

Code of Practice on Workplace Safety and Health (WSH) Risk Management



Preface

As Workplace Safety and Health (WSH) Risk Management (“RM”) gains momentum in Singapore, more duty holders are beginning to recognise the value and benefits of Risk Assessment (“RA”) in maintaining a safe and healthy workplace. Duty holders and employees alike are seeking greater clarity on the implementation of RA. To address this and provide useful guidance, the WSH Council formed an industry-led RM Work Group with members from major industry sectors to develop the Code of Practice on WSH Risk Management (herein referred to as “Risk Management Code of Practice” or “RMCP”).

The RMCP advises duty holders on their obligations under the Workplace Safety and Health Act (“WSH Act”) and the WSH (Risk Management) Regulations. It also provides guidance on a systematic process for implementing RM, from the identification of hazards, and the evaluation of associated risks, to the implementation of relevant risk controls.

Much consideration has been given to make the RMCP applicable to large and small companies across industries, as the risk profiles and needs of workplaces and their methods of RM deployment differ significantly.

Large companies tend to have a dedicated RM Team to oversee the consistent deployment of RM throughout the organisation. At the same time, it is also usual for these companies to have multiple RA Teams to look at specific risks or work processes. The RMCP offers clarity in the roles of the different teams and/or individuals.

Smaller companies, on the other hand, often need specific guidance in implementing RM. To assist this segment, the RMCP defines stakeholders’ responsibilities and provides information on RM implementation. The RMCP also recommends the 5x5 risk matrix for risk evaluation; however, it does not restrict companies to their choice of RA methodologies and risk matrices.

In the second revision, the principles of RM were introduced so that companies can implement RM more effectively. Human and cultural factors (referred to as “personal health risks and organisation factors” in the third revision) influence RAs and should be considered when companies conduct RAs. The revised RMCP also recommends some possible roles that a human resource manager could play to complement those other duty holders for a holistic RM.

In view of a heightened awareness of occupational health hazards in the industry, the risk evaluation of health hazards is included to enhance the overall assessment of workplace hazards. Upstream risk controls in the hierarchy of control, for example, from elimination and substitution to engineering controls, are emphasised for their relative importance in managing workplace risks.

In the third revision, considerations of our workplaces’ preparedness for terrorism threats, disease outbreaks, and mental well-being are introduced. The threat of terrorism is real and present. Included in this RMCP is the Singapore WSH Community’s response to this threat that Singapore faces and is a requirement under WSHC’s bizSAFE programme. Living with COVID-19 has also reinforced the need to mitigate infectious disease transmission risk in the workplace. The growing risk to mental well-being, already present in pre-COVID times but now exacerbated by the pandemic, also behoves companies to update their RM processes to account for mental health.

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1. Purpose

The purpose of this Code of Practice on WSH Risk Management (RMCP) is to establish the minimum requirements and duties for implementing workplace RM in Singapore, and to provide guidance on its implementation. This RMCP applies to all workplaces in Singapore that are governed by the Workplace Safety and Health (WSH) Act. Conducting risk assessment and implementing risk control measures are requirements under the WSH (Risk Management) Regulations.

2. Abbreviations and Terms

CP	Code of Practice
MOH	Ministry of Health
MOM	Ministry of Manpower
PPE	Personal Protective Equipment
RA	Risk Assessment
RM	Risk Management
RM Regulations	WSH (Risk Management) Regulations
RMCP	Risk Management Code of Practice (Code of Practice on Workplace Safety and Health (WSH) Risk Management)
RPN	Risk Prioritisation Number
SGSecure	SGSecure is Singapore's national movement to sensitise, train, and mobilise the community to play a part to prevent and deal with a terrorist attack. It is how the whole of Singapore can come together in response to the terrorism threat and safeguard our way of life.
SSG	SkillsFuture Singapore
SWP	Safe Work Procedure
WSH	Workplace Safety and Health
WSH Act	Workplace Safety and Health Act
WSHC	Workplace Safety and Health Council
WSQ	Workforce Skills Qualification

In this document, the following verbal forms are used:

- a) "shall" indicates a requirement.
- b) "should" indicates a recommendation.
- c) "may" indicates a permission.
- d) "can" indicates a possibility or a capability.

3. Overview

The main components of the Risk Management (RM) process are:

- Preparation;
- Risk Assessment (RA);
- Risk Control Implementation;
- Record-Keeping; and
- Review

Communication is a constant aspect throughout the RM process.

4. General Requirements

4.1 General

- 4.1.1** RA shall be carried out and risk control measures shall be implemented before any new work commences.

4.2 Employer

- 4.2.1** As defined in the WSH Act, an Employer is a person who, in the course of the person's trade, business, profession or undertaking, employs any person to do any work under a contract of service. The self-employed person or Principal shall also fulfil the duties and functions of an Employer specified in the RMCP.
- 4.2.2** An Employer shall:
- 4.2.2.1** Ensure that an RA is conducted on WSH risks, including to mental well-being, associated with any activity or exposure in the workplace. This should include considerations for its preparedness for terrorism threats at the workplaces, and disease outbreaks.
- 4.2.2.2** Take all reasonably practicable steps to eliminate any foreseeable risks to any person.
- 4.2.2.3** Take measures to control the risks by means of, and in the following order of consideration where risk elimination is not reasonably practicable:
- Substitution;
 - Engineering Controls;
 - Administrative Controls; and
 - Provision and Use of Suitable Personal Protective Equipment (PPE).
- 4.2.2.4** Support the implementation of risk control measures recommended by the RM or RA Teams.
- 4.2.2.5** Require the RM Leader to provide regular updates of the RA done and risk control measures implemented to reduce or eliminate identified risks.
- 4.2.2.6** Require RA updates at each WSH Committee meeting, if such a committee is established, or at the workplace's regular meetings (e.g., new findings, progress of risk control actions).
- 4.2.2.7** Require the contractor or supplier where work has been assigned or awarded, to conduct an RA. The contractor or supplier must take reasonably practicable measures to eliminate or reduce to As Low As Reasonably Practicable (ALARP) the risk that may be posed by their work (e.g., when they work with machines, equipment, or hazardous substances).
- 4.2.2.8** Ensure that a Risk Register is available and maintained at the workplace.
- 4.2.2.9** Ensure that the Risk Register is prepared in accordance with the RMCP.
- 4.2.2.10** Ensure that the Risk Register is readily available for review by designated persons at the workplace and by regulatory agencies.
- 4.2.2.11** Ensure that RA records, including but not limited to RA forms and control measures records, are kept for at least three years from the RA approval date.
- 4.2.2.12** Review and, if necessary, revise the RA:
- at least once every three years from the RA approval date; or
 - upon the occurrence of any bodily injury to any person as a result of exposure to a hazard in the workplace; or
 - where there is a significant change in work practices or procedures; or
 - where there is a significant change in the workers' personal health (including mental well-being) in relation to safety critical work process or activity; or
 - when new information on WSH emerging risks, threat of terrorism, disease outbreak, or mental well-being is made known.
- 4.2.2.13** Monitor effectiveness of the risk control measures.

4.3 Manager

- 4.3.1** This may be the person who manages a physical area ("Area Manager", e.g., Warehouse Manager), a function ("Functional Manager", e.g., Production Manager) or an activity (e.g., Machining Manager) within the workplace. In some workplaces, this may be the Employer. The Employer is to determine the appropriate level of engagement for this role.
- 4.3.2** The Manager who oversees the area, function, or activity where the WSH risks exist, shall:
- 4.3.2.1** Ensure that an RA is conducted, and risk control measures are implemented before any new work is carried out in the Manager's area.
- 4.3.2.2** Approve the RA conducted for the Manager's area. The Manager should also ensure that the risk level is not rated "High Risk" when approving work to be carried out.
- 4.3.2.3** Ensure that the risk control measures are implemented without delay.

- 4.3.2.4** Ensure that, where applicable, all operations have established Safe Work Procedures (SWPs).
- 4.3.2.5** Ensure that all persons exposed to the risks are informed of:
 - the nature of risk involved; and
 - any measure or SWP implemented.
- 4.3.2.6** Ensure that the effectiveness of the risk control measures is monitored.
- 4.3.2.7** Revise the RA if the risk control measures are inadequate and ineffective after the implementation, by obtaining more information and/or modifying controls.
- 4.3.2.8** Maintain RA documentation of control measures and SWP that were implemented.
- 4.3.3** The Manager shall assist the Employer to implement the requirements in Clauses 4.2.2.8 to 4.2.2.13.
- 4.3.4** The Manager may authorise other persons to execute the duties mentioned above but remains accountable for them.
- 4.3.5** The Manager should work together with a Human Resource Manager to specify WSH training necessary for job positions and functions.

