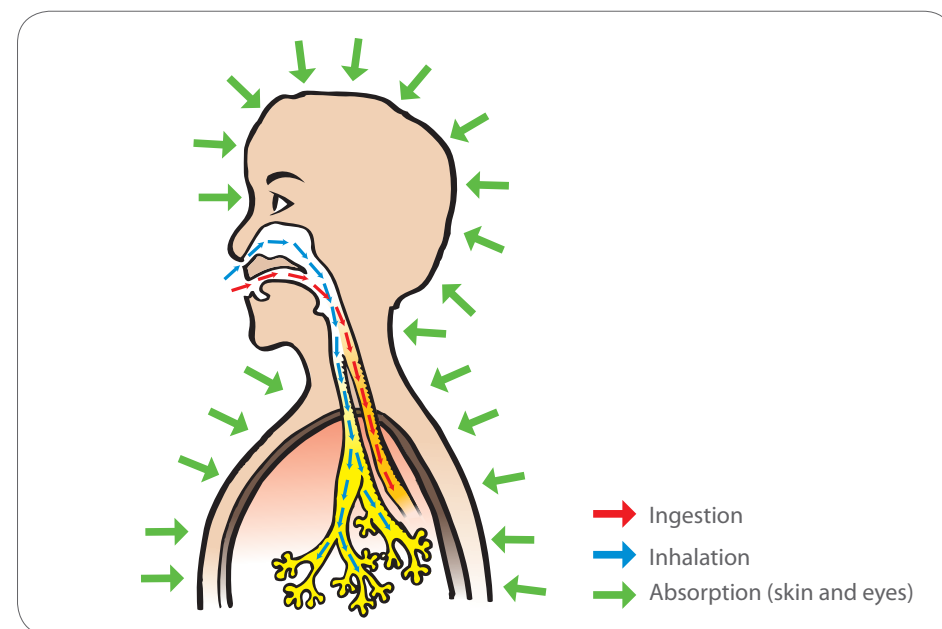


Figure 10: Modes of entry into the human body

Precautions

Employers and employees can refer to Safety Data Sheets (SDSs) provided by chemical manufacturers or suppliers to take precautionary actions as listed below. SDSs contain important information on the chemical's identity and properties, as well as safety precautions and emergency protocols.

- Read cautionary labels on containers.
- Learn about the dangers of the chemical (refer to the SDS).
- Select and wear appropriate masks (refer to the SDS).
- Wear suitable gloves, safety goggles and other PPE during work.
- Wash skin immediately after coming into contact with chemicals.
- Practice good personal hygiene to avoid accidental ingestion or contamination.
- Avoid the use of flammable agents in enclosed spaces.

Storage

- Store flammables in locked steel cabinets away from naked flames and heat sources.
- Store incompatible materials in separate storage spaces.
- Restrict access to hazardous chemical storage areas.
- Ensure that all chemical containers are properly labelled.

Labels

Labels on the containers of chemicals allow users to quickly understand the types of chemical and hazards relating to them. They also contain the class of the chemical, which follows the Globally Harmonised System of Classification and Labelling of Chemicals (GHS). There are standardised symbols that represent each class of dangerous chemicals (refer to Annex C).

5.4 Work at heights

Example: climbing a ladder to clean the ceiling, cleaning at the rooftop of buildings

Injuries and fatalities due to working from height is one of the top contributors to workplace-related accidents. Cleaning at height is a common aspect of the job; employees may have to wash rooftops of covered link ways, sweep refuse from ledges, and clear cobwebs from ceilings and high corners.

As far as reasonably practicable, working at height should be avoided and employers should take all necessary precautions to prevent accidents from occurring. Employers can assess the work and environment by referring to the following checklist prior to delegating work.



Figure 11: Safe handling of chemicals

- Gloves and goggles are worn
- Container is labelled

Checklist: Questions to ask before carrying out work at heights

- Can work at height be avoided?
- Has a safe working procedure been developed for the work?
- Have hazards been identified and the risks managed?
- Have fall protection measures been implemented e.g. installing barricades?
- Have the employees involved been properly trained?
- Has a buddy-system been put in place?
- Has sufficient supervision been provided?
- Have adequate protective gears been provided?
- Have equipment been checked for defects?
- Are there measures to minimise injury if there is residual risk of falling?

Employees should be instructed and trained to properly use engineering control measures such as guard railings, travel restraint, and fall arrest system. The following equipment are commonly used in elevated working situations and advice on safe usage is provided for them.

