

Safe Working Cycle Handbook

Implementation of Safe Behaviour





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Preface

The enactment of the Factories and Industrial Undertakings (Safety Management) Regulation, by the Hong Kong SAR Legislative Council in November 1999, stated that effective safety management systems be established designated in specific industries to manage workplace safety systematically, subsequently providing a safe and healthy working environment. The construction industry, due to its high risk at work, is one of the trades, which is required by the law to establish a safety management system. The statistics for accidents in the construction industry are way above the average, and the consequence of such accidents is usually very serious. The main factors include:

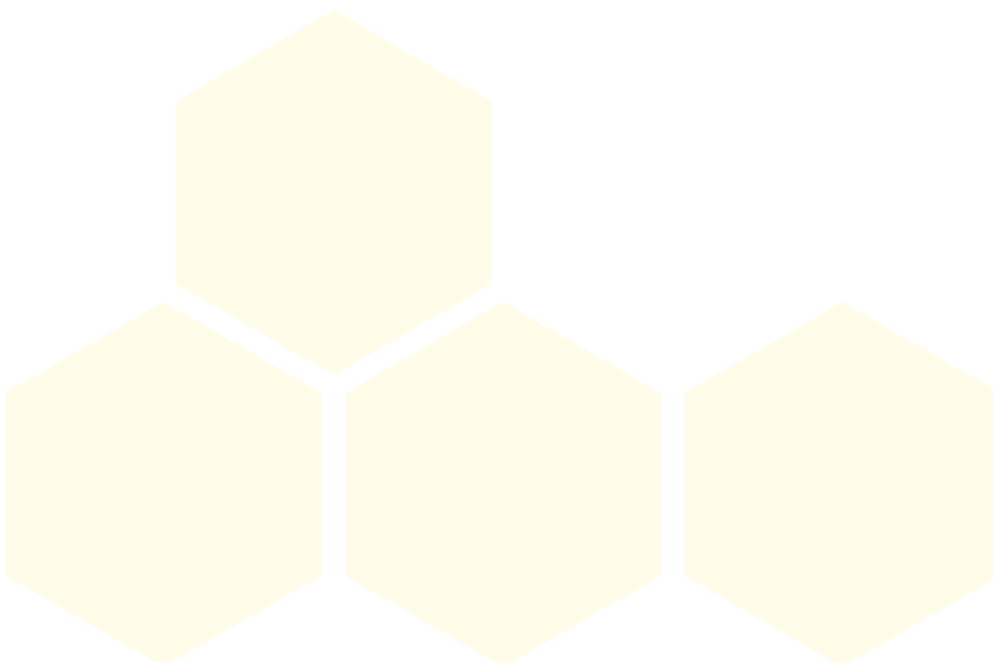
- most work sites are temporary and subject to constant change according to the work progress;
- most of the work is done outdoor and the working environment is easily affected by weather;
- variety of activities is undertaken at the same time;
- dangerous equipment and tools are often used;
- most of the work is carried out by multi-tier sub-contractors and it is difficult to manage;
- a high turnover of workers makes control difficult.

Due to the above factors, the construction industry is facing a number of problems in its attempt to implement the safety management system. The success of the safety management system, like other management systems, lies in how it is implemented and carried out. This is the most difficult task that is uncouncted by management. Different techniques are often used in accordance with the problems that might occur in the course of operation. The safe working cycle is one of the tools that management can use to enable the organization to regulate its daily working process, provide a model for management to follow, and implement certain elements of the safety management system.



The concept of safe working cycle (which originated in Japan), similar that of the 5S housekeeping management program (organization, orderliness, cleanliness, standardization, and discipline), is a type of management tool that can be used to solve difficulties in different aspects of the management systems. After implementation of the safe working cycle, the Japanese construction industry has made remarkable progress in safety and health, and the number of accidents declined significantly. In view of this and with reference to Hong Kong situation, the Occupational Safety and Health Council has specially prepared a series of material on the safe working cycle for the construction industry. The Council hopes that the materials will be able to help the organizations to implement the safety management system, and hence provide a safer working environment and finally reduce the number of accidents.

A chapter of 'Safe Behaviour' was added to this edition of 'Safe Working Cycle Handbook'. It explains how to instruct, monitor and correct at risk behaviour in construction sites to prevent accident from happening. We also aim to assist organizations to implement safety management system, provide safe working environment and establish safe working culture of the construction sites.





An Introduction to the Safe Working Cycle Handbook

This handbook aims to introduce the main concepts of the safe working cycle, and explain simply the procedures of this cycle in different time periods. Brief descriptions of major daily, weekly and monthly items are also provided. Organizations can make suitable adjustments according to their own situations such as individual needs, organization size, activities, type of worker, nature of hazards, and the degree of risks involved. The organization managerial staff can use this handbook as a reference and subsequently develop a safe working cycle suitable to their specific working environment.

The content of the handbook is divided into three parts. The main part is a general introduction to the safe working cycle covering various periods. The second part is a comparison between the safe working cycle and the safety management system. The last part contains supplementary forms relating to the safe working cycle.

The Handbook uses photos to explain every procedure and to list the required conditions and operation methods specified under five aspects: people, equipment, materials, methods, and environment. All these enable the users to easily understand how to implement the safe working cycle and its major points. The Handbook also includes samples for different types of forms for reference.





1. Safe Working Cycle

Safe Working Cycle:

The basic concept of the safe working cycle is to combine construction quality and construction safety. It stresses that through the safety policy and objectives, as well as the formulation of a safety management system, the company management can change the traditional enforcement on safety measures into a cooperative and coordinated method of dealing with safety issues. This cycle clearly indicates the responsibilities of different workers/ranks. It places particular emphasis on the leadership of the frontline management at construction sites, e.g. group leaders and foremen. The cycle encourages mutual trust between supervisors and workers at the construction sites and facilitates direct communication. In addition, the cycle enables workers to receive and accept relevant safety training and safety message, and finally creates a safety culture. The aim of the safe working cycle is to integrate quality and safety aspects of construction so that adequate considerations have been taken for each aspect to achieve a cost effective construction project.

The safe working cycles are classified into daily, weekly and monthly basis. The period is determined by the importance, and urgency of the construction activities. Daily cycle is comparatively thorough and detailed. The coverage of weekly and monthly procedures is more broadly.

Each item of the safe working cycle is shown in the following diagrams, and they will be explained in detail in Chapter 2 to Chapter 4 of the Handbook.

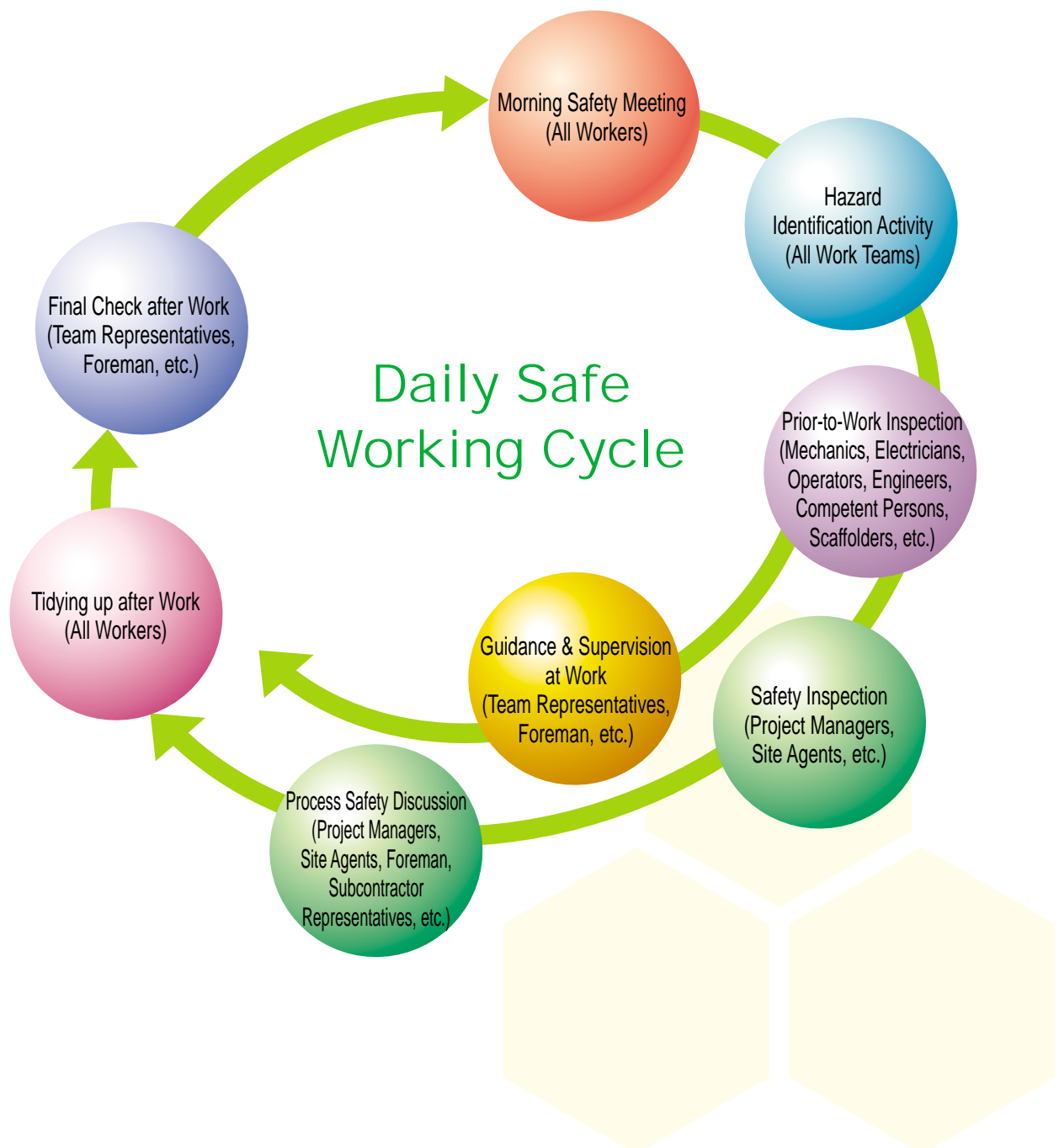
- Daily Safe Working Cycle
- Weekly Safe Working Cycle
- Monthly Safe Working Cycle





2. Daily Safe Working Cycle

The daily safe working cycle basically includes eight items. These items are arranged according to the daily schedule of the project, and can be shown on a time chart. This means that each person can carry out their responsibilities according to the schedule. Each organization should set the working hours of each item according to its own conditions and the characteristics of the project.





