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

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WSHC Risk Management Work Group

WSHCOUNCIL

Preface

As Workplace Safety and Health Risk Management ("RM") gains momentum in the Singapore, more duty holders are beginning to recognise the usefulness of Risk Assessments ("RA") in maintaining a safe and healthy workplace. Duty holders and workers alike are seeking greater clarity about how RA should be implemented. This Risk Management Code of Practice ("RMCP") intends to offer such guidance to bridge the gaps.

The Risk Management Code of Practice advises duty holders on how to fulfil their obligations under the Workplace Safety and Health Act ("WSH Act") and the Workplace Safety and Health (Risk Management) Regulations. It also provides a clearer process for implementing risk management and will assist duty holders to identify hazards, evaluate hazards and implement risk control measures.

Much consideration has been given to make the RMCP applicable to both large and small companies, and across a broad series of industry sectors, including the remaining workplaces that will come under the WSH Act in September 2011. The risk profiles, needs and RM deployment of these workplaces differ significantly. Large companies tend to have one Risk Management Team to oversee the coherent deployment of Risk Management throughout the company. At the same time, it is not unusual for these companies to have many Risk Assessment Teams to assess specific risks. Therefore, guidance is included in this RMCP to offer clarity of their roles. Smaller companies, on the other hand, often need specific steps in implementing Risk Management, especially when doing the Risk Assessment itself. To better help this segment, the Risk Management Work Group decided to provide guidance in bite-sized steps. Roles and responsibilities are also defined in the RMCP to ensure that duties are sufficiently covered with minimum overlap.

Other ideas incorporated in the RMCP include guidance to do Risk Assessments three-levels deep (RA Scoping); introducing the use of numbers in evaluating risks – this will be useful for prioritizing actions; introducing a monthly RA review process that can be synchronized with monthly WSH Committee Meetings; and guidance on how differences in RA ratings should be managed. This RMCP recommends the 5x5 matrix. However, companies may choose other matrices. The Work Group is sensitive to companies that may need to follow corporate guidance.

Should this code be adopted as an Approved Code of Practice ("ACOP"), it must be followed unless there is another means of achieving the same or better standard of health and safety. In addition, it will then be admissible as evidence in legal proceedings as proof of a breach of the Act or regulations

The WSH Council would like to thank the following Work Group members who dedicated their time in their individual capacity to make this Risk Management Code of Practice possible; Mr. Seet Choh San, Mr. Ong See Hee, Mr. Lim Poo Yam, Dr. Ting Seng Kiong, Dr. Gregory Chan and Ms. Jaime Lim who contributed as a representative of the Ministry of Manpower. We also thank the following members of the WSH Council for their active involvement in this effort; Mr. Lim Meng Ann, Mr. Han Kin Sew, and Mr. Riccardo Chee.

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1 PURPOSE

The purpose of this Code of Practice (CP) for WSH Risk Management (RM) is to establish minimum requirements and duties for implementing workplace RM in Singapore, and to provide guidance on its implementation. This CP applies to all workplaces in Singapore that are governed by the WSH Act. Where there is room for implementation flexibility, this CP recommends a way. Users of this CP are strongly encouraged to adopt the recommended way as it provides a common platform to facilitate national best practice translation across industries. Completing a Risk Assessment before work is carried out is a requirement under the Workplace Safety and Health (Risk Management) Regulation.

2 ABBREVIATIONS

PPE	Personal Protective Equipment
RA	Risk Assessment
RM	Risk Management
RM Regulation	WSH (Risk Management) Regulations (Singapore)
RPN	Risk Prioritisation Number
SWP	Safe Work Procedure
WSH	Workplace Safety and Health
WSH Act	Workplace Safety and Health Act (Chapter 354A)

3 DEFINITIONS

Additional Control	Additional risk control measures are those that are implemented beyond the existing controls to reduce Risk further.
Employer	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 and principal, as defined in the WSH Act shall also fulfil the duties and functions of the employer specified in this Code of Practice. Where the WSH Act does not offer sufficient clarity to the definition, references to "Employer" in this Code of Practice means the most senior person within the workplace. This is often the Managing Director, General Manager or Executive Director.
Existing Control	Risk control measures that have been implemented and are still effective in controlling the hazard.
Hazard	Anything, any source or any situation with the potential to cause bodily injury or ill-health.
RA Register	The collection of Risk Assessments within the organization
RA Team	Risk Assessment Team(s). The team(s) responsible for conducting RAs within the scope defined by the RM or RA Team. If an organisation requires only one team, then the functions of the RA & RM team may be combined within one team.

Risk Appetite	The amount and type of risk that an organisation is prepared to pursue, retain or accept.
Risk Assessment (RA)	The process of identifying hazards, evaluating the risks, and determining the appropriate options for risk control.
Risk Management (RM)	The systematic assessment of risks associated with any work activity or trade, control and monitoring of such risks, as well as communicating these risks.
Risk Matrix	A matrix to classify risks levels. Common Risk Matrices include the 3x3 matrix, 5x4 matrix, 5x5 matrix and the 7x7 matrix. Organisations may develop matrices that are suitable and relevant to their operations.
RM Team	Risk Management Team – The primary team responsible for the overall RM direction and activities of the Workplace. In larger organisations, many functional or area RA Teams may evolve. The responsibility to steer the overall organisation's RM effort will fall on the RM Team. The RM Team can also function as an RA Team.
SWP	Safe Work Procedure
Workplace	As defined in the WSH Act, a workplace means any premises where a person is at work or is to work, for the time being works, or customarily works, and includes a factory.
WSH Risk	The likelihood that a hazard will cause a specific harm or injury. More specifically, it is the likelihood of accidents or ill-health occurring at work and the consequences of such occurrences.

4 OVERVIEW

The main components of Risk Management (RM) are:

a. Preparation
b. Risk Assessment
c. Implementation (Includes specific communication of the hazards identified and their controls)
d. Record-keeping

Risk Assessment (RA) is one component of RM. The three main parts of Risk Assessment are:

a. Hazard Identification
b. Hazard Evaluation
c. Risk Control

5 GENERAL REQUIREMENTS

5.1 GENERAL

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

5.2 EMPLOYER

The Employer shall:

5.2.1.1 Ensure that RA is conducted on WSH risks associated with any activities in the workplace;

5.2.1.2 Require its workplace to take all reasonably practicable steps to eliminate any foreseeable risk to any person;

5.2.1.3 Require its workplace to take measures to control the risk by means of, and in this order of consideration where risk elimination is not reasonably practicable:

a. Substitution
b. Engineering control
c. Administrative control
d. Provision and use of suitable personal protective equipment

5.2.1.4 Support the implementation of risk control measures recommended by the RM or RA Teams

5.2.1.5 Require the RM Leader to provide regular updates of the appropriate risk control measures implemented to reduce or eliminate identified risks.