Ladder

Ladders are common tools for accessing hard-to-reach places. Maintenance of the ladder should be carried out regularly to ensure good working condition. Visual inspections should be carried out before every use. Precautions to take are listed as follows:

- Inspect the ladder before and after each use.
- Look out for broken, or missing rungs, loose screws / hinges / bolts.
- Maintain three points of contact on the ladder at all times.
- Avoid standing on the top rung to work.
- Ladder is stable, and of sound construction.
- Set up ladder on flat and stable ground.
- Have a co-worker stabilise the ladder if it is not stable on its own.
- Always face the ladder when mounting and dismounting.

Scaffold

Fixed or mobile scaffolds should be used when ladders are not suitable (e.g. ladder height limitation, working at heights for prolonged duration) because scaffolds offer better reach, stability and more standing space. For more information on the erection and use of scaffolds, please refer to the *WSH (Scaffold) Regulations*.

Mobile Elevated Work Platform (MEWP) - Boom lift and Scissor lift

A boom lift offers greater protection than ladders because of the guardrails installed on the working platform, which limits employees' movement to the confines of the platform. Care must be taken to prevent over-reaching of the platform to the work area. Both types of lifts offer manoeuvrability.

The lift operator must be trained and competent. The use of these work platforms should always be in the presence of a supervisor to ensure that work is carried out safely. The machine also requires regular servicing and maintenance and companies should maintain a record of the maintenance.

Useful Guidelines for Working at Heights

- WSH Code of Practice on Working Safely at Heights
- WSH Guidelines on Personal Protective Equipment for Work at Heights
- WSH Ladder Safety Guide

5.5 Electrical hazards

Example: risk of electrocution when using electrical equipment

Electrical equipment can lessen the physical demand of work when used correctly and with proper training. However, by using electrical equipment, employees can be exposed to the risk of electric burns and shock. Electrical equipment should be designed and manufactured according to acceptable electrical standards and codes. They should also be serviced regularly, and come equipped with safeguards to protect the user.

Another source of electrical hazards to the employee is electrical installations. Installations, repairs, maintenance, and inspections should be carried out in accordance to the Singapore Standard CP5: Code of Practice for Electrical Installations, and they should always be carried out by the electrical employees licensed by the Energy Market Authority. Table 16 shows a list of safety features of electrical equipment.

Equipment	Features and uses
Sweeper	• Loosens refuse with a rotating brush and vacuums up the refuse • Refuse is deposited into a bag fitted to the suction mechanism • Limits manual handling to the act of emptying the bags
Scrubber	• Removes the physical demand for employees to manually scrub floor tiles • Improves work efficiency
Pressurised jet spray	• Uses high pressure water jet to clean surfaces • More efficient and less physically demanding than manual mopping • Powered by electric motor
Leaf blower	• Move debris (such as leaves) using propelled air • More efficient and less physically demanding than manual sweeping • Powered by either electric or gasoline motor
Battery Operated Cart	• Used to transport trash bins during refuse collection • Improves work efficiency; heavier loads can be transported over greater distances in a shorter time • Makes removing bulky refuse items safer for the employees

Table 16: Features of electrical equipment

General personal protective equipment (PPE) and simple tools should always be provided when working with mechanical equipment.

PPE	Features and uses
Gloves	• Made with electrically insulating material • Proper size and fit
Footwear	• Made with electrically insulating material (e.g. rubber soles)
Warning signs	• To cordon off work area from the public for their own safety

Table 17: Features of general tools and PPE to be used when using machines

Working with machines can lessen the physical strains that workers experience with menial work. However, there are safe work practices (see Table 18) to observe in order to avoid accidents from occurring. These practices are also illustrated in figures 12 to 15.

Activity	Safety checklist
Pre-operational visual inspection	• Always carry out inspection before starting work • Look for exposed wiring due to damaged insulation • Avoid plugging too many equipment to a single power socket • Keep the work space dry and dust-free
Mechanical sweeping	• Ensure proper training before operating sweeper • Conduct routine checks and maintenance • Avoid speeding with the sweeper • Observe traffic rules when operating on public roads • Operate within the manufacturers recommendations • Avoid tampering or modifying the sweeper • Fasten the safety belt when driving, if available • Ensure nobody is behind the sweeper before reversing
Mechanical scrubbing/washing with spray jet	• Ensure proper training before operating scrubber/spray jet • Conduct routine checks and maintenance • Cordon work area off from public access • Keep wiring or hose from tangling or kinking • Plan the route of cleaning ahead before starting • Avoid tampering or modifying the scrubber/spray jet • Turn off scrubber/spray jet motor when not in use
Transporting refuse with battery operated cart	• Ensure proper training before operating cart • Conduct routine checks and maintenance • Avoid speeding with the cart • Operate within the estate apron area and pavement only • Avoid tampering or modifying the cart • Fasten the safety belt when driving, if available • Ensure nobody is behind the cart before reversing • Fasten bulky loads securely to the cart before moving • Cover bins with canvas to avoid light-weight refuse from falling off
Clearing leaves with leaf blower	• Ensure proper training before operating leaf blower • Conduct routine checks and maintenance • Provide basic fire safety training if using gas-powered leaf blower • Check for leaks when using a gas-powered leaf blower