4.4 Human Resource Manager

- 4.4.1** The Human Resource Manager should:
 - 4.4.1.1** Ensure that a robust recruitment process is in place to select suitable job candidates who can meet the position's requirements and WSH obligations.
 - 4.4.1.2** Specify safety and health responsibilities in the job descriptions of employees and ensure that these responsibilities are effectively communicated to all employees.
 - 4.4.1.3** Ensure that all new employees are given appropriate and sufficient orientation, and WSH training to equip them with the relevant knowledge, skills, and abilities to succeed in their positions.
 - 4.4.1.4** Support the Employer and Managers with identifying, evaluating, and controlling risks in relation to personal health (including mental well-being), and organisational factors.
 - 4.4.1.5** Support the Employer and Managers to ensure that RA, risk control measures and SWPs are effectively communicated to all employees.
 - 4.4.1.6** Ensure that WSH training and other related RA records are documented.
 - 4.4.1.7** Work with Managers and RM or RA Leaders to consider safety and health outcomes in employees' performance evaluation, remuneration and discipline, and to ensure consistent behaviour and practices in line with organisational expectations, where applicable.
 - 4.4.1.8** Implement programmes that support and maintain employees' safety, health, and mental well-being.
 - 4.4.1.9** Support the Employer to ensure that HR policies and initiatives are aligned to mitigate the risks identified.
- 4.4.2** In the absence of a Human Resource Manager in the organisation, the equivalent person undertaking such a work profile of the Human Resource Manager should execute the duties mentioned above.

4.5 Risk Management and Risk Assessment Leaders

- 4.5.1** The RM Leader shall assist the Employer and Managers in coordinating RM within the workplace.
- 4.5.2** The RM or RA Leader shall:
 - Provide regular updates on the appropriate risk control measures implemented to eliminate or reduce identified risks to the Employer, preferably monthly but no less than once a year;
 - Obtain approval from the Employer or the designated Manager for the implementation of risk control measures; and
 - Assist the Employer to ensure that the Risk Register is prepared in accordance with the RMCP.

4.6 Employees

- 4.6.1** Employees are to adhere to the measures stated in the RAs.
- 4.6.2** Employees are to report to their immediate supervisors any incident, accident, near miss, occupational disease, dangerous occurrence, or suspicious risks associated with the threat of terrorism so that prompt action can be taken to address them.

5. Preparation

5.1 Formation of Risk Management or Risk Assessment Teams

5.1.1 Appointment of Risk Management Team

5.1.1.1 The Employer shall:

- Appoint an RM Team Leader; and
- Appoint RM Team Members.

5.1.1.2 The RM Team shall be responsible for the overall RM direction and RM activities of the workplace.

5.1.1.3 The RM Team appointed by the Employer must:

- Have a thorough knowledge of the work to be assessed; and
- Be multi-disciplinary, diverse with representation from major stakeholders of all the workplace functions.

5.1.1.4 Except in a single-person workplace (e.g., self-employed), RA is to be conducted by a multi-disciplinary team who has thorough knowledge of the work to be assessed.

5.1.1.5 The Employer shall ensure that the RM Leader is competent for the task (see Clause 5.1.2).

5.1.2 Risk Management Team Leader

5.1.2.1 The RM Team Leader should be competent for the task. Basic competency can be attained by completing a Workforce Skills Qualification (WSQ) RM course approved by SkillsFuture Singapore (SSG) and conducted by SSG WSQ Training Providers, or equivalent.

5.1.2.2 The RM Team Leader should also be experienced with the work and processes in the workplace, and have direct access to the Employer.

5.1.3 Risk Management Team Members

5.1.3.1 RM team members may be appointed from management staff, process or facility engineers, technical personnel, supervisors, production operators, maintenance staff and WSH personnel, where suitable.

5.1.4 Risk Assessment Teams

5.1.4.1 Where more teams are required to conduct RA in the Workplace, Risk Assessment Teams ("RA Teams") can be formed (see Figure 1).

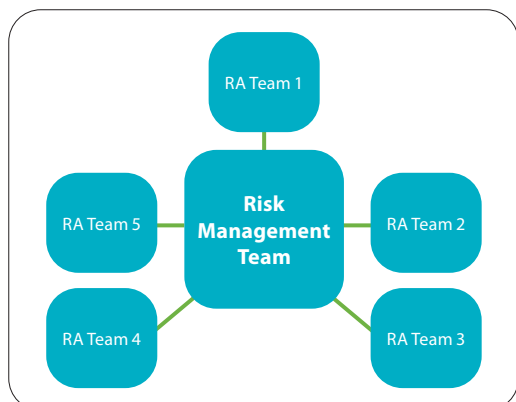


Figure 1: RM and RA Teams.

5.1.4.2 RA Teams are responsible for conducting RAs within the scope defined by the RM Team. If an organisation requires only one team, the functions of the RM and RA teams may be combined within the RM Team.

5.1.4.3 RA Teams should have representatives from management and non-management levels.

5.1.4.4 The RA team should include personnel who are involved with the work, including contractors and suppliers. If available, it should also include persons who are familiar with the design and development of the site, machine, or process.

5.1.4.5 If the inclusion is not feasible as detailed in 5.1.4.4, designers, suppliers and other contributors may be invited to share their comments and suggestions with the RA Team.

5.1.4.6 Where RA experience or expertise is lacking, a WSH Officer, WSH Auditor or Third-Party Consultant who is trained and has experience in conducting RA should be engaged to assist the RM or RA leader in conducting RA.

- 5.1.4.7** The RA Team Leader should be competent for the task. Basic competency can be attained by completing a WSQ RM course approved by SSG and conducted by SSG WSQ Training Providers, or equivalent.
- 5.1.4.8** The RA Team Leader should be experienced with the type of work within his or her scope, and have direct access to the RM Team Leader, or in the absence of one, to the Employer.

5.2 Extent of Risk Assessment: Determine What Is to Be Assessed

5.2.1 Scoping the Risk Assessment

- 5.2.1.1** Scoping is the step of identifying a convenient unit (or “Boundary”) for assessing and controlling risks at the workplace. It may be as simple as dividing a workplace or project into its distinct parts (e.g., divisions, departments, functional areas, or work activities), and then sub-dividing each part into self-contained jobs or areas, each representing the unit for the RA.
- 5.2.1.2** The RM Team (the primary team responsible for the overall RM direction and activities of the company) shall determine the boundaries of the RA (e.g., department, functional area, or work activity within the workplace).
- 5.2.1.3** RAs for each identified department, functional area or work activity should be scoped by the RA Team to provide focus to the assessment.

5.2.2 Inventory of Work Activities Form

- 5.2.2.1** For the identified departments, functional areas, and work activities to be assessed, the “Inventory of Work Activities” form should be used (see Appendix A).
- 5.2.2.2** The RMCP accepts variations of this form but require the following information to be included:
- Department, activity, or trade assessed;
 - Process/Activity location;
 - The date when the RA was done or reviewed; and
 - Work activity / Sub-activity.
- 5.2.2.3** For trade-based RA:
- State the trade being assessed in “Department, Activity, or Trade Assessed”;
 - Where the location or process is not applicable, state “N/A” in these columns; and
 - Complete Work Activity List.