5.2.1.6 Require RA updates at each WSH Committee meeting, if such a committee is established.

5.2.1.7 Require the contractor or supplier where work has been assigned or awarded to conduct RA. The contractor or supplier must take reasonably practicable measures to eliminate, or reduce to as low as reasonably practicable, the risk that may be posed by their machinery, equipment or hazardous substances.

5.2.1.8 Ensure that a RA register is available and maintained at the workplace.

5.2.1.9 Ensure that the RA register is prepared in accordance with this Code of Practice.

5.2.1.10 Ensure that the RA register is readily available for review by designated persons at the workplace and by regulatory agencies.

5.2.1.11 Ensure that RA records are kept for at least 3 years.

5.2.1.12 Review the RA at least once every three years.

5.2.1.13 Revise RA at least once in 3 years, or when there are:

a. Accidents happen as a result of exposure to a hazard. Such accidents may or may not result in injury;
b. Significant change in processes, facilities, work practices or procedures, or change in workplace condition and site layout.
c. New information on workplace safety and health risks is made known

5.2.1.14 Monitor the effectiveness of the risk control measures.

5.3 MANAGER

This may be the Manager of an area ("Area Manager"), a function ("Functional Manager") or an activity within the workplace. In some workplaces, this may be the level of an organisation Director. The Employer is to determine the appropriate level of engagement for this role.

5.3.1.1 The Manager who oversees the area, function or activity where the WSH risks exist shall:

a. Ensure that RA is carried out and risk control measures are implemented before any new work is carried out in the Manager's area.
b. Endorse and approve the RA conducted for the Manager's area.
c. Ensure that the risk control measures are implemented without delay.
d. Ensure that all operations have established Safe Work Procedures (SWP).
e. Ensure all persons exposed to the risks are informed of:
    i. The nature of risks
    ii. Any measures or SWP implemented
f. Inform all persons of the means to minimize or eliminate the risks.
g. Ensure that the effectiveness of the risk control measures is monitored.
h. Maintain RA documentation with measures and SWP implemented.

5.3.1.2 The Manager shall assist the Employer to:

a. Ensure that a RA register is available and maintained for the workplace in his purview.
b. Ensure that the RA register is readily available for review by designated persons at the workplace and by regulatory agencies.
c. Ensure that RA records are kept for at least 3 years.
d. Conduct a review of the RA at least once every three years.
e. Revise the RA at least once in 3 years, or when:
    i. Accidents happen as a result of exposure to a hazard. Such accidents may or may not result in injury;
    ii. Significant change in processes, facilities, work practices or procedures.
    iii. New information on workplace safety and health risks is made known
f. Monitor the effectiveness of the risk control measures.

5.3.1.3 The Manager may delegate the responsibilities mentioned above but remains accountable for this area, function or activity that the Manager has control over.

5.4 RM/RA LEADERS

5.4.1.1 The RM Leader shall:

a. Assist the employer as the focal point for co-ordinating RM within the workplace.

5.4.1.2 The RM & RA Leaders shall:

a. Provide a monthly update to the Employer regarding appropriate risk control measures implemented to reduce or eliminate risks identified.
b. Obtain approval from the Employer for the implementation of risk control measures.
c. Assist the Employer to ensure that the RA register is prepared in accordance to this Code of Practice.

6 PREPARATION

6.1 FORMATION OF RISK MANAGEMENT TEAM

6.1.1 *Appointment of RM Team*

6.1.1.1 The Employer shall:

a. Appoint a RM Team Leader ("RM Leader")
b. Appoint RM Team members ("RM Members")

6.1.1.2 The RM Team shall be responsible for the overall RM direction and RM activities of the Workplace. This RM Team can also function as an RA Team.

6.1.1.3 The RM Team appointed by the employer shall:

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

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

6.1.1.5 The employer shall ensure that the RM Leader and Members have completed RM induction before joining the team.

6.1.2 *RM Team Leader*

6.1.2.1 The RM Team Leader should have direct access to the employer or shall be at least a senior member of the workplace.

6.1.2.2 The RM Team Leader shall attend a RM course.

6.1.3 *RM Team Members*

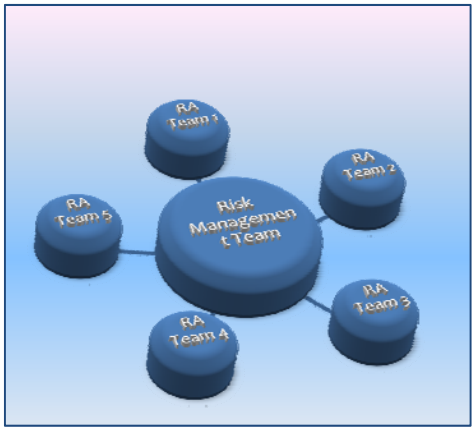
6.1.3.1 RM team members may be appointed from management staff, process or facility engineers, technical personnel, supervisors, production operators, maintenance staff and WSH personnel if available.

6.1.4 *RA Teams*

6.1.4.1 Where more teams are required to conduct RA in the Workplace, these shall be called Risk Assessment Teams ("RA Teams").

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

6.1.4.3 RA Teams should have representatives from both the management and non-management levels.



6.1.4.4 The RA team should include personnel who are involved with the work, including contractors and suppliers.

6.1.4.5 Where RA experience or expertise is lacking, a WSH Officer or WSH Auditor who is trained and has experience in conducting RA should be engaged to assist the RM/RA leader in the conduct of the RA.

6.2 EXTENT OF RA - DETERMINE WHAT IS TO BE ASSESSED

6.2.1 *Scoping the RA*

6.2.1.1 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).

6.2.1.2 RAs for each identified department, functional area or work activity should not exceed three-levels deep (See Appendix E). This is to provide focus to the assessment.

6.2.1.3 Further depth may be done by identifying these departments, functional areas and work activities as new areas for RA.

