INDEPENDENT SAFETY AUDIT SCHEME

HOUSING AUTHORITY

SAFETY AUDITING SYSTEM

VERSION 1.8

Occupational Safety and Health Council 2025

Version 1 October2025

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Introduction

Independent Safety Audit Scheme (ISAS)

The current trend of occupational safety and health legislation in advanced countries signals a move from detailed prescriptive regulations towards a broader stakeholder obligation and the concept of self-regulation through the establishment of safety management systems (SMS). The Government of the Hong Kong Special Administrative Region (the Government), recognising such trends the then Works Branch (WB), introduced two major safety initiatives in 1996: the Pay for Safety Scheme (PFSS) and the Independent Safety Audit Scheme (ISAS). The schemes were aimed at encouraging public works contractors to set up efficient SMS, and enhancing the overall standard of safety performance of contractors.

The two schemes originated from a trial scheme of three construction contracts carried out between 1993 and 1995. Under the trial PFSS—in order to remove site safety from the realm of competitive tendering—participating contracts had to include a 'safety checklist' comprising a fully-specified schedule of pre-priced site safety items within the Bills of Quantities. Payment was then only made to contractors who complied with this requirement. The safety checklist was marked by a team of five representatives: two from the employer, two from the Contractor, and one from the Occupational Safety and Health Council (OSHC). As this commitment could not be sustained in a wider application of the PFSS, it was therefore proposed to set up the ISAS to help further develop the scheme.

In February 1996, a consultancy agreement was entered into between the then WB of the Government and the OSHC for the latter to manage the ISAS, establish a scheme for the accreditation of independent safety auditors, and develop a safety auditing system suitable for the Hong Kong construction industry. In December 1996, the Hong Kong Housing Authority (HA) also joined the scheme. The OSHC was invited to develop and manage the HA independent safety audit scheme, namely the Housing Authority Safety Audit Scheme (HASAS). The aim of the scheme (HASAS) was to evaluate the occupational safety and health performance of the HA projects by means of independent safety audits undertaken by competent safety auditors accredited by OSHC. In addition, it intended to promote the concept of safety management and to improve the safety standards in the construction industry.

In order to enhance industrial safety standards, the Government introduced a set of safety management regulations under the *Factories and Industrial Undertakings Ordinance*. The Legislative Council under *Section 7 of the Factories and Industrial Undertakings Ordinance (Cap. 59)* passed the *Factories and Industrial Undertakings (Safety Management) Regulation* on 24 November 1999, making it mandatory for contractors and proprietors of certain industrial

undertakings to establish SMS comprising 8 to 14 key elements, which came into effect on 1 April 2002. The Code of Practice on Safety Management (February 2024 Edition) enhanced the requirements for conducting safety audit. All the 14 elements of safety management system of Factories and Industrial Undertakings (Safety Management) Regulation were fully implemented on 29 April 2024.

Housing Authority Safety Auditing System (HASAS)—Version 1.8

The safety auditing systems HASAS Version 1.0 was implemented in December 1996 for HA projects. To take account of changes within the industry and further enhance the site safety performance in HA construction sites, HASAS has been revised and regularly updated as follows:

- 1 April 1998—HASAS Version 1.1 (revised safety auditing systems)
- 1 January 2003—HASAS Version 1.2 (revised safety auditing systems)
- 1 March 2007—HASAS Version 1.3 (major changes included revised score-weighting of each audit question to better motivate contractors to continuously improve, especially in regard to the implementation of site safety)
- 1 January 2009—HASAS Version 1.4 (scope extended to include: the implementation of Work Safe Behaviour, Safety Climate Index and further audit criteria on the Safe Working Cycle)
- 1 October 2012—To achieve continuous improvement for the HASAS, periodic review process was carried out regularly. Amendment and new version 1.5 of the system is developed in mid 2011. The objectives of this new version are to update the audit criteria, definitions and also to introduce Process Control and Safe System of Work concepts into Part B of HASAS to fulfill the General Duty and the requirements of the Factories and Industrial Undertakings (Safety Management) Regulation. The summaries of scores and changes in safety items can be found in Annex A and Annex B. The process items in Part B are re-grouped under new items including:

  14.1 Management of Place of Work

  14.2 Management of Tasks and Operations

  14.3 Management of Power Plant and Equipment

  14.4 Management of Plant and Equipment for lifting of Materials and Persons

  14.5 Management of Mechanical Plant and Equipment

The scope of HASAS is divided into two parts:

- Part A concerns the safety and health management system that is evaluated through Element 1 to Element 13.
- Part B concerns the implementation of the safety management systems on site that is evaluated the process control by Element 14.

The fourteen safety elements area as follows:

1. Safety policy
2. Safety organisation
3. Safety training
4. In-house safety rules and regulations
5. Safety committee
6. Programme for inspection of hazardous conditions
7. Job hazard analysis
8. Personal Protection Programme
9. Accident/incident investigation
10. Emergency preparedness
11. Safety promotion
12. Health Assurance Programme
13. Evaluation, selection and control of sub-contractors
14. Process Control Programme

Along with the various enhancement measures introduced under HASAS, the success of implementing "Critical Pass" in HASAS version 1.4 provides very valuable insight snapshots for the degree of compliance or non-compliance of key elements including safety inspection and job hazard analysis and high risk activities including working at height, housekeeping, falling objects and lifting operation on site safety. Alert on failure in "Critical Pass" threshold will trigger the respective contractor's performance report to Contractors Review Committee. HASAS version 1.5 increases "Critical Pass" items to eight. (See Annex C)

- 1 April 2016 — HASAS Version 1.5.1 – Revise some audit questions criteria of HASAS Version 1.5 to HASAS Version 1.5.1 – Streamline audit criteria of HASAS Version 1.5 by adjusting the focus of the safety audit to commensurate with the risk level of site activities so as to direct appropriate resources to aspects of site works that warrant more attention.

- 1 April 2019 — HASAS Version 1.6 – Fine tuning audit questions and audit criteria to include HKHA Specification in DCMBI No. P2/18. Streamline Section 12 audit questions. Replaced two parts "Site Transport (Loadshifting Machinery) and "Excavator" by "Loadshifting Machineries and Site Vehicles". New parts "Work on Slopes" and "Substances Hazardous to Health" are added.

- 1 October 2022 — HASAS Version 1.7 – Fine tuning audit questions and audit criteria to include updated HKHA Specification. New part "Modular Integrated Construction" is added.

- 1 October 2025 — HASAS Version 1.8 – Fine tuning audit questions and audit criteria to include updated HKHA Specification in DCMBI No. P6/23 and P8/23 including measures such as smart site safety system, training of site personnel for smart site safety system, permit-to-work for more high risk activities, training in modular integrated construction. New part "Temporary Works" is added.

Computer Programme

The safety auditing system developed by OSHC incorporates the use of a computerised audit programme for ISAS, which is available from the OSHC.

Disclaimer

This auditing system is produced for accredited safety auditors (ASA) to conduct safety audits for Housing Authority projects. Compliance with this auditing system does not itself confer immunity from legal obligations. Individual organisations, contractors and sub-contractors are responsible for ensuring that they meet their occupational safety and health obligations under the relevant legislation.

HASAS version 1.8 Audit Definitions and General Audit Criteria for ASA

1. Definitions

The table below contains a definition of some of the general terms used throughout the legal requirements and audit criteria in this guide.

Term	Definition
ACCP	The "Competent Person of Selection, Installation, Use, Inspection and Testing of Anchor Devices and Cast-in Anchors for Attachment of Personal Fall Protection Equipment for Truss-out Bamboo Scaffolds" (ACCP) is accredited under Hong Kong Safety and Health Certification Scheme by OSHC. The aim of accreditation services is to ensure that ACCPs possess the necessary qualifications and capability in performing the specified duties in selection, installation, use, inspection and testing of anchor devices and cast-in anchors, for the attachment of personal fall protection equipment for truss-out bamboo scaffolds.
Accredited Safety Supervisor (Construction) (Accredited SS(CO))	The accreditation services of Accredited Safety Supervisor (Construction) (Accredited SS(CO)) are provided by the Hong Kong Safety and Health Certification Scheme under the Occupational Safety and Health Council. The services aim at ensuring that Accredited SS(CO)s possess the necessary qualifications and capability to perform their specified duties, such as to assist the safety officers in carrying out their duties; to supervise the observance by the workers of the safety standards; to conduct safety inspection and submit weekly reports in the approved form, etc.
Arrangement	It is a planning of action, organizing and preparation of resources, provision of measures and development of procedures to achieve the pre-designed objective.
Appropriate steps/ measures	They refer to steps/measures that considered being practicable, reasonable and suitable to that situation.
Building Informing Modeling (BIM)	Building informing modeling is the process of generating and managing building data during its life cycle. Integrating BIM technique into sequence of stages in construction project safe design planning and work processes such that BIM: 1. provides three-dimensional, real-time, dynamic building modeling visualization of project environment for conducting risk assessments 2. improves accuracy in risk assessment and safe work method statement due to easy retrieval of safety information 3. embeds of vital hazard predictions at different process stages to assist in preparing safety plans and safety procedures
Continuous improvement	The process by which the system and performance are continuously monitored to look for better ways of doing things and to constantly achieve better safety outcomes.
Dynamic risk assessment	A risk assessment that is carried out immediately before or while an activity is underway and builds on existing risk assessments.
Hazards	A source of potential harm or a situation with a potential to cause injury, illness, loss or damage.
Hazard identification	Process of recognizing that a hazard exists and defining its characteristics.
Hazardous	"Hazardous" refers to the potential of causing harm to health.
Hazardous substances	Means a biological or chemical agent that has the potential or causing harm by reason of its being a compressed gas, or a flammable, oxidizing, poisonous, corrosive or reactive substance.

Health surveillance	A means of checking the effectiveness of control measures; providing feedback on the accuracy of the risk assessment; identifying and protecting individuals from increased risk.
Incident	Any event that has caused or has the potential to cause injury, illness or damage.
Imminent danger	The existence of any condition or practice in a construction site which could reasonably be expected to cause death or serious physical harm to any worker if construction operations were to proceed in the affected area or if workers were to enter the affected area before the condition or practice was eliminated.
Mechanical integrity programme	A programme to assure the continued integrity of process equipment. Elements of a mechanical integrity programme include the identification and categorization of equipment and instrumentation, inspections and tests, testing and inspection frequencies, development of maintenance procedures, training of maintenance personnel, criteria for acceptable test results, documentation of test and inspection results, and documentation of manufacturer recommendations.
Modular Integrated Construction (MiC)	Modular Integrated Construction is an innovation construction method in which freestanding volumetric modules (completed with finishes, fixtures, fittings) are manufactured off-site and then transported to site for assembly.
Monitor	To check, supervise, observe critically, or record the progress of an activity, action or system on a regular basis in order to identify change.
MSDS	Material Safety Data Sheet – a sheet of information, usually provided by suppliers of chemical and other like products setting out the nature and composition of the product as well as instructions for safe handling.
Occupational Exposure Limit (OEL)	"Occupational Exposure Limit (OEL)" refers to the airborne concentration(s) of individual chemical agents that represent levels that are regarded to impose no adverse health effects to nearly all workers on exposures by the route of inhalation.
OSH Star Enterprise-RMAA Safety Accreditation Scheme	Occupational Safety and Health Council and Labour Department jointly organize the "OSH Star Enterprise – RMAA Safety Accreditation Scheme" to encourage the industry to take practicable safety measures to improve the safety of the working environment and raise the safety standard. The Hong Kong Safety and Health Certification Scheme continues to provide certification and re-certification services to ensure these Organisations comply with a consistent set of standards and procedures on reliability of safety and health management system.
Performance indicators	Examples of common safety performance indicators are accident statistics, near miss incidents, safety audit scores, safety inspections, employees safety trained, senior management safety tours, employees' work safe behaviour and safety climate survey scores.
Permit-to-work systems	Permit-to-work systems use a preprinted forms, listing specific checks/or actions required at specific stages of the work. These may include working in confined space, isolation of supply systems and the fitting of locking devices to controls.
Pointing and calling programme	Refers to the action of pointing at a target by finger, while "Calling" refers to the firmly calling out the confirmed slogan. The introduction of "Pointing and Calling" in the course of work procedures will lead to the coordination between one's mind and hands, thus enhancing one's alertness and concentration.