2.1 Morning Safety Meeting

The morning safety meeting is the first step of the daily safe working cycle. It includes:

- The announcement of important matters (such as project development/special activities, special safety information, etc.)
- Morning exercises such as stretching exercise
- Inspection on personal protective equipment and dressing

Benefits

1. Gives workers time to prepare themselves psychologically for work and pay special attention to the safety rules and the working environment of the work sites; and reminds them that they must check on their outfits and personal protective equipment.
2. Gives workers an opportunity to do stretching exercise before starting work so as to prepare their bodies for work, therefore reducing chance of injuries.
3. Promotes team spirit and cooperation by doing stretching exercise together in the morning safety meeting.
4. Provides an opportunity to convey safety message, and raises workers' vigilance.

Guidance on Practice



Participants : All workers including workers of the subcontractors.

Person in charge : Project managers or site agents.



Morning safety meeting – Example 1



Equipment : loudspeakers, or other PA systems, demonstration equipments, white boards, full-length mirrors, etc.



Morning safety meeting – Example 2



Information : posters, safety leaflets, safety publications, etc.



Method : 1. The project manager or the site agent gives a briefing on important issues such as the progress of the project, special activities (testing activities or visits), as well as introducing new staff and announcing the safety records of the previous day.
2. The project manager or the site agent alerts the workers the hazards and accident-prone activities as well as their precaution and preventive measures.



Stretching exercises – Example 1



Stretching exercises – Example 2



3. The project manager, the site agent or the foreman leads workers in morning exercises at the meeting place. (Please refer to the Poster for Exercise before Work in Appendix 1)
4. The safety supervisor or the foreman reminds workers to double check their personal protective equipment (please refer to the Poster for Personal Protective Equipment in Appendix 2).



Workers are checking their personal work uniforms and protective equipment – Example 1



Workers are checking their personal work uniforms and protective equipment – Example 2



- Venue : • An open area that can accommodate all workers.
• Free from outdoor or weather changes

Points to note

1. The person-in-charge of the morning safety meeting should have a thorough understanding of conditions at the site, be well informed of the safety inspection results and the content of the process safety discussions for the previous day.
2. The meeting should not exceed the time limit of 15 to 20 minutes
3. Ensure that the morning safety meetings do not fall into a tedious routine
4. Morning safety meeting on Monday may focus on major safety issues for that specific week. It can be implemented together with the monthly safety meeting.
5. Considering the differences in the nature of different projects or corporate cultures, morning safety meeting can be divided into several stages and implemented at various time periods, or changed into afternoon meeting in case not all workers can attend. The meeting can also be postponed further, in order to fit into the working schedule for specific activities.
6. Keep record of attendance of the subcontractor workers to encourage more workers to participate through process safety discussions and safety committee meetings.



2.2 Hazard Identification Activity:

Hazard Identification Activity is the second step in the Daily Safe Working Cycle. Team leaders or foremen lead team members to identify the hazards in the day's work, and make the workers aware of the degree of risks and measures for precaution.

Benefits

1. The participation of front-line workers reduces resistance to the implementation through recognition and acceptance of the safety measures by front-line workers themselves.
2. Team spirit can be enhanced (though the discussion at the working place) as part of practical safety training.
3. The safe working circle can be reinforced, and the safety consciousness increased.
4. It encourages the participation of individuals so as to make each one singularly and individually responsible.
5. It deepens the understanding of the working process.
6. It facilitates the contact between the principal contractors and other subcontractors in order to reduce possible adverse impact on efficiency and prevent accidents that may be induced by lack of communication and misunderstanding.
7. To manage the project properly so as to prevent accidents.
8. To enhance discipline (to wear safety equipment and proper clothing).

Implementation Methods



Participants : Every member of each group, every foreman from each trade.
Person in charge : Foreman (foremen can take turns).



Equipment : White board (if needed) for illustration.



Instructor :

- Operating manuals of the required working tools and equipment.
- Sample of required materials and materials safety data sheet (MSDS) of chemicals.
- Forms for Hazard Identification Activity and supervisor focus (please refer to the Appendix 3).



- Methods : 1. Each morning before the start of work and after the morning safety meeting, the exercise should last for 5 to 10 minutes.
2. The foreman briefs the workers on a summary of the Process Safety Discussion for the previous day, and the arrangements for the work of the day.



Hazard Identification Activity at the worker's rest room



Hazard Identification Activity at subcontractor's office

3. Clearly and briefly explain the process of the day's work.
4. Ask group members to point out the potential hazards in their work, and come up with appropriate preventive measures against two or three of the major hazards
5. Make sure each member of the group understands the safety measures to be taken.
6. Fill in the "Hazard Identification Activity & Monitoring Form" (please refer to Appendix 4) with conclusions of the meeting.



The members of the group are actively participating in the Hazard Identification Activity



7. Make sure that workers of other traders are coordinated to avoid possible conflict.
8. Check the working uniforms and be aware of the workers physical conditions.



Checking proper dressing



Venue : Hazard Identification Activity could be carried out either in the site offices or at workplaces. If at the latter, watch out for dangers from external environment such as falling objects from above.

Points to note

1. The content of the Process Safety Discussion for the previous day and the information announced at the morning safety meeting will be helpful in initiating follow-up actions for the Hazard Identification Activity.
2. Foremen should be familiar with the procedures for the project, pre-arrange the work, set up guidelines for workers to follow, and try to understand the personalities for each worker.
3. Foremen should encourage workers to participate in the Hazard Identification Activity and make them aware of the importance of safe working.
4. Frequency of such activities
 - Depending on the complexity of work, one additional Hazard Identification Activity can be held before the start of work in the afternoon.
 - Depending on the arrangement of the work, it can be carried out on the previous day.
 - In case of any change in the working procedure, one special meeting may become necessary.



5. In the Morning Safety Meeting, the safety requirements are only mentioned in broad lines; relevant safety instructions should be explained in detail during the Hazard Identification Activity.
6. Foremen should be well prepared on the previous day in order to fulfill their responsibilities for supervision. They should, based on the working guidance of the Process Safety Discussion from the previous day, lay out the process of the work, provide guidance, make work arrangements, and carry out other duties such as training, inspections, reports as well as discussions.
7. Work guidance includes:
 - Objectives of the work, implementation methods, procedures, goals, necessity and importance thereof.
 - Construction area, passage layout, methods and the routes for transporting construction materials.
 - Working hours and sequence.
 - Allocation of responsibilities for workers and personnel arrangements (appropriate assignment).
 - Coordination with other trade people on site.
 - The use of construction materials.
 - Machinery, transporting equipments, tools, protective devices.
 - Highly hazardous situations at work.
 - Reporting channels.
 - General summary on working process upon completion of the project.
8. Making a summary after collecting workers' comments on the following:
 - Safety critical area.
 - Examples of the previous accidents in the same line of work.
9. Workers (including plant operators) should participate in the Hazard Identification Activity.
10. Personnel from the principal contractors should participate as much as possible.



2.3 Prior-to-work Inspection

As is said that "Good tools are indispensable for achieving good jobs", a Prior-to-work Inspection is essential and should take place immediately after the Hazard Identification Activity. Before the start of work and the usage of equipment, all the tools, equipment, machineries and materials must be in safe and proper condition.

Benefits:

1. Tools and equipments in good working condition bring about better efficiency and help reduce accidents.
2. To identify problems before the start of work and rectify them and have prevent the problems from getting worse and thereby reduce losses.
3. Compliance with laws and regulations to avoid lawsuits.

Implementation Methods:



Participants : all workers.

Person in charge : Individuals, plant operators, foremen, competent persons, (electricians, mechanics, scaffolders), inspectors, maintenance groups, engineers, etc.

Principal contractors and subcontractors may appoint the persons-in-charge based on the following principles:

- If the machine or the tool is manned by a single operator, then he (she) will be the person-in-charge. If the equipment is used by a group of workers, one person should be appointed to take charge of the equipment.
- If the general equipment is temporarily used mainly by subcontractor workers, subcontractors should select someone to be responsible. If the equipment is used by workers from different subcontractors, the subcontractor for installation and for operation should jointly assign a person to take charge.
- Competent persons should be assigned to carry out inspectors on hazardous workplace such as confined spaces, excavations, scaffolds etc.



Equipment : Measuring/testing tools and repairing tools, etc.