5.3 Gather Relevant Information

- 5.3.1** Once the extent of the RA is determined, relevant information should be gathered. These sources of information may include, but are not limited to:
- Workplace layout plan;
 - Process or work flowchart;
 - List of work activities in the process;
 - List of chemicals, machines and/or tools used;
 - Records of past incidents, accidents and occupational diseases;
 - Critical incident stress management (CISM) resources;
 - Relevant legislation, Standards, CP or specifications;
 - Observations and interviews;
 - WSH inspection records;
 - Details of existing risk controls;
 - Health and safety audit reports;
 - Workplace hygiene monitoring (exposure assessment for workplace health hazards);
 - Workplace medical monitoring (medical examinations for exposure to workplace health hazards);
 - Feedback from employees, clients, suppliers or other stakeholders;
 - SWPs;
 - Other information such as safety data sheets (SDS), manufacturer’s instruction manual;
 - Copies of any previous RAs that are relevant;
 - Medical condition (e.g., allergy), mental well-being indicators (e.g., from survey instruments like iWorkHealth), and personal health indicators of employees in relation to safety critical work processes, or activity being assessed. Do comply with prevailing national and company requirements when handling personal information;
 - Past training records of employees; and
 - Information regarding the workplace’s preparedness for terrorism threats (e.g., crisis reporting process), and for disease outbreak scenarios (e.g., temperature scanning processes, split team arrangements, work-from-home guidance (WFH), entry/exit controls)

6. Risk Assessment

6.1 General Requirements

- 6.1.1** The steps in RA, namely, Hazard Identification, Risk Evaluation and Risk Control, specify the RA methodology and requirements of the RMCP.
- 6.1.2** All identified hazards from work activities and sub-activities need to be evaluated for their associated risks and addressed using relevant risk controls. These steps and their results must be recorded in the RA Form.
- 6.1.3** As part of continual improvement, the RMCP recommends that workplace hazards be monitored regularly till:
- the risk level of the hazard is low ("green zone" of the risk matrix);
 - the remaining risks of the hazard are residual in nature (see Appendix E); or
 - all reasonably practicable measures have been taken to mitigate the risk.
- 6.1.4** All RA entries shall be reviewed and, if necessary, revised:
- at least once every three years from the last RA approval date; or
 - upon the occurrence of any bodily injury to any person as a result of exposure to a hazard in the workplace; or
 - where there is a significant change in work practices, or procedures; or
 - where there is a significant change in the workers' personal health (including mental well-being) in relation to safety critical work process or activity; or
 - when new information on WSH emerging risks, threat of terrorism, disease outbreak, or mental well-being is made known.
- 6.1.5** Regarding the workplace's threat of terrorism and disease outbreaks, the Occupier should consider verified new information (e.g., new modality of attack, disease outbreak information from trusted sources) in reviewing the RA.

6.2 Principles

- 6.2.1** RA is the cornerstone of the RM process. It is an integral part of all organisational work processes, from strategic planning to project and change management. The key steps in the RM process are outlined in Figure 2.

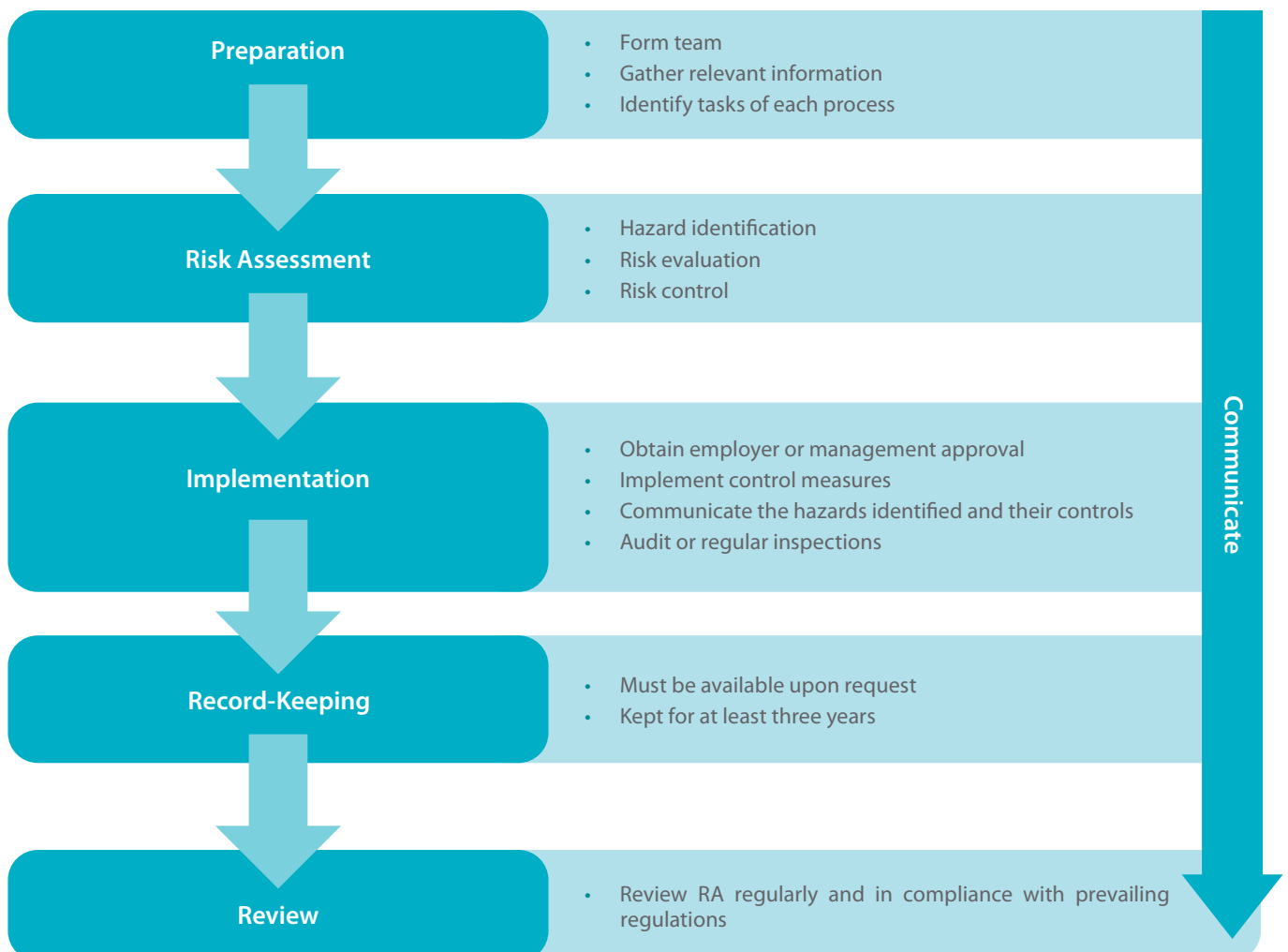


Figure 2: Risk management process.

- 6.2.2** RA is customised and tailored to each organisation and its specific work environment.
- 6.2.3** RM contributes to the achievement of organisational objectives and improvement of performance in business; operational efficiency; regulatory, safety and health compliance; and environmental protection.
- 6.2.4** RM addresses uncertainty and helps businesses make informed decisions and prioritise actions.
- 6.2.5** RA provides a systematic approach to RM, and leads to consistent and reliable results.
- 6.2.6** RA inputs are based on various information sources such as the RA team members' competency and experience, observations, employee feedback and expert opinions. The limitations of these information sources must be considered to ensure that the RA is based on the best available information.
- 6.2.7** RA should take human factors into account. Human factors refer to environmental, organisational and job factors, and human and individual characteristics, which influence behaviour at work in a way which can affect health and safety. It recognises that the capabilities and health risk factors of employees, including mental well-being, should be managed when conducting an RA.
- 6.2.8** RA also considers the workplace preparedness for terrorism threats, disease outbreaks, and employee's mental well-being.
- 6.2.9** RM should work alongside all other aspects of an organisation to facilitate continual improvement, and be responsive to change when new risks emerge, or existing risks change.

6.3 Hazard Identification

6.3.1 General

- 6.3.1.1** The RA Team Leader should determine the most appropriate way(s) of identifying hazards. These may include brainstorming, systematic process reviews, Process Hazard Analysis (PHA), Job Observations and Job Safety Analysis (JSA).
- 6.3.1.2** When identifying hazards, the RA Team should consider if the hazards could cause harm beyond the immediate area of the work.

6.3.2 Process

- 6.3.2.1** Select a "Work Activity" from the "Inventory of Work Activities Form" (see Appendix A) and place it in the "Risk Assessment Form" (see Appendix B) for analysis. Variations of these forms can be used; however, all information required in the form should be documented.
- 6.3.2.2** Break down work activity into its sub-activities to facilitate the identification of all foreseeable hazards associated with the work. These sub-activities constitute the different steps that make up the work activity.
- 6.3.2.3** For each sub-activity, identify the hazard(s) and record them in the "Hazard" column. List each hazard in a separate row in the table.
- 6.3.2.4** The following categories of hazards should be considered:
 - Physical (e.g., fire, noise, ergonomics, heat, radiation);
 - Mechanical (e.g., moving parts, rotating parts);
 - Electrical (e.g., voltage, current, static charge, magnetic fields);
 - Chemical (e.g., flammables, toxics, corrosives, reactive materials);
 - Biological (e.g., bacteria, fungi, blood-borne pathogens, virus, microbial toxins); and
 - Psychosocial (e.g., employees' poor mental well-being, stress, fatigue).