6.2.2 *RA Scoping Nomenclature*

6.2.2.1 For the purposes of scoping the RA, the department, functional area or work activity for which the RA is carried out shall be referred to as "Level 1"

6.2.2.2 The department, functional area or work activity that forms a subset of Level 1 shall be referred to as "Level 2"

6.2.2.3 The department, functional area or work activity that forms a subset of Level 2 shall be referred to as "Level 3"

(*See Appendix E for examples*).

6.2.3 *Inventory of Work Activity form*

6.2.3.1 For the identified departments, functional areas and work activities to be assessed, this "Inventory of Work Activities" form should be used (Appendix B).

6.2.3.2 The following information is to be completed in the form:

a. State the Activity Inventory of Department in "Activity Inventory or Trade Assessed".
b. Complete the Location, Process and Work Activity
c. Work processes are to be divided into sequential steps

6.2.3.3 For Trade-based RA:

a. State the trade being accessed in "Activity Inventory or Trade Assessed".
b. Where the Location or Process is not applicable, state "N/A" in these columns
c. Complete Work Activity.

6.3 GATHER RELEVANT INFORMATION

Once the extent of the RA is determined, relevant information should be gathered. These sources of information may include, but not limited to:

a. Workplace layout plan
b. Process or work flowchart
c. List of work activities in the process
d. List of chemicals, machinery and / or tools used
e. Records of past incidents and accidents
f. Relevant legislation, codes of practice or specifications
g. Observations and interviews
h. WSH Inspection records
i. Details of existing risk controls
j. Health and safety audit reports
k. Feedback from employees, clients, suppliers or other stakeholders
l. Safe Work Procedures (SWPs)
m. Other information such as safety data sheets (SDS), manufacturer's instruction manual
n. Copies of any relevant previous risk assessments

7 RISK ASSESSMENT

7.1 GENERAL REQUIREMENT

7.1.1.1 The steps in Hazard Identification, Hazard Evaluation and Risk Control specify the methodology and requirements of this Code.

7.1.1.2 When the steps from "Hazard Identification" to "Risk Control" have been recorded in the RA form for a hazard, the same steps from "Hazard Identification" to "Risk Control" are to be repeated till all the "Work Activity" from the "Inventory of Work Activities" has been assessed.

7.1.1.3 As part of a continual review process, workplace hazards shall be reviewed monthly till:

a. The hazard reaches the green zone ("Low Risk") or
b. The risks of the hazard are residual in nature ("Residual Risk". Also see additional notes regarding Residual Risks in Appendix F) or
c. All reasonable practicable measures have been taken to control that hazard.

7.1.1.4 The RM Team is to determine which hazards are to be reviewed monthly.

7.2 HAZARD IDENTIFICATION

7.2.1 *General*

7.2.1.1 The RA Team Leader is to determine the most appropriate way(s) of identifying the hazards. These may include brain-storming, systematic process reviews, Process Hazard Analysis and Job Safety Analysis (JSA).

7.2.1.2 When identifying hazards, the RA Team is to consider if the hazards could cause harm beyond their geographic boundary of the work.

7.2.2 *Process*

7.2.2.1 List the "Work Activity" from the "Inventory of Work Activities" form (Appendix B) to the first available cell of "Work Activity" in the "Risk Assessment Form" (Appendix C)

7.2.2.2 Identify the Hazard and record in the "Hazard" Column.

7.2.2.3 Should there be more than one hazard for the work activity, they should be recorded in separate lines.

7.2.2.4 The following categories of hazards should be considered:

i. **Physical** (e.g. fire, noise, ergonomics, heat, radiation and manual handling)
ii. **Mechanical**
iii. **Electrical**
iv. **Chemical**
v. **Biological**
vi. **Others** (e.g. hazards peculiar to the industry)

7.3 HAZARD EVALUATION

7.3.1 *General*

7.3.1.1 When Hazard Identification is complete, proceed with the following Hazard Evaluation procedure.

7.3.1.2 This Code of Practice recognises the various hazard evaluation and risk matrices practiced and preferred by workplaces. While this Code of Practice does not restrict workplaces with its choice of matrices, the numeric 5x5 Risk Matrix is recommended.

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

Recommended Matrix: 5x5 Risk Matrix with numeric ratings

7.3.1.3 Other common matrices include, and not limited to, the following:

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

Example 1: 3x3 Risk Matrix with descriptive ratings

Likelihood / Severity	Rare (1)	Unlikely (2)	Possible (3)	Likely (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
Insignificant (E)	Low	Low	Low	Medium	Medium

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

7.3.1.4 Unless otherwise specified in this Code of Practice, the methodology specified in this CP is to be followed.

7.3.1.5 When using Risk Matrices other than the numeric 5x5 matrix recommended by the CP, all references to the scales (i.e. 1, 2, 3, 4 or 5) should be read in context of the Risk Matrix selected (e.g. "Minor", "Moderate" or "Major" in lieu of "1", "2", "3", "4" or "5").

7.3.2 *Existing Control*

7.3.2.1 Identify the existing risk controls and state it in the "Existing risk controls" column.

7.3.2.2 Where more than one existing risk control is identified for the hazard being evaluated, they should be listed in the same line as the hazard.

7.3.3 *Rate Severity*

7.3.3.1 WITH the existing risk controls in consideration, each team member is to rate the most likely severity outcome of the possible injury/ill-health identified earlier i.e. Level 1, 2, 3, 4 or 5.

7.3.3.2 Enter the number average of the RA Team's severity score in column "S" (Severity). Decimal numbers are acceptable.

7.3.3.3 When using the 5x5 matrix, the following guidance should be used in selecting the level of severity.

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

7.3.3.4 Should the difference in rating among team members be 2 or greater, the following should be done:

a. The Team Leader is to facilitate a discussion to understand the reasons behind the variance.
b. The team is then allowed to reconsider their rating.
c. Should the difference in rating among team members continue to be 2 or greater, the Team Leader may then choose to allow this variance.

7.3.4 *Rate Likelihood*

7.3.4.1 WITH the existing risk controls in consideration, each team member is to rate the likelihood that the hazard may cause the injury/ill-health i.e. Level 1, 2, 3, 4 or 5.

7.3.4.2 When considering likelihood, the RM/RA Team is to consider the existing medical condition of the affected persons that may affect the severity rating.

7.3.4.3 Enter the number average of the RA Team's likelihood score in column "L" (Likelihood). Decimal numbers are acceptable.

7.3.4.4 When using the 5x5 matrix, the following guidance should be used in 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.