Table 18: Safe work procedures when using machines



Figure 12: Mechanical sweeper

- Donning of helmet and gloves



Figure 13: Mechanical scrubber

- Donning of goggles, gloves & boots
- Display of warning sign



Figure 14: Spray jet (safe use)

- Wear non-slip rubber boots and impervious gloves
- Wear safety goggles and ear plugs



Figure 15: Spray jet (unsafe use)

- Lack of helmet, gloves & boots
- Lack of warning sign and tape
- Hose tangled around feet

5.6 Exposure to noise

Examples: using water jet cleaners, blower and operating heavy machinery

Employees are constantly exposed to noise from the equipment they use during work. The effects of hearing loss are gradual and thus are often overlooked. Table 19 shows the permissible exposure limit at different decibels. It can be observed that every 3 dB(A) increase in noise level will half the exposure limit. And at levels around 120 dB, pain can be felt in the ears.

Example of noise level	Decibel dB(A)	Maximum exposure limit	
Normal conversation	60	-	-
Vacuum cleaner	75	-	
Heavy city traffic	85	8 hour	Ear plugs required
Food blender	88	4 hour	
Heavy truck traffic	91	2 hour	
Passing train	94	1 hour	
Hand drill	97	30 min	
Motorcycle riding	100	15 min	Ear plugs and ear muffs required
Airplane taking off	103	7.5 min	
Table saw	106	4 min	
Jackhammer	109	2 min	
Chainsaw	111	1 min	
Thunderclap	120	9 sec	-

Table 19: Table of permissible noise exposure levels and common examples

Hearing protectors should be properly worn to mitigate noise-induced deafness. Between 85 dB(A) and 100 dB(A), ear plugs can effectively reduce the damage. Above 100 dB(A), ear muffs should be worn in addition to ear plugs, as seen in Figures 16-18. Clean with mild soap and water regularly to keep them in good working condition.



Figure 16: Disposable ear plugs.

Noise Control Solutions

- Replace noisy machines with quieter machines.
- Place noise sources away from hard walls or corners as sound will reflect off the walls.
- Isolate or enclose noise sources to contain noise.
- Construct suitable noise enclosures or barriers.

- Line the interior walls of the workplace with sound absorbing materials.
- Service and maintain the equipment regularly.
- Wear hearing protectors.

Useful Guidelines for Controlling Noise Hazard

The following can be found on the MOM and WSH Council's websites.

- MOM Guidelines on Industrial Noise and Vibration Control
- MOM Guide for Noise Control in the Music Entertainment Industry
- WSH Guidelines on Hearing Conservation Programme



Figure 17: Reusable ear plugs.



Figure 18: Ear muffs.

5.7 Biological hazards

Examples: bodily fluids that may carry communicable diseases

During the course of their work, employees may come into contact with bodily fluids such as saliva, blood, and faecal matter when cleaning public spaces or handling rubbish. These fluids may contain germs or viruses and put the employees at high risk of getting infected. The employees should be given proper and adequate protective equipment. Employees need to inform supervisors if they are feeling unwell. They should also carry out thorough cleaning and disinfecting after every work activity.

Equipment	Features and uses
Gloves	• Disposable and impervious gloves • Glove should be a proper fit
Face masks and goggles	• Protects the face from accidental contact with contaminants • N95 Mask should be used when the disease could be airborne
Gowns	• Disposable gowns shield the body from any accidental splashes
Footwear	• Safety boots that is impervious to fluids

Table 20: PPE to be used when exposed to biological hazards

Activity	Safe work practices
Proper use of disposable PPE	• Face masks, gloves and gowns should be replaced when they are damaged/ soiled and after the cleaning work is done • They should be disposed, sealed and labelled as bio-hazardous
Proper use of other PPE	• All PPE should be thoroughly cleaned, disinfected and dried after use • PPE should be replaced after a compromise in the PPE's integrity
Proper use of N95 Mask	• Check for correct size and proper fit • Avoid touching mask with contaminated gloves • Discard and replace mask when physically damaged/ soiled • Discard and replace mask filter when breathing resistance increases

Table 21: Safe work practices to adopt when exposed to biological hazards

5.8 Crushing hazards

Examples: finger caught by lift doors or hand crushed by drain covers

Employees encounter crush injuries in some situations at work, and their hands and fingers are especially prone to this hazard. The work activities should be reviewed to find out if tools can be introduced to mitigate the risk of crush injuries.