Risks associated with terrorism threats, disease outbreak (e.g., epidemics, pandemics), and mental well-being should also be considered in the RA.

6.3.3 Individual and Organisational Factors

- 6.3.3.1** RA should consider individual and organisational factors that could compromise or influence employees' work ability and safety (e.g., decreased mental alertness, fatigue, loss of concentration). Risk control measures can be implemented to consider varying perceptions and behaviour.
- 6.3.3.2** Examples of organisational factors include excessive workload, prolonged working hours, inadequate training, inadequate acclimatisation to hot environment, alienated sub-groups of workers that could place them at risk of self-radicalisation.
- 6.3.3.3** Examples of factors (made known voluntarily to employers at individual level or through analysis of aggregated data from periodic health screening) to be considered are:
 - Individual characteristics and fitness (e.g., eyesight, hearing, lack of physical conditioning to carry out heavy lifting or manual work);
 - Personal health condition (e.g., anaemia made worse by exposure to lead, allergies to chemicals);
 - Conditions that, when not well managed, may affect safety critical work (e.g., high blood pressure, high cholesterol, diabetes mellitus, chronic heart condition, emotional trauma);
 - Pregnancy (e.g., teratogenic chemicals that can affect the embryo or foetus);
 - Smoking (a risk factor for many diseases); and
 - Use of certain medications or alcohol misuse (may affect cognitive abilities).

6.3.4 Workplace and Job-Related Factors

6.3.4.1 Other factors to consider when identifying hazards:

- Work shift patterns within the organisation;
- Proximity of hazardous activities to one another;
- Compatibility of work activities;
- Non-routine work activities and situations; and
- Environmental conditions e.g. lighting in the workplace, weather conditions during outdoor work, corporate WSH requirements.

6.4 Risk Evaluation

6.4.1 Risk Matrices

6.4.1.1 The RMCP recognises the various risk evaluation methods and matrices practised and preferred by workplaces. While the RMCP does not restrict workplaces to their choice of matrices, the numeric 5x5 Risk Matrix is recommended. Common matrices include, but are not limited to, the examples given in Tables 1, 2 and 3.

Severity \ Likelihood	Remote	Occasional	Frequent
Major	Medium Risk	High Risk	High Risk
Moderate	Low Risk	Medium Risk	High Risk
Minor	Low Risk	Low Risk	Medium Risk

Table 1: Example of a common 3x3 Risk Matrix with descriptive ratings.

Severity \ Likelihood	Rare (1)	Remote (2)	Occasional (3)	Frequent (4)	Almost Certain (5)
Catastrophic (A)	Medium	Medium	High	High	High
Major (B)	Medium	Medium	Medium	High	High
Moderate (C)	Low	Medium	Medium	Medium	High
Minor (D)	Low	Medium	Medium	Medium	Medium
Negligible (E)	Low	Low	Low	Medium	Medium

Table 2: Example of a common 5x5 Risk Matrix with a mix of numeric and descriptive ratings.

6.4.1.2 RMCP recommends the following Risk Matrix:

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

Table 3: Recommended 5x5 Risk Matrix with numeric ratings or Risk Prioritisation Number.

- 6.4.1.3** The risk matrix used in the RA should be displayed at least once, and preferably at every page of the RA form. This is particularly important when numeric ratings are used, as risk prioritisation number (RPN) may represent different levels of risk with different sizes of the risk matrix.

6.4.2 Existing Controls

- 6.4.2.1** Existing controls are control measures that are already in place or required to be implemented to carry out the work activity.
- 6.4.2.2** Assessment of severity and likelihood should be made on the assumption that existing (or required) controls are in place.
- 6.4.2.3** Existing (or required) controls that do not influence severity should not be considered when assessing severity.
- 6.4.2.4** Existing (or required) controls that do not influence likelihood should not be considered when assessing likelihood.

6.4.3 Assessment of Severity

- 6.4.3.1** Taking the existing risk controls and residual risks into consideration, the RA Team should rate the severity of the possible injury or ill-health.
- 6.4.3.2** When using the 5x5 matrix, the guidance given in Table 4 should be used when selecting the level of severity.
- 6.4.3.3** When using other matrices, equivalent guidance for severity should be used and described in adequate detail for adoption by users of those matrices.

Level	Severity	Description
5	Catastrophic	Death, fatal occupational disease or exposure, or multiple major injuries
4	Major	Serious injuries, serious occupational diseases or exposure (includes amputations, major fractures, multiple injuries, occupational cancers, diagnosed mental illnesses, acute poisoning, disabilities, and noise-induced hearing loss)
3	Moderate	Injury or ill-health (including mental well-being) requiring medical treatment (includes lacerations, burns, sprains, minor fractures, psychosocial stress, dermatitis, and work-related musculoskeletal disorders)
2	Minor	Injury or ill-health (including mental well-being) requiring first-aid only (includes minor cuts and bruises, irritation, ill-health with temporary discomfort, fatigue)
1	Negligible	Negligible injury

Table 4: A guide to severity rating.

- 6.4.3.4** Should RA Team members have difficulty developing a consensus to the severity level, the Team is to gather more information and/or consult an industry expert.

6.4.4 Assessment of Likelihood

- 6.4.4.1** Taking the existing risk controls and residual risks into consideration, the RA Team should rate the likelihood the hazard may cause injury or ill-health.
- 6.4.4.2** When assessing likelihood, the RA Team should consider personal health risks (e.g., existing medical condition(s) of the person(s) involved in the activity that may affect the likelihood level), as well as organisational factors.
- 6.4.4.3** When using the 5x5 matrix, the guidance given in Table 5 should be used when selecting the level 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.

Table 5: A guide to likelihood rating.

- 6.4.4.4** When using other matrices, equivalent guidance for likelihood should be used and described in adequate detail for adoption by users of those matrices.
- 6.4.4.5** Should RA Team members have difficulty developing a consensus to the likelihood level, the Team is to gather more information and/or get advice from an industry expert.

6.4.5 Risk Prioritisation Number

- 6.4.5.1** The RPN is obtained by multiplying the values of Severity and Likelihood level (values in the “S” and “L” columns of the RA form), that is, $RPN = S \times L$.

6.4.6 Classification of Risk - Risk Matrix

- 6.4.6.1** Compare the RPN against the Risk Matrix in Table 6.

- 6.4.6.2** Risk controls must be implemented so that the risk levels are not in the red zone (“High Risk”) before work commences. Additional Risk Controls should be implemented till:

- risk controls for the hazard in the yellow zone (“Medium Risk”) are already As Low As Reasonably Practicable (ALARP); or
- the risk level is in the green zone (“Low Risk”).

Likelihood \ Severity	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

Table 6: 5x5 Risk Matrix with numeric ratings.

- 6.4.6.3** The RM or RA Team is to determine for the organisation, with the concurrence of the Employer, which are the areas within the matrix to be classified as Low, Medium, and High risks. The categorisation of risk may be based on, but is not limited to, industry practice, policies of the workplace and risk appetite of the organisation.

6.4.7 Action for Risk Levels

- 6.4.7.1** The following actions are to be implemented based on the current risk level (see Table 7).

Risk level	Risk Acceptability	Recommended Actions
Low	Acceptable	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 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	<ul style="list-style-type: none"> • High Risk level must be reduced to at least Medium Risk before work starts. • 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 work starts. • Management review is required before work starts.

Table 7: Recommended action for risk levels.