7.3.4.5 Should the difference in rating among team members be 2 or greater, the following should be done:

a. The Team Leader is to facilitate a discussion to understand the reasons behind the variance.
b. The team is then allowed to reconsider their rating.
c. Should the difference in rating among team members continue to be 2 or greater, the Team Leader may then choose to allow this variance.

7.3.5 *Risk Prioritization Number (RPN)*

7.3.5.1 Obtain the Risk Prioritization Number (RPN) by multiplying the "S" and "L" columns and entering the score in column "RPN" (i.e. RPN = S x L). Decimal numbers are acceptable.

7.3.6 *Classification of Risk – Risk Matrix*

7.3.6.1 Compare the RPN against this Risk Matrix.

7.3.6.2 Proceed to Risk Control if the RPN is NOT within the green zone ("Low Risk") or yellow zone (tolerable "Medium 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

7.3.6.3 The RM Team is to determine for its organisation which areas within the Matrix are to be classified Low, Medium and High risks. This Code of Practice recognises that levels of risk as well as organisation risk appetites vary across workplaces.

7.3.7 *5x5 Risk Matrix Standardization*

The Risk Matrix provides a useful framework to classify risks identified. When using this Code of Practice's 5x5 matrix, the following format is to be followed:

7.3.7.1 Severity shall be listed in descending order of severity from the top to the bottom in the left column of the table

7.3.7.2 Severity shall be described as follows:

Description	Score
Catastrophic	5
Major	4
Moderate	3
Minor	2
Negligible	1

7.3.7.3 Likelihood shall be listed in ascending order of likelihood from the left to right of the top row of the table

7.3.7.4 Likelihood shall be described as follows:

Description	Score
Rare	1
Remote	2
Occasional	3
Frequent	4
Almost Certain	5

7.3.7.5 The RM Team is to determine for its organisation which areas within the Matrix are to be classified Low, Medium and High risks. This may be done based on, and not limited to, industry practice, the policies of the workplace and organisation's risk appetite.

7.3.7.6 All three categories, Low, Medium and High risks, are to be listed in the matrix.

7.3.8 *Actions for Risks Levels*

The following actions are to be implemented based on the current Risk Level.

Risk level	Risk Acceptability	Recommended actions
Low Risk	Acceptable	• No additional risk control measures may be needed. • Frequent review is required to ensure that the risk level assigned is accurate and does not increase over time.
Medium Risk	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, may be implemented. • Management attention is required.
High Risk	Not acceptable	• High Risk level must be reduced to at least Medium Risk before work commences. • There should not be any interim risk control measures and risk control measures should not be overly dependent on personal protective equipment or appliances. • If practicable, the hazard should be eliminated before work commences. • Management review is required before work commences.

7.4 RISK CONTROL

7.4.1 *Additional Controls*

7.4.1.1 Compare the existing controls against the Hierarchy of Control (Appendix D)

7.4.1.2 When considering additional measures to reduce risk, the more effective measures in the Hierarchy of Control should be considered first.

7.4.2 *Re-evaluation with Additional Controls*

7.4.2.1 When Additional Control(s) have been decided, re-rate the Severity, Likelihood and RPN scores and record them in the "S", "L" and "RPN" columns in the "Risk Control" section.

7.4.2.2 The new risk control RPN shall be LOWER than the Hazard Evaluation RPN.

7.4.3 *Guidance Notes*

7.4.3.1 Preferably, the revised RPN should be in within the Low Risk (Green) zone.

7.4.3.2 However, an improvement in RPN is acceptable provided it is not within the High Risk (Red) zone.

7.4.4 *Implementation Person & Date*

7.4.4.1 A specific person should be identified to lead the implementation of the Additional Controls. The person's name is to be recorded in the "Implementation Person" column.

7.4.4.2 The due-date for implementation is to be recorded in the "due-date" column.

7.4.4.3 The Implementation Person is to provide progress updates to the RA Team on a periodic basis as determined by the RA Team Leader.

8 IMPLEMENTATION

8.1 RM/RA APPROVAL

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

8.2 IMPLEMENTATION ACTIONS

8.2.1.1 As far as is practicable, the Manager is to implement the recommended risk control measures as soon as possible.

8.2.1.2 The Manager shall ensure that an action plan is prepared to implement the measures. The plan should include a time line of implementation and responsibilities of persons implementing the safety and health control measures.

8.2.1.3 The Manager shall ensure that the plan is monitored regularly until all the measures are implemented.

8.2.1.4 The Manager shall ensure that all persons exposed to the risks are informed of:

a. The nature of risks
b. Any measures or SWP implemented

8.2.1.5 The Manager shall ensure that regular inspections are carried out to ensure that risk control measures have been implemented and are functioning effectively.

8.3 COMMUNICATION

8.3.1.1 While various forms and levels of communication are to take place throughout the RM process, this CP requires the specific communication of the hazards identified and their controls to the persons performing the activity.

8.3.1.2 The Manager who oversees the area, function or activity where the WSH risks exist shall:

a. Ensure all persons exposed to the risks are informed of:
    i. The nature of risks
    ii. Any measures or SWP implemented
b. Inform all persons of the means to minimize or eliminate the risks.

8.4 RECORDS

8.4.1.1 The Manager shall assist the employer to ensure that RA records are kept for at least 3 years.

8.4.1.2 The Manager shall assist the employer to ensure that the RA register is readily available for review by designated persons at the workplace and by regulatory agencies.

9 REFERENCES

1. Workplace Safety and Health Act
2. Workplace Safety and Health (Risk Management) Regulation
3. WSH Risk Management: Risk Assessment Guidelines (MOM)
4. AS/NZS 4360:2004, Risk Management (Standards Australia)
5. Identifying Hazards in the Workplace – A Guide for Hazards in the Workplace (Australia Comcare)
6. BS 31100:2008, Risk Management – Code of Practice (BSI)
7. ISO/DIS 31000, Risk Management – Principles and guidelines on Implementation
8. ISO/IEC Guide 73:2009, Risk Management Vocabulary