Figure 19: lifting key.

Activity	Safe work practices
De-silting scupper drains	• Use a lifting key to hook onto and remove drain covers • Eliminates using of hands to handle drains directly
Cleaning lifts	• Use a telescopic squeegee to clean lifts • Prevents hands from getting caught in the lift door while cleaning

Table 22: Safe work practices to avoid crush injuries

5.9 Impact hazards

Examples: getting knocked by vehicle, struck by falling objects

Employees are at risk of getting struck by falling objects, especially when they are cleaning at high-rise residential estates. Other areas that require cleaning and maintenance can include car parks, or are close to public roads. Hence, precautions need to be taken to address these risks. It is also important to alert public road users to the cleaning work that is taking place with proper signage or barricade.

Equipment	Features and uses
Warning signs/ barricades	• Keep workers within boundaries of working zone • Alert road users and direct traffic away from working zone
Helmet/ hard hat	• Provides head protection
Work vests	• Brightly coloured, with highly reflective materials • Increase visibility of employees

Table 23: Features of safety equipment to avoid impact injuries

6. Workplace Safety and Health Management System

Employers are encouraged to develop and implement a comprehensive WSH management system to establish a safe and healthy working environment, and prevent workplace accidents and work-related illnesses. A comprehensive system comprises many elements, which are described in the following sub-chapters. In order to gain wider acceptance, management should collaborate with employees to set up and shape the system.

6.1 WSH policy and organisation

The management's full commitment is essential in order to create a vibrant safety-first workplace culture. This can be embodied in the company's written policy, which spells out the organisation's philosophy and attitude towards safety and health.

Safety and health considerations should be incorporated into daily and routine work activities. Clear and achievable objectives and goals should also be stated, and rounded off with endorsement from top management. Active staff engagement and contribution can be encouraged when management gives clear recognition for those efforts.

6.2 In-house WSH rules and regulations

A set of written WSH rules and regulations should be laid down for staff and contractor(s). Any key legal requirements that are in line with the WSH Act need to be incorporated as well. These can also serve as reminders of safety and health responsibilities for all staff. Individual departments may also develop their own subset of rules and regulations where necessary.

6.3 Risk management

Refer to Chapter 4: Risk Management.

6.4 Safe work procedures

Employers are encouraged to establish safe work procedures for the various work activities carried out. These should be communicated effectively to all staff; during new staff orientation, and at regular refreshment trainings for existing staff.

Whenever new equipment or processes are introduced or when there are changes made to the operating procedures, the safe work procedures should be reviewed and updated as well.

6.5 Safety training

Safety training is important in providing employees with the knowledge and skills to work in a safe manner. Identifying safety training needs for each level staff is useful for developing training plans.

Training can be incorporated into the operational training of the employees and carried out on-the-job, by trained supervisors or commissioned external trainers. Records of such training should be kept and updated habitually. Training should also be reviewed when there are changes to the company's operations.

What should the safety training cover?

- All possible risks associated with the job
- Company's WSH policy
- Safety measures
- Safe work procedures
- Proper use of equipment and PPE

When should safety training be conducted?

- During orientation for new staff
- Periodically for all existing staff
- When new equipment or processes are introduced
- When there's a transfer of staff between departments

Training audience		
Operational staff	Supervisory staff	Managerial staff
• Follow safe work practices and risk control procedures • Follow workplace emergency response procedures • Participate in WSH management activities	• Interpret WSH policies, procedures and programmes • Educate employees on WSH policies, procedures and programmes • Implement and control WSH management programmes • Implement workplace risk management programmes • Maintain workplace risk control measures	• Identify responsibilities under the WSH Act • Establish and maintain WSH framework • Establish and evaluate WSH system, policies, procedures and programmes • Establish workplace risk management procedures • Come up with risk control measures

Table 24: Safety training topics for different trainees

For more information on workplace safety and health training, visit the Singapore Workforce Development Agency (WDA) website at www.wda.gov.sg

6.6 Communication

Meetings should be held periodically to discuss safety and health issues. It is also an avenue to disseminate information to staff, including external contractors. Employers should provide adequate facilities for these meetings to facilitate the flow of information, updates and feedback.