- Materials : • Operating manuals for machineries and equipments.
• Inspection checklists.
• Checklists compiled by engineers /safety officers.
• Testing inspection checklists.



- Methods : 1. Inspection should take place: before the start of work in each morning and afternoon, especially after heavy rain or storm; when subcontractors move the equipment into construction sites; and when principal contractors provide machineries and equipment.
2. The items to be inspected before the start of work include:
- Mobile crane
 - Mobile construction machineries
 - On tracks Gantry cranes/ plant
 - Electrical machineries and equipment



Inspecting an excavator prior-to-work

3. The following equipment and structures should also be inspected before the start of work apart from tools, materials and machineries:



Inspecting electrical installations prior-to-work

- Electrical installations
- Scaffoldings/excavators
- Welding/ cutting tools
- Fire prevention equipment installations



Inspecting scaffoldings prior-to-work

Inspecting gas welding set prior-to-work

4. Places to be inspected include:

- Within site
- Areas where machineries and equipment are installed
- Vicinity of site



Venue

: Depending on circumstances, inspections can be both indoors and outdoors.

Points to note:

1. Keep a record of the inspection results of materials, equipment and machineries.
2. Carry out all the mandatory and other planned inspections.
3. Inspect the conditions of construction sites and the environment.
4. Make safety inspections on selected key areas, rectify problems discovered and stop work wherever appropriate.
5. Report results to the responsible persons after safety inspection. If necessary, the project manager of the principal contractor and the safety officer should also sign on the inspection reports and monitor the program of connective actions.
6. Regardless of the ownership of materials, equipment and machineries, the principal contractors must ensure that they are used only after proper inspection.
7. Inspections should be performed before the tools and equipment are moved to the sites.
8. If the inspection is done in places of high risk, the person must follow the Safety Procedures defined.



2.4 Guidance & Supervision at Work

Guidance and Supervision at Work is another aspect of safety monitoring. It mainly falls within the responsibilities of group leaders. This includes keeping track of implementation of the safety measures from the Hazard Identification Activity, checking the compliance and addressing problems that may occur during its implementation.

Benefits

1. Understanding the project progress and its characteristics facilitates gang leaders' communication with and acceptance by the workers.
2. Group leaders can solve problems directly.
3. Timely check on the compliance with safety instructions and procedures.
4. Coordinating all kinds of activities.

Implementation Method



Participants : Team members
Person in charge : Foreman, group leader or person in charge.



Equipments : Cameras (if needed).



Materials : Hazard Identification Activity and Monitoring Form.
Observation sheet for safe behaviour (please refer to Appendix 10)



Methods : 1. Foremen or ganger constantly give necessary directions and supervision to the workers during work.



The foreman is teaching workers how to use the safety belt correctly



The foreman is directing workers to abide by the safety operation procedure

2. To monitor whether the control measures identified during the Hazard Identification Activity have been implemented.
3. To ensure that workers carry out the work in accordance with the guidance for safe working.
4. To look out for on-going changes in the work conditions, such as excessive noise, smoke and dust.

5. To correct the at risk act of the workers and provide guidance.
6. To act in accordance to the comments given by project managers or site agents upon their safety inspection.
7. To resolve problems caused by other parties at work. If necessary, raise the problems at Process Safety Discussion so as to find a satisfactory solution.



The foreman is correcting the at risk act of the worker



Venues : Workplace under the responsibility of each foreman/ganger. There should be timely safety measures taken, e.g. when a load is being lifted over workers and when the weather turns bad.



How to monitor safe behaviour in safe working cycle?

Management and staff can identify key safe and at risk behaviour together. These important safe behaviours could then be summarized in a form of observation sheet to establish standards for measuring safe behaviour. Each working group could use this 'Observation sheet for safe behaviour' to monitor each other daily and systemically to encourage safe behaviour. Afterwards, according to the results of monitoring, each working group could establish their own improvement targets. To measure the achievement of improvement targets, the safe behaviour of working groups should be measured by 'percentage of safe performance'. They should be accessible and traceable at any time. Measurement results should be distributed to working groups in a weekly basis to keep them updated on the achievement of improvement targets. The monitoring results of safe behaviour could be distributed to all staff in a monthly basis to keep them updated on the performance of safe behaviour. Tracing and publicizing 'percentage of safe performance' could achieve continual identification and improvement of safety problems.

Same as other control measures, planning and organizing is two important factors to success. The area of implementation should be decided prior to implementation.

1. Find out the problem

To achieve safe behaviour, the first step is to find out the at risk behaviours which account for most of the accident in the construction site. At the beginning stage, the organization could check their existing records of accidents, incidents, procedures and risk assessments. As safe working cycle is specific to individual construction project, site safety committee should be responsible for the planning, implementation and monitoring of the whole programme. The chairman of the committee has the responsibilities to ensure:

- Establishment of 'observation sheet for safe behaviour' for each working group;
- Selection of working group members and provide sufficient training;
- Meeting to discuss development of improvement targets;
- Weekly sharing sessions to review safety performance and develop proactive measures which could improve the safety performance; and
- Development of solutions to solve safety problems within the time limit.



2. Briefing meeting

The briefing meeting should be chaired by the project manager or the chairman of the safety committee to let management and staff understand the importance of the implementation of safe behaviour monitoring. The content of briefing meeting should include:

- Explanation to clarify that implementation of safe behaviour monitoring aims to enhance, but not replace, the existing safe working cycle
- How to implement and the co-operation of staff
- Selection of working group members
- Necessary resources, e.g. time for working groups to monitor safe behaviour, training course, etc

3. Form working groups to implement safe behaviour monitoring

Working groups should consist of staff from different positions. There should be two staff coming from the same position in each group. When one of the staff is absent, another can replace her/him. Senior management should be invited to monitor safe behaviour to demonstrate their concern and commitment on the implementation of safe behaviour monitoring.

4. Application

Working groups designated by the site safety committee can find out the safe and at risk behaviour that they want to monitor according to their responsible area. Working groups could also define the behavioural standard that they want to achieve, e.g. the use of PPE. The standard can be developed according to the operational procedures in the safety plan. If there is no corresponding procedures, the standard could be developed through working group meetings. These behavioural standards can be summarized in the observation sheet for safe behaviour (see Appendix 10). The group members have to monitor the workers for a period of time every day. They have to record the monitoring results on the observation sheet. The percentage of safe performance can be calculated from the observation sheet.



5. Review

After a period of time, when the workers have achieved a certain standard of percentage of safe performance, working groups should discuss for further programmes based on this achieved standard (baseline). Further programmes could be awarding scheme, training, modification of work design or procedures to encourage the safe behaviour. After implementing these programmes, working groups should review the effectiveness of these programmes, e.g. whether the targets can be achieved. When the percentage of certain safe performance can be kept at a high standard, the working group can try to solve other at risk behaviour.

6. Effectiveness of programmes

Site safety committee should analyze the monitoring records from each working group to discuss the effectiveness of safe behaviour monitoring programme. The issues that should be responded include:

- The increase/decrease of percentage of safe performance compared with that in the previous week
- Categorization of safe performance for each type of working groups ('safe' or 'at risk')
- Calculation of average percentage of safe performance for each type of working groups
- Calculation of percentage of monitoring time for each type of working groups

Points to note

1. As foremen play an important role, they require proper training in skills on safety management and coaching techniques.
2. When foremen are discharging their duties, they should follow the safety principles strictly and, maintain fairness to avoid damaging the working relationship with workers.
3. Effective guidance and supervision relies on teamwork and the cooperation among workers.



2.5 Safety Inspection

The safety inspection carried out by senior management at construction sites serves both as supervision, and assurance for the safe operator of daily work. Senior management can quickly solve any safety problems that may affect the progress of work.

Benefits

1. It demonstrates the company's commitments to safety.
2. It enables senior management to understand site safety problem and solve them.
3. It promotes cooperation among subcontractors to solve problems.
4. It can be used to assess the performance of subcontractors.

How to Implement



Participants : Safety officers/safety supervisors, foremen
Person in charge : Project manager or site agent.



Equipment : Cameras/Camcorders (if required)



Materials : For Hazard Identification Activity and Monitoring Forms.
Observation sheet for safe behaviour (please refer to Appendix 10)
The Safety Inspection Checklists (please refer to Appendix 5).



Methods : 1. Safety Inspection is to be carried out at least once everyday, before the Process Safety Discussion. If situation permits, it is to be carried out both in the morning and afternoon.



The Site Agent is conducting safety inspection



2. The scope of Safety Inspection should include the whole site and surrounding areas affected by the construction.

The foreman is accompanying the Project Manager to inspect a passenger hoist



The Safety Officer is accompanying the Project Manager to inspect the site

3. Major safety inspection focuses:
 - Whether the construction procedures conform to the work plan.
 - Whether the installation processing rise to at risk condition.
 - Whether the different types of work taking place simultaneously will create undue risks.
 - Whether operating heavy machinery will lead to dangers.
4. Emphasis should be placed on high risk and special activities.



Recording of key points while doing Inspection



5. Instruct foremen to remedy dangerous activities/conditions immediately.
6. To fill in the Safety Inspection Checklist



The Project Manager informed the foreman to rectify dangerous conditions immediately

The Project Manager rectified dangerous activity discovered during the Safety Inspection



Venues : Target areas for inspection

Points to note

1. Since the workplaces to be inspected are different, the person responsible for the Safety Inspection should take necessary safety measures accordingly.
2. The responsible project manager or site agent should be equipped with various personal protection equipment such as ear protectors, eye protectors, etc.
3. Special attention should be paid to these high risk activities mentioned in previous day's Process Safety Discussion.
4. The project manager/general foreman should set an example, communicate with the workers and listen to their opinions while doing the Safety Inspection.
5. The Safety Inspection should not be cancelled without a solid reason. The job can be assigned to some representatives instead when necessary.