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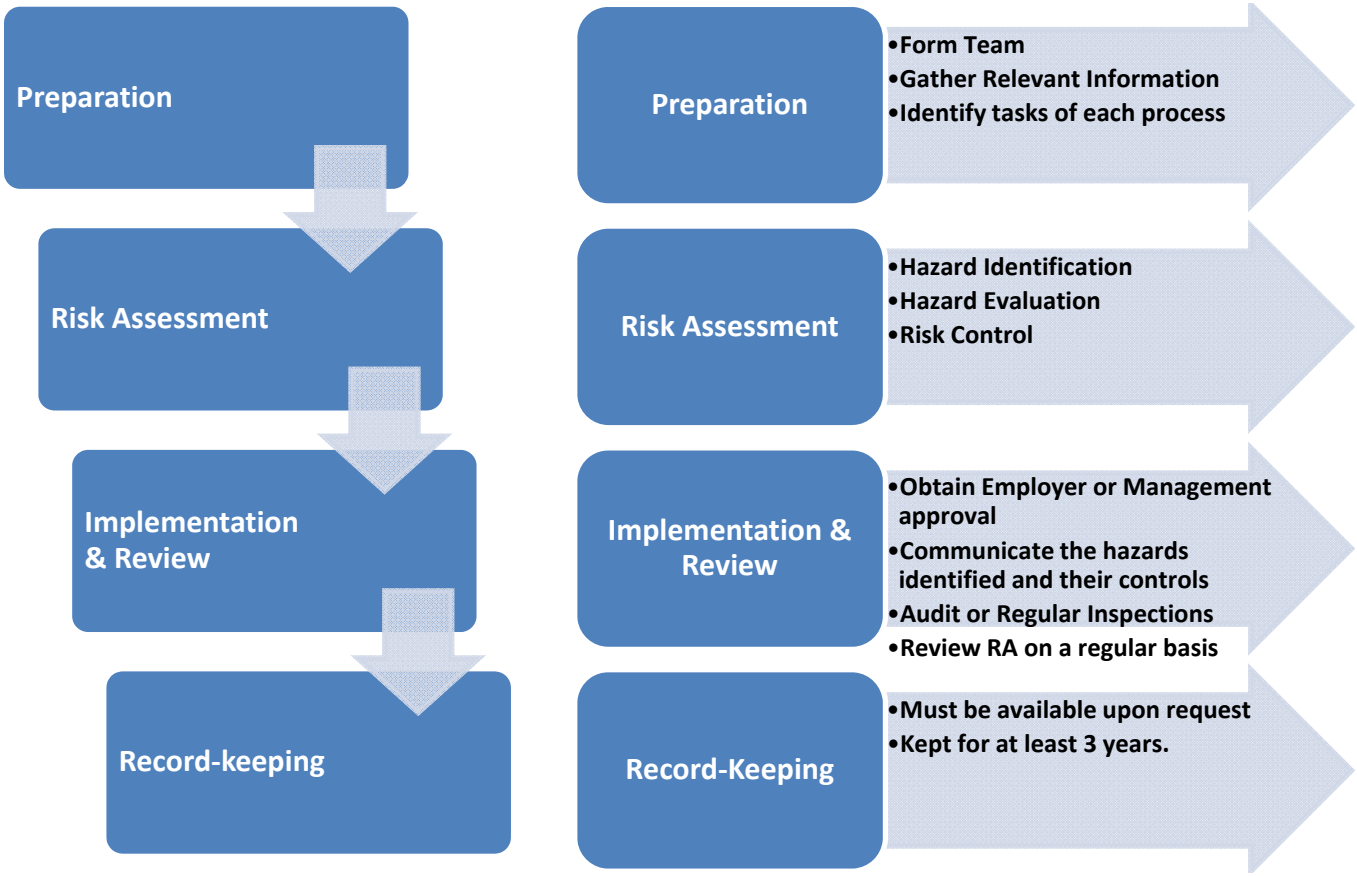
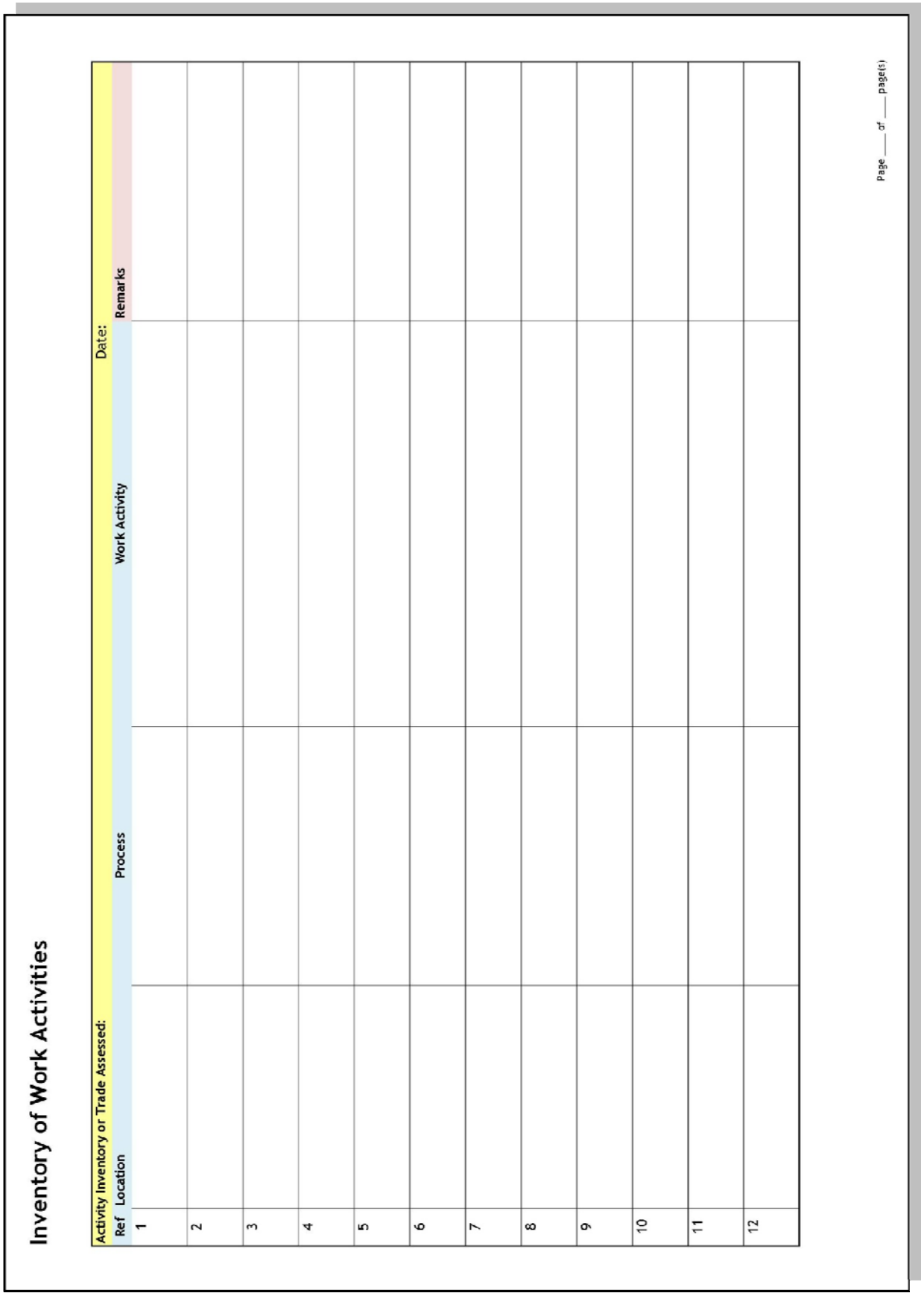
Appendix A RISK MANAGEMENT PROCESS