On a more daily and routine level, briefings and de-briefs (such as toolbox meetings) can serve as effective channels for conveying WSH messages and information.

6.7 Employee participation

Workplaces with 50 or more employees should form WSH committees with members from both the management and employees. Details on setting up a WSH committee and its functions can be found in the WSH (Workplace Safety and Health Committees) Regulation.

Employers should also promote their staff to form WSH Innovation Teams. This will serve as a platform on which ideas and solutions to improve safety and productivity can be contributed.

6.8 Incident investigation

Employers need to report any accidents or dangerous incidents within 10 days of occurrence and occupational diseases within 10 days of receiving the diagnosis to the Ministry of Manpower (MOM). The reports can be submitted via an online reporting platform, iReport, on www.mom.gov.sg and employers need to maintain these records for at least three years from the time of reporting.

Every incident is a valuable lesson, and should be shared with all relevant staff and contractors. Accident statistics should be collected and analysed, and management can use the information to identify problematic areas and pick out trends. Only then will management have the materials for reviewing and exacting improvements.

For more information on Incident Investigation, refer to the *Guidelines on Investigating Workplace Incidents for SMEs* from the Workplace Safety and Health Council website at www.wshc.sg

6.9 Maintenance programme

An effective maintenance programme for all equipment should be set up and strictly adhered to. This is to prevent accidents resulting from equipment failure from happening.

The programme should contain an inventory list of all equipment and machinery in the work premise, and the inspection and maintenance schedules and records. There should also be an avenue for staff to report any defective or damaged equipment discovered during work.

6.10 Occupational health programmes

Occupational health programmes targeted at addressing specific hazards should be established. Each programme should clearly define its objectives, details on the person-in-charge, component activities and the frequency of execution.

The table below shows some examples of such programmes:

Hazard	Programme
Excessive exposure to loud noise	Hearing conservation programme
Exposure to chemicals, radioactive materials, bio-hazardous materials	Management of hazardous substances programme
Awkward work postures, repetitive work, manual handling	Ergonomics programme

Table 25: Health programmes for managing corresponding hazards

6.11 Emergency preparedness

An emergency response plan is imperative in saving lives and mitigating loss when the situation arises. An emergency team should be formed, with the respective roles and responsibilities of each member laid out plainly. Management should take care to ensure that every staff is familiar with the emergency procedures, and this can be reinforced through regular drills and exercises. The performance in each drill should be evaluated to draw lessons from them and used in making improvements.

Emergency Response Plans should minimally include the following:

- Procedures for raising an alarm
- Procedures for evacuation and rescue
- Means to rescue and administer first aid
- Communication channels with relevant government authorities and response agencies

Examples of emergencies:

- Fire
- Structural failure or collapse
- Gas leakage

6.12 Documentation and Review

There should be a system in place for documenting and reviewing the WSH system. This is to facilitate retrieval of relevant documents and to ensure that the programme remain relevant and effective. All revisions to the safety and health manual should be dated and endorsed by authorised personnel. Recommendations coming from such reviews should be duly considered and implemented wherever possible.

6.13 Safety promotion

Employers can also organise promotional programmes to generate more WSH awareness, and also to cultivate a stronger safety culture at work.

The following are some examples of such promotional activities:

- Participation in WSH talks, seminars and exhibitions;
- Participation in National WSH campaigns;
- Participation in National WSH competitions (Safety Starts with Me, WSH Innovation Awards);
- Subscribe to WSH Bulletin on the WSH Council website at www.wshc.sg;
- Dedicate a column to WSH in town council newsletters; and
- In-house competitions, exhibitions, and awards.

6.14 Contractor management

It is common for respective managing agents (MA) and town councils to engage contractors for certain jobs in their premises. The MA should establish a system to evaluate, select, and control contractors. This system allows the MA to assess contractors before awarding any work to them.

MA should be cautious in selecting and managing their contractors, to ensure that the latter do not pose additional and unnecessary risks for themselves or others. They should meet with their contractors regularly to monitor their WSH performance during the term of the contract, as well as a final review after the completion of said contract.

For more information on Contractor Management, refer to the *Guidelines on Contractor Management* from the Workplace Safety and Health Council website at www.wshc.sg

6.15 Safety inspection

MA and town councils should establish an effective programme to carry out periodic inspections to identify potential hazards, unsafe acts and conditions in the workplace, and monitor any changes in the work processes. Both management and employees should be involved in this programme.