6.5 Risk Evaluation for Health Hazards

- 6.5.1** Exposure assessment should be conducted to estimate employees' exposure to health hazards where appropriate. Exposures can be estimated by qualitative assessment or quantified by direct measurement. All exposure measurements should be conducted by competent persons using recognised methods, acceptable standard procedures, and standard calibrated equipment.
- 6.5.2** Where there are large numbers of workers, groups of workers with similar exposure levels could be identified for more efficient exposure assessment.
- 6.5.3** Exposure estimates are then compared to established Permissible Exposure Level (PEL) or other health standards to establish the likelihood of the ill-health effects.
- 6.5.4** Based on exposure assessment and risk evaluation, health exposure risks can be ranked to enable prioritisation of action plans to lower these risks.
- 6.5.5** When assessing the risk of health hazards (e.g., noise, chemicals, biological agents, and ergonomics), relevant risk factors should be taken into consideration (see Appendix F).
- 6.5.6** It is also important to consider other factors which may influence likelihood such as:
- Potential cumulative exposures;
 - Potential synergistic effects between certain health hazards (e.g., exposure to excessive noise and trichloroethylene (TCE) will increase likelihood of hearing impairment); or
 - Any limitation in health standards if they do not consider all exposure routes (e.g., potential dermal or ingestion risks are generally not considered when setting PELs).

6.6 Risk Control

- 6.6.1** Selection of risk control measures should be based on the Hierarchy of Control. Elimination of hazard should take precedence, where practicable. Where elimination is not feasible, measures should be taken to reduce the risk by following the Hierarchy in the recommended order: substitution, engineering controls, administrative controls, and personal protective equipment.

6.6.2 Hierarchy of Control

- 6.6.2.1** The control of hazards and reduction of risks can be accomplished by following the Hierarchy of Control (see Figure 3).

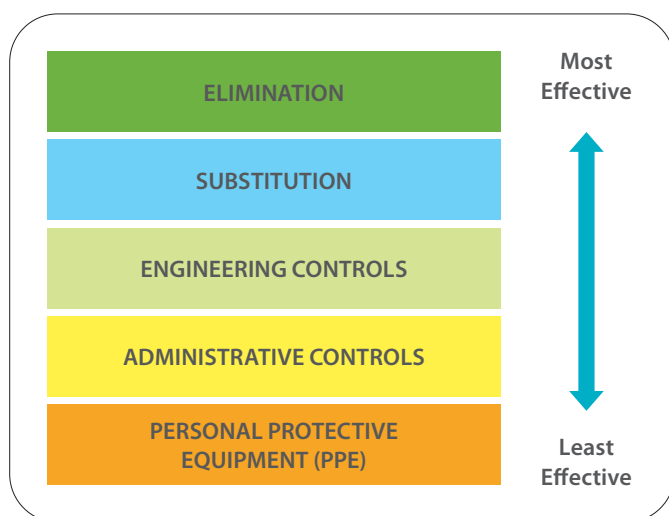


Figure 3: **Hierarchy of Control.**

- 6.6.2.2** A control measure that is higher on the Hierarchy is often more effective as the risk is reduced at or close to the source.
- 6.6.2.3** The control measures in the Hierarchy are not to be taken as isolated or single solutions. Generally, it is more effective to use a combination of control measures. For example, engineering controls work better with administrative controls like training and SWPs.
- 6.6.2.4** The control measures in the Hierarchy are explained in Appendix C.

6.6.3 Additional Controls

- 6.6.3.1** Check the risk level (or RPN) for acceptability. If the risk level is "High" or RPN is in the "High" zone, the risk must be eliminated or reduced to at least a "Medium" level by additional controls.
- 6.6.3.2** When considering additional controls to reduce risk, control measures that are higher up in the Hierarchy of Control should be considered first.

6.6.4 Re-evaluation with Additional Controls

- 6.6.4.1** When additional control(s) have been decided, re-rate the Severity, Likelihood and Risk levels (or RPN values) and record them in the "S", "L" and "RPN" columns in the "Risk Control" section of the RA form.
- 6.6.4.2** The re-evaluated RPN should not be higher than the initial RPN.

6.6.5 Guidance Notes

- 6.6.5.1** The revised Risk levels (or RPN values) should preferably be kept within the Low Risk (Green) zone, where feasible.

6.6.6 Implementation Person and Date

- 6.6.6.1** A specific person should be identified to lead the implementation of the additional controls. Record the person's name in the "Implementation Person" column.
- 6.6.6.2** If the person mentioned in 6.6.6.1 cannot be identified at the time the RA form was being completed, a designation of the person may be indicated. The Manager is to propose this suitable person.
- 6.6.6.3** The due date for implementation is to be recorded in the "Due Date" column.
- 6.6.6.4** The Implementation Person should provide progress updates to the RA Team on a periodic basis as determined by the RA Team Leader.

7. Implementation

7.1 Risk Assessment Approval

- 7.1.1** Completed RA forms must be approved by the Manager of the area, function, or activity where the risk is being assessed.

7.2 Implementation Actions

- 7.2.1** As far as is practicable, the Employer or Manager should implement the recommended risk control measures as soon as possible.
- 7.2.2** The Employer or Manager must ensure that an action plan is prepared to implement the measures. The plan should include a timeline for implementation and the names of the persons responsible for implementing the safety and health control measures.
- 7.2.3** The Employer or Manager must ensure that the plan is monitored regularly until all the measures are implemented.
- 7.2.4** The Employer or Manager must ensure that all persons exposed to the risks are informed of:
- the nature of risk involved; and
 - any measure or SWP implemented.
- 7.2.5** The Employer or Manager must ensure that regular inspections and process audits are carried out to make sure that risk control measures have been implemented and are functioning effectively.
- 7.2.6** After the implementation of additional controls, the “Existing Controls” and “Additional Controls” columns of the RA form should be updated (see Appendix E for information on how to update the RA form).

8. Record-Keeping

8.1 Requirements and Guidance

- 8.1.1** The Manager shall assist the Employer to ensure that the RA records, including but not limited to the RA forms and control measure records, are kept for at least three years.
- 8.1.2** The Manager shall assist the Employer to ensure that the Risk Register is readily available for review by designated persons at the workplace and regulatory agencies.

9. Review

9.1 Requirements and Guidance

9.1.1 All RA entries shall be reviewed and, if necessary, revised:

- at least once every three years from the last RA approval date; or
- upon the occurrence of any bodily injury to any person as a result of exposure to a hazard in the workplace; or
- where there is a significant change in work practices, or procedures; or
- where there is a significant change in the workers' personal health (including mental well-being) in relation to safety critical work process or activity; or
- when new information on WSH emerging risks, threat of terrorism, disease outbreak, or mental well-being is made known.

9.1.2 Where practicable, RA should be reviewed annually.

10. Communication

10.1 Communication: A Constant Aspect Throughout the RM Process

- 10.1.1** Communication and consultation with external and internal stakeholders, including all functions and levels within the organisation, should take place during all stages of the RM process.
- 10.1.2** All persons at the workplace should be informed of the risks they face and the control measures available to manage those risks.
- 10.1.3** Communication can take various forms (such as meetings, staff dialogues, trainings, notice boards and various electronic means) for different groups within the organisation.
- 10.1.4** Effective communication and consultation involve two-way dialogues between stakeholders.

11. References

1. Contingency Planning and Protective Security Advisories for Workplaces
2. Contingency Planning Guidelines for Building Owners / Tenants
3. Guidance Note on Improving Ventilation and Indoor Air Quality in Buildings Amid the COVID-19 Situation by BCA, NEA and MOH
4. Guidelines for Enhancing Building Security in Singapore
5. IEC 31010: 2019 Risk Management – Risk Assessment Techniques (or the equivalent identical adoption SS IEC 31010 when it is available)
6. ISO/IEC Guide 73:2009, Risk Management Vocabulary
7. ISO/PAS 45005:2020 Occupational Health and Safety Management
- General Guidelines for Safe Working During the COVID-19 Pandemic
8. SGSecure Guide for Workplaces
9. Singapore Standards SS506 Series on Occupational Safety and Health (OSH) Management Systems
10. SS ISO 31000: 2018 Risk Management – Guidelines
11. SS ISO 45001: 2018 Occupational Health and Safety Management Systems
– Requirements with Guidance for Use
12. Tripartite Advisory on Managing Workplace Harassment
13. Tripartite Advisory on Mental Well-Being at Workplaces
14. Workplace Safety and Health (General Provisions) Regulations
15. Workplace Safety and Health (Risk Management) Regulations
16. Workplace Safety and Health Act

12. Appendix

Appendix A: Inventory of Work Activities Form

Department, Activity, or Trade Assessed				Date
S/ No	Location	Process/ Design Consideration	Work Activity	Remarks
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Note:
Complete this form before filling in the Risk Assessment Form.