Appendix B INVENTORY OF WORK ACTIVITIES FORM



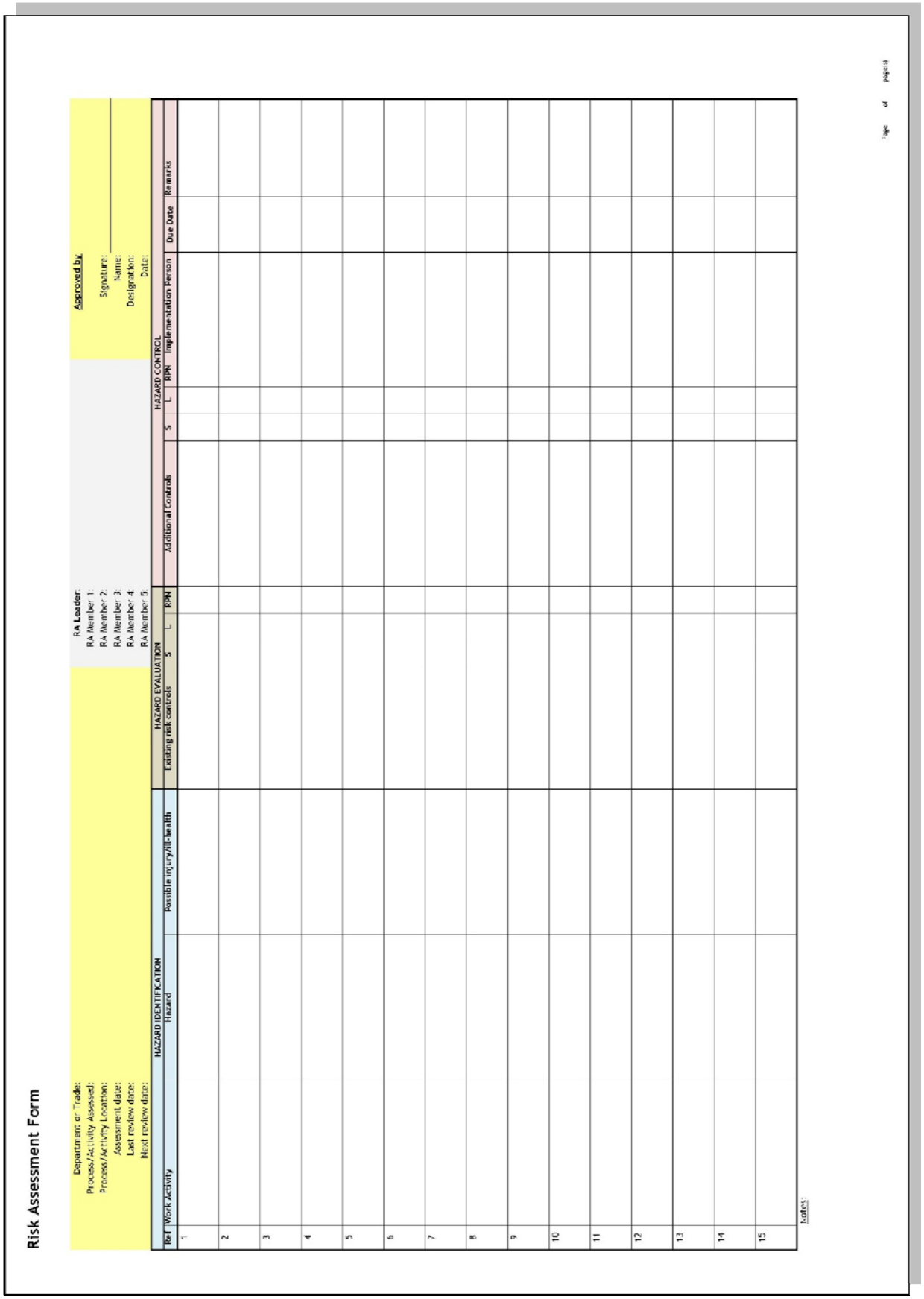
Inventory of Work Activities

Activity Inventory or Trade Assessed: Date:

Ref	Location	Process	Work Activity	Remarks
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				

Page ___ of ___ page(s)

Appendix C RISK ASSESSMENT FORM



Risk Assessment Form

Department or Trade:
Process/Activity Assessed:
Process/Activity Location:
Assessment date:
Last review date:
Next review date:

RA Leader:
RA Member 1:
RA Member 2:
RA Member 3:
RA Member 4:
RA Member 5:

Approved by
Signature:
Name:
Designation:
Date:

Ref	Work Activity	HAZARD IDENTIFICATION Hazard	Possible injury/ill-health	HAZARD EVALUATION Existing risk controls	S	L	RPN	HAZARD CONTROL Additional Controls	S	L	RPN	Implementation Person	Due Date	Remarks
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														

Notes:

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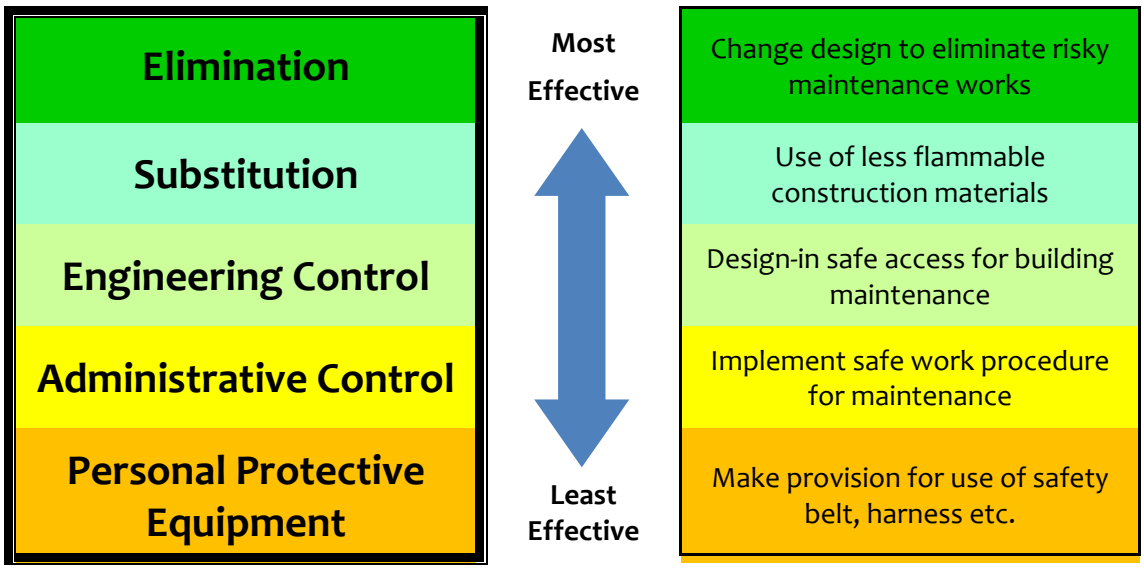
Appendix D HIERARCHY OF CONTROL



WSH Hierarchy of Control **Examples**

The control of hazards and reduction of risks can be accomplished by following the Hierarchy of Control Measures (See diagram). These control measures are not usually mutually exclusive e.g. engineering controls can be implemented together with administrative controls like training and SWPs.

ELIMINATION

Elimination of hazards refers to the total removal of the hazards and hence effectively making all the identified possible accidents, incidents and ill health impossible. This is a permanent solution and should be attempted in the first instance. If the hazard is eliminated, the risk associated with the hazard will be eliminated.

SUBSTITUTION

This involves replacing the hazard by one that presents a lower hazard.

e.g. Asbestos can be substituted with non-asbestos materials.

ENGINEERING CONTROLS

Engineering controls are physical means that contain the hazard. These include structural changes to the work environment or work processes, erecting a barrier to interrupt the transmission path between the worker and the hazard.

e.g. Isolation or containment of hazards, machine guarding, manual handling devices/equipment.

ADMINISTRATIVE CONTROLS

These reduce or eliminate exposure to a hazard by adherence to procedures or instructions. Documentation should emphasise all the steps to be taken and the controls to be used in carrying out the activity safely.

e.g. Permit-to-work systems, scheduling of incompatible works, SWP (Safe Work Procedures, also see Appendix F on additional notes for SWP).

PERSONAL PROTECTIVE EQUIPMENT (PPE)

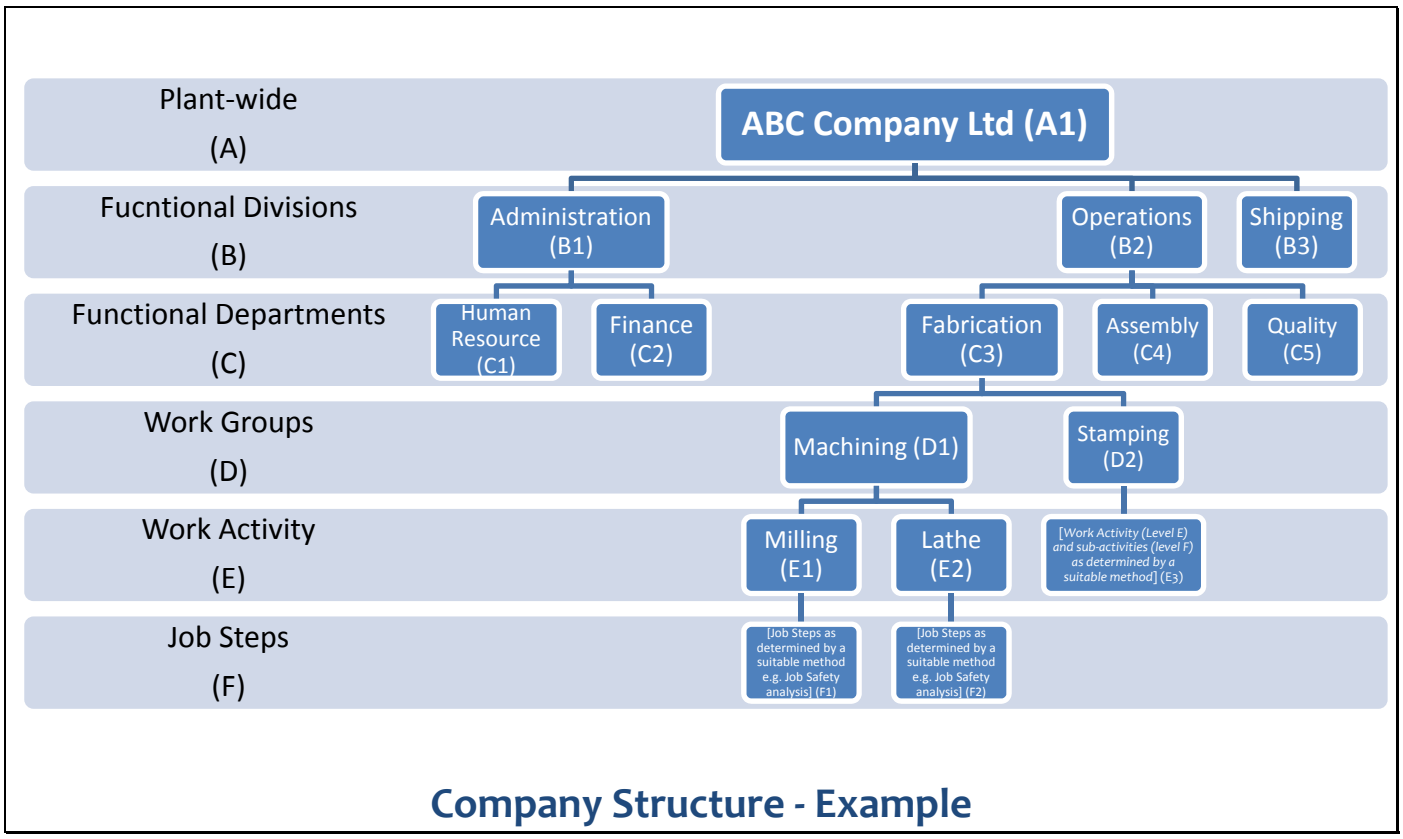
This should be used only as a last resort, after all other control measures have been considered, or as a short term contingency during emergency / maintenance / repair, or as an additional protective measure against residual risks.