Procedure	Specific steps or flow of the task that anyone can follow and able to achieve its pre-designed purpose and meet the required standards. A good procedure should be repeatable, reliable and traceable.
Process control	Means that processes are efficiently planned, executed, and effectively controlled such that the equipment, environment, personnel, documentation, and material employed constantly result in meeting safety requirements.
Process hazard analysis	An organized and systematic effort to identify and analyze the significance of potential hazards associated with a process.
Process safety information	Written information pertaining to the hazards and the technology of the process, and equipment in the process to enable people involved in operating the process to identify and understand the hazards posed the processes.
Professional Services Provider (PSP)	Consultants employed in Design and Build (D&B) contract of Hong Kong Housing Authority to manage and administer the construction work of the contractor to fulfill the requirements of D&B contract.
Radio-frequency identification (**RFID**)	RFID is a technology that uses radio waves to transfer data from an electronic tag, called RFID tag or label, attached to an object, through a reader for the purpose of identifying and tracking an object related to Occupational Safety and Health aspects.
Risk	Combination of the likelihood and consequence(s) of a specified hazardous event occurring.
Risk assessment	Overall process of estimating the magnitude of risk and deciding whether or not the risk is tolerable. It also includes the process of recognizing that a hazard exists and defining its characteristics.
Smart Site Safety System	Smart Site Safety System (SSSS) generally comprises the following three components: (a) smart safety devices for monitoring high-risk construction activities and identifying safety hazards; (b) a communication network for transmission of data collected from smart devices; and (c) a centralized management platform1 for providing a one-stop hub for data analysis and alerts generation, as well as facilitating follow-up actions with potential hazards and abnormalities identified.
Safe system of work	A safe system of work is a formal procedure which results from a systematic examination of a task in order to identify all hazards and assess the risks, and which identifies safe methods of work to ensure that the hazards are eliminated or the remaining risks are minimized. For all safe systems, there are five basic steps necessary in producing them: ● Assessment of the task ● Hazard identification and risk assessment ● Definition of safe methods ● Implementing the system ● Monitoring the system
Safe system of work on Lift Shaft Works	To ensure the safety and health of workers engaged in lift shaft works, the Contractor should: (a) plan the lift shaft works; (b) conduct a risk assessment and prepare a method statement on any shaft work; lift (c) provide lift shaft protection;

	(d) design, construct, use and maintain lift shaft platforms properly; (e) develop and implement a permit-to-work system for any lift shaft work for close supervision on the adoption of safety precautions; (f) provide fall-arrest system and safety training to workers; and (g) pay special attention to buildings under Temporary Occupational Permit (TOP) arrangement.
Safe work method statement	A safe work method statement is a document detailing how a particular task or activity will be carried out. It should detail the possible dangers/risks associated with a particular part of the project and the methods of control to be established, to show how the work will be managed safely. The safe work method statements should include the following: ● Organisation's letterhead showing the name and registered office address of the organisation ● A description of the work to be undertaken ● Description of the range of works methods which the work can be done ● The potential hazards associated with the work and the safety controls that will be in place to minimize these hazards ● Identification of safety and health legislation, codes or standards applicable to the work and where these are kept ● The names and qualifications of those who will supervise the work, inspect and approve work areas, work methods, protective measures, plant, equipment and power tools ● Identification of the plant and equipment that will most likely be used on site, e.g. ladders, scaffolds, grinders, fire extinguishers and …. etc. ● Details of the inspection and maintenance checks that will be or have been carried out on the equipment listed ● Show the signature of a senior management representative of the organisation and the date signed.
Safety audit	Safety audit means an arrangement for – Collecting, assessing and verifying information on the efficiency, effectiveness and reliability of a safety management system (SMS); and Considering improvements to the system
Safety Climate Survey	Refer to the guidebook "Construction Industry Safety Climate Index Software" of OSHC for details. Regarding the scope of survey, the guidebook states that survey of all employees is strongly recommended and sampling method is allowed only when time and resources are limited. The number of samples needed have to be decided according to the available resource, and the minimum number should be at least 30 percent of all employees.
Safety innovation	Contractor is encouraged to devise safety innovation on site. The safety innovation should be with a new idea and design differs from traditional practice and it is generally acceptable by workers. The innovation is expected to be practicable and be able to make improvement of control measures in safety or health aspects on site.
Safety inspections	A structured inspection of the workplace to check for obvious hazards and that appropriate safe work practices and risk controls are in place. Safety inspections are undertaken by competent persons using a relevant inspection checklist.

Safety plan	It is a document setting out the specific safety and health resources, responsibilities and procedures or practices for a construction project in accordance with 14 elements of the Factories and Industrial Undertakings (Safety Management) Regulation. The safety plan must include: ● the names, positions and health and safety responsibilities of all persons at the workplace whose positions or roles involve specific health and safety responsibilities in connection with the construction project ● the arrangements in place for managing any work safety and health incidents that occur ● any site-specific health and safety rules and the arrangements for ensuring that all persons at the workplace are informed of these rules, and ● the arrangements to collect and assess, monitor and review the SMS.
Safety supervisor	Means a person employed as a safety supervisor in an industrial undertaking under the Factories and Industrial Undertakings (Safety Officers and Safety Supervisors) Regulations
Target	A detailed performance requirement, quantified wherever practicable pertaining to the organisation, that arises from safety and health objectives and that needs to be met in order to achieve those objectives
Work Safe Behaviour programme (WSB)	Refer to the guidebook "Implementing the Work Safe Behaviour (WSB) Programme" of OSHC for details.

2. Audit criteria for Safe Working Cycle

Term	Audit Criteria
Daily Prior-to-work Inspection	The prior-to-work inspection should include all items in Part B that are involved in work site processes. The items required to conduct prior-to-work will depend on whether such job(s) is carried out on that day.
Process Safety Discussion	1. Arrangement for process Safety Discussion should be made to ensure 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.) 2. Project manager, foreman should be in charge of the discussion to assign next day's work, with safety directions and measures to subcontractors, safety officer and subcontractor representatives should participate in the discussion. 3. Process safety discussion should be recorded. Weekly records which form a summary of daily safety coordination meetings are acceptable.
Weekly Check Up	The contractor and subcontractors (competent persons) should inspect their own machines, electrical installation and scaffolding on site on a weekly basis to ensure the sound operation of such equipment and facilities. (a) Plant operators / competent persons, such as electricians and mechanics etc. should check the machinery and facilities on site and the safe operation of equipment for abnormal wear and tear, abuse or misuse. (b) They are required to fill in inspection checklist or logbook and conducted timely repair as appropriate or to recommend suspension on use.

3. General Audit Criteria for ASA

Term	General Audit Criteria
Arrangement	Auditor should verify the adequacy of auditee's arrangement for health and safety issues.
Appropriate Steps/measures	Auditor is reminded to comment on the existing procedures, arrangements and appropriate steps/measures (if any) and give recommendations where appropriate to help auditee to make continuous improvement.
Audit follow-up	In order to fulfill the legal requirement and improve the effectiveness of safety audits ASA should advise the auditee to prepare an action plan for the improvements if any after each audit. ASA needs to carry the independent verification that the auditee has undertaken corrective actions and that these actions effectively address the audit findings. The result of this verification must be commented and stipulated in the audit reports.
Clarification for Audit Report	Audit reports that need clarification because some of the audit questions may either require further elaboration or additional supporting evidence to support the answers. Auditors are reminded NOT to erase the previous note; a new Clarified Notes should be entered after the previous Notes.
"Critical Pass"	Along with the various enhancement measures introduced under HASAS, "Critical Pass" provides insight snapshots for the degree of compliance or non-compliance of key elements and activities with potentially high risk impact. Failing in any critical passes in a contract will trigger the respective contractor's performance report to Contractors Review Committee. (See annex C)
Daily Safe Working Cycle Inspection Record	Safety Officers and Safety Supervisors Regulations (SOSS) Form 3A could alternatively be used as a record of field inspection of Part B items – place of work; tasks and operations; powered plant and equipment; plant and equipment for lifting material and persons; and mechanical plant and equipment. However, a list of checking items should be prepared for each Form 3A inspection item and be readily available during inspection. For example, a list of several checking items for "gondola" are prepared and this list is either printed out or accessed via a smart phone, tablet computer, or similar electronic device by the person who conducts the inspection.
Evidence	The collection of documentary evidence should be sufficient. That is, the amount of evidence should form a sufficient condition for the claim to be true. Since each audit report is part of the continual assessment process of the safety management system, duplicated submission of documentary evidence is not necessary and so not encouraged. In particular, documents verified in the previous audit, such as training certificates to show competence, need not be submitted again unless there is a substantial change, as when one such certificate has been renewed or there is a new and/or replacement staff member.
Internal Safety Audit	Internal safety audit has been used as one of the monitoring tools for assessing the effectiveness and thoroughness of the inspections. The internal audit should be a planned audit according to a written procedure in safety plan and conducted only by competent, trained personnel with independence as far as practicable. The following situations are not desirable and unacceptable as it will defeat the purpose of monitoring.

	- Internal safety audit was conducted e by contractor's safety officer or project manager who has actually participated in the job. - The findings and recommendations of the audit report mainly focused on the physical conditions rather than the safety management system, in particular, the assessment of the effectiveness and thoroughness of inspection. - If an internal audit report provided does not fulfill the requirement on competence, independence, planned and coverage, the answer should be "No". ● Competence – the person responsible for the internal audit should be properly trained such as with a certificate for safety auditing or equivalent; ● Independence – the person responsible for the internal audit should not be involved in the project. They could be assigned from head office, team member from other project or outside consultants; ● Planned and Coverage – according to a written procedure in safety plan and the audit system adopted for internal safety audit should include the assessment of the safety management system and the actual implementation on site.
N/A	Auditor should NOT put down 'N/A' for processes or items which exist on site but are not active during the audit. For example, roadwork or confined space which may not be observed at the time of audit but will be foreseeable existed in the past and future in site. Auditor should comment on the efficiency and reliability of safe system of work and/or process control of these items or processes in the corresponding audit questions. However, 'N/A' can put down to those audit questions specifically for checking the safety guarding of a machine which is not found in the site at the time of safety audit. Whenever auditee claims that related equipment or structure is under construction, rectification, maintenance or otherwise not in use, reasonable arrangements such as displaying prohibition notice, fencing off the related item, etc. have to made to warrant a non-applicable decision.
Prior-to-work (Before Use) Inspection Record	● Unless it is a legal requirement, inspection checklist is not necessary. Logbook is sufficient. ● As an alternative to using a safety checklist, a logbook could be kept for each piece of high risk plant and equipment to cover the items of operation, before use and after use. The logbook should contain a list of checking items. Nonconformities should be described, otherwise "in safe working order" be stated in the inspection before use. Report by exception is acceptable for inspection after use. Each entry should be signed and dated, and the name and designation specified in the page. This is applicable to the followings: ■ Tower Crane ■ Mobile Crane ■ Gondola ■ Elevating Working Platform ■ Material Hoist ■ Power-driven lifting appliance for Carrying Persons, Builders' Lift and Tower Working Platform

	● As an alternative to using a safety checklist, a logbook could be kept for the whole set of high risk equipment to cover the items of operation, before use and after use. The logbook should contain a list of checking items. Report by exception is acceptable, i.e. nonconformities should be described, otherwise "in safe working order" is assumed. Each entry should be signed and dated, and the name and designation specified in the page. This is applicable to the followings: ■ Compressed Air Tools ■ Woodworking Machines ■ Abrasive Wheels ■ Hand-held Power Tools
Procedure	Auditor should verify the adequacy of auditee's procedures for health and safety issues.
Risk assessment records	Unless there is a substantial change in the work process or a related accident, generic risk assessments for non-high risk activities do not need to be reviewed every quarter. Apart from generic risk assessments, specific risk assessments are required for all high risk activities. These specific risk assessments should be reviewed according to the project progress or as arranged in the safety plan.
Safety audit question response	ASAs must not just putting down a 'YES', 'NO' or 'N/A', but should base on the general principles in auditing that highlighted by the three key works, namely "Effectiveness", "Efficiency" and "Reliability" during the auditing processes in collection of information, the assessment and verification of information. ASAs are required to assess the compliance of safety and health of safety management system and site works in accordance with audit criteria with justification and evidence, give appropriate recommendation for improvement of the existing safety management system site works in the safety report.
Safety control measures stipulated in the contract Specification	ASAs are required to cover those safety and health related issues required in the contract specifications during audits as follow: ● Before the audits, ASAs should consult the HA project team to obtain information on OSH related contract specification. ● ASAs should add the information in their audit plans as the audit criteria for their audits. A Section 'Information from HA project team' should be added in the audit plan and nil return is required. ● During the physical inspection of the audit, ASAs should check the OSH contract specification as specified in the audit plan. Photos should be taken to support whether suitable safety control measures are implemented accordingly. ● Scores should be deducted from the relevant questions if deficiencies are identified. Recommendations should be made.
Safety Training is not equivalent to control measure	The main purposes of providing safety training are to workers aware of the safety and health at work and competent in performing the necessary safety practices. Safety training alone belongs to lower level under the hierarchy of safety control and should not be considered as evidence of a control measure in abating the high risk processes. Auditee should come up with control measures which based on the risk assessment.

Site audit findings from Housing Authority and inspection reports from Labour Department	The HASAS Management Office will forward the findings related to OSH to corresponding ASAs for their follow-up in the next safety audit under HASAS. ASAs are reminded that these follow-up actions should be one of the priority areas that required extra attention and close examination. ASAs are also required to verify and comment on the follow-up actions of the contractors in the audit report or inspection report.
Statutory Inspection Form(s)	Name and designation of the person responsible for regular inspection should be clearly stated in the statutory inspection form such as Form 1 for Weekly Inspection of Lifting Appliances, Form 4 for Weekly inspection for Excavation and Form 5 for Fortnightly Inspection of Scaffold. As this is a mandatory requirement, the form should be properly filled in name and designation otherwise the answer should be "NO".
Weekly Inspection Checklist and Safety Supervisor Daily Inspection – Form 3A	Auditor is required to assess and comment on the quality of inspection checklist records. The following items show some of the main points that auditor need to pay particular attention: ● Coverage of the inspection checklist or report should be adequate to cater for all activities on site; ● The location, area, date for non-conformity spotted, the priority of rectification action, the person responsible for rectification etc. should be clearly stated and recorded; ● Non-conformity identified in the checklist/form should be reflected and followed up in section/report for corrective actions; ● Non-conformity that may cause imminent danger such as no guardrail for floor edge/working platform or floor opening not covered etc. should require a prompt remedial action rather than allowance of rectification a couple of days after the inspection; and ● Repeating of the same non-conformity in form 3A reflects problems in the efficiency, effectiveness and reliability of inspection program on site.

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Annex A HASAS version 1.8 scoring table
Annex B Comparing of HASAS version 1.8 with HASAS version 1.7
Annex C Critical pass items
Annex D Subletting for specific trades or parts of the works under new works contracts
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Module **Housing Authority Safety Auditing System Version 1.8**
PART A
Section 1 **Safety Policy**
Sub-section 1.1 **Declaration of Intent**

Question 1.1.1 **Weighting: 3**

Does the written safety policy commit the organisation to high standards of occupational safety and health for all its employees and for other who might come into contact with its activities?

Reference

The contractor should ensure that policy includes a commitment to achieve a high level of occupational safety and health performance. *(Code of Practice on Safety Management Section 5.1.1)*

Audit Criteria

- ☐ The safety policy should be project-specific.
- ☐ The safety policy contains a general organisation commitment to a workplace free from injury & illness
- ☐ High standards of OSH include the implementing new innovation programmes, "Safe Working Cycle (SWC)", "Safety Climate Index Survey" and "Work Safe Behaviour(WSB) Programme".