Page ____ of ____ page(s)

Appendix B: Risk Assessment

Risk Assessment Form

Department, Activity, or Trade Assessed:			RA Leader:		Approved by:			RA Reference Number						
Process/ Design Consideration:			RA Member 1:		Signature:									
Process/ Activity Location:			RA Member 2:											
Original RA Date:			RA Member 3:		Name:									
This RA Review Date:			RA Member 4:		Designation:									
Next RA Review Date:			RA Member 5:		RA Approval Date:									
Hazard Identification (LOOK)			Risk Evaluation (THINK)			Risk Control (DO)								
S/No	Work Activity/ Sub-activity	Hazard	Potential Injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls (First Consideration: How to design out this hazard)	S	L	RPN	Implementation Person	Due Date	Remarks
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														

S=Severity; L = Likelihood; RPN = Risk Prioritisation Number; RA = Risk Assessment

Note:

Appendix C: Hierarchy of Control

Elimination

Elimination of risk refers to the total removal of the worker's exposure to the hazards, effectively making all identified work-related accidents, incidents and ill-health related to the specific hazard impossible. This is a permanent solution and should be attempted first as recommended in the hierarchy. Once the risk is eliminated, the item does not appear in subsequent RA forms. For example, sharp edges can be eliminated in a store or work area. For threat of terrorism, the hazard of vehicle ramming into employee pick-up point may be eliminated by relocating the pick-up waiting area away from the main road. For the risk of infectious disease transmission in the workplace, it can be eliminated by redesigning the infrastructure and processes to implement full WFH (Work from Home).

Substitution

This involves substituting a process or product with a less hazardous process or product to mitigate the risk, for example, using water-based paint instead of solvent-based paint. For threat of terrorism, the hazard of theft of dangerous substances with the intention to cause human harm may be mitigated by substituting the dangerous substances with less harmful substances. For instance, 30% hydrogen peroxide may be substituted with 20% hydrogen peroxide. Preparations and solutions containing not more than 20%, weight in weight, of hydrogen peroxide are not regulated as Explosive Precursors.

Engineering Controls

Engineering controls are physical means that reduce the likelihood of occurrence or severity of consequence of the mishap. These include structural changes to the work environment or work processes, erecting a barrier to interrupt the accident transmission path between worker and hazard (for example, machine guards, confined space ventilation). For the threat of terrorism, the hazard of vehicle ramming attacks into crowds of people or critical assets may be mitigated by fixed or active vehicle security barriers (VSBs) such as bollards, raised steps, concrete walls or planters. For controlling of organisational factors, organisations could for example review the workload, work hours, training regime, or organisational culture. To prevent or minimise threat of disease outbreak, organisations could for example improve the ventilation systems within the workplace and redesign frontline operations to reduce transmission risks.

Administrative Controls

These eliminate or reduce exposure to a hazard by adherence to procedures or instructions. Documentation should emphasise all the steps to be taken and controls to be used to carry out the activity safely. For example, permit-to-work systems, scheduling of incompatible works, SWPs (see Appendix E for additional notes on SWP). For the threat of terrorism, the hazard of theft of dangerous substances with the intention to cause human harm may also be mitigated by periodic stock-taking of the substances. For controlling of health-risk factors, organisations could for example organise activities such as health screenings, physical exercises, and mental health talks; and conduct periodic surveys of employees' mental well-being.

Personal Protective Equipment

This should be used only as a last resort, after all other control measures have been considered, or as a short-term contingency during emergency, maintenance, and repair, or as an additional protective measure against residual risks. The success of this control depends critically on the protective equipment being chosen and whether it is fitted correctly, always worn, and maintained properly. For the threat of terrorism, the hazard of knifing security personnel while questioning a terror suspect may be mitigated with the wearing of body armour vest. For controlling of infectious diseases, organisations could for example issue masks and remind workers to observe good hygiene practices such as washing their hands frequently.

Appendix D: Risk Register and Cover Sheet

This Appendix provides examples of:

1. Risk Register; and
2. Risk Register Cover Sheet.

1. Risk Register

Risk Assessment Form

Department: Activity or Trade Assessed: RA Reference

RA Leader: Approved by: RA Reference Number

Process/ Design Consideration: RA Member 1: Signature:

Process/ Activity Location: RA Member 2:

Original RA Date:

The RA Revision Date:

Next RA Date:

A Compilation of Risk Assessments

Hazard Identification (LOOK)					Risk Evaluation								Due Date	Remarks
S/No	Work Activity/ Sub-activity	Hazard	Possible Injury/ Ill-health	Existing Risk Controls	S	L	RPN	(First Consideration how to design out this hazard)	S	L	RPN	Implementation Person		
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														

Notes: Page of page(s)

2. Risk Register Cover Sheet

A Risk Register Cover Sheet provides a convenient way to list all the RAs in the Risk Register.

Workplace Name:						Date:	
RA Ref Number	Dept, Activity, or Trade Assessed	Process, Activity, Location or Design Consideration	RA Approval Date	Next RA Review Date	RA Leader and Designation	Remarks	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							

Note:

Page ____ of ____ page(s)

Appendix E: Additional Notes

Safe Work Procedures

Arising from the RA, SWPs should be established and implemented for work which may pose safety and health risks. The SWPs should include safety and health precautions to be taken in the course of work and during emergencies, as well as responsibilities of persons involved and provision of PPE. The implementation of the SWPs should be monitored regularly, and the SWPs reviewed periodically to ensure their currency.

Residual Risks

Residual risks are the remaining risks after implementation of risk controls. The RA team should ensure that residual risks are acceptable and manageable; and highlight the residual risks of each of the controls.

For example, if the risk control involves the use of safety harnesses and lanyards (a type of PPE), one of the residual risks is that the workers may not anchor the lanyards or check the fall clearance to protect themselves. In this case, the RA Team may highlight pre-job safety briefing (administrative controls) as a further measure to ensure that residual risks are further minimised.

Another example is, if the risk control involves redesign of work scope to reduce and manage employees' work stress, one of the residual risks is individual employees' ability to adapt to the new or restructured job function. In this case, the RA Team may highlight supervisor's checking-in with employee as one way to minimise the residual risks.

Once all the risk controls are selected and their residual risks highlighted, the RA Team needs to identify the action officers and follow-up dates. In this way, the specific action officers to implement the controls can be clearly identified, and the follow-up dates will help to ensure timeliness for implementation.

Updating the RA Form after Implementation

After implementation, additional controls would have become existing controls. To update the RA form, the RA Team is to reconcile the controls by updating the Existing Controls column and deleting the controls under Additional Controls. The following are to be considered when reconciling Existing Controls with Additional Controls:

a. ADD Additional Control measures in the Existing Controls column if they are new controls. For example,

i. Existing Control	Noise Enclosure
ii. Additional Control	Earplugs as an ADDITIONAL layer of protection
iii. Record Reconciliation Under the Existing Controls Column	a. Keep "Noise Enclosure" b. Add "Earplugs" under Existing Controls
iv. Record Reconciliation Under the Additional Controls Column	Delete "Earplugs"

OR

b. REPLACE Existing Control measures with new measures as appropriate. For example,

i. Existing Control	Earplugs
ii. Additional Control	Earmuffs
Since the RA Team had decided that the use of earmuffs is adequate and will replace the use of earplugs:	
a. Record reconciliation under the Existing Controls column	a. Add "Earmuffs" b. Delete "Earplugs"
b. Record reconciliation under the Additional Controls column	a. Delete "Earmuffs"

Appendix F: Risk Factors of Health Hazards

The table below shows the risk factors which can contribute to the development of ill-health when exposed to certain health hazards. Note: This table of health hazards is not exhaustive.