An inspection checklist can be used when conducting regular safety inspections. It is important to be comprehensive and go over every aspect of the workplace. Refer to Annex D for a sample checklist. The findings from each inspection should be recorded and analysed. Following that, the recommendations and follow-up actions should also be properly documented for future reference.

7. Useful References

A. Ministry of Manpower - Occupational Safety and Health Division

Legislations available at MOM website at www.mom.gov.sg

- *The Workplace Safety and Health Act (2006)*
- *The Workplace Safety and Health Subsidiary Legislations*

Guides to managing workplace hazard available at MOM website at www.mom.gov.sg

- *Safety Circular on Safe Work Procedures (2000)*
- *Safety Circular on Electrical Safety*
- *Safety Circular on Lock-out Procedures (2000)*
- *Guidelines on Risk Assessment for Occupational Exposure to Harmful Chemicals (2002)*
- *Guidelines for Noise and Vibration Control (2003)*
- *Guidelines on Prevention and Control of Chemical Hazard (2002)*
- *Guidelines on Solvent Management in Dry Cleaning (2000)*
- *Factsheets on Successful Noise Control Case Studies (2001)*

B. Workplace Safety and Health Council

The following guides are available on the WSH Council website at www.wshc.gov.sg

- *Guidelines on Fatigue Management (2010)*
- *Guidelines on Hearing Conservation Programme (2014)*
- *Approved Code of Practice on Workplace Safety and Health (WSH) Risk Management (2012)*
- *Approved Code of Practice on Working Safely at Heights (2013)*
- *Approved Code of Practice SS 549: 2009 Code of Practice for Selection, use, care and maintenance of hearing protectors*
- *Approved Code of Practice SS 569: 2009 Code of Practice for Manual handling*
- *Approved Code of Practice SS 506: Occupational safety and health (OSH) management system Part 1: Requirements*
- *Approved Code of Practice SS 506: Occupational safety and health (OSH) management system Part 2: Guidelines for the implementation of SS 506: Part 1: 2009*

C. Singapore Workforce Skills Qualifications

For more information visit the Singapore Workforce Development Agency (WDA) or www.wda.gov.sg

To report accidents, dangerous occurrences and occupational diseases, visit: www.mom.gov.sg/ireport

8. Acknowledgements

Contributors

- Ministry of Manpower - Occupational Safety and Health Division
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- Aljunied Town Council
- CPG Facilities Management Pte Ltd

9. Annexes

Annex A: Penalties under the WSH Act

Offender	General penalty
Individual person	• Maximum \$200,000 fine, or maximum imprisonment of 2 years, or both • Additional \$2,000 fine for each day that the offence is not rectified
Corporate body	• Maximum \$500,000 fine • Additional \$5,000 fine for each day that the offence is not rectified

Table 26: General Penalties of the parent WSH Act (Section 50)

When a person or corporation has a record of previous offenses that led to fatalities, the penalties will be more severe.

Offender	Penalties for repeat offenders that resulted in fatalities
Individual person	• Maximum \$400,000 fine, or imprisonment, or both • Additional \$2,000 fine for each day that the offence is not rectified
Corporate body	• Maximum \$1,000,000 fine • Additional \$5,000 fine for each day that the offence is not rectified

Table 27: Penalties for repeat offenders of the parent WSH Act (Section 51)

Offender	Maximum fine	Maximum imprisonment	Additional remarks
Failure to comply with a remedial order	\$50,000	12 months	Either or both
If the offense is continued after conviction	Additional \$5,000 for each day the offence continues		
Failure to comply with stop-work order	\$500,000	12 months	Either or both
If the offense is continued after conviction	Additional fine of \$20,000 for each day the offence continues		

Table 28: Penalties for non-compliance with remedial order or stop-work order

Annex B: Sample Risk Assessment Form

Risk Assessment Form					Reference No.					
Department:		RA Leader:		Approved by: Signature:		Name:			Date:	
Process:	Cleaning Department	Cleaning of HDB estate	RA Member 1:	Hiang Ah Guang						
Activity / Location:		Void deck cleaning / Toa Payoh estate	RA Member 2:	Tay Wei Ming						
Assessment Date:		16 Jan 2009	RA Member 3:	Loh Han Yong						
Last Review Date:		17 Jan 2008	RA Member 4:	Prakash Muthu						
Next Review Date:		15 Jan 2010	RA Member 5:	-						