Auditor Guidance

1. Contractor is required to establish a steering committee or working team to coordinate the SWC with pointing and calling programme, WSB, SCI and new safety innovation programmes. Auditor is required to verify the progress of these programmes. Otherwise, the answer should be "No".
2. Safety Climate Index Survey (SCI) applies to building contract and foundation contract with contract period exceeding 12 months.

Question 1.1.2 **Weighting: 3**

Does the policy clearly state that decisions about other priorities (e.g. production or finance) should take occupational safety and health requirements into proper consideration?

Reference

The contractor should ensure that policy includes a commitment to recognize safety and health at work as an integral part of its business performance. *(Code of Practice on Safety Management Section 5.1.1)*

Audit Criteria

- ☐ Integrating safety and health improvement efforts with strategic and financial planning.
- ☐ Demonstrate safety and health is an organisation priority.

Question 1.1.3 **Weighting: 3**

Does the policy commit the organisation to full compliance with all relevant occupational safety and health legislation and to provide adequate and appropriate resources to implement the policy?

Reference

The contractor should ensure that policy includes a commitment to achieve a high level of occupational safety and health performance, in compliance with legal requirements as the minimum.

The contractor should ensure that policy includes a commitment to provide adequate and appropriate resources to implement the policy. *(Code of Practice on Safety Management Section 5.1.1)*

Audit Criteria

- ☐ Safety policy states management's commitment to meet legal obligations for occupational safety and health as minimum.
- ☐ Safety policy states employees' commitment to look after the safety and health of themselves and the people they work with and to co-operate with management's initiatives for safety and health.
- ☐ Safety policy states management's commitment to meet legal obligation for occupational safety and health, appropriate resources to implement OSH activities.
- ☐ Resources have been allocated to safety training.
- ☐ Adequate financial resources have been allocated.

Auditor Guidance

1. Interview with management to verify that the adequacy of financial resources will be acceptable.

Question 1.1.4 **Weighting: 3**

Does the policy set targets for safety and health performance, including a commitment to progressive improvement?

Reference

An effective safety policy sets a clear-direction for the organisation to follow. It contributes to all aspects of business performance as part of a demonstrable commitment to continuous improvement. *(Code of Practice on Safety Management Section 5.1.1)*

Audit Criteria

- ☐ Safety plan includes procedure and performance indicators which are able to assess safety and health performance.
- ☐ Regular performance reports are available, at least annually, with chart to indicate the performance of the safety management system.
- ☐ Continuous evaluation of the performance of the safety management system against its policies, objectives and targets.

Auditor Guidance

1. If the commitment to progressive improvement is not stated in the policy, the answer should be "No".
2. The target should be clear, specific, realistic, achievable and measurable. For example a target

set to have accident rate in a certain number of accidents per thousand workers in year XXXX and the contractor has committed to improve progressively. The auditee can compare the actual rate with the target by the end of the year. The target is subject to review annually and the auditee should take necessary measures if the comparison shows there is room for improvement.

3. A target which merely states to achieve zero accident without evidence to show that it is realistic and achievable will not be accepted and the answer should be "No".
4. The contractor should demonstrate a steadfast commitment to continuously improving occupational safety and health standards by implementing follow-up actions based on recommendations raised in the safety audit. If contractor fails to take timely action in response to audit finding(s), the answer should be "No".

Sub-section 1.2 Communications and Implementation of the Policy

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Question 1.2.1 **Weighting: 3**

Does the policy sign by the most senior management in site level?

Reference

The organisation's most senior management should define, document and endorse its safety policy. *(Code of Practice on Safety Management Section 5.1.1)*

Audit Criteria

☐ The safety policy is signed by the most senior management in site level and is dated.

Auditor Guidance

1. The safety policy statement should be project-specific. Corporate safety policy statement is not acceptable.
2. The safety policy statement should be posted on prominent area.

Question 1.2.2 **Weighting: 3**

Does the policy place the management of occupational safety and health as one of the prime responsibilities of line management, from the most senior executive to the first-line supervisory level and identify key senior personnel for overall co-ordination and implementation of the policy?

Reference

The contractor should ensure that policy includes a commitment to make the management of safety and health one of the prime responsibilities of managers at all levels, from the most senior executives down to the front line supervisory staff. *(Code of Practice on Safety Management Section 5.1.1)*

It is important to realize that the Safety Management Regulation places the responsibility for safety and health on the proprietor or contractor. Many of the duties arising from that responsibility may however be delegated to managers and supervisors. The written policy statement should show clearly how these duties are allocated. *(Code of Practice on Safety*

Management Section 5.1.2)

Audit Criteria

- ☐ Safety policy acknowledges management's primary responsibility for safety and health in the workplace.
- ☐ A senior manager has responsibility for the overall management of the safety management system.

Question 1.2.3 **Weighting: 3**

Does the policy include the commitment to ensure its understanding, implementation and maintenance at all levels?

Reference

The contractor should ensure that policy includes a commitment to ensure its understanding, implementation and maintenance at all levels in the organisation. *(Code of Practice on Safety Management Section 5.1.2)*

Audit Criteria

- ☐ The safety policy sets out management and employee commitments.
- ☐ The safety policy is part of induction training for staff and contractors.
- ☐ The safety policy is displayed in the workplace.

Question 1.2.4 **Weighting: 3**

Does the policy include the commitment to ensure that employees at all levels have received appropriate training and are competent to carry out their duties and responsibilities?

Reference

The contractor should ensure that policy includes a commitment to ensure that employees at all levels have received appropriate training and are competent to carry out their duties and responsibilities. *(Code of Practice on Safety Management Section 5.1.1)*

Audit Criteria

- ☐ Commit to allow employees at all levels to receive appropriate training to ensure they are competent to carry out their duties and responsibilities.
- ☐ There are sufficient resources to allow employees at all levels to attend the training that is necessary for them.

Sub-section 1.3 Reviewing of the Policy

Question 1.3.1 **Weighting: 3**

Does the policy include the commitment to ensure periodic review of the policy?

Reference

An effective safety management system should have a self-regulating and self-improving mechanism built in. *(Code of Practice on Safety Management Section 5.1.2)*

Audit Criteria

- ☐ Safety policy includes a process for periodic policy review at least annually.
- ☐ Safety policy should be updated and reviewed when necessary such as if there is any change in safety requirements in contract provision, changes in safety standards, corporate safety strategy, etc.
- ☐ Safety policy should be reviewed at least annually.

Question 1.3.2 **Weighting: 3**

Does the policy include the commitment to ensure periodic review of the organisation's safety management system and make performance information available to staff?

Reference

This is effective by reviewing the safety policy from time to time by way of (a) performance measurement and (b) safety audits or safety reviews. *(Code of Practice on Safety Management Section 5.1.2)*

The contractor shall bring the policy statement and any revision of it to the notice of all the workers. The contractor shall cause the safety policy to be reviewed as soon as is practicable after the contractor alters the policy statement. Such alterations include changes to the core elements. A review may also be prompted by changes of particulars due to internal or external factors such as changes in technology, legislation or standards. *(Code of Practice on Safety Management Section 5.1.2)*

Audit Criteria

- ☐ There is a procedure and performance indicators in place which assess safety and health performance.
- ☐ Performance indicators balance negative indicators (injury cases & rates, number of prosecutions, convictions, and legal notices) with positive indicators (safety audit results, safety competition entries, safety awards, frequency of inspections).
- ☐ Performance indicators are reviewed on a regular basis, at least annually, to indicate the performance of the system and to make sure the safety management system is running effectively and performance is being improved.
- ☐ Safety and health performance is reported to staff at least annually.

Section 2 **Safety Organisation**

Sub-section 2.1 **Organisation Safety Structure**

Question 2.1.1 **Weighting: 3**

Is there an organisation safety chart showing the names and positions with responsibility and communication lines for safety management?

Reference

Whilst the overall responsibility for safety and health rests with the top management, all individuals at every level will have to accept certain amount of responsibility for carrying out the policy. Organisation should lay down direct and vertical relationships between different levels within the company and provide an effective and efficient organisational structure for ensuring

the achievement of safety and health objectives. *(Code of Practice on Safety Management Section 5.2.1)*

Audit Criteria

- ☐ The safety organisation should be project specific. If it is modified from the corporate organisation, it should be stated so in the chapter on "Safety Organisation" in the safety plan and the project team should be well aware of it.
- ☐ Safety organisation chart is developed with assignment of safety responsibility of each grade or position in the organisation. The assignment of safety responsibility to particular person or position or group of people or committee will not only depend on the job that they will carry out but also the duties that they will perform. Part of it is derived from risk assessment and part of it is assigned according to line of accountability and responsibility. Site personnel should know their job duties with safety responsibility once they are employed with written job duty list or through briefing.
- ☐ All positions which can impact on safety and health have appropriate safety and health responsibilities and communication lines identified in the chart.

Question 2.1.2 **Weighting: 3**

Does the organisation chart adequately include the appropriate construction teams/sub-contractors?

Reference

The contractor should ensure that every person in the line organisation (include construction teams/subcontractors) has an important safety and health role and that the person should be held accountable for safety and health matters. *(Code of Practice on Safety Management Section 5.2.1)*

Audit Criteria

- ☐ The organisation chart should include the management in-charge of safety and health, construction teams such as plant & engineering department etc. and subcontractors. It is subjected to review and update in accordance with the construction progress.
- ☐ Contractor under tender requirement is restrict the tiers of subcontracting for works or trades involving significant hazards:
    1. Subletting for specific trades or parts of the Works and New Works contracts (i.e. building contract and combined piling and building contract) is restricted to TWO tiers, and;
    2. Safe for those specified otherwise; subletting of demolition contracts is to be restricted to ONE tier only (Please see table Restriction on subletting for specific trades or parts of the Works under New Works contracts at annex D).

Question 2.1.3 **Weighting: 3**

Is the top management accountable for leading occupational safety and health and is this clearly shown on the organisation safety chart?

Reference

A relevant person at the top management level should be designated to take up the final

responsibility and accountability. *(Code of Practice on Safety Management Section 5.2.3)*

Audit Criteria

☐ The top management at the site level has been given responsibility for the overall management of the safety management system.

Question 2.1.4 **Weighting: 3**

Have the senior management's (including project director, project manager and the site agent) occupational safety and health responsibilities clearly been defined?

Reference

Senior management

- To provide a safe and health working environment.
- To provide adequate resources (including financial resources), information and training.
- To provide a system of monitoring compliance with the safety policy.
- To ensure that relevant safety and health laws are complied with.
- To maintain contact with in-house safety advisors or safety officers, outside safety consultants, government departments, the Occupational Safety and Health Council and other professional bodies regarding safety and health matters.
- To provide and maintain a system responding to safety initiatives from safety advisors/safety officers/persons in charge of the safety office, safety supervisors or workers, and to the safety advice from government officers.
- To provide an effective, efficient and on-going safety and health promotion programme.
- To establish a system to identify, assess and eliminate hazards and control risks at work.
- To ensure that workplace safety rules, procedures and methods are developed, maintained and revised.

(Code of Practice on Safety Management Section 5.2.4)

Audit Criteria

☐ Position description lists appropriate legal safety and health responsibilities.

☐ Senior management's safety and health responsibilities include in carrying out the safe working cycle – daily/monthly safety meeting; such as:

1. Give briefing on issues such as project development/testing activities, major safety issues, hazards and accident prone activities and the precaution and preventive measures etc.
2. Lead the morning exercise

And the daily and weekly process safety discussion in the safe working cycle; such as:

1. Organise daily and weekly process safety discussion with workers' and subcontractors' representatives to review the safety performance of the day and the week.
2. Announce next day's/next week's, especially the new and high risk activities and to outline control measures required.
3. Project managers, general foremen and safety officers should make a full preparation of the safety material for discussion.
4. Records of the process safety discussion should be kept.

Question 2.1.5 **Weighting: 3**

Have the site supervisory staff's (including site engineer, foreman, and supervisor), sub-contractors' and workers' occupational safety and health responsibilities clearly been defined?

Reference

Site supervisory staff

- To assist the proprietor or contractor in the implementation of the safety policy, measures and procedures.
- To assist the proprietor or contractor in the identification of hazards, and the evaluation and control of risks.
- To supervise workers to ensure safe and correct working procedures.
- To ensure effective consultation on safety and health matters.
- To investigate work accidents and incidents.
- To participate in induction and on-going safety training programmes for workers.
- To respond to safety initiatives of safety advisors/safety officers/ persons in charge of the safety office, safety supervisors or workers and to the safety advice from government officers.
- To communicate effectively the hazards to workers and keep abreast of current safety and health legislation and information.
- To submit periodically to senior management statistics and reports concerning safety and health performance, unless the task is taken up by the safety office.

(Code of Practice on Safety Management Section 5.2.4)

Audit Criteria

- ☐ Site supervisory staff's role should comply with Code of Practice defined above.
- ☐ Sub-contractors' and workers' occupational safety and health responsibilities should be clearly defined.
- ☐ The site supervisory staff (including site engineer, foreman, and supervisor) and workers' occupational safety and health responsibilities should include the responsibilities to participate the safe working cycle – daily/monthly safety meeting; such as:
  - The foreman leads the morning exercise.
  - The safety supervisor or the foreman reminds the workers to double check their personal protective equipment.
  - Workers participate the morning safety meeting.
- ☐ The occupational safety and health responsibilities of sub-contractors should include the responsibilities of participation in the safe working cycle such as participation of daily/monthly safety meeting, weekly/monthly safety inspection, daily/weekly process safety discussion and monthly safety committee meeting.

Question 2.1.6 **Weighting: 3**

Have the occupational safety and health personnel's responsibilities including safety officer, safety supervisor and safety representative been clearly defined?

Reference

Safety advisor, safety officer or person in charge of the safety office:-

An in-house safety advisor, safety officer or person in charge of the safety office should have the

responsibility to assist the top management and senior management in promoting the safety and health of workers in the relevant industrial undertaking. His main duties should include the following:

- To assist in the identification of hazards and evaluation of risks at work.
- To advise senior management or line management as to the measures to be taken to eliminate or control hazards.
- To assist in resolving shop floor safety and health issues.
- To conduct safety and health inspections to check safety performance and recommend corrective action to senior management or line management.
- To investigate occupational accidents and incidents and recommend remedial measures to prevent recurrence.
- To be well informed about workplace safety performance.
- To consult with senior management, line management and workers about changes in the workplace which would likely affect the safety and health at work of workers.
- To report safety performance regularly to the top and senior management and, where appropriate, to the safety committee.