2.6 Process Safety Discussion

Process Safety Discussion provides an opportunity for communication and cooperation in solving problems. Solutions are sought for problems identified during the day before these problems worsen or persist.

Benefits

1. Confirm the progress of the day's work and decide on the procedures of next process, including coordination of different activities, with an aim to solving problems quickly and enhancing efficiency.
2. Assign next day's work, with safety directions and measures to subcontractor.

How to Implement



Participants : Subcontractor representatives, safety officers.
Person in charge : Project manager, general foreman.



Equipment : Accessories such as white board, projector, TV, camcorders etc.



Materials : Record of Process Safety Discussion (please refer to Appendix 6).



Methods : 1. To organize Process Safety Discussion daily at a fixed time in the site office to review safety performance of the day, such as findings during inspections and the results from guidance and supervision.



The Site Agent summarized the inspection finding at the Process Safety Discussion



2. To announce next day's work, especially the new and high risk activities and to outline control measures required.
3. Each subcontractor puts forward suggestions for safety improvement and informs other subcontractors of next day's work and safety measures, especially activities that may affect the health and safety of other people, such as lifting operations, processes emitting poisonous gas, noise and radiation.
4. To resolve conflicts that may occur over the use of space, tools, equipment, materials and other resources.
5. Make sure all the tools/manpower needed for the next day's work are available, such as drawings, construction guides, measuring/testing tools, personal protective equipment, and competent persons (including electricians, operators and signalmen, etc.).
6. Record the results of the Process Safety Discussion on the forms for "Process Safety Discussion".



Venues : To be carried out in the site office.

Points to note

1. The Discussion must focus on site safety. Do not waste time on unrelated issues.
2. Subcontractors can put forward topics for review during the meeting.
3. The summaries of the Process Safety Discussion can be announced at the Morning Safety Meeting the next morning.
4. Project managers, general foremen and safety officers should make a full preparation of the safety materials for the Discussion.



2.7 Tidying up after Work

This step is designed to ensure that all the equipment, tools, instruments and environment of the workplace are tidied up after a day's work, in preparation for the next day's work. This process consists of more than a general cleaning. It is based on the 5S housekeeping practice. Everyone should have a clear understanding of the 5S concept. Based on the practice priorities, all required materials and tools are classified and stowed accordingly before the end of a day's work. Appendix 7 is a brief introduction to the 5S concept.

Benefits

1. Tidying up materials, equipment and tools help reduce accidents.
2. Efficiency is enhanced.
3. After-work tidying up assists to maintain a safe environment when workers return to work the next day.



Wastes are sorted and disposed of in different dumpsters

How to Implement



Participants : All workers.



Equipments : Brooms, shovels, garbage containers, wheel burrow and storage containers.



Materials : Materials Safety Data Sheets of cleaning agents.



Tools are used to help with the tidying up



Methods : 1. Each worker must tidy up his own work area after he finishes his work for the day, applying the 5S techniques.

- Basic principles:
 - Determine the location and the methods for storing the materials, equipment and tools.
 - Set aside storage stations for wastes.
 - Provide containers for different wastes.
 - Properly dispose of unused materials.
 - Keep the passageways clear.



Sorting out the remaining materials for future use



Tidying up one's own work areas



The worker is putting the tools in their designated area



2. In order to meet standards set up by the organization for tidying up, special attention should be paid to the following:
 - Spilled oil.
 - Water source.
 - Drainage.
 - Rubbish.
 - Passageways.
 - Fire sources.
 - Power supplies.
 - Machineries locked.
 - Tools back in designated place.
3. There should be guidance in place for tidying up. If necessary, select specialist contractors to assist as early as possible.



Venues : Workplace under each worker's responsibility.

Points to note

1. Workers must understand the whole set of procedures for 5S good housekeeping practices. It is more than just discarding the trash.
2. Person-in-charge of the site must allocate sufficient space for stowing materials/wastes.
3. Since the workplace may pose a threat to safety & Health before tidying up, the tidying up crew must collect, store/discard wastes, especially hazardous materials and those with toxic property according to the safety instructions.
4. Proper labels should be affixed on containers for dangerous substance.
5. Rewards should be given to those workers who have done a good housekeeping work.





2.8 Final Check after Work

Daily Safe Working Cycle ends with Final Check after Work. The final check is to ensure that no accident will occur at construction sites after work, be it fire, flooding, scaffoldings collapse, theft, or trespassing, in order to prevent loss and affect the public.

Benefits

1. Prevention of accidents and energy conservation.
2. Assessment on workers' performances in housekeeping.
3. Compliance with laws and regulations.

How to Implement



Participants : Foremen and subcontractor representatives.
Person in charge : Foremen, site agents.



Equipments : Flashlights and key to the gates/doors.



Materials : Final Inspection Checklist (please refer to Appendix 8).



Final check up by the foreman



Methods : 1. Each worker checks his own work area. Foremen pay special attention to selected items on the checklists.



2. Key items for the check:
 - Whether the tidying up is properly conducted.
 - All fire sources are put out.
 - All keys on machines are pulled out and kept properly.
 - The unused materials are properly stored.
 - All workers have left (except those who are working overtime).
 - All gates are locked.
 - The electricity has been shut down.
3. Fill in the Final Inspector Checklists.
4. Each foreman and subcontractor representative reports on the tidying up work to the project manager /site agent.



The foreman is checking if all workers have left



The foreman is ensuring that the materials are properly stored



The foreman is checking if the tidying up work has been conducted properly



The foreman is checking the switch box



The foreman is reporting to the Site Agent after he has finished the final check



Venues : own area of responsibility.

Points to note

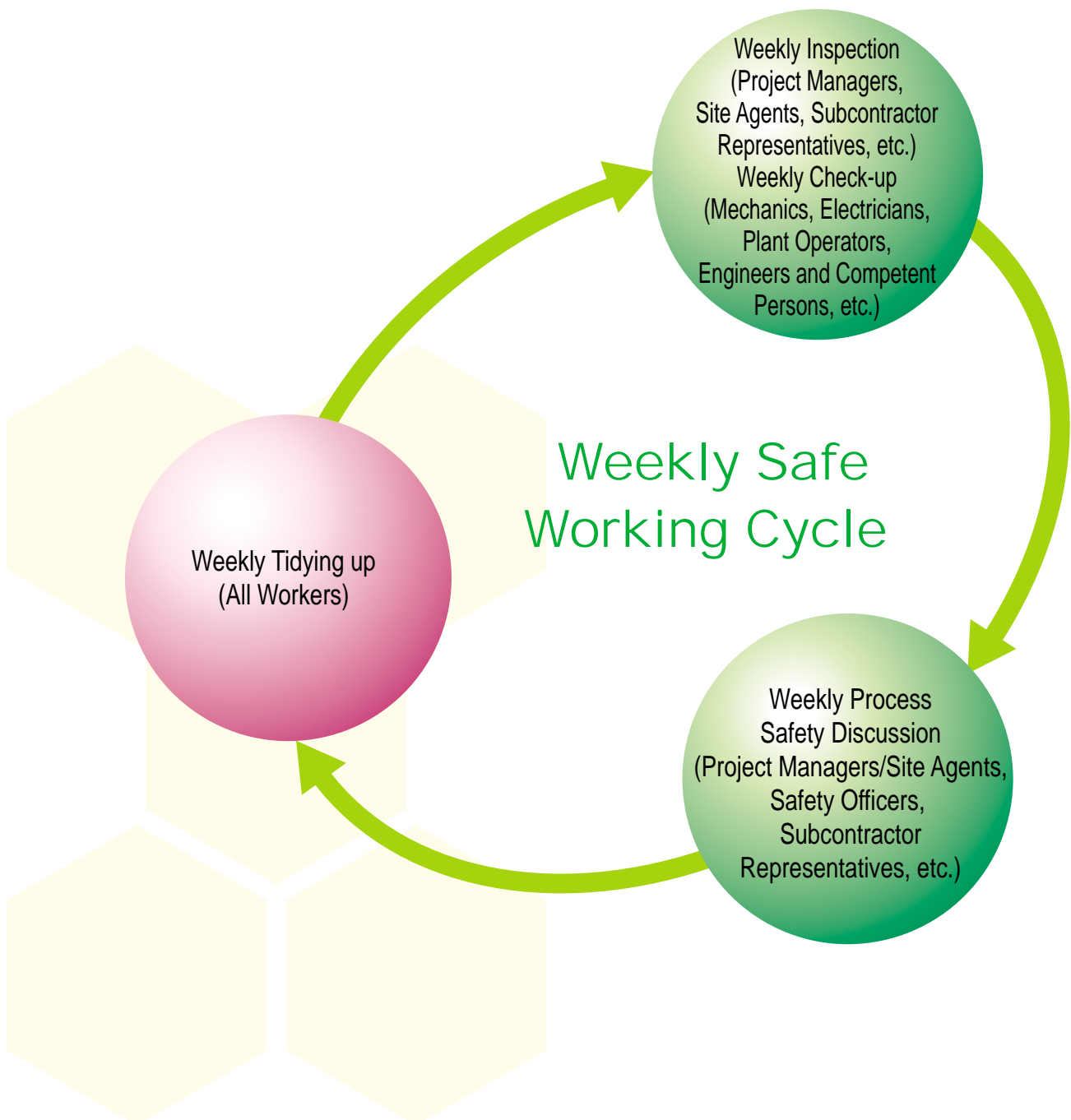
1. Special check on workplaces and their vicinity hot works have been undertaken.
2. Watch out for people who may enter the construction sites through unlocked gates or broken hoarding boards.
3. Under harsh weather, double-check the drainage systems to see if they are blocked, if the scaffoldings are stable, and if the materials are stored in the right place. Make sure safeguards are in place against storm and rain.
4. Maintain supervision over those who are working overtime and ensure that they know the emergency procedures.
5. As the final check usually takes place late in the day, take a flashlight and avoid lone working if called for by the occasion.