Hazard Identification			Risk Evaluation				Risk Control							
Ref	Sub-activity	Hazard	Possible Injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls	S	L	RPN	Implementation Person	Due Date	Remarks
1	Sweeping floors	Slip and fall	Back injury	Take 2 steps down while cleaning stairs. Wear non-slip shoes.	4	4	16	Clear away obstructions before and after work.	4	3	12	Prakash Muthu	Mar 2009	
		Hit by falling objects	Head injury	Stay observant and look out for thrown objects on floor, precariously balanced objects on ledges.	5	2	10	Wear hard hat / safety helmet during work	3	2	6	Loh Han Yong	Feb 2009	
		Repetitive sweeping motion	Musculoskeletal injury	Implement two 10-minute breaks into 8-hour shift. Train employees to do stretching regularly during work.	3	3	9							
		Inhalation of dust	Allergy / irritation from dust inhalation	Wear masks. Daily sweeping to minimize dust accumulation. Avoid leaving trash bags open for extended periods of time. Sweep gently to avoid agitating dust.	2	5	10	Use vacuum cleaners instead of sweeping. Mop instead of sweep to prevent agitating dust into the air.	2	2	4	Prakash Muthu	Jan 2009	
		Contact with animal	Parasitic infestation	Wear impervious gloves and non-slip safety shoes.	3	1	3							

Hazard Identification				Risk Evaluation				Risk Control						
Ref	Sub-activity	Hazard	Possible Injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls	S	L	RPN	Implementation Person	Due Date	Remarks
2	Mopping floors	Slips and falls due to slippery surface / wet floors	Head and other bodily injuries	Wear impervious gloves and non-slip safety shoes. Place warning signs for wet floors. Avoid running and horse-playing on wet floors.	4	4	16	Dispose waste water at wash area gully to keep the workplace dry after cleaning.	4	2	8	Prakash Muthu	Mar 2009	
		Improper technique or excessive work duration	Muscular injury	Mop away from wet surface. Provide adequate resting time. Set a maximum number of working hours.	3	3	9	Practice routine job rotations	2	2	4	Tay Wei Ming	Apr 2009	
	Washing floors with high pressure jets	Slips and falls due to slippery floor, hose and wires	Bodily injuries	Wear non-slip shoes.	3	2	6							
3	Scrubbing floor tiles	Loose or improper connections or broken wire	Electrocution	Use waterproof industrial plugs. Visual inspection for any wear and tear on wiring insulation.	5	1	5	Turn off jet when not in use	5	1	5	Tay Wei Ming	Mar 2009	
		Injured by high pressure jet water	Bodily injuries	Do not use jet for cleaning self. Restrict the human traffic around the cleaning zone.	3	2	6	Direct the water jet away from self during cleaning	3	1	3	Loh Han Yong	Mar 2009	
		Slips and falls due to slippery surface / wet floors	Slips, trips and falls	Set up barricades and warning signs.	4	3	12	Lay wiring out neatly to prevent it from looping and creating tripping hazards.	4	2	8	Prakash Muthu	Feb 2009	
		Contact with chemicals	Skin dermatitis	Wear impervious gloves and non-slip rubber shoes.	3	2	6	Visually check integrity of containers to prevent leaks.	3	1	3	Loh Han Yong	Apr 2009	

Hazard Identification			Risk Evaluation						Risk Control					
Ref	Sub-activity	Hazard	Possible injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls	S	L	RPN	Implementation Person	Due Date	Remarks
4	Refuse collection	Hit by falling object (killer litter)	Head, eye injury	Wear hard hat / safety helmet during work	5	1	5							
		Cut by sharp object in trash	Cuts	Wear cut-resistant gloves.	2	3	6							
		Ergonomics (heavy lifting)	Back injury (poor lifting posture)	At least 2 employees in a team to help with lifting.	3	3	9							
5	Clear cobwebs at ceiling	Dust emission	Allergic reaction to dust	Wear goggles and dust masks during work.	3	4	12							
		Dust / dirt falls into eyes	Eye infection	Use wet cloth for cleaning, to avoid stirring the dust into the air.										

Assessment of Likelihood

Level	Likelihood	Description
1	Rare	Not expected to occur but still possible.
2	Remote	Not likely to occur under normal circumstances.
3	Occasional	Possible or known to occur.
4	Frequent	Common occurrence.
5	Almost certain	Continual or repeating experience.

Assessment of Severity

Level	Ranking	Description
5	Catastrophic	Fatality, fatal diseases or multiple major injuries
4	Major	Serious injuries or life-threatening occupational disease (including amputations, major fractures, multiple injuries, occupational cancer, and acute poisoning).
3	Moderate	Injury requiring medical treatment or ill-health leading to disability (includes lacerations, burns, sprains, minor fractures, dermatitis, deafness, and work-related upper limb disorders).
2	Minor	Injury or ill-health requiring first-aid only (includes minor cuts and bruises, irritation, and ill-health with temporary discomfort).
1	Negligible	Not likely to cause injury or ill-health.