Safety supervisor or the assistant to the person in charge of the safety office:-
The responsibility of a safety supervisor or an assistant to the person in charge of the safety office should be to assist the top management, senior management and the in-house safety advisor, safety officer or person in charge of the safety office in promoting the safety and health of workers in the relevant industrial undertaking. His main duties should include the following:

- To assist the in-house safety advisor, safety officer or person in charge of the safety office in carrying out his duties.
- To supervise workers' observance of safety standards.
- To advise the senior management or line management as to the observance by workers of safety standards.
- To promote the safe carrying out of work in the workplace.
- To report regularly to the in-house safety advisor, safety officer or person in charge of the safety office on safety and health performance in the workplace.

(Code of Practice on Safety Management Section 5.2.4)

Audit Criteria

☐ Position descriptions list appropriate safety and health responsibilities.

Question 2.1.7 **Weighting: 6**

Have sufficient and competent safety officer(s), safety supervisor(s) and safety representative(s) been appointed and engaged for the site?

Audit Criteria

☐ The Safety Officer(s) and Safety Supervisor(s) must be employed full time solely and designated for the Contract.

☐ The safety supervisor training should be a training comparable to the construction safety supervisor training programme organised by the Occupational Safety and Health Council (course duration: 43 hours) or Construction Industry Council (course duration 42/43 hours). Acceptance of training provided by other Organisations is subject to verification that the

following aspects are attained. The aspects are:

(a) course content,
(b) mode of delivery (classroom delivery, handouts),
(c) course assessment (exam, practical, attendance),
(d) trainer qualification,
(e) quality assurance.

- ☐ Safety Supervisor(s) shall be accredited under the Hong Kong Safety and Health Certification Scheme managed by the OSHC.
- ☐ Registered Safety Officer requirements
  - ■ One full-time R.S.O. for demolition/piling/civil/building contracts.
  - ■ The number of Safety Officer(s) to be employed shall depend on the total number of persons employed on Site as indicated below:

No. of persons employed on Site	No. of Safety Officer(s) required
Not more than 200	1
201 to 700	2
701 to 1200	3
1201 and above	4

- ☐ The building services nominated subcontractors/ specialist subcontractors, namely electrical installation; fire service installation; air conditioning and lift & escalator contractors, should have at least one safety supervisor on site.
- ☐ There should be at least one safety representative from different trade of subcontractors. The safety representatives should have successfully completed safety supervisor training. The appointment letters and training certificates of the safety representative should be submitted as documentary evidence.

Question 2.1.8 **Weighting: 6**

Are there appropriate steps taken for keeping and updating registers of competent persons and examiners?

Audit Criteria

- ☐ A location or area is assigned for keeping the relevant safety records which demonstrates a good documental control.
- ☐ A procedure which covers control of safety and health documents is in place.
- ☐ Contractor shall keep a register of the names, telephone numbers and qualifications of any competent persons and competent examiner as defined in the Construction Sites (Safety) Regulations, who has carried out duties on this contract.
- ☐ A register / summary of competent persons should be maintained and relevant appointment letters should be submitted for verification purposes.
- ☐ Auditor should verify that an appointment system of competent persons should be in place.

Section 3 **Safety Training**
Sub-section 3.1 **Equip Personnel with Knowledge to Work Safely**

Question 3.1.1 **Weighting: 6**

Are there arrangements such as training needs analysis and training plan to ensure all employees received appropriate safety training?

Reference

To equip the workers with knowledge on work safety and health, the contractor must first identify what their safety and health needs are. These needs are best established as part of an overall training needs analysis.

There are three main types of training needs, namely, organisational, job-related and individual training needs.

(1) Organisational training needs

The proprietor or contractor of a relevant industrial undertaking should let his workers know:

(a) the organisation's safety policy and the philosophy underlying it; and

(b) the structure and systems for carrying out the policy.

Moreover, he should also let them know which parts of the systems are relevant to them, what the major risks are and how they are controlled.

(2) Job-related training needs

These fall into two main categories, namely, management needs and non-management needs.

(a) Management needs include:

(i) leadership skills;

(ii) communication skills;

(iii) techniques of safety management;

(iv) training, instruction, coaching and problem-solving skills relevant to safety and health;

(v) understanding of risks from a manager's perspective;

(vi) knowledge of relevant legislation and appropriate methods of control including risk management; and

(vii) knowledge of the organisation's planning, measuring, and auditing or reviewing arrangements.

Some managers in key positions like those who devise and develop the safety management system, investigate accidents or incidents, take part in safety audits or safety reviews and implement emergency procedures, may have particular needs.

(b) Non-management needs include:

(i) an overview of safety and health principles;

(ii) detailed knowledge of the safety and health arrangements relevant to an individual's job; and

(iii) communication and problem-solving skills to encourage effective participation in safety and health activities.

(3) Individual training needs

Individual needs are generally identified through performance appraisal. They may also arise in situations where an individual has not received formal job training or instruction as part of his induction training. Training needs vary over time, and assessments should cover:

(a) the induction courses for new starters, including part-time, temporary and imported workers;

(b) the performance of long-term workers (especially those who may be involved in critical

emergency procedures);

(c) job changes, and situations involving staff promotion or someone standing in for someone else;

(d) the introduction of new equipment or technology; and

(e) the follow-up actions after accident / incident investigations.

(Code of Practice on Safety Management Section 5.3.2)

Audit Criteria

- ☐ The training need analysis report and training plan should be project-specific. Apart from the statutory requirement, all safety trainings specified in the contract specification and audit criteria should be identified in the training need analysis report and training plan. Auditor should comment on quality and coverage of the training need analysis report and training plan.
- ☐ Training needs should cover organisational, job-related and individual training needs.
- ☐ The safety training plan should include at least the following items. Otherwise, the answer should be "No".
  - (a) provision of schedule of training (with tentative date)
  - (b) location of training
  - (c) training provider
  - (d) the targeted trainees
  - (e) specification of the courses
  - (f) type of refresher course to be provided.
- ☐ Verification of the safety training programme that has been identified and implemented is necessary.
- ☐ The training programme should cover the probationers (workers who newly join the construction industry) and New Comers (workers with relevant job experience but newly arrive at the site)
- ☐ Safety management staff should attend a training comparable to the 27-hour Safety Training Course for Site Management Staff provided by the Occupational Safety and Health Council or Construction Industry Council covering safety legislation, elements in safety management and its concepts, safety inspection, accident investigation, risk assessment, work safe behavior, safety climate index, safe design and CDM, etc..
- ☐ Safety supervisory staff should attend a training comparable to the Safety Supervisor (Construction) Course provided by the Occupational Safety and Health Council (course duration: 43 hours) or Construction Industry Council (course duration: 42/43 hours) or equivalent.
- ☐ The appointed front-line supervisor should have successfully completed safety supervisor training according to the Annex E in the audit handbook.
- ☐ Training need analysis and training plan should include training courses of Safe Working Cycle and hazard identification activity.
- ☐ Upon successful completion of OSHC's 12-hour Train the Occupational Safety and Health Trainer (Safe Working Cycle and Hazard Identification Activity), personnel could deliver internal training of group leaders on SWC and HIA. The course contents of these types of internal training should be compatible to those offered by OSHC or CIC.
- ☐ Upon successful completion of the 12-hour "Train-the-Trainer for Work Safe Behaviour and Safety Climate Index Survey" course (WSBCIST) offered by OSHC, personnel could deliver internal training of WSB observers. The course duration of this internal training of WSB

observers should be at least 3 hours.

- ☐ Appropriate training to site personnel involved in the use of smart site safety system (SSSS) components to ensure they are familiar with the concerned SSSS components operation should be identified.
- ☐ Unskilled labourers who are employed by the Contractor, or any of his sub-contractors including Nominated Sub-contractors and Specialist Sub-contractors, shall upon their first appearance on the Site have satisfactorily completed the training course "Basic Safety for Construction General Workers" organised by OSHC, otherwise arrange those unskilled labourers without having completed the above training to enrol in the above training course upon their first appearance on the Site. Acceptance of alternative training provided by other organisations is subject to verification by the CM that the alternative training is based on course contents of equivalent or higher standards than the aforesaid course of OSHC. Keep a record of the certificates, including the names of the certificate holders, the issue dates of the certificates and the relevant trade category for inspection by the CM, and report the status at the site meeting. Notwithstanding the above requirement, there is a grace period for arranging unskilled labourers to enrol in the above training course up to 31 December 2026 after which any unskilled labourer who has not yet satisfactorily completed the above training shall be arranged to enrol in the above training course upon their first appearance on the Site.

Question 3.1.2 **Weighting: 6**

Have all workers received mandatory basic safety training?

Reference

The contractor should let his workers know:

(a) the organisation's safety policy and the philosophy underlying it; and

(b) the structure and systems for carrying out the policy. Moreover, he should also let them know which parts of the systems are relevant to them, what the major risks are and how they are controlled.

(c) the induction courses for new starters, including part-time, temporary and imported workers;

(Code of Practice on Safety Management Section 5.3.2)

Audit Criteria

- ☐ Verification is necessary for workers having received mandatory basic training-valid green card through sample checking of workers met on site.
- ☐ A summary of mandatory basic safety training record should be submitted as documentary evidence.

Question 3.1.3 **Weighting: 6**

Have all employees received site-specific safety training?

Reference

Individual needs are generally identified through performance appraisal. They may also arise in situations where an individual has not received formal job training or instruction as part of his induction training. Training needs vary over time, and assessments should cover:

(a) the performance of long-term workers (especially those who may be involved in critical emergency procedures);
(b) job changes, and situations involving staff promotion or someone standing in for someone else;
(c) the introduction of new equipment or technology; and
(d) the follow-up actions after accident / incident investigations.

(Code of Practice on Safety Management Section 5.3.2)

Audit Criteria

- ☐ Verification is necessary for workers having received site specific safety training through sample checking of workers met on site.
- ☐ Checking training records of the Induction Training Course and specific job training for high-risk activities for verification. Auditor should verify the coverage and content of training material. The training material shall cover critical items, such as working at height, prevention against falling objects, lifting operations among other site activities in the form of audio-visual medium.
- ☐ Checking training records of the site-specific safety training course for verification. A summary of site-specific safety training should be maintained and relevant training records with training materials should be submitted for verification purposes.
- ☐ The induction training shall cover contents to alert persons new to the site to know specific hazards related to the site or works nature and activities in operation, and necessary precautionary measures. This training should be carried out on the working day of any such employee commencing work on the Site. Thereafter, he/she shall be given refresher training at intervals of about 6 months depending on the amount of changes to the site condition. The course shall be conducted by safety officer.
- ☐ The safety induction courses for all site personnel including new starters, part-time, temporary and imported workers should be provided. Safety training is particularly important even when experienced and competent workers who first come to the site. These workers may not be familiar with the system and aware of the risks that they may be exposed to.
- ☐ Specific job training for high risk activities include:
    1. The operation, erection, alteration, and dismantling of plant, such as tower cranes, material hoists, builders' lifts and gondolas.
    2. Working at height, such as erection, alteration, and dismantling of bamboo scaffolds and metal scaffolds; and working on scaffolds, inside lift shafts, and on gondolas.
    3. Electrical works, such as live electrical works.
    4. Lifting operations, such as lifting of precast units, volumetric precast bathrooms and kitchens, the operation of mobile cranes (including lorry-mounted cranes).
    5. Use of powered machinery and equipment, such as mobile elevating work platforms, abrasive wheels, and compressed air tools.
    6. Other high risk places of work, tasks and operations, such as work in confined spaces, welding/cutting, piling and foundations, asbestos, use of high risk chemicals, and temporary works.
    7. Any other training needs identified in risk assessment.
- ☐ Monthly safety training with duration of approximately one hour, conducted by the safety officer should be held at least once a month to discuss specific accident cases and appreciate their causes and preventive measures. Workers of related trades (including

workers of subcontractors) should participate.

☐ Lunchtime's safety talks:

i. Provide lunchtime's safety talks to workers monthly. The topics and contents of lunchtime's safety talks shall be proposed by the Safety Officer and contain but not limited to accident/incident review, findings of Safety PASS, findings of safety audit and surprise inspection by OSHC and findings of inspection by LD;

ii. The Contractor's Safety Officer shall ensure that lunchtime's safety talks are conducted by

(a) Safety Supervisors, foremen or gangers who have received training organised by HKCA or other approved training organisations, such as CIC and OSHC. The site personnel responsible for conducting lunchtime's talks is required to attend

1. OSHC : Occupational Safety and Health Trainer Course (18 hours); OR
2. OSHC : Occupational Safety and Health Training Techniques (4 hours) OR
3. CIC : Effective Site Safety Training and Instructing Techniques Course (14 hours) OR
4. CIC : Safety Training Techniques Course (4 hours)

The course should be provided by the Occupational Safety and Health Council or equivalent course provided by Construction Industry Council. Acceptance of training by other organisations is subject to verification that equivalent course contents and quality are attained.

Or

(b) training officers of trade associations or workers' unions which are member organisations of Housing Department Site Safety Subcommittee.

☐ Provide appropriate training to Site Personnel involved in the use of smart site safety system (SSSS) components to ensure that they are familiar with the concerned SSSS components operation before the commencement of the Works.

☐ Unskilled labourers who are employed by the Contractor, or any of his sub-contractors including Nominated Sub-contractors and Specialist Sub-contractors, shall upon their first appearance on the Site have satisfactorily completed the training course "Basic Safety for Construction General Workers" organised by OSHC, otherwise arrange those unskilled labourers without having completed the above training to enrol in the above training course upon their first appearance on the Site. Acceptance of alternative training provided by other organisations is subject to verification by the CM that the alternative training is based on course contents of equivalent or higher standards than the aforesaid course of OSHC. Keep a record of the certificates, including the names of the certificate holders, the issue dates of the certificates and the relevant trade category for inspection by the CM, and report the status at the site meeting. Notwithstanding the above requirement, there is a grace period for arranging unskilled labourers to enrol in the above training course up to 31 December 2026 after which any unskilled labourer who has not yet satisfactorily completed the above training shall be arranged to enrol in the above training course upon their first appearance on the Site.