3. Weekly Safe Working Cycle

Weekly Safe Working Cycle aims at making an interim review of the performance in the past week and making arrangements for the future. It consists of 3 steps as follows:

- Inspection & Check
- Process Safety Discussion
- Weekly Tidying Up





3.1 Weekly Safety Inspections and Weekly Check Up

The contractor and sub-contractors should jointly carry out a weekly inspection. They can therefore strengthen their cooperation and work on eliminating the safety problems found during inspection and define their respective responsibilities on-the-spot. This can provide information for the management in their self-appraisal and underline the commitment of the management.

The contractor and sub-contractors (competent persons) also need to inspect their own machines, electrical installation and scaffolding on site on a weekly basis to ensure the sound operation of such equipment and facilities.

Benefits

Weekly inspection can

1. Promote communication between the contractor and sub-contractors and clarify each party's responsibilities.
2. Underline the commitment of senior management.

Weekly check up can

1. Spot problems as early as possible before they get worse.
2. Conform to relevant laws and regulations.

How to Implement



Weekly inspection

Participants : project manager, site agent, safety officer, representatives of sub-contractors

Person in charge : project manager/site agent

Weekly check up

Person in charge : plant operators/competent persons, such as electricians and mechanics, etc.



The weekly inspection team is inspecting the lift shaft guard-rails



Equipment : **Weekly safety inspection** — camera (to record the inspection results and can also be used for future training)

Weekly check up — checking or repair tools as required



Materials : **Weekly safety inspection** — safety inspection checklist

Weekly check up — machinery/equipment inspection checklist



Method : to be carried out on a pre-determined day every week (usually on Monday)

Weekly safety inspection

1. To inspect the high-risk places where unsafe conditions/acts many occur.
2. To find and remedy at risk acts or conditions.
3. To record the results of safety inspection (Please refer to the checklist at Appendix 5).



Mechanic is conducting a weekly check up on the mobile crane

Weekly check up

1. To check the machinery and facilities on site and the safe operation of equipment for abnormal wear and tear, abuse or misuse.
2. To conduct timely repair as appropriate or to recommend suspension on use.
3. To fill in inspection checklist.



Venues : **Weekly safety inspection** — the construction site and its vicinity

Weekly check up — the places where machinery and facilities are located on site

Points to note

1. The contractor should encourage all sub-contractors to participate.
2. All participants must wear suitable personal protective equipment, such as reflective coat and dust masks.
3. If the project manager is unable to attend, a representative can be appointed. The manager must nevertheless be kept up to date with the inspection results to demonstrate his interest.



3.2 Weekly Process Safety Discussion

The weekly Process Safety Discussion aims at promoting the communication between people at various levels and sub-contractors, summarizing the safety performances in the last week and planning for construction work for next week.

Benefits

1. To promote communication and help sub-contractors improve their work.
2. To create opportunities for bringing problems to attention and for an early remedy.

How to Implement



Participants : worker representatives and sub-contractors representatives
Person in charge : project manager/site agent and safety officer



Equipment : meeting equipment, such as white board, projector.



Materials : inspection records of the past week and the current week



Methods : 1. To review the work in the last week and to plan for the work of coming week on weekly basis in the site office.
2. To coordinate different types of work in line with the progress.
3. To work out the weekly schedule of different types of work.
4. To make sure all parties know about the dangerous zones on site.
5. To inform all parties of any changes in the passageways and the setup of temporary structures plus work procedures.
6. To take minutes of the meeting.



Venue : site office

Points to note

1. The project manager or his representative should chair the meeting and all participants are encouraged to express their views at the meeting.
2. The minutes on the Weekly Process Safety Discussions should be distributed as soon as possible so as to take follow-up actions.



3.3 Weekly Tidying Up

The idea of this step is to thoroughly tidy up the site to prepare for work next week.

Benefits

1. To create a safe working environment;
2. To reduce accidents caused by at risk conditions;
3. To ensure required materials are ready for use;
4. To keep the site in good working order and discipline;
5. To improve efficiency.

How to Implement



Participants : all workers on site
Person in charge : foremen from the contractor and sub-contractors



Equipment : tools required for the weekly tidying up, such as brushes, brooms, towels, etc.



Materials : inspection checklist



Method : 1. To be carried out weekly on a week day and at a pre-determined time (normally on the last day of each week);
2. To put the excess materials at the collecting points;
3. To put the unused materials in the designated place.



4. To assign responsible personnel to take charge of the tidying up and to verify the result.
5. To implement an appraisal system & reward those who have done a good job of the tidying up.



Workers are tidying up the place of their responsibility thoroughly



Venues : selected places

Points to note

1. Avoid over or under work in the tidying up. The objective is to meet the standard set by the company.
2. During the weekly tidying up, the site may be wet and slippery and also involve handling of loads. Therefore, extra care must be taken in such cases.
3. Make sure adequate tidying up tools are available.
4. Machinery must be cleaned according to relevant safety instructions.
5. The weekly tidying up should conform to the 5S good housekeeping concept.
6. The tidying up results should be evaluated as a measure of motivation.
7. Ensure no place is left out.
8. Senior management's involvement makes it more persuasive.



4. Monthly Safe Working Cycle

Monthly Safe Working Cycle is to review the site performance and progress, to improve the workers' safety awareness through training and reward schemes, and to recognize their commitment and cooperation.



Monthly Safe Working Cycle should include the following :





4.1 Monthly Inspection

Monthly Inspection aims at improving the management of machines, equipment, tools and materials. It should be carried out in line with relevant rules and regulations.

Benefits

1. Regular in-depth inspections on machines and equipment serve to identify problems at the early stage. It could ensure the safety of workers to prolong the service life of the machinery.
2. Keeping the machines and equipment in constant serviceable condition also improves the productivity and quality.

How to Implement



Participants : Competent persons appointed by the contractors and sub-contractors

Person in charge : electricians, mechanics, etc.



Equipment : instruments specified for checking, e.g. testing meters



Materials/ documents :

- Materials specified for checking, e.g. degreasing agent, lubricant, etc.
- Maintenance manual for mechanical equipment



Methods :

1. Concerned facilities on site should be checked at least once a month.
2. The inspection frequency should be according to in-house rules and regulations.



A competent person is carrying out the monthly inspection on the mobile crane as required by the contractor



3. Use a checklist to assist the inspection work and enables it being done systematically.
4. Make repairs on the basis of the inspection findings and segregate the facilities that cannot be used any more till all problems have been solved.
5. Keep the monthly safety inspection records.



Venues

: all places on site with machines and equipment.

Points to note

1. The checking schedule and procedure should be worked out in advance.
2. If necessary, seek assistance from surveyor services companies.
3. The facilities to be checked include pile drivers, cranes, earth-moving equipment, heavy-duty transportation plants, pressure vessels, welding/cutting kits, electrical installation, etc.





4.2 Monthly Safety Training

Through Monthly Safety Training, workers can reinforce the concept and awareness of safety, sharpen necessary skills, gain relevant knowledge and foster a correct attitude. By studying the cause of accidents, the same or similar accidents can be avoided.

Benefits

1. Through safety training, workers will master the safety skills and knowledge required and foster positive attitude on safety.
2. Safety training underlines the importance senior management attaches to workers' safety and health.
3. Safety training is a legislative requirement.

How to Implement



Participants : safety officer will be in charge of the training and all workers (including the workers of sub-contractors) should participate.

Person in charge : safety officer



Equipment : All equipment required for training, e.g. projector, TV set, video recorders, etc.



Materials : Objects required for training, e.g. notes, materials for demonstration.



Method : 1. Safety training should be held at least once a month.
2. Discuss specific accident cases and appreciate their causes and preventive measures.



The safety officer is conducting the monthly safety training



3. Conduct the training in groups. Group leaders will explain the objective and methods . The discussion should be conducted in the following manner:
 - To familiarize the accident case;
 - To dig out all the problems;
 - To determine the cause;
 - To work out measures for improvement;
 - To review the group discussion results;
 - To summarize the discussion results by group leaders.