5x5 Risk Matrix with Risk Prioritization Number (RPN)

Severity \ Likelihood					
	Rare (1)	Remote (2)	Occasional (3)	Frequent (4)	Almost Certain (5)
Catastrophic (5)	5	10	15	20	25
Major (4)	4	8	12	16	20
Moderate (3)	3	6	9	12	15
Minor (2)	2	4	6	8	10
Negligible (1)	1	2	3	4	5

Annex C: Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

GHS Pictograms and hazards classes

GHS Pictogram	Hazard class	Examples
	Corrosive	- Acids (sulphuric acid in batteries) - Bases (hydroxide for industrial cleaning)
	- Flammables - Aerosols - Self-reactive - Pyrophoric - Self-heating - Emits flammable gas	- Gases (hydrogen, acetylene) - Liquids (gasoline, thinner, alcohol)
	Acute toxicity (severe)	Cyanide
	- Irritant - Skin sensitizer - Acute toxicity - Narcotic effects - Respiratory tract irritation - Hazardous to ozone layer	- Solvents (paint remover) - Lubricants - Coolants

	- Carcinogen - Respiratory sensitizer - Reproductive toxicity - Target organ toxicity - Mutagenicity - Aspiration toxicity	- Benzene - Asbestos (used in roof insulation)
	Oxidiser	Peroxide (for bleaching, sanitising)
	- Explosive - Self-reactive - Organic peroxide	Cellulose nitrate (fireworks)
	Gases under pressure	- Helium (for filling balloons) - Nitrogen (as a propellant gas) - Propane (for cooking)
	Environmental toxicity	Halon (used in fire extinguishers) destroys the ozone layer

Table 29: GHS pictograms

Annex D: Sample inspection checklist

	Yes	No	Action(s) to take
Floors and Walkways			
Are aisles clear of materials or equipment?			
Are main aisles at least 1.2 m wide?			
Are doorways clear of materials or equipment?			
Are carpets or tiles in good condition, free of tripping hazard?			
Are floors clean and free of oil or grease?			
Are floors kept dry?			
Stairs and Ladders			
Are ladders safe and in good condition?			
Are stairwells clear of materials and equipment?			
Are stairs and handrails in good condition?			
Are ladders and stairs provided with anti-slip strips?			
Electrical Safety			
Are electrical wires in good condition?			
Is there clear access to electrical panels?			
Are proper plugs used?			
Are plugs, sockets, and switches in good condition?			
Are portable power tools and electrical equipment in good condition?			
Fire Safety			
Are fire extinguishers clearly marked?			
Are fire extinguishers properly installed on walls?			
Have fire extinguishers been inspected within the last year?			

Are employees trained to use fire extinguishers?			
Are flammable liquids properly stored?			
Are smoke and fire alarms in place and properly maintained?			
Are emergency lights in working condition?			
Have sprinkler systems been inspected?			
Are emergency exits clear of materials or equipment?			
Are emergency exit signs working?			
Are emergency lighting units provided?			
Equipment and Machinery			
Are equipment and machinery maintained in good condition?			
Is machinery securely guarded?			
Are operators properly trained?			
Are switches clearly marked and easy to reach?			
Is a lockout procedure in place?			
Is there enough work space?			
Are noise levels controlled?			
Chemicals			
Are Safety Data Sheets (SDSs) provided for all chemicals?			
Are employees trained in identifying hazards and the precautions to take?			
Are relevant personal protective equipment provided?			
Are containers clearly labelled?			
Are chemicals properly stored?			
Are hazardous materials disposed of properly?			
Are there procedures for chemical spills?			

First Aid			
Is the first aid box accessible and clearly labelled?			
Is the first aid box adequate and complete?			
Are emergency numbers displayed?			
Are there trained first aiders?			
Personal Protective Equipment			
Do employees know where to find personal protective equipment?			
• Face mask • Goggles • Gloves • Helmets • Ear plug • Aprons • Boots			

10. Amendments

This set of guidelines will replace the Workplace Safety and Health Guidelines – Cleaning and Custodial Services published by the WSH Council in July 2009.

Section	Deletions
1	Removed duties under the Workplace Safety and Health Act: Manufacturer, Installer, Self-employed

Section	Amendments
5	Addition of index page with list of work activities Addition of crush hazards and impact hazards
Annex	Annex B – Risk matrix updated from a 3x3 matrix to 5x5 matrix

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