Question 3.1.4 **Weighting: 6**

Have all workers received tool-box training related to the tasks?

Audit Criteria

☐ Tool-box training should be provided to workers once per week. The training shall be attended by workers who are working on the site and engaged in activities relevant to the

topic of that training. The topics and contents of tool-box training shall be proposed by the safety officer having regard to the activities of the site and the prevailing safety concern at that time.

- ☐ Checking tool-box training programme and training records. A summary of tool-box trainings should be maintained and relevant training records with training materials should be submitted for verification purposes.
- ☐ The site personnel responsible for conducting tool-box training is required to attend
  1. OSHC : Occupational Safety and Health Trainer Course (18 hours); OR
  2. OSHC : Occupational Safety and Health Training Techniques (4 hours) OR
  3. CIC : Effective Site Safety Training and Instructing Techniques Course (14 hours) OR
  4. CIC : Safety Training Techniques Course (4 hours)

  The course should be provided by the Occupational Safety and Health Council or equivalent course provided by Construction Industry Council. Acceptance of training by other organisations is subject to verification that equivalent course contents and quality are attained.
- ☐ Verification is necessary to ensure that workers have received tool-box training through sample checking by a specific trade or group of workers met on site.

Question 3.1.5 **Weighting: 3**

Is Virtual Reality (VR) adopted for safety training to simulate the site environment and operation?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
- ☐ Provide VR safety training to workers as a part of the tool box talks. The VR training shall be attended by workers who are working on the Site and engaged in activities relevant to the topic of that training. The topics and contents of VR training shall be proposed by the Safety Officer having regard to the activities of the Site and the prevailing safety concern at that time. In providing the VR safety training, first priority should be given to the topics related to lifting operation, working at height, use of suspended working platform, erection / alteration / dismantling of bamboo scaffolds and / or truss-out bamboo scaffolds, electrical supply system, heavy machinery operation and working in confined spaces. The VR training kits can be those prepared by the Development Bureau, CIC, HKCA or equivalent.

Question 3.1.6 **Weighting: 6**

Have all managers received safety management training?

Reference

Management needs include:

(i) leadership skills;
(ii) communication skills;
(iii) techniques of safety management;
(iv) training, instruction, coaching and problem-solving skills relevant to safety and health;

(v) understanding of risks from a manager's perspective;
(vi) knowledge of relevant legislation and appropriate methods of control including risk management; and
(vii) knowledge of the organisation's planning, measuring, and auditing or reviewing arrangements.

Some managers in key positions like those who devise and develop the safety management system, investigate accidents or incidents, take part in safety audits or safety reviews and implement emergency procedures, may have particular needs.
(Code of Practice on Safety Management Section 5.3.2)

Audit Criteria

- ☐ Verification is necessary for managers (project manager, contract manager, site agent, or similar rank or above stationed on site) to receive safety management training through sample checking of these personnel met on site.
- ☐ Site management staff should attend a training comparable to the 27-hr "Safety Training Course for Site Management Staff" provided by the Occupational Safety and Health Council or Construction Industry Council covering safety legislation, elements in safety management and its concepts, safety inspection, accident investigation, risk assessment, work safe behavior, safety climate index, safe design and CDM, etc.
- ☐ Upon completion of the 27-hr "Safety Training Course for Site Management Staff" course for 5 years, site management staff should attend and complete a revalidation course to revalidate his / her certificate before continuing to engage in his/ her role.

Question 3.1.7 **Weighting: 6**

Have all employees responsible for carrying out specific work activities received relevant safety training?

Audit Criteria

- ☐ The specific work activities include the following high-risk trades identified for silver card training,
  i. Painter and Decorator;
  ii. Carpenter;
  iii. Demolition Worker (Building);
  iv. Plumber;
  v. Bar Bender and Fixer;
  vi. Plasterer and Tiler;
  vii. Bamboo Scaffolder and Metal Scaffolder;
  viii. Curtain Wall Installer;
  ix. Lift Mechanic;
  x Tower Crane Worker (Erecting, Dismantling, Telescoping & Climbing);
  xi. Construction Materials Rigger / Rigger and Signaller;
  xii. Tunnel Worker; and
  xiii. Concretor.
- ☐ The safety trainings for all specific work activities includes, but not limited to, the following:
  i. Erection, addition, alteration and dismantling of scaffolding;
  ii. Welding works;

iii. Electrical works;
iv. Confined space works.
v. Operating specific tools and equipment such as cartridge operated tools, abrasive wheel, etc.

- ☐ A summary of safety training for specific work activities should be maintained and relevant records should be submitted for verification purposes.
- ☐ Verification is necessary through sample checking of workers met on site.

Question 3.1.8 **Weighting: 6**

Have all employees engaged in operating machinery received relevant safety training?

Audit Criteria

- ☐ Machinery operations include, but not limited to, the following:
  i. Crane;
  ii. Loadshifting machinery;
  iii. Suspended working platform;
  iv. Builders' lift;
  v. Material hoist;
  vi. Power-operated elevating work platform;
- ☐ A summary of safety training for operating machinery should be maintained and relevant records should be submitted for verification purposes.
- ☐ Verification is necessary through sample checking of workers met on site.

Question 3.1.9 **Weighting: 6**

Are there appropriate steps taken to monitor and assess the effectiveness of safety training?

Reference

It is necessary to measure the effectiveness of training. Pre-testing determines the needs for the programme; post-testing evaluates how much has been learned. It is important to assess whether the training programme has effectively corrected the previously identified unsafe behaviour. It is also of vital importance to obtain feedback on the training programme.
(Code of Practice on Safety Management Section 5.3.5)

Audit Criteria

- ☐ There should be means of evaluation of effectiveness of safety training in respect of acquisition of knowledge and competence in carrying out the respective safety duties.
- ☐ The knowledge & competence of employees who attend training are assessed, such as feedback on the training and/or work safe behaviour observation is conducted to assess the effectiveness of the training. Here training means training for high-risk activities and skill training (refer to Q3.1.3 for scope of high-risk activities).
- ☐ Physical verification is necessary to assess the effectiveness of safety training. Auditor should interview site personnel such as workers to verify their understanding of the training content.

Question 3.1.10 **Weighting: 3**

Are proper safety training records maintained such as training date and time, location, duration, contents, trainers, attendees and test?

Reference

Monitoring involves keeping track of who has been trained in what. Accurate records should be maintained for all safety and health training activities. Such records should, as far as reasonably practicable, include the following data:

(a) Training date and time;
(b) Training location;
(c) Length of training;
(d) Subject of training;
(e) Contents of training;
(f) Trainers and their expertise;
(g) Attendees; and
(h) Test results, if any.

(Code of Practice on Safety Management Section 5.3.6)

Audit Criteria

- ☐ Auditor should comment on the quality and coverage of the recording system. The recording system should include all safety training provided to all levels of employees.
- ☐ The summary of safety-training record should include at least group or trade of workers receiving the training, date of training offered, and how many classes conducted, etc.

Question 3.1.11 **Weighting: 3**

Are workers provided with appropriate experiential site safety training through somatosensory safety training facility at corporate level or on site level?

Audit Criteria

- ☐ It is beneficial for workers to experience the importance of site safety and enhance their awareness of risks through somatosensory training.
- ☐ Somatosensory training shall include but not restricted to the following:
  - ■ Use of safety harness, lanyard and lifeline
  - ■ Use of hop up platform and step platform and working platform
  - ■ Use of double safety latch
  - ■ Wearing safety helmet and safety shoes against falling object
  - ■ Protection against electrocution
  - ■ Prevention against being struck by moving plant
  - ■ Manual lifting
- ☐ The answer should be “Yes” if appropriate training are provided. Otherwise, the answer should be “N/A” since this is not a compulsory item.

Section 4 **In-house Safety Rules**

Sub-section 4.1 **In-house Safety Rules to Provide Instruction**

Question 4.1.1 **Weighting: 6**

Has a survey of overall prevailing activities been conducted to identify the need for written occupational safety and health rules?

Reference

The ultimate objective of any safety management system is to prevent injury and ill health in the workplace. To accomplish this it is necessary for a contractor to devise in-house safety rules. In-house safety rules cover general rules, work rules, safety work permits and procedures. *(Code of Practice on Safety Management Section 5.4)*

In devising in-house safety rules, the contractor is encouraged to have prior consultation with his workers, where appropriate. If there is a safety committee, the details of the safety rules can be discussed in the safety committee. (*Code of Practice on Safety Management Section 5.4.3*)

Audit Criteria

- ☐ Auditor should check the auditee use the task-hazard inventory to identify formally what in-house safety rules are needed.
- ☐ The in-house safety rules should be project-specific and developed based on risk assessment.
- ☐ Specialized safety rules should be identified from critical tasks based on risk assessment.

Question 4.1.2 **Weighting: 3**

Have in-house safety rules been prepared for specific work activities in written method statement or permit-to-work?

Audit Criteria

- ☐ Auditor should study the site safety plan to verify if there is a system to identify specific work activities on the need of written safe work method statement and/or permit-to-work systems.
- ☐ Specialized work rules, safety work permits and procedures are developed with reference to legal requirements and codes of practice and best trade practice.
- ☐ Prior consultation with engineering staff and operating personnel to ensure they are accurate and provide practical instructions on how to actually carry out job duties safely.

Question 4.1.3 **Weighting: 6**

Are the general safety rules brought to the attention of all employees?

Reference

General safety rules include clear instructions to personnel (including probationers and new comers) in each of the following general areas:

(a) safe operation of plant, machinery and equipment;
(b) maintenance of plant, machinery and equipment;
(c) proper and safe procedures for each production process, in the form of method statements;
(d) rules and instructions on various risk control systems including the permit-to-work system;
(e) provision, use and maintenance of personal protective equipment;
(f) rules for the provision, use and maintenance of safe access and egress and for traffic and

plant movement;
(g) fire precautionary measures;
(h) safe handling and movement of materials;
(i) safety procedures for chemical processes and for the handling, transporting and storage of chemicals;
(j) safety procedures for emergency;
(k) duties and procedures for reporting hazards;
(l) duties and procedures for reporting incidents, accidents and ill-health; and
(m) good housekeeping of the workplace.
(Code of Practice on Safety Management Section 5.4.1)
Work rules and procedures should be documented and communicated to all appropriate personnel. It may be that not all workers will need to know all of the detailed in-house rules but the contractor should ensure that every worker clearly instructed as to what rules they should follow.
(Code of Practice on Safety Management Section 5.4.3)

Audit Criteria

- ☐ Written procedures are required to ensure that workers (including probationers and new comers) know how the safety rules operate.
- ☐ Workers (including probationers and new comers) are trained in safety and health rules relevant to their work.
- ☐ It is necessary for construction projects to have general safety rules and specific safety rules to cater for various working conditions. The purpose of the general safety rules is to remind site personnel of the general safety issues that should be followed such as wearing safety helmets, safety shoes, prohibition of smoking, no horseplay, etc. The general safety rules should be regarded as the basic measures/ practices to be followed by all site personnel including site staff and workers.
- ☐ Auditor should comment on the coverage of the general rules as specified in item (a) to (m) in the Code of Practice on Safety Management Section 5.4.1 above. Risk assessment may not be necessary for developing these general rules.
- ☐ General safety rules are displayed.

Question 4.1.4 **Weighting: 6**

Are specific safety rules posted in the vicinity of the activities where they apply?

Reference

There should be a system for the identification and establishment of safety in-house safety rules, work rules, safety work permits and procedures. Proprietors and contractors of relevant industrial undertakings should refer to the following:
(a) relevant legislation dealing with safety and health at work, which sets the minimum standards to follow;
(b) codes of practice and guidance materials issued by the Labour Department on safety and health at work;
(c) international standards; and
(d) the best trade practice and trade performance.
(*Code of practice on safety management, Section 5.4.2*)

Audit Criteria

The rules in this question referred to specific safety rules. Those engaged in hazardous activities are required to follow the related safety rules that will enable them work safely and prevent the happening of accident. The typical activities that require specific safety rules are welding, lifting operation, woodworking, etc.

- ☐ A copy of sample safety rules displayed or photo showing such should be produced as evidence.
- ☐ Auditor should sample the safety rules and comment on its content.
- ☐ If there are only the general safety rules, the answer should be "No".
- ☐ If there are specific safety rules but not posted out, the answer should be "No".

Question 4.1.5 **Weighting: 6**

Are there appropriate steps taken for monitoring the compliance of these safety rules and permit-to-work system?

Reference

To ensure compliance with these in-house rules, the contractor should exercise due diligence in the supervision of his workers.

(Code of Practice on Safety Management Section 5.4.4)

Audit Criteria

- ☐ Safety rules in this question include general safety rules and specific safety rules to cater for various working conditions. There should be arrangement in place to ensure that workers carry out the work in accordance with the safety rules.
- ☐ In addition to inspections carried out by safety supervisors and safety officer, monitoring the compliance of these safety rules by foreman and group leaders should be included.
- ☐ The compliance with in-house safety rules is generally monitored by safety inspection.
- ☐ Inspection records and safety work permits should be submitted as documentary evidence for verification purposes.
- ☐ Physical verification is necessary to assess whether safety rules are strictly implemented on site.