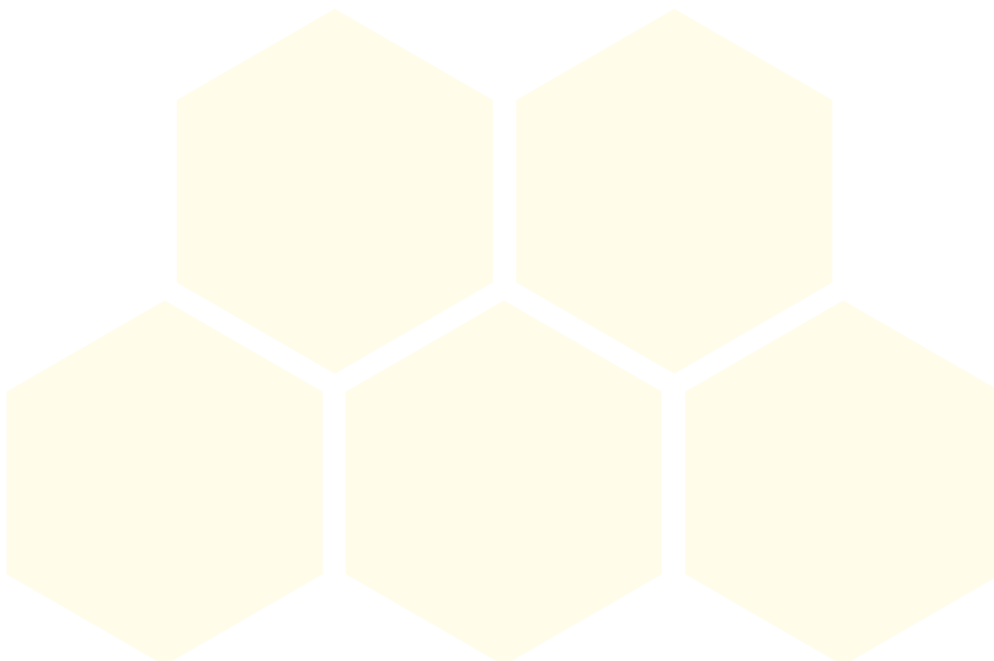


Venue

: classroom or conference room (The safety training should be conducted in a quiet room to avoid distractions.)

Points to note

1. The training courses should meet the workers' needs.
2. The objective and methods of training should be determined.
3. Training programmes should be implemented according to plan.
4. The effectiveness of training should be evaluated.
5. The improvement actions required should be done after evaluation.
6. The training should be of appropriate duration and must not be too long.





4.3 Monthly Safety Meeting

Monthly Safety Meeting may be held together with the Daily Morning Safety Meetings and should include, in addition to the routine issues of morning meetings, the safety promotion activities to improve the workers' sense of safety awareness and to present awards.

Benefits

Other than benefits of Daily Morning Safety Meeting, the Monthly Safety Meeting can also boost the morale workers.

How to Implement



Participants : all workers on site
Person in charge : project manager/site agent



Equipment : refer to Daily Morning Safety Meetings.



Materials : refer to Daily Morning Safety Meetings.



- Methods :
1. Monthly Safety Meeting should be held at a predetermined time of each month.
 2. The issues of Daily Morning Safety Meetings should be dealt with.
 3. The safety records of last month should be reviewed.
 4. The safety promotion plan for the coming month should be announced.
 5. The safety measures formulated on work should be explained.
 6. Safety award should be given and the safety records of each group in each month should be announced.



Project Manager is presenting award to "Worker with Safe Performance" during the Monthly Safety Meeting



Venue : Suitable place on site that could house all workers

Points to note

1. Safety promotion should be designed to foster the safety culture of the organizations.
2. Safety award should be fair in commending those individuals, groups or departments with good safety performance.
3. Safety promotion should have well-defined topics and objectives.
4. Senior management should enthusiastically support the safety promotional activities.



4.4 Safety Committee Meeting

Monthly Safety Committee Meetings aim at strengthening communication among concerned persons on site, eliminating any misunderstandings or lack of coordination at work, reviewing the past safety records and planning for the coming month. As a result, the workers' safety awareness can be improved and accident reduction can be achieved.

Benefits

1. The communication among workers of different trades is strengthened, their work better coordinated and accidents avoided.
2. As members of the Safety Committee come from various trades, safety measures formulated at the meeting can be more practical and acceptable to them.



Participants : safety officer, representatives of sub-contractors and other relevant personnel (such as client's representative, architect, etc.)
Person in charge : project manager, site agent



Equipment : all equipment required for the meeting



Materials : all documents required for the meeting



- Methods :
1. To monitor if the Safe Working Cycle has been implemented effectively.
 2. To formulate safety measures for the coming month.
 3. To assist in working out in house safety rules and safe system of work.
 4. To review the statistics on accidents/incidents/occupational diseases so as to identify trends, to supervise the safety performance and to report the Committee's conclusions and recommendations to the top management.
 5. To review the safety inspection reports and to report to senior management the Committee's conclusions and recommendations.
 6. To monitor if safety training for employees is sufficient and effective.
 7. To monitor if the dissemination and promotion of safety and health information sites are sufficient.



8. To organize safety promotion activities, such as safety competitions, exhibitions, safety promotion award and safety suggestion schemes.
9. To communicate with the external organization and to obtain their comments on site safety.



The Project Manager is chairing the Safety Committee Meeting



Venue : suitable place such as the conference room of the contractor

Points to note

1. The project manager should be Chairman of the Safety Committee and the safety officer should be secretary of the Committee.
2. The following issues will be discussed at the meeting: weekly and monthly construction progress; safety measures on special tasks; coordination on different types of work; and the instructions from the client or relevant government departments.
3. Discussion on the progress, special tasks and work cooperation could ensure safety at work.
4. Sub-contractors should raise any problems concerning their work and the coordination with other parties before and after work commencement. A safe constructor method should be in place after discussion.
5. Before the meeting, the agenda should be studied and any other relevant issues should be added.
6. Each Safety Committee member should be fully understand all the issues discussed during the meeting.
7. The meeting minutes should be distributed as soon as possible, so that every worker will be informed of the meeting and their comments on the meeting can be collected.
8. The meeting should progress with the right pace & should not drag on too long.



5. Safe Working Cycle and Safety Management System

5.1 Relationship between Safe Working Cycle and Safety Management System

The basic causes for accidents at construction sites lie mostly with the problems in company management. Therefore, Hong Kong is following other developed countries in launching safety management systems as they have obtained considerable achievements. Although the scope of safety management (fourteen elements) has already been defined in the "Factories and Industrial Undertakings (Safety Management) Regulation" enacted in November 1999, and the Labor Department is drafting the Code of Practice for the industry, there may be resistance and difficulties when it comes to implementation. Besides, some elements may require certain tools for smooth implementation.

The main elements of safety management system in the "Factories and Industrial Undertakings (Safety Management) Regulation" are:

- Safety Policy : describing the commitments by contractors on safety and health at work;
- Safety Organization : ensuring the execution of commitments in relation to safety and health at work;
- Safety Training : equipping workers with knowledge about working safety.
- In-house Safety Rules : giving instructions on how to achieve objectives of safety management;
- Programme of inspection of hazardous : identifying hazards and make remedies regularly or at proper moments of any dangers;
- Personal Protection programme: identifying hazards workers may face and determining the risks may affect workers, and providing suitable personal protection equipment when engineering control measure out practically feasible;
- Accidents incidents investigation : finding out the causes of the accidents or incidents and making immediate emergency arrangements against reoccurrence of accidents incidents;



- Emergency Preparedness : A set of contingency management plans designed to come into effect in case of emergencies;
- Evaluation, Selection and Control of Subcontractors : ensuring that subcontractors are fully aware of their responsibilities and discharge these responsibilities ;
- Safety Committees : setting up communication/consultation channels for managers, staff members and subcontractors to address safety and health issues;
- Evaluation of job related hazards : evaluating work-related hazards or potential hazards and design safe working cycle accordingly;
- Promotion of safety and health awareness : improving, developing and maintaining consciousness of safety and health at work sites;
- Programme for Accident Control and Elimination of Hazards : a plan developed to control accidents and eliminate hazards before allowing workers to face any adverse working conditions;
- Programme on Protection of Occupational Health : preventing occupational diseases.

Each activity of Safe Working Cycle can be used as a tool to implement the safety management system thus fulfilling the requirements of some main elements of the Regulations. A comparison is given below between each item of the Safe Working Cycle and the fourteen elements in the Regulations.



Comparison Of Safety Working Cycle with Elements of Safety Management System

1. Daily Safe Working Cycle	Elements of Safety Management System
<ul style="list-style-type: none">• Morning Safety Meeting	<ul style="list-style-type: none">• Safety Organization (Communication)• Safety Promotion (Safety Awareness)• PPE programs
<ul style="list-style-type: none">• Hazard Identification Activity	<ul style="list-style-type: none">• Risk assessment and implantation of sites
<ul style="list-style-type: none">• Prior-to-work Inspection	<ul style="list-style-type: none">• Safety Inspection (daily inspection of site)• Process Control (daily inspection and maintenance of facilities/tools)• PPE (supervision)
<ul style="list-style-type: none">• Guidance & Supervision at Work	<ul style="list-style-type: none">• Safety Training (supervision)• Safety Organization (competence)• In-house Safety Rules• Safety Inspection (monitoring)
<ul style="list-style-type: none">• Safety Inspection	<ul style="list-style-type: none">• Safety Inspection (supervision)• Subcontractor Control
<ul style="list-style-type: none">• Process Safety Discussion	<ul style="list-style-type: none">• Safety Organization (communication & Cooperation)• Subcontractor Control• Process Control
<ul style="list-style-type: none">• Tidying up after Work	<ul style="list-style-type: none">• Process Control (housekeeping)
<ul style="list-style-type: none">• Final Check after Work	<ul style="list-style-type: none">• Safety Inspection (monitoring)