Health Hazard	Risk Factors
Noise	<ul style="list-style-type: none"> • Exposure level (sound pressure level); • Frequency of sound; • Duration of exposure; and • Frequency of exposure.
Chemicals	<ul style="list-style-type: none"> • Intrinsic hazard of the chemical (e.g., carcinogenicity, mutagenicity); • Physical and chemical properties; • Scale and frequency of use; • Routes of exposure; • Exposure concentration; • Exposure duration; and • Frequency of exposure.
Biological agents	<ul style="list-style-type: none"> • Intrinsic hazard of microorganism (pathogenicity); • Virulence; • Host range; • Viability of microorganism; • Amount of microorganisms present at point of exposure; • Mode of transmission; and • Routes of infection
Ergonomics-related factors	<ul style="list-style-type: none"> • Weight of load or force; • Repetition or frequency of motion; • Posture (static, awkward, etc); • Direct pressure on body parts or contact stress; • Vibration; and • Temperature of the environment.
Heat	<ul style="list-style-type: none"> • Temperature; • Humidity; • Amount of direct sun exposure or radiant heat; • Intensity of physical work; • Physical exhaustion; • Type of clothing; • Un-acclimatised person or duration of acclimatisation; and • Susceptible individuals (with cardiovascular disease, impaired renal function, obesity, alcohol and drug abuse, dehydration).
Psychosocial	<ul style="list-style-type: none"> • Job content; • Workload and work pace; • Working hours; • Participation and control; and • Organisational culture.

Appendix G: Examples Relating to Possible Terrorism Scenarios

Example 1

Department, Activity, or Trade Assessed:		RA Leader:		Approved by:		RA Reference Number								
Process/ Design Consideration:		RA Member 1:		Signature:										
Process/ Activity Location:		RA Member 2 :												
Original RA Date:		RA Member 3:		Name:										
This RA Review Date:		RA Member 4:		Designation:										
Next RA Review Date:		RA Member 5:		RA Approval Date:										
Hazard Identification (LOOK)		Risk Evaluation (THINK)				Risk Control (DO)								
S/No	Work Activity/ Sub-activity	Hazard	Potential Injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls (First Consideration: How to design out this hazard)	S	L	RPN	Implementation Person	Due Date	Remarks
1	Waiting for company bus pick-up	Intentional collision by vehicles (e.g. bus, trucks, cars) [Vehicle Ramming]	Multiple fatality	Bollards	5	2	10	Wait within company compound. Proceed to boarding point when bus arrives.	5	1	5	Ping Ping	DDMMYY	Nil
2														
3														
4														

Appendix G: Examples Relating to Possible Terrorism Scenarios

Example 2

Department, Activity, or Trade Assessed:		RA Leader:		Approved by:		RA Reference Number								
Process/ Design Consideration:		RA Member 1:		Signature:		Name: Designation: RA Approval Date:								
Process/ Activity Location:		RA Member 2 :												
Original RA Date:		RA Member 3:												
This RA Review Date:		RA Member 4:												
Next RA Review Date:		RA Member 5:												
Hazard Identification (LOOK)				Risk Evaluation (THINK)				Risk Control (DO)						
S/No	Work Activity/ Sub-activity	Hazard	Potential Injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls (First Consideration: How to design out this hazard)	S	L	RPN	Implementation Person	Due Date	Remarks
1	Storage and use of corrosive substances (e.g. acids)	Theft of corrosive substances with the intention to cause human harm (e.g. 95% Sulphuric Acid)	Severe substance burns	1) Kept under lock and key 2) Security camera	4	2	8	1) Substitute in-house dilution process. Buy diluted sulphuric acid. 2) Implement mobile device usage tracking system.	3	1	6	Mei	DDMMYY	Nil
2														
3														
4														

Appendix G: Examples Relating to Possible Terrorism Scenarios

Example 3

Department, Activity, or Trade Assessed:		RA Leader:		Approved by:		RA Reference Number								
Process/ Design Consideration:		RA Member 1:		Signature:		RA Approval Date:								
Process/ Activity Location:		RA Member 2:		Name:										
Original RA Date:		RA Member 3:		Designation:										
This RA Review Date:		RA Member 4:		RA Approval Date:										
Next RA Review Date:		RA Member 5:												
Hazard Identification (LOOK)		Risk Evaluation (THINK)			Risk Control (DO)									
S/No	Work Activity/ Sub-activity	Hazard	Potential Injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls (First Consideration: How to design out this hazard)	S	L	RPN	Implementation Person	Due Date	Remarks
1	Storage and use of workshop hand tools	Theft of hand tools with the intention to use as a weapon (e.g. hammer, drills, sharps)	Concussion, Multiple injuries, Multiple lacerations	Nil	4	3	12	1) Periodic stock-taking of tools	4	2	8	Abdul Rahman	DDMMYY	Nil
2														
3														
4														

Appendix H: Examples Relating to Disease Outbreak Scenarios

Below are COVID-19 related examples. They may not be applicable to other disease outbreak scenarios.

Example 1

Department, Activity, or Trade Assessed:		RA Leader:		Approved by:				RA Reference Number						
Process/ Design Consideration:		RA Member 1:												
Process/ Activity Location:		RA Member 2:												
Original RA Date:		RA Member 3:		Signature:				Name: Designation: RA Approval Date:						
This RA Review Date:		RA Member 4 :												
Next RA Review Date:		RA Member 5:												
Hazard Identification (LOOK)				Risk Evaluation (THINK)				Risk Control (DO)						
S/No	Work Activity/ Sub-activity	Hazard	Potential Injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls (First Consideration: How to design out this hazard)	S	L	RPN	Implementation Person	Due Date	Remarks
1	Office work	Contact with infected person (e.g. person at office who just returned from higher risk countries)	Fatal infection; Unwell with flu-like symptoms	Nil	5	4	20	1) Require workers who returned from higher-risk countries to undergo ART, monitor health and WFH for a period before returning to the office. 2) Implement SMM at the workplace including safe distancing between staff. 3) Improve ventilation systems to ensure good air circulation in the workplace. 4) Strongly encourage or mandate workers' vaccination before returning to the workplace.	5	2	10	Ann Wee (HR)	DDMMYY	Nil

5=Severity; L = Likelihood; RPN = Risk Prioritisation Number; RA = Risk Assessment
Notes: ART = Antigen Rapid Test, SMM = Safe Management Measures (SMM)

Appendix H: Examples Relating to Disease Outbreak Scenarios

Example 2

Department, Activity, or Trade Assessed:		RA Leader:		Approved by:				RA Reference Number						
Process/ Design Consideration:		RA Member 1:		Signature:										
Process/ Activity Location:		RA Member 2:		Name:										
Original RA Date:		RA Member 3:		Designation:										
This RA Review Date:		RA Member 4:		RA Approval Date:										
Next RA Review Date:		RA Member 5:												
Hazard Identification (LOOK)				Risk Evaluation (THINK)				Risk Control (DO)						
S/No	Work Activity/ Sub-activity	Hazard	Potential Injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls (First Consideration: How to design out this hazard)	S	L	RPN	Implementation Person	Due Date	Remarks
1	Worker exposed to a higher risk of exposure to COVID-19 cases (e.g. work in swab-test site, isolation facility, and patient transport)	Contact with COVID-19 Case, Person(s) under Quarantine (PUQ), Person(s) on Stay-home Notice (SHN)	Fatal Infection; Unwell with flu-like symptoms	Rostered Routine Test (RRT), Temperature screening	5	3	15	Require worker to take ART and monitor symptoms at home. Disallow workers' return to workplace if unwell.	5	2	10	Prabu N.	DDMMYY	Nil

S=Severity; L= Likelihood; RPN= Risk Prioritisation Number; RA=Risk Assessment

Note: ART = Antigen Rapid Test

Appendix H: Examples Relating to Disease Outbreak Scenarios

Below are COVID-19 related examples. They may not be applicable to other disease outbreak scenarios.

Other considerations for COVID-19 at the workplace may include the following:

- Worker in contact with a confirmed COVID-19 case in the last 14 days.
- Worker on medical leave (doctor-issued MC) for COVID-19 symptoms.
- Person(s) staying with the worker in the same residence are issued with Quarantine Order (QO), Stay-Home Notice (SHN), or Leave of Absence (LOA).

Controls may include safe distancing, the wearing of face masks, personal hygiene discipline, and isolation by Working from Home (WFH).

For COVID-19, do refer to the MOM and MOH websites for the latest updates.