Question 4.1.6 **Weighting: 3**

Is the digitalised permit-to-work system implemented for controlling high risk activities?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
- ☐ Implement a digitalised permit-to-work system to facilitate online real-time application, issuance and tracking of permit-to-work / permit to move and operate. The Site Agent, General Foreman, Safety Officer, Safety Supervisor, Competent Person for confined space and lifting supervisor can access the system using a mobile device to display real-time information on the corresponding permit-to-work / permit to move and operate status. The

mobile device shall also display an alert message if the corresponding permit-to-work / permit to move and operate has expired and automatically generate an alert message to the Site Agent, General Foreman, Safety Officer, Safety Supervisor, Competent Person for confined space and lifting supervisor by means of SMS or in-app pop-up notification and record at a CMP for follow up actions. The alert message shall include details of the permit-to-work / permit to move and operate, date and time of alert message. The activities to be covered under the digitalised permit-to-work system shall at least cover the high risk activities specified in contract specification. The permit-to-work system shall cover the high risk activities, such as work in confined spaces, work in lift shaft, hot work, lifting operation by tower cranes and mobile cranes, crawler cranes, or cranes alike or lifting operation by mechanical means (excluding lifting operation with load not exceeding 2.5 tonnes within a distance of 2.5 metres from the edge of such crane); Work with electrical hazard under Electricity (Wiring) Regulations.

- ☐ Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.

Question 4.1.7 **Weighting: 3**

Are there Smart Site Safety System (SSSS) components for authenticating authorized operation of plant or equipment and prevention of unauthorized access inside danger zones?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
- ☐ Authenticating authorised operation of plant and equipment
  - ■ Implement a digitalised system on mobile plant (including mobile elevating work platforms, forklift trucks, bobcats, excavators, mobile cranes) and a system with RFID and face recognition technology or equivalent for material hoists to allow operation by authorised operators only; and prohibit unauthorised duplication of operation keys;
- ☐ Controlling access to hazardous areas:
  - ■ Implement an automated access control and warning system to prevent unauthorised opening of locked cover, doorway and barrier to hazardous areas within the Site which shall include but not limit to the following:
    - Entrance to confined space;
    - Storage yard of precast concrete elements;
    - Lift shaft opening;
    - Material hoist landing gate;
    - Floor opening equal to or larger than 500mm x 500mm; and
    - Electrical distribution board cabinet.
  - ■ The access control and warning system shall include an electronic lock and key system for locking accesses to hazardous areas in the Site. The electronic lock shall only be openable by authorised electronic key with key owner's identity electronically embedded in the key. Review and renew all electronic locks access authority periodically or as necessary and maintain an updated register of all electronic keys

issued with the corresponding authority for opening the designated electronic locks. Prohibit unauthorised duplication of electronic keys;

- When an unauthorized person attempts to open the electronic lock by using an outdated key or by force, the system shall immediately issue a warning siren with a minimum of 70 dB noise level and flashing red light and the siren can only be turned off when the electronic lock is re-engaged or by an authorized electronic key. Furthermore, every time a warning siren is triggered, an automatically generated alert message shall be sent to the mobile devices of the Site Agent, General Foreman, Safety Officers, Safety Supervisor, Competent Person for confined space, lifting supervisor and registered electrical worker by means of short message service (SMS) or in-app pop-up notification for immediate actions to check the corresponding electronic lock being tampered with and recorded at the CMP for the Contractor's actions where necessary. The alert message shall include location of electronic lock being tampered with the date and time of the incident and the electronic key identification number.

☐ Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.

Question 4.1.8 **Weighting: 3**

Is there a disciplinary arrangement for ensuring the compliance of safety rules?

Reference

There should be a written disciplinary policy addressing violation of rules with details of punitive actions like verbal warnings, written reprimands, suspensions, demotions and, where necessary, termination. Recognition should, on the other hand, be given to workers following the rules to reinforce good behaviour.

(Code of Practice on Safety Management Section 5.4.4)

Audit Criteria

☐ A written disciplinary system for enforcing safety and health rules.

☐ Summary records such as warning and reminder letter should be submitted as documentary evidence for verification purposes.

Question 4.1.9 **Weighting: 6**

Are all the rules documented and regularly reviewed?

Audit Criteria

☐ Check the version of the rules, in particular those posted on site to verify the rules had been regular reviewed at least annually to assess their on-going effectiveness.

☐ Apart from the regular review, the rules should also be reviewed or updated if an accident happened/ a suspension notice or improvement notice received from Labour Department. Otherwise, the answer to this question should be "No".

Section 5 **Safety Committee**

Sub-section 5.1 **Identify, Recommend and Review Measures**

Question 5.1.1 **Weighting: 3**

Are the terms of reference, membership, frequency, agenda and distribution of minutes of the safety committee clearly defined?

Reference

The proprietor or contractor required by section 10 of the Safety Management Regulation to establish a safety committee shall ensure that the safety committee is provided with a written statement setting out the rules governing its membership. [Section 11(1)(b) of the Safety Management Regulation].
(Code of Practice on Safety Management Section 5.10.4)

A contractor required by section 10 of the Safety Management Regulation to establish a safety committee shall ensure that the safety committee is also provided with a written statement setting out rules governing its terms of reference and meeting procedures [Section 11(1)(b) of the Safety Management Regulation].
(Code of Practice on Safety Management Section 5.10.5)

The safety committee's programme should be arranged well in advance and notices of the dates of meetings published to let all members know. Reports and relevant materials should also be circulated to all members in advance [Section 11(1)(d) of the Safety Management Regulation].
(Code of Practice on Safety Management Section 5.10.5)

Audit Criteria

- ☐ Legal and contractual requirements for establishing safety committee are clearly defined.
- ☐ The monthly safety committee meetings aims 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.

Question 5.1.2 **Weighting: 6**

Does the committee meet regularly and discuss all the appropriate occupational safety and health matters?

Reference

In general, the frequency of meetings of a safety committee depends upon the volume of work to be handled and the complexity and nature of hazards in the workplace. Nevertheless, in any case, a contractor shall ensure that a safety committee meets at least once every three months [Section 11(1) of the Safety Management Regulation].

Monthly meetings are usually found to be satisfactory. If sub-committees are formed for particular tasks, it will normally be necessary for them to meet more often because their aim is to produce a specified result within a time limit.
(Code of Practice on Safety Management Section 5.10.5)

A safety committee should carry out the following functions for the purposes of identifying, recommending and keeping under review measures to improve the safety and health of workers in a relevant industrial undertaking:

(a) monitoring of the safety policy – determining whether it is adequate and how well it is being implemented;
(b) on-going evaluation of hazards and arrangements to implement safety measures;
(c) establishment of arrangements to deal promptly and effectively with dangerous working conditions, including those coming to light in disputes arising from workers refusing to work on the grounds of imminent danger;
(d) discussion and establishment of a mechanism to resolve disputes when workers refuse work on the grounds of imminent danger;
(e) assistance in the development of safe working procedures and safe systems of work;
(f) vetting of accident/incident/ill-health statistics to identify trends and monitor safety performance, and submission of reports on its findings to the top management with recommendations;
(g) examination of safety audit reports and submission of reports on its observations to the top management with recommendations;
(h) scrutiny of safety performance reports submitted by the safety office and giving of direction on appropriate actions;
(i) monitoring of the adequacy and effectiveness of safety training;
(j) monitoring of the adequacy of safety and health communications and publicity in the workplace;
(k) organizing of safety promotion activities such as safety competitions, exhibitions, safety incentive schemes, and safety suggestion schemes; and
(l) provision of links with external sources regarding safety and health.

(Code of Practice on Safety Management Section 5.10.2)

Only matters relating to safety and health at work of the workers in the relevant industrial undertakings shall be discussed at the meeting of the safety committee. [Section 11(2) of the Safety Management Regulation].

(Code of Practice on Safety Management Section 5.10.5)

Audit Criteria

- ☐ The first site safety committee meeting shall be held no later than 28 days from and including the date for commencement of the contract period.
- ☐ Safety committee meeting should be held monthly and verification is necessary through both verification of meeting minutes and interview of committee members.
- ☐ The following items shall, amongst others, be reported and discussed at the Site Safety Committee meeting:
    i. Review of the Safety Plan, update risk assessment for the work scheduled at least for the next 2 months, review and establish safety and health provisions, safe working procedures and method statements, update the emergency and rescue procedure;
    ii. Update of the safety organisation chart and review of the adequacy of safety personnel;
    iii. Review of the safety performance of sub-contractors;
    iv. Any unsafe practices and conditions identified during safety inspections / audits and any follow up action;
    v. Advisory / warning or contravention notices and any Improvement / Suspension Notices received from LD;
    vi. Review of accident frequency rates and statistics of the Contractor and sub-

contractors and identification of trends;

vii. Details of the Contractor's accident and dangerous occurrence experience;

viii. Safety and health training undertaken in the previous month and the proposed training programme for the following month;

ix. Details of safety promotional activities; and

x. Safety coordination among various sub-contractors working in close proximity to each other.

- ☐ Auditor should comment on the appropriateness of OSH matters discussed in the committee meeting. Only OSH matters could be discussed in the safety committee.
- ☐ Implementation of Work Safe Behaviour Programme (WSB) should be an item on the agenda of the safety committee meeting. The effectiveness and feedback for implementation of WSB should be monitored in the safety committee meeting. WSB should cover at least one high risk site activity (of not more than 15 observation items on each observation checklist) at any one time. By the end of the construction project, all high risk site activities should have been covered.
- ☐ Review and update the implementation plan on SSSS monthly according to the prevailing site condition. The review of implementation plan on SSSS shall be one of the agenda items of the Site Safety Committee meetings.
- ☐ Review and discuss the register of certification status of the design, method statement, completion, safety certificate and dismantling method statement for temporary works for monitoring.

Question 5.1.3 **Weighting: 6**

Does the safety committee have the active participation of senior management of the organisation?

Reference

Management membership should come from as many levels as practicable, with senior management well represented and a careful mix of line management and functional management. The aim is to ensure that the committee –

(a) is given adequate authority to consider views and recommendations, and make decisions; and

(b) is provided with the necessary expertise to formulate practicable policies and strategies.

(Code of Practice on Safety Management Section 5.10.4)

Audit Criteria

- ☐ The Site Safety Committee shall be chaired by Site Agent or Project Manager.
- ☐ The most senior management should lead the committee to manage and improve site safety and health.
- ☐ Senior management should actively participate safety committee meeting.

Question 5.1.4 **Weighting: 6**

Does the committee foster effective, two-way communication between management and subcontractors/employees?

Reference

A safety committee should have a wide representation adequately covering the interests of management and all workers, yet its size should be kept as reasonably compact as possible. The number of members representing workers in the relevant industrial undertaking shall not be less than half the members of the committee [Section 11(1)(a) of the Safety Management Regulation]. Members of the safety committee can be nominated or elected.
(Code of Practice on Safety Management Section 5.10.4)

Audit Criteria

- ☐ Open communication between employees, supervisors and management is an important factor. To be effective, the safety committee meeting should require that management and staff at all levels to provide, observe, and supervise safe working practices and procedures. The senior management responsible for coordinating and monitoring health and safety should chair the meeting, and employees have been well represented at the meetings.
- ☐ A two-way flow of information between the workforce and the safety and health committee should be established. The committee needs to be seen as an effective means of improving safety and health in workplace, and employee representatives should be in a position to raise issues suggested by other employees in the workplace.
- ☐ It is a good practice to have the member names of the safety committee and the representatives of subcontractors from different trades posed on the notice board. Hence, workers know to whom their opinions pertaining to safety and health should be forwarded. The representatives of sub-contractors from different trades are subject to review in accordance to the progress.

Question 5.1.5 **Weighting: 6**

Does the committee have representatives from all parts of every area of responsibility?

Reference

A safety committee should have a wide representation adequately covering the interests of management and all workers, yet its size should be kept as reasonably compact as possible. The number of members representing workers in the relevant industrial undertaking shall not be less than half the members of the committee [Section 11(1)(a) of the Safety Management Regulation]. Members of the safety committee can be nominated or elected.

Management membership should come from as many levels as practicable, with senior management well represented and a careful mix of line management and functional management. The aim is to ensure that the committee –

a. is given adequate authority to consider views and recommendations, and make decisions; and
b. is provided with the necessary expertise to formulate practicable policies and strategies.

Supervisors are the key men in regard to safety as well as production and their active cooperation is therefore essential. It is most important that the supervisors should be kept continuously informed of the safety committee's work. They should therefore have a representative on the safety committee.

In undertakings where company doctors, industrial hygienists or safety officers or advisers are

employed, they should be made ex-officio members of the safety committee. Other specialists, such as project engineers, chemists, organisation and methods personnel and training officers may also be asked to attend meetings on an ad hoc basis when issues on which they have expertise are to be discussed.
(Code of Practice on Safety Management Section 5.10.4)

Audit Criteria

- ☐ Auditor should comment on the composition of the representatives of the safety committee.

Question 5.1.6 **Weighting: 6**

Does the committee monitor, record, and recommend action on occupational safety and health performance?

Reference

Monitoring arrangement should be set up by the safety committee to follow through the implementation of its recommendations.
(Code of Practice on Safety Management Section 5.10.3)

The safety committee's programme should be arranged well in advance and notices of the dates of meetings published to let all members know. Reports and relevant materials should also be circulated to all members in advance.
(Code of Practice on Safety Management Section 5.10.5)

The proprietor or contractor of a relevant industrial undertaking shall ensure that proper records on safety committee meetings are kept to provide a progress report on decisions made, recommendations put forward and actions taken. These records shall be –

(a) kept for not less than 5 years after the date of the meeting to which the record concerned relates; and

(b) made available for inspection upon request by an occupational safety officer. [Section 11(d) of the Safety Management Regulation]

Audit Criteria

- ☐ Arrangements for safety and health consultation and issue resolution in the site have been documented.
- ☐ The committee should ensure that appropriate follow-up actions are identified, assigned, and tracked to effectively address the issues raised in the committee meeting.

Question 5.1.7 **Weighting: 6**

Have prompt actions been taken according to the recommendations of the committee?

Reference

The contractor shall implement, so far as is reasonably practicable, any measures recommended by the safety committee in relation to matters of safety and health at work of the workers [Section 10(b) of the Safety Management Regulation]. A mechanism should be established whereby decisions and actions recommended by the safety committee can be effectively

communicated to those persons responsible for their implementation.
(Code of Practice on Safety Management Section 5.10.3)

Audit Criteria

- ☐ The agenda and minutes of the safety committee meetings are circulated in the site so everyone has the chance to raise issues and to know what is going on.
- ☐ Safety committee plays an active role in managing and improving site safety and health.
- ☐ The auditor is required to verify that the auditee has implemented corrective actions that effectively address the recommendations made by the safety committee, including safety audit findings. All the audit findings and corresponding recommendations should be fully addressed. Otherwise, the answer of this question should be "No".