2. Weekly Safe Working Cycle	Elements of Safety Management System
<ul style="list-style-type: none">• Process Safety Discussion• Weekly Inspection• Weekly Check• Weekly Tidying up	<ul style="list-style-type: none">• Safety Organization (communication & cooperation)• Subcontractor Control• Safety Inspection (monitoring)• Subcontractor Control• Process Control• Process Control (housekeeping)
3. Monthly Safe Working Cycle	Elements of Safety Management System
<ul style="list-style-type: none">• Monthly Safety Committee Meeting• Monthly Inspection• Monthly Safety Training• Monthly Safety Meeting	<ul style="list-style-type: none">• Safety Committee• Safety Inspection (monitoring)• Subcontractor Control• Safety Training• Analysis/Prevention of Accidents• Safety Organization (communication)• Safety Promotion (safety awareness)



5.2 Other items of the Safe Working Cycle

In addition to the above-mentioned regular activities of the Safe Working Cycle, there are also as required items to ensure site safety. Two of them are particularly important:

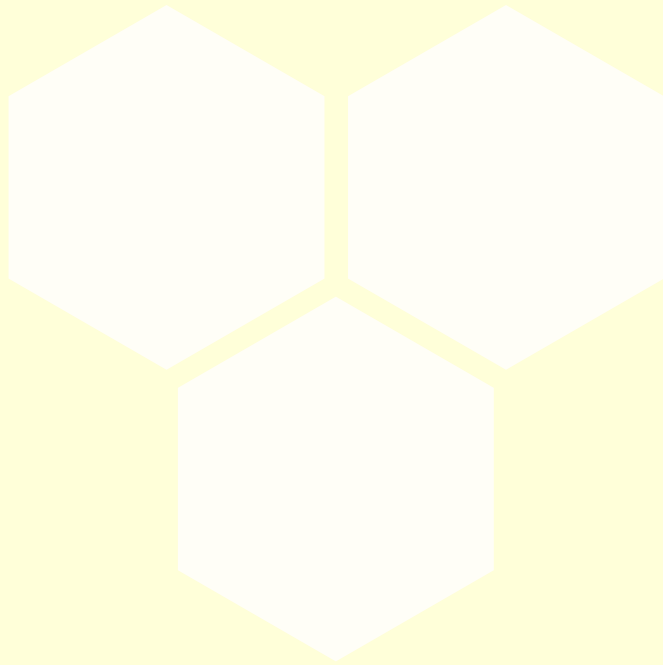
- Check and approval of subcontractor's machineries and equipment before use.
- Commencement meeting with subcontractors.

Close relationship between contractors and subcontractors facilitates communication and sincere cooperation between each other, as well as enhances the site safety and health on the basis of sound partnership.

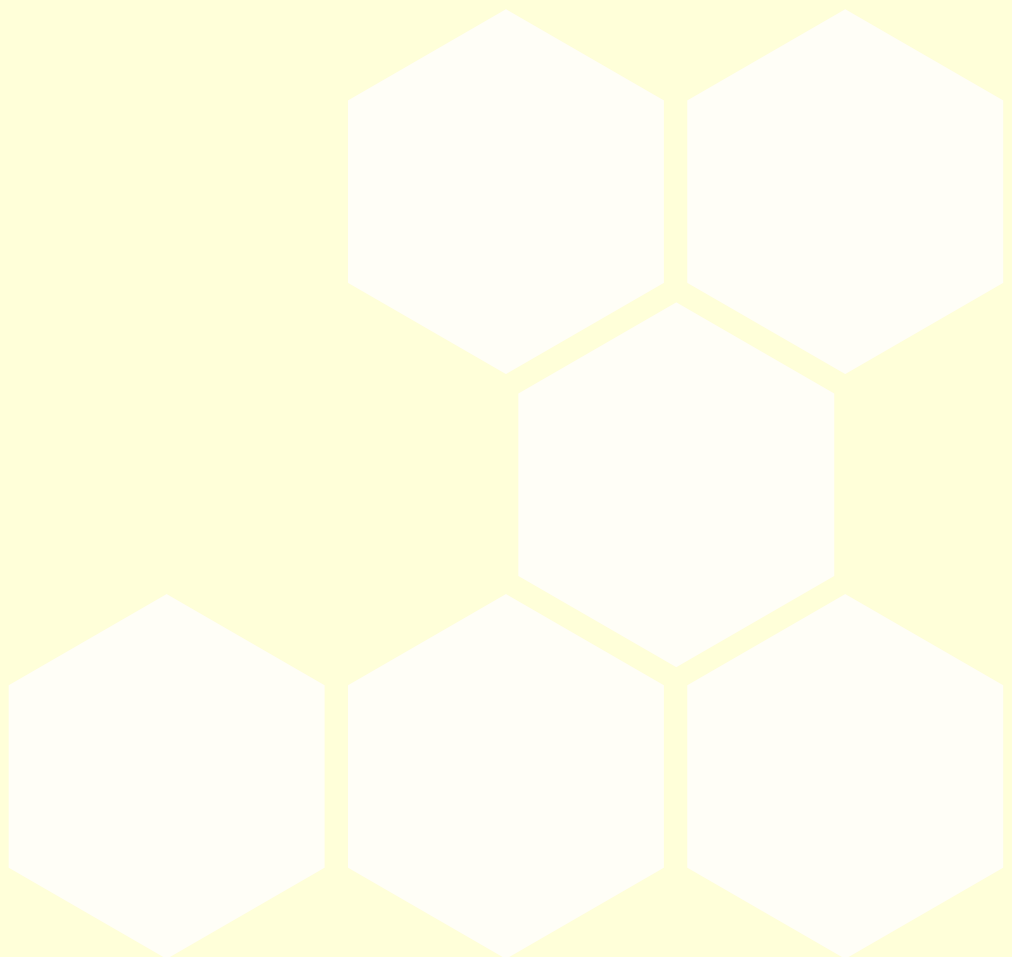
5.3 Conclusion

Many companies certainly have already implemented parts of the Safe Working Cycle in this handbook. Further improvement of the existing measures and their integration with the corresponding aspects of the Safe Working Cycle will undoubtedly benefit site safety, especially once they are incorporated into the company's safety management system and implemented diligently.





Appendices





Prior-to-work Stretching Exercises

(Appendix 1)



工作前的伸展運動

每天工作之前做一些伸展運動，
可以使肌肉和關節系統易於適應工作的需要，
減少受傷的機會。



職業安全健康局
OCCUPATIONAL SAFETY & HEALTH COUNCIL

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Personal Protective Equipment

(Appendix 2)



個人防護裝置



Hazard Identification Activity & Monitoring Form



Name of work team: Plastering		Monitoring Results	
Date: 18 August, 2000		Satisfactory	Unsatisfactory
Time: 8:18 am		Remarks	Date of Completion
Potential Hazards	Follow-up Actions	Name of Foreman/Supervisor:	Signature:
1 Cement mixing: a. Inhalation of dust (cement) b. Skin irritation (cement) c. Slip over (slippery floor)	1a. Wear dust mask 1b. Wear protective gloves 1c. • Maintain drainage in good condition • Wear non-slip safety shoes	Name of Foreman/Supervisor:	Signature:
2 Tile cutting: a. Laceration of hands (cutter, sharp edges of tiles) b. Particles flown into eyes (tile chips) c. Inhalation of dust (tile dust) d. Hearing loss (noise) e. Electric shock (electric cutter)	2a. • Keep cutter in good condition • Install cutter guard • Wear protective gloves 2b. Wear eye protector 2c. • Adopt "wet cutting" • Wear dust mask 2d. Wear ear protectors 2e. Proper earthing of cutter and check cutter in safe operation	Name of Foreman/Supervisor:	Signature:
3 Manual handling: a. Sprain injury (improper posture/overloading)	3a. • Use mechanical aid wherever possible • Adopt proper manual handling methods and posture • Wear protective gloves	Name of Foreman/Supervisor:	Signature:
Name of Subcontractor:	Number of Employees:	Name of Foreman/Supervisor:	Signature:

Sample



Safety Inspection Checklist (Appendix 5)



Name of Principal Contractor: _____ Name of site: _____

Name of Assessor: _____ Date: _____ Time: _____

Today's key items of inspection (please tick 4)	Satisfactory/ Unsatisfactory	Follow-up Actions
Access and egress:		
Gangways	Y / N	
Ladders	Y / N	
Passageways	Y / N	
Working at height:		
Scaffolding	Y / N	
Working platforms	Y / N	
Floor edge / openings	Y / N	
Lift shafts/openings	Y / N	
Earthwork:		
Excavations	Y / N	
Trenches	Y / N	
Caissons	Y / N	
Tunnels	Y / N	
Slopes	Y / N	
Lifting Appliances and Lifting Gear:		
Cranes	Y / N	
Winches	Y / N	
Pulley blocks	Y / N	
Passenger Hoists	Y / N	
Material or skip hoists	Y / N	
Suspended Working Platforms	Y / N	
Chains, ropes, hooks, slings	Y / N	
Electricity:		
Switches	Y / N	
Wiring	Y / N	
Fixed installations	Y / N	
Portable lighting	Y / N	
Portable tools	Y / N	
Welding Machinery	Y / N	
Fire prevention:		
Fire-fighting appliances	Y / N	
Mecums of escape	Y / N	
Dangerous goods stock	Y / N	
Gas welding cylinders	Y / N	



Safety Inspection Checklist (Appendix 5)