MOM: <https://mom.gov.sg>

MOH: <https://moh.gov.sg>

Appendix I: Examples Relating to Personal Health-Risk Situation

Department, Activity, or Trade Assessed:		RA Leader:		Approved by:		RA Reference Number								
Process/ Design Consideration:		RA Member 1:		Signature:										
Process/ Activity Location:		RA Member 2:		Name:										
Original RA Date:		RA Member 3:		Designation:										
This RA Review Date:		RA Member 4:		RA Approval Date:										
Next RA Review Date:		RA Member 5:												
Hazard Identification (LOOK)				Risk Evaluation (THINK)				Risk Control (DO)						
S/No	Work Activity/ Sub-activity	Hazard	Potential Injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls (First Consideration: How to design out this hazard)	S	L	RPN	Implementation Person	Due Date	Remarks
1	Tower Crane Lifting Operation	Runaway crane operation with unconscious operator (e.g. Operator with uncontrolled high-blood pressure)	Fatality	Medical examination for crane operators age 50 and above	5	3	15	Job redesign for operators with such chronic conditions; regular health screening with close follow-up. Targeted wellness programmes for persons with chronic health conditions.	5	2	10	Kannan M.	DDMMYY	Nil

S=Severity; L= Likelihood; RPN= Risk Prioritisation Number; RA=Risk Assessment

Appendix J: Examples Relating to Mental Well-Being

Example 1

Department, Activity, or Trade Assessed:		RA Leader:		RA Reference Number										
Process/ Design Consideration:		RA Member 1:		Approved by:										
Process/ Activity Location:		RA Member 2:		Signature:										
Original RA Date:		RA Member 3:		Name:										
This RA Review Date:		RA Member 4:		Designation:										
Next RA Review Date:		RA Member 5:		RA Approval Date:										
Hazard Identification (LOOK)			Risk Evaluation (THINK)			Risk Control (DO)								
S/No	Work Activity/ Sub-activity	Hazard	Potential Injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls (First Consideration: How to design out this hazard)	S	L	RPN	Implementation Person	Due Date	Remarks
1	Review employees' workload	Excessive workload or work paces	Job burnout, stress and anxiety	Surveys on employee mental well-being e.g. iWorkHealth	3	4	12	Implement protected time (Company-wide time out); assist worker in setting healthy boundaries between work and non-work time.	3	2	6	Samuel Wiseman	DDMMYY	Nil

S=Severity; L= Likelihood; RPN= Risk Prioritisation Number; RA=Risk Assessment

Appendix J: Examples Relating to Mental Well-Being

Example 2

Department, Activity, or Trade Assessed:		RA Leader:		RA Reference Number										
Process/ Design Consideration:		RA Member 1:		Approved by:										
Process/ Activity Location:		RA Member 2:		Signature:										
Original RA Date:		RA Member 3:		Name:										
This RA Review Date:		RA Member 4:		Designation:										
Next RA Review Date:		RA Member 5:		RA Approval Date:										
Hazard Identification (LOOK)			Risk Evaluation (THINK)			Risk Control (DO)								
S/No	Work Activity/ Sub-activity	Hazard	Potential Injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls (First Consideration: How to design out this hazard)	S	L	RPN	Implementation Person	Due Date	Remarks
1	Organisation Restructuring	Job insecurity; Role ambiguity	Stress and anxiety	Regular updates about the restructuring exercise	3	4	12	Hold regular confidential meetings to discuss job security or role ambiguity issues. Provide confidential access to counsellors to support stress and anxiety management.	3	2	6	Ruth Koh	DDMMYY	Nil

S=Severity; L=Likelihood; RPN= Risk Prioritisation Number; RA=Risk Assessment

Appendix J: Examples Relating to Mental Well-Being

Example 3

Department, Activity, or Trade Assessed:		RA Leader:		Approved by:		RA Reference Number								
Process/ Design Consideration:		RA Member 1:		Signature:										
Process/ Activity Location:		RA Member 2:		Name:										
Original RA Date:		RA Member 3:		Designation:										
This RA Review Date:		RA Member 4:		RA Approval Date:										
Next RA Review Date:		RA Member 5:												
Hazard Identification (LOOK)				Risk Evaluation (THINK)				Risk Control (DO)						
S/No	Work Activity/ Sub-activity	Hazard	Potential Injury/ Ill-health	Existing Risk Controls	S	L	RPN	Additional Controls (First Consideration: How to design out this hazard)	S	L	RPN	Implementation Person	Due Date	Remarks
1	Interactions with supervisors and co-workers	Workplace harassment (e.g. Supervisor repeatedly emails subordinate with suggestive comments.)	Suicidal tendency, Stress and anxiety	Nil	5	3	15	Establish Ombudperson to provide independent, impartial, confidential and informal assistance. Provide confidential access to counsellors to support suicidal tendency management and stress and anxiety management.	5	2	10	Sue Foo	DDMMYY	Nil

S=Severity; L= Likelihood; RPN= Risk Prioritisation Number; RA=Risk Assessment

Appendix J: Examples Relating to Mental Well-Being

Employee's mental well-being can be affected by psychosocial hazards. Other considerations may include:

- a)** Uncertainty (e.g., about what is expected, how long arrangements can last, impact on pay or working hours).
- b)** Workload and work pace (e.g., tight deadlines, irregular work volume).
- c)** Working hours (e.g., unpredictable hours, reduced or extended hours, new shift patterns, unclear after-hours work communication).
- d)** Role ambiguity (e.g., no clearly defined job scope, increasing roles within same job position).
- e)** Lack of control (e.g., rapid changes in risk levels, leading to sudden enforcement or easing of restrictions or modified ways of working).
- f)** Lack of social support (e.g., loneliness, physical isolation, communication challenges).
- g)** Impacts of prolonged isolation and remote working (e.g., fatigue, unsuitable working conditions, lack of social support, overexposure to screens).
- h)** Job insecurity (e.g., concern about possible job loss, domestic financial issues).
- i)** Difficulty in balancing work and home life (e.g., caregiving responsibilities, family emergencies, needing to work outside of normal working hours).
- j)** Specific roles that have circumstantial pressures and require targeted support (e.g., front-line, public facing, mobile working).
- k)** Worker's specific circumstances (e.g., belonging to a vulnerable group, bereavement, or serious illness in the family).
- l)** Workplace harassment (e.g., threatening, abusive, or insulting language, comments or other non-verbal gestures; cyber bullying; sexual harassment; stalking).

Appendix J: Examples Relating to Mental Well-Being

Control measures to manage mental well-being may include:

- a)** Appoint mental well-being champions to raise employees' awareness on mental well-being and mental health conditions through talks and workshops. Form peer-support networks.
- b)** Review HR policies to ensure hiring practices, workplace practices and performance management systems are non-discriminatory and merit-based in nature.
- c)** Implement and encourage take-up of flexible work arrangements (FWAs) to help employees meet both their work and personal demands.
- d)** Establish work-life harmony policy to provide clarity on after-hours work communication.
- e)** Assist workers in setting healthy boundaries between work and non-work time by communicating when they are expected to be working and available, considering the need for flexibility.
- f)** Allow workers more control over work pace and deadlines, if possible.
- g)** Establish return-to-work policies to support employees who are recovering from mental health conditions.
- h)** Promote a culture of trust, care and support by acknowledging that experiences are unique to every work and that workers' anxieties, or difficulties are valid and should be respected.
- i)** Hold regular meetings (remote or physical, as appropriate) with workers to discuss their issues and anxieties, and to come up together with ways to support the workers, and give them assurance that their conversations will be kept confidential.
- j)** Provide whistleblowing platforms or nominate an ombudsperson e.g., for workplace harassment reporting.
- k)** Hold regular remote or physical meetings with teams of workers to check in on their workload and identify the mental well-being landscape.
- l)** Give regular, clear, and accurate information about the current situation in the organisation and the planned changes that can affect workers. Keep employees updated of company's work, salary and leave arrangements.
- m)** Consider providing appropriate PPE, face masks, face coverings and other control measures for workers with concerns about being in the physical workplace, even if it is not required by the organisation.
- n)** Offer additional resources to assist workers with managing their own psychological health and well-being (e.g., online programmes, employee assistance programmes, websites, access to professionals offering bereavement and trauma counselling, financial advice).

NOTE:

For further guidance on managing psychological health, please refer to:

- Tripartite Advisory on Managing Workplace Harassment
- Tripartite Advisory on Mental Well-Being at Workplaces
- ISO 45003:2021 Occupational Health and Safety Management – Psychological Health and Safety at Work – Guidelines for Managing Psychosocial Risks
- ISO 10075 Series – Ergonomic Principles With Regard to Mental Workload

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