Section 6 **Programme for Inspection of Hazardous Conditions**
Sub-section 6.1 **Identify Hazardous Conditions and Rectification**

Question 6.1.1 **Weighting: 3**

Has a comprehensive inspection checklist and inspection programme been developed and stipulated in the safety plan?

Reference

The inspection programme should satisfy any specific legal requirements and reflect the undertaking's risk priorities. Suitable schedules and performance standards for the frequency and contents of inspection can help. The schedules can be supplemented with inspection forms or checklists, both to ensure consistency in approach and to provide records for follow-up action.
(Code of Practice on Safety Management Section 5.5.3)

Audit Criteria

- ☐ There is procedure which provide guidance as to responsibility, frequency and schedule of inspections, use of information sources, where and what to look for, recording of findings, to whom findings are reported, and tracking of corrective actions.
- ☐ Electronic records, like messages of smartphone application, could be accepted as inspection records.
- ☐ Inspection of plant, equipment, and tools could be recorded in a logbook with an itemized checklist included in the logbook to show the scope of inspection. Non-conformities should be described, otherwise "in safe working order" be stated. Each entry should be signed and dated, and the name and designation specified in the page.
- ☐ Safety inspection checklists should be submitted for verification purposes. Safety inspection checklists should accurately reflect the actual site conditions and cover ongoing site activities.
- ☐ Inspections should include, but not limited to:
  - Excavation, shafts, earthworks and tunnels;
  - Cofferdams and caissons, and suspected dangerous atmospheres;
  - Scaffolding;
  - False work;
  - Working platforms;
  - Safety belts and anchorage systems (refer to the Guidance Notes on Classification and

Use of Safety Belts and their Anchorage System issued by LD with respect to the information on some anchorage systems, the types, uses and specifications of safety belts under several national safety standards);

- Coverings for openings;
- Gangways and runs;
- Guard rails, barriers, toe boards and fences;
- Local exhaust;
- Pressure system and gas containers;
- Breathing apparatus, revival and other safety and rescue equipment;
- Electrical equipment and appliances;
- Fire fighting equipment;
- First-aid box provisions

☐ Inspections, thorough examination and testing shall include, but not limited to:

- Suspended working platforms;
- Lifting appliances and lifting gear (Refer to the Construction Sites (Safety) Regulations and the Guidance Notes on the Inspection, Thorough Examination and Testing of Suspended Working Platforms and the Guidance Notes on the Inspection, Thorough Examination and Testing of Lifting Appliances and Lifting Gear issued by LD);
- Tower cranes (including its anti-collision system), static and mobile cranes;
- Material hoists and passenger lifts.

Question 6.1.2 **Weighting: 6**

Are there appropriate arrangements to ensure that senior site management actively participated by joining in the safety inspection of their areas of responsibility at regular intervals?

Reference

The persons carrying out the inspections should have the appropriate safety training and experience so that they are competent to identify the relevant hazards and evaluate the associated risks.

(Code of Practice on Safety Management Section 5.5.3)

Audit Criteria

☐ Safety inspections carried out by senior management serves as supervision and assurance for safe operation of site works.

☐ Arrangement of senior management such as project manager or site agent to participate in the daily and weekly Inspection should be stipulated in the safety plan.

☐ For monthly inspection, senior management should appoint competent person such as electrician, mechanics and engineers to conduct regular in depth inspections on machines, plants and equipment.

Question 6.1.3 **Weighting: 6**

Are there appropriate arrangements to ensure that the site inspections check the level of compliance with safety standards and procedures?

Reference

A suitable inspection programme should take all risks into account. It should be proportional to the hazard profile of the relevant industrial undertaking. An inspection should concentrate on areas where it is likely to produce the greatest benefit and lead to the greatest control of risk. Key risk control systems and related workplace precautions should therefore be monitored in greater detail or more often (or both) than low-risk systems or management arrangements. For example, low risks may be dealt with by general inspections every month or two covering a wide range of workplace precautions such as the condition of premises, floors, passages, stairs, lighting, welfare facilities and first aid. Higher risks need more frequent and detailed inspections, perhaps weekly or even, in extreme cases, daily or before use (for example, pre-use check on plant and machinery).

A properly thought-out approach to inspection will include:
Programme for Inspection of Hazardous Conditions

(a) a well-designed inspection form to help plan and initiate remedial action by requiring those doing the inspection to rank any deficiencies in order of importance;
(b) summary lists of remedial action with names and deadlines to track progress on implementing improvements;
(c) periodic analysis of inspection forms to identify common features or trends which might reveal underlying weaknesses in the system; and
(d) information to aid judgments about any changes required in the frequency or nature of the inspection programme.

(Code of Practice on Safety Management Section 5.5.3)

Audit Criteria

- ☐ Check includes site inspection, maintenance of plant and equipment and tests of the work environment.
- ☐ Checklists are able to monitor the hazards identified in the risk assessments.
- ☐ Safety inspection should be done either by special assigned personnel such as safety supervisor or anyone trained (at least completed a one-day (8 hours) safety inspection training course or 27-hr “Safety Training Course for Site Management Staff” provided by the Occupational Safety and Health Council or Construction Industry Council or equivalent) to take up the monitoring role.
- ☐ Identified problems are recorded and appropriate corrective action is developed.

Question 6.1.4 **Weighting: 3**

Are there Smart Site Safety System (SSSS) components for checking and updating information of personnel, plant and equipment?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager’s instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
- ☐ Implement a digitalised system for real-time online tracking of information of personnel, plant and equipment on the Site by mobile device. The Site Agent, General Foreman, Safety

Officer, Safety Supervisor, Competent Person for confined space and lifting supervisor shall be able to retrieve such information instantly from the CMP by an electronic mobile device. Set up and update computerised data base regularly. The mobile device shall display an alert message if the corresponding personnel, plant or equipment has an outdated certification or is overdue for examination or renewal of certificate and automatically generate an alert message to the Site Agent, General Foreman, Safety Officer, Safety Supervisor, Competent Person for confined space and lifting supervisor by means of SMS or in-app pop-up notification and record at the CMP for follow up actions. The alert message shall include details of the date and time of scanning, digital identification number, status and record of the personnel, plant or equipment:

1. Major construction plant, (including mobile crane, truck-mounted crane, crawler crane, oscillator and rotator) – for the plant checking and updating of the information of the plant including, but not limited to, its type, permit number, owner, model number, serial number / owner's mark, manufacture date, Certificate of Overhaul, photo of the plant for confirmation, list of authorized operators, valid records of test, examination, checking, maintenance and risk assessment;
2. Workers - for checking and updating of their information, including but not limited to, their names, employers (i.e. the Contractor or sub-contractors that they belong to), their registered trade through reading the data in Construction Workers Registration Cards issued under Construction Workers Registration Ordinance (CWRO), plus records of training attended and safety performance;
3. Plant and equipment, which involve safe working load, periodic testing and examination under legislation or contractual provision - for checking the data by smart tag and mobile applications, such as safe working load, latest examination date, relevant information of the plant and equipment, capturing the images of the subject or by inputting key words.

☐ Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.

Question 6.1.5 **Weighting: 3**

Is the Artificial Intelligence (AI) system implemented for real-time monitoring of the site conditions?

Audit Criteria

☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.

☐ Implement an artificial intelligence (AI) system with internet protocol (IP) cameras and video recording system for collecting videos of all uncovered areas of the Site, working floors and facades of buildings for real-time monitoring of the Site conditions. All IP cameras, sensors and related video recordings shall be managed by the CMP. The proposed AI detection and video analytics shall pass an accuracy test with a testing dataset.

☐ Improve and maintain the required AI detection accuracy of at least 90% on average, covering all types of unsafe acts or conditions required to be detected at all times after 4

weeks from the deployment of AI detection on the Site till the date of certified completion of the Works or for such shorter or longer period as directed by the CM;

- ☐ By using the AI system, videos shall be recorded and analysed in real-time by AI engine modules designed to detect, identify and classify different types of unsafe acts and conditions, including but not limited to the following:
  - Unauthorized access to restricted zones, danger zones, lifting zones or vehicular routes (detection zones and alerts should be configurable);
  - Workers near site vehicles or plant;
  - Potential collisions between workers and site vehicles or plant;
  - Outriggers of mobile crane not being fully stretched;
  - Workers and other personnel not wearing the required personal protective equipment, including safety helmet and reflective vest in lifting zone and safety helmet on the Site;
  - Heights of lifting in excess of the authorized limits;
  - Workers working at height either without wearing safety harness and fixed to a proper anchorage point of lifeline, or without a proper working platform; and
  - Monitoring of fatigue, distraction, inattentive behaviours of site vehicles drivers and plant operators during operation of site vehicles and plant.
- ☐ The AI engine shall be able to detect multiple physical events at the same time. The AI system shall allow restricted zones, danger zones and lifting zones to be defined on the screen either by the user or by recognition of a series of plastic barriers placed on the Site;
- ☐ When any unsafe act or condition is detected, siren speaker attached to the top of the mobile plant concerned and / or at the incident location concerned shall automatically turn on with flashing red light and continuous alarm at a minimum of 100 dB. All warning signal shall be automatically turned off when the encroaching person has left the danger zone, the plant operator stopped the plant operation and the workers or Site Personnel concerned addressed the warning signals / alerts. In addition, every time a warning siren is triggered, an automatically generated alert message shall be sent to the mobile devices of the Site Agent, General Foreman, Safety Officer, Safety Supervisor, Competent Person for confined space and lifting supervisor by means of SMS or in-app pop-up notification for immediate actions. The automatically generated alert message shall also be sent and stored in the CMP. All the sound / light signals / alerts mentioned in this sub-clause shall be triggered within 1 second after any unsafe act or condition is detected;
- ☐ The duration of the recorded videos for unsafe acts or conditions shall be 1 minute before and 1 minute after the identified unsafe acts or conditions. The videos shall be captured and stored for future analysis;
- ☐ The videos, data, warning alerts / signals and response times collected by the AI system shall be live-streamed to the CMP for viewing. All videos or image data shall be encrypted. The display format at the CMP shall be accepted by the CM;
- ☐ Record the response time of the follow-up actions triggered by each warning signal / alert and furnish a summary report to the CM, which covers the period from the warning signal / alert triggered to the close of the case. A drill shall be conducted by the Contractor once every 6 months to test the effectiveness of the AI system.
- ☐ Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.

Question 6.1.6 **Weighting: 6**

Do safety officers and safety supervisors carry out safety inspections at regular intervals?

Audit Criteria

- ☐ Auditor should comment on the quality of reports compiled by safety officers and safety supervisors such as the proper filling in of monthly reports Form 2A and weekly reports Form 3A.
- ☐ Verification is necessary especially when inspection is carried on holiday.

Auditor is required to assess and comment on the quality of inspection checklist records. The following items show some of the main points that you need to pay particular attention:

- ☐ Coverage of the inspection checklist or report should be adequate to cater for all activities on site;
- ☐ The location, area, date for non-conformity spotted, the priority of rectification action, the person responsible for rectification etc. should be clearly stated and recorded.
- ☐ Non-conformity identified in the checklist/form should be reflected and follow up in section/report for corrective actions;
- ☐ Non-conformity that may cause imminent danger such as no guardrail for floor edge/working platform or floor opening not covered etc. should require a prompt remedial action rather than allowance of rectification a couple of days after the inspection.
- ☐ The inspection finding(s) in the inspection report should accurately reflect the actual site conditions and cover ongoing site activities. Otherwise, the answer should be “No”.

Question 6.1.7 **Weighting: 6**

Are there appropriate actions taken as a result of the safety inspection findings?

Reference

The results of inspections should be brought to the attention of the senior management. Information from safety inspections should be evaluated promptly to identify immediate risks and to ensure that appropriate remedial action is taken without delay. Any corrective action should be implemented as quickly as reasonably practicable. The inspection system should have a way of checking that remedial action is taken and monitored by the senior management.
(Code of Practice on Safety Management Section 5.5.4)

Audit Criteria

- ☐ Corrective action reports show that safety problems are resolved in a timely manner.
- ☐ Inspection reports are provided to relevant managers and supervisors for follow up action.
- ☐ Person to follow up the non-conformance items should be identified and target date for completion should be specified.
- ☐ Repeating of the same non-conformity on site should not be acceptable as it reflects problems on the effectiveness and thoroughness of inspection and the monitoring system on site.

Question 6.1.8 **Weighting: 6**

Are there appropriate steps taken to collate and analyse the results of safety inspections?

Reference

A contractor should keep full records of each inspection with details of both positive and negative findings. Such reports should be analysed to identify repeated substandard situations and their underlying causes. Records of inspections should be kept for a period of not less than 3 years. *(Code of Practice on Safety Management Section 5.5.4)*

Audit Criteria

- ☐ Inspection records and trend analysis report should be submitted for verification purposes.
- ☐ Trend analysis of safety inspection results should be done at least half yearly to provide reference for preventive safety programme.
- ☐ Consolidated safety inspection results and the most updated trend analysis should be reported in monthly safety committee meeting.

Question 6.1.9 **Weighting: 3**

Has a implementation plan of Smart Site Safety System (SSSS) been developed and strictly implemented?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
- ☐ Submit implementation plan of the SSSS to the CM within 14 days from the notified date for commencement of the Works for approval by the CM. The implementation plan shall include:

  a. A general description on overall SSSS setup, including site telecommunication networking, list of individual SSSS components, implementation and operation schedule and a management plan with designated key personnel other than safety personnel for SSSS general implementation and maintenance;

  b. Site telecommunication network proposal for supporting SSSS implementation;

  c. Details of all computer hardware and software and the associated furniture for SSSS;

  d. Proposal for each SSSS component to be implemented:

  i. The proposal for each SSSS component specified;

  ii. Each SSSS component proposal shall include, but not limited to the following:

  - Actual body vital sign data shall not be displayed on the platform for privacy protection;
  - Details on the corresponding SSSS component performance specifications;
  - A location plan for the corresponding SSSS devices and sensors setup during the progress of the Works, and the arrangement of video cameras where SSSS components include video cameras;
  - Specification of computer system, including all associated hardware and software supporting the Centralised Management Platform;
  - The format, report and presentation details of the dashboard for the Centralised Management Platform;
  - Details, layout and furniture for housing the Centralised Management Platform inside the site office;
  - Action plan on Site Personnel's required actions and responses to SSSS components

generated alarm / alert or identified unsafe acts / conditions which shall include details on immediate / follow-up actions required, recommend response time, designate responsible supervising personnel and establish procedures to record all incidents triggered by SSSS components;

- Details on the emergency support services provision for the SSSS components where necessary, which shall also include an alternative monitoring back-up plan for each of the SSSS components in case where malfunctioning of any of the SSSS component cannot be rectified in a short period of time.