The success of this control depends critically on the protective equipment being chosen correctly, fitted correctly, worn at all times and maintained properly.

Appendix E SCOPING RISK ASSESSMENTS – THREE LEVELS DEEP

This Appendix attempts to:

1. Clarify the concept of 3-levels deep in scoping out RA
2. Show the compilation of a Risk Register



Company Structure - Example

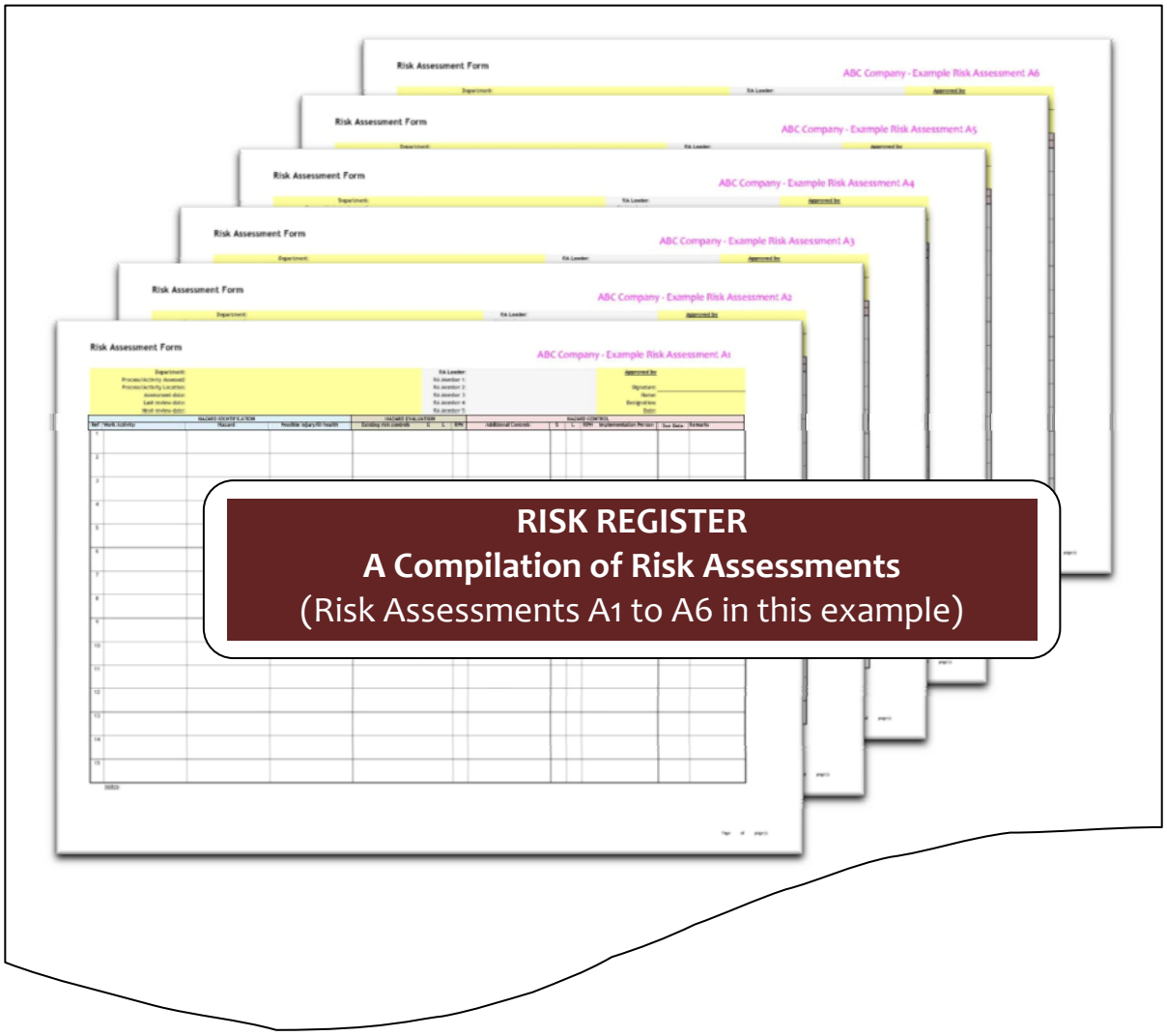
1. Concept of 3-deep

Risk Assessment Number	Assessment 1	Assessment 2	Assessment 3
Risk Assessment for =>	**Site-wide**	**Administration Division**	**Operations Division**
Level 1 (RA done for)	A1	B1	B2
Level 2 (RA includes)	B1, B2, B3	(Only 2 levels)	C3, C4, C5
Level 3 (Assessment ends at)	C1, C2, C3, C4, C5 activities	C1, C2 activities	D1, D2, C5 activities

Risk Assessment Number	Assessment 4	Assessment 5	Assessment 6
Risk Assessment for =>	**Shipping Division**	**Fabrication Department**	**Machining Work Group**
Level 1 (RA done for)	B3	C3	D1
Level 2 (RA includes)	(Only 1 level)	D1, D2	E1, E2
Level 3 (Assessment ends at)	B3 activities	E1, E2, E3 activities	F1, F2 activities

2. The Compilation of a Risk Register

A compilation of Risk Assessments is called a Risk Register.



Appendix F ADDITIONAL NOTES

Safe Work Procedures (SWPs)

Arising from the risk assessment, SWPs for work which may pose safety and health risks should be established and implemented. The SWPs should include the safety precautions to be taken in the course of work and during an emergency, as well as the provision of PPE.

Residual Risks

Residual risks are the remaining risks after implementation of risk controls. The risk assessment 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 to protect themselves. In this case, the risk assessment team may highlight training (administrative control) as a further measure to ensure that residual risks are further minimised.

Once all the risk controls are selected and their residual risks highlighted, the risk assessment 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 in implementation.

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