Today's key items of inspection (please tick 4)	Satisfactory/ Unsatisfactory	Follow-up Actions
Health:		
Asbestos control	Y / N	
Dust control	Y / N	
Noise control	Y / N	
Protection from dangerous substrates	Y / N	
First-Aid equipment	Y / N	
Washing facilities	Y / N	
Latrine	Y / N	
Machinery:		
Woodworking machines	Y / N	
Hoistway	Y / N	
Abrasive wheels	Y / N	
Power Presses	Y / N	
General:		
Housekeeping	Y / N	
Safety Net and Fans	Y / N	
Stacking of materials	Y / N	
Passageways	Y / N	
Lighting	Y / N	
Ventilation	Y / N	
Notice of employment of safety officer / Safety supervisor	Y / N	
Provision of Personal Protective Equipment:		
Helmets	Y / N	
Eye protectors	Y / N	
Ear Protections	Y / N	
Respirators	Y / N	
Safety belts	Y / N	
Gloves	Y / N	
Safety shoes	Y / N	
Other (please specify):		
	Y / N	
	Y / N	
	Y / N	
	Y / N	
	Y / N	

Name of assessor: _____

Signature of assessor: _____

Date of Inspection: _____



Records for Process Safety Discussion (Appendix 6)



Name of Principal Contractor: _____ Name of Site: _____

Item	Particulars	Person in Charge	Date of Completion
1	Safety performances for today/this week, e.g. access and egress, Working at height, electricity, fire prevention etc.		
2	The arrangement and collaboration for various construction activities for tomorrow: e.g. the electrician should clear the site for the paint spraying subcontractor.		
3	Potential hazard/arising from tomorrow's work/ special precaution measures: e.g. fire drill		
4			
5			
6			
7			
8			
9			
Summary:			
Items to be Announced in Morning Safety Meeting tomorrow:			

Name of Project manager/site agent: _____

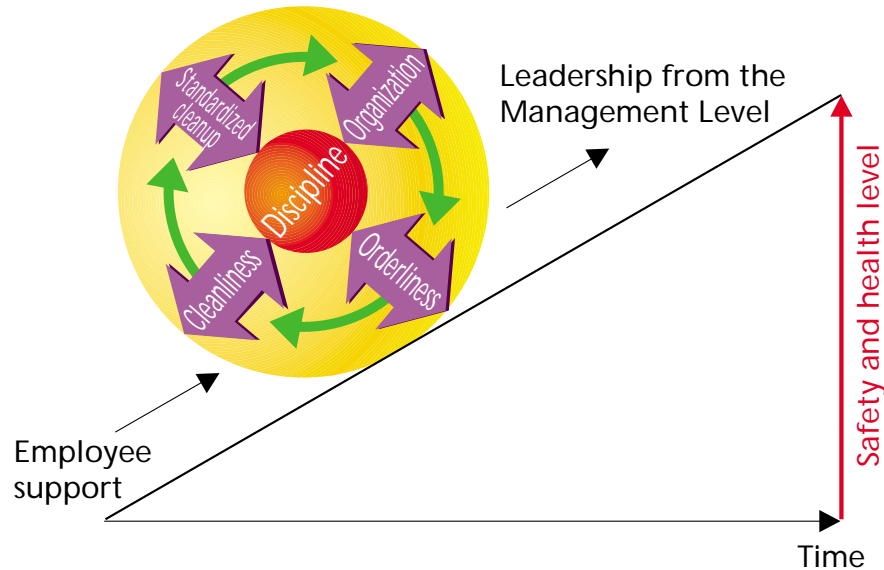
Signature of Project manager/site agent: _____

Date: _____



5S – Housekeeping (Appendix 7)

5S (organization, orderliness, cleanliness, standardization, and discipline) originated from Japan. It is a very effective method for housekeeping. In addition to the emphasis on site management, the idea of 5S is to cultivate in staff members a habit of keeping the site clean and in good order, with its ultimate goal to improve safety and health level at the work sites.



Organization, orderliness, cleanliness, standardized cleanup, and discipline

All steps in the 5S are intertwined with one another. Each should be implemented in synchronization with all others for a clean site and eventually for improvement in safety and health level.

Organization

In order to avoid the site from becoming chaotic useful stuffs should be clearly sorted out from those that are not needed. Organization is to remove unwanted stuffs from work site. It includes the following points:

- Criteria should be in place to determine the usage of materials. Thoughts are given to the frequency of use, time & quantity required.
- Procedures should be formulated to deal with all unwanted materials, e.g. disposed of returned store or sold away.



Mixed storage of empty & filled gas cylinders



After organization, Gas cylinders stored upright in trolley ready for use

Orderliness:

"Orderliness" is to place all materials in good order and make it easy for workers to retrieve and return. It includes the following points:

- System should be established to clarify all materials and decide the storage location & quantity.
- All materials should be placed in designated places and easy to locate and retrieve



Hand tools are put back on the tool rack after use



Materials are stored properly at site



Cleanliness

"Cleanliness" is to sweep away the dirt from the work site. The emphasis is to not only keep the work site clean, but also to check all the facilities, tools and machines, to see whether they are in good conditions. It includes the following points:

- Mark out each specific area for the workers to clean up.
- Make sure that workers understand how to clean up their work areas, facilities and tools.
- Train workers on how to check all the facilities and tools, and how to identify whether they are in operating state.



All the passageways are cleaned up; trash and waste have been properly removed



Dirt and mud should be wiped off from the safety shoes after work in order to keep the workplace clean

Standardization

Standardization is to set up the standards for a clean work site in order to measure whether the site meets the safety requirements.



Testing the gases composition to make sure they meet the safety and health requirements



Transparent machine guards are used on machinery, making it convenient to check whether the equipment complies with necessary standards



Discipline

There must be guidelines for the workers to follow before they make them a habit. Each worker is given the opportunity to participate in the safe practices, and they are encouraged to follow every single safety guideline. By doing this, a safe working environment is established with contribution from each worker. In addition, they will be able to have firsthand experience of the benefits and improvements from implementing 5S. Thus, discipline turns into voluntary safety behaviors.



The worker clean up his own working area voluntarily after work



The site agent, through inspection programme, evaluates the effect of implementing 5S on a regular basis to decide on future improvements actions



Final Check Checklist (Appendix 8)



Name of Principal Contractor: _____ Name of site: _____

Name of Inspector: _____ Date: _____ Time: _____

Items to check	Satisfactory/ Unsatisfactory	Follow-up Actions
Housekeeping:		
Housekeeping removed	Y / N	
Trash in bins and removed regularly	Y / N	
All passageways are kept clear	Y / N	
Machinery:		
Dirts, chips and grease removed	Y / N	
Dirts on the gas pipe, wires, oil meter, pressure gauge removed	Y / N	
Electrical installations and facility:		
Dust and dirt in switch-room and switchbox removed	Y / N	
Dust and dirt on the electrical installation and wires removed	Y / N	
The power supply and switchboard turned off	Y / N	
Hand tools:		
Dust; dirt and grease removed	Y / N	
Dust; dirt and grease the tool rack / tool box removed	Y / N	
Hand tools returned to rack or tool box	Y / N	
Chemicals:		
Chemicals storage and usage area cleaned up	Y / N	
Lifting appliances:		
Dust, chips and dirt removed	Y / N	
Dust, chips and dirt on racks in storage area	Y / N	
Lifting appliances and mechanical equipment locked	Y / N	



Final Check Checklist (Appendix 8)



Items to check	Satisfactory/ Unsatisfactory	Follow-up Actions
Water supply and drainage system:		
Water supply shut off	Y / N	
Movable pumps turned on	Y / N	
Drainage system kept clear	Y / N	
Fire:		
All fires sources extinguished	Y / N	
Materials stacking:		
Excess materials returned to store & locked	Y / N	
Stacking height too high	Y / N	
Scaffolding:		
Bamboo scaffold fastened.	Y / N	
Trash on the scaffold safety net removed	Y / N	
Trash on the catch fan cleaned up	Y / N	
No gap in safety net	Y / N	
Metal scaffold and braces firmly erected	Y / N	
Other:		
Gate locked security posted	Y / N	

Name of Inspector: _____

Signature of Inspector: _____

Date: _____



An Overview of the Safe Working Cycle

(Appendix 9)



Note: ★ Priority Items

◆ Important Items

✚ Planned Items

Daily Items	Weekly, monthly or intermittent items
◆ Morning safety exercises	Weekly
◆ Morning Meeting	◆ Weekly process safety discussion
★ Hazard Identification	◆ Weekly site tidying up
★ Prior-to-work Inspection equipment and electrical installation, etc.	★ Weekly inspection on mechanical equipment and electrical installation, etc.
★ Inspection by Safety supervisor	★ Weekly inspection
★ Guidance & supervision at work	Monthly
★ Inspection by Project manager/site agent	★ Safety Committee Meeting
Lunch break	★ Monthly inspection on mechanical equipment and electrical installation, etc.
★ Guidance and supervision at work	★ Safety training
★ Inspection by Project manager/site agent (When needed)	◆ Safety meeting
★ Daily process safety discussion	On needed-basis
★ Tidying up after work	★ Safety induction training courses for new staff
★ Final check	★ Approval for new mechanical equipment
	✚ Pre-commencement meeting with Subcontractors in advance
	✚ Special meetings including safety meeting
	✚ Various safety trainings



Observation Sheet for Safe Behaviour

(Appendix 10)



Contractor : _____

Project : _____

Address of construction site : _____

Working area inside building : _____

Date : _____ Working group : _____

Time : _____ Name of assessor : _____

Type (e.g. personal protective equipment) : _____

Item No.	Behaviour to be monitored	Safe	At risk	Not observable
% of safe performance = $\frac{\text{Total number of 'Safe'}}{(\text{'Safe' + 'At risk' + 'Not observable'})} \times 100$				

Comment/remark:



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