☐ Review and update the implementation plan on SSSS monthly according to the prevailing site condition. The review of implementation plan on SSSS shall be one of the agenda items of the Site Safety Committee meetings.

☐ Submit monthly report on implementation of SSSS components on Site to the CM in advance of the monthly Site Safety Committee meeting for record. The monthly report shall include, but not limited to, updates on Site SSSS components setup, operation, malfunction, interruption and modification, etc. The report shall also include a summary of all SSSS components triggered incidents, including false alarm, with details of the incidents, the actions taken and the response time, the consequence of incidents and the follow up actions, and the site monitoring and analysis report on the unsafe practices / behaviours detected on Site and the warning signals / alerts issued and associated measures retrieved from the Centralised Management Platform.

☐ Adopt more than one telecommunication network systems available in the market, including but not limited to Wi-Fi, broadband network, 4G/5G network, Bluetooth, LoRa, Ultra wideband etc., to suit each of the proposed SSSS components and with respect to the progress of the Works.

☐ Contractor should assign competent personnel with relevant knowledge, experience and training to check and ascertain the proper functioning of the SSSS components, such as correct alarm triggering, real-time transmission and receiving of warning / alert signal between devices and concerned workers, supervisors and stations etc., before commencement of works on each day. Any irregularity observed during daily checks shall be recorded and rectified before conducting any related work activities. The daily check records with the irregularity and rectification records shall be kept on the Site.

Question 6.1.10 **Weighting: 3**

Has a Centralized Management Platform (CMP) been developed, checked and ascertained to support the implementation of an efficient and effective Smart Site Safety System (SSSS)?

Audit Criteria

☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.

☐ Implement efficient and effective smart site safety system (SSSS) with aid of wireless communication technologies incorporated with facial recognition system, Artificial Intelligence System, RFID, infrared, Internet of Things (IoT), Ultra wideband (UWB), Long Range (LoRa), etc. , for authenticating authorised operation of mobile plant or equipment, controlling access, alerting to unsafe acts or conditions and checking data for personnel,

plants, equipment, tools and materials.

- ☐ Provide and operate a Centralised Management Platform (CMP) to respond, manage and record signals / alerts received from all SSSS components implemented on the Site. The CMP shall be run in automatic mode. The CMP shall be compatible and able to work with the BIM model of the Contract in case one is provided. A trained superintendent of the Contractor shall be assigned to oversee the operation of the CMP during working hour of the Site and promptly attend to the alerts / signals for taking immediate actions to address the alerts / signals or emergency situations.
- ☐ Ensure that the SSSS shall have 99.9% uptime during working hours and at other time when the Contractor is working or other time as advised by the CM.
- ☐ Ensure uninterrupted operation of the CMP upon setting up with the necessary backup and support in terms of equipment, device, power supply, data storage, telecommunication connection, maintenance and repair personnel and emergency support;
- ☐ Develop a CMP dashboard that can display video, audio, image and data transmitted from different SSSS components on corresponding CMP monitors and ensure the various signals will not interfere with one another or become corrupt. The CMP shall have the capacity to control, monitor, manage and maintain simultaneous operation of all SSSS components under a single platform. The CMP shall also be designed to display various warning signals from different SSSS components with highlighted pop-up notification display on corresponding CMP monitors. Such pop-up notifications shall include details of warning and necessary follow up actions. The CMP shall allow concurrent access by not less than 30 users;
- ☐ The CMP shall support real-time distributed event data streaming for large volume and high speed data handling. It shall support real-time video streaming from the safety monitoring system using artificial intelligence;
- ☐ Develop a CMP dashboard with a unique website link based on signals collected from SSSS.

Question 6.1.11 **Weighting: 6**

Has internal safety audit been conducted to ensure continuous improvement to the safety management system?

Audit Criteria

- ☐ Internal safety audit should be conducted to assess the effectiveness and thoroughness of the safety management system. If an internal audit report provided does not fulfill the requirement on competence, independence and coverage, the answer should be “No”. There is an arrangement for internal audit and yet if the first internal safety audit is not due when the first audit is conducted, the answer should be “N/A”.
- ☐ Internal safety audits should be conducted not less than once in each six months period beginning with the day on which the undertaking comes into existence.
- ☐ If the internal safety auditor is an employee of the contractor, the contractor should only require him/ her to carry out work relating to conducting the safety audit.

Section 7 **Job Hazard Analysis**

Sub-section 7.1 **A Programme to Identify Hazardous Exposure or Risk**

Question 7.1.1 **Weighting: 6**

Has a survey of overall prevailing activities been conducted to identify all anticipated work activities and the need for risk assessments?

Reference

The contractor should establish and maintain a programme for identification of job hazards, assessment of risks, development, implementation and maintenance of safety procedures and risk control measures and review.

(Code of Practice on Safety Management Section 5.11.1)

Audit Criteria

- ☐ Auditor should check whether the auditee use the task-hazard inventory to identify formally what risk assessments are needed.
- ☐ Efforts are made to identify hazards using information sources such as site records, safety inspections, incident reports, reports from workers.
- ☐ All high-risk activities such as erection and dismantling of steel structure , loading operation of batching plant, welding in confined area e.g. welding in plant room; water tank; fabrication of metal cage etc. that will be anticipated should be identified in the survey.
- ☐ Auditor should comment and advise the auditee to review the survey and prepare risk assessment for all the construction activities anticipated.
- ☐ Missing of any anticipated activities in the survey should be treated as non-conformity.

Question 7.1.2 **Weighting: 6**

Does the safety plan lay down procedures and methods for ongoing identification of hazards, risk evaluation and development risk control measures?

Reference

The relevant industrial undertaking should establish and maintain a programme for identification of job hazards, assessment of risks, development, implementation and maintenance of safety procedures and risk control measures and review. The programme should aim at:

(a) identifying new hazards;
(b) evaluating the risks associated with the hazards;
(c) analyzing the effects or the potential effects resulting from these risks, and
(d) developing and implementing means to eliminate the risks or to reduce them to a tolerable level.

(Code of Practice on Safety Management Section 5.11.1)

Audit Criteria

- ☐ There is a procedure which sets out how the risk assessment process operates in the site and in safe working cycle activity.
- ☐ Health assurance program (HAP) is health risk assessment taken to protect site personnel from occupational health hazards. (HAP in Element 12 covers health risks in 4 perspectives, namely (a) Substances Hazardous to Health; (b) Sprains, Strains and Pains (related to manual handling); (c) Noise; and (d) Adverse working condition such as heat stress issue and cold working environment; and welfare facilities.) The Risk assessment for Display Screen Equipment (DSE) should be covered by sub-section 14.1.9 Occupational Safety and health

in offices.

- ☐ The methodology of risk assessment should be formulated in the project safety plan.

Question 7.1.3 **Weighting: 9**

Does the risk assessment and evaluation cover a systematic examination of the likelihood and consequences to people, environment and assets, and is it properly recorded?

Reference

The risk associated with a hazard is a reflection of the likelihood that the hazard will cause harm and the severity of that harm. The two elements of risk, i.e. likelihood and severity, are independent of each other. The vast majority of hazards are relatively straightforward and requiring only a simple method of risk rating. The method incorporates a judgment as to whether or not a risk is tolerable.

(Code of Practice on Safety Management Section 5.11.4)

Audit Criteria

- ☐ Identified hazards are assessed to determine their likely impact and appropriate risk controls are developed.
- ☐ Risk assessment sheets only consist of activities, potential hazard, control measures and actions, without probability and consequence are considered inadequate and the answer should be "No".
- ☐ A proper risk assessment should be written on an assessment sheet with risk rating and appropriate risk control measures for controlling hazards.
- ☐ Auditor should comment on the content of the risk assessment report. A sample of risk assessment reports of high risk activities (especially newly added or revised) should be submitted as evidence for verification.
- ☐ A master list of all risk assessment reports should be submitted as evidence for verification.

Question 7.1.4 **Weighting: 9**

Are risk assessments carried out and conducted by competent persons and are records maintained?

Reference

The contractor should appoint a competent person to carry out risk assessment. A competent person is a person who is –

(a) appointed by the contractor to ensure that the duty is carried out; and

(b) by reason of substantial training and practical experience competent to perform the duty.

(Code of Practice on Safety Management Section 4.1.1(4))

The contractor should ensure that persons responsible for the analysis of hazards, evaluation of risks, and determination of the means of eliminating or reducing any risks are competent and given the necessary support so that they can perform their duties effectively.

(Code of Practice on Safety Management Section 5.11.1)

Audit Criteria

- ☐ The coverage and the applicability of the safety measures for hazardous activities are

subject to challenge if safety officer is the only one carrying out the risk assessment. The frequent missing out of high-risk activities commonly observed reflected that the present practice of some contractors needs improvement.

- ☐ Unless the safety officer is competent and knows all activities well, the existing arrangement of risk assessment need to be reviewed such as setting up a risk assessment team consists of engineer, project manager, site agent etc. who are knowledgeable on the construction activities. Otherwise, the answer should be "No".
- ☐ Qualified Engineer (QE) should be participated in risk assessment team when conducting risk assessment related to Temporary Works, Blasting and Slope Works. Otherwise, the answer should be "No".
- ☐ The risk assessment is conducted by competent persons with sufficient training (not less than a two-day, 12 hours, risk assessment course organized by OSHC or equivalent). It is normally conducted by a team of site personnel.
- ☐ Persons who have attended 27-hr "Safety Training Course for Site Management Staff" training course and Registered Safety Officer are considered as trained personnel.

Question 7.1.5 **Weighting: 9**

Are the recommended risk control measures appropriate for the identified hazards and risk evaluation?

Reference

Risk assessment and risk control should

(a) be part of element 6 programme for inspection of hazardous conditions;

(b) be a major component in the element 8 personal protection programme &

(c) be an essential part of the element 12 health assurance programme .

(Code of Practice on Safety Management Section 5.11.1)

Audit Criteria

- ☐ Safe work practices are developed using the information gained from the risk assessment process. Apart from generic risk assessments, task-specific risk assessments are required for all high-risk activities.
- ☐ The critical items or parts identified during risk assessment are for reference in development of safety inspection programme. The relevant specific in-house safety rules, safety training, emergency preparedness and personal protection programme should be developed with due consideration of the results.
- ☐ The need of task-specific personal protective equipment should be identified as part of the risk assessment. Auditor should verify whether identified personal protective equipment is suitable for the risk control measures. Otherwise, the answer should be "No".
- ☐ Task-specific risk assessments for high-risk activities should be submitted for verification purposes and auditor should comment on the adequacy and appropriateness of the developed risk control measures. If the recommended risk control measures do not mitigate the associated risk in a reasonable manner, the answer should be "No".

Question 7.1.6 **Weighting: 9**

Are there appropriate steps taken to ensure the implementation of the recommended control measures?

Reference

For safety procedures and risk control measures to be implemented effectively and efficiently, they should be as far as practicable developed at the workplace with the participation of all levels of staff. Feedback from people implementing the safety procedures and risk control measures should be encouraged so that improvement to the procedures and measures can be made.

Maintaining safety procedures and risk control measures requires scheduled inspections and maintenance. It also requires the enforcement of discipline to ensure that people do not tamper with safety procedures and risk control measures (e.g. by removing machine guards).
(Code of Practice on Safety Management Section 5.11.6)

Audit Criteria

- ☐ Everyone in the site knows about the hazards they face and the risk control measures that are applied.
- ☐ Physical verification is necessary to assess whether critical risk control measures stated in risk assessment reports are strictly implemented on site.

Question 7.1.7 **Weighting: 6**

Is there an arrangement to review and update the risk assessment?

Reference

Whatever safety procedures and risk control measures are used, they should be reviewed if there is reason to suspect that they are no longer effective, or if there has been a significant change in the matters to which they relate.

Examples are:

(1) When information is obtained about a previously unknown design or manufacturing fault, or about a previously unidentified hazard.
(2) When the design is revised or modified.
(3) When the system of work associated with the plant is changed.
(4) When the plant is moved.
(5) When there is a change to the workplace environment.

(Code of Practice on Safety Management Section 5.11.7)

Audit Criteria

- ☐ All risk assessments should be reviewed at least annually, depending on the project progress and site situation.
- ☐ Apart from the regular review of the risk assessment, the assessment should also be reviewed or updated if there was an accident happened/ receive a suspension notice or improvement notice from Labour Department to a process or an activity. Otherwise, the answer to this question should be “No” if no review or updating.

Sub-section 7.2 Safety Procedures, Method Statements and Specialised Permits

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Question 7.2.1 **Weighting: 6**

Are control measures such as safe working procedures/method statements/permit-to-work developed based on the results of risk assessment?

Reference

Safety procedures and risk control measures are procedures and measures to be put in place to reduce risk to a tolerable level. When deciding on safety procedures and risk control measures, the list below should be considered, in the order given. Safety procedures and risk control measures lower down the list should only be used if it can be shown that using a procedure and/or measure higher up the list is not reasonably practicable.

List of safety procedures and risk control measures

(1) Procedures and measures to eliminate hazards at source: for example, using a non-hazardous substance instead of a hazardous one.
(2) Procedures and measures to reduce hazards at source: for example, replacing a noisy machine with a quieter one.
(3) Procedures and measures to remove workers from the hazard: for example, paint spraying by unattended robots.
(4) Procedures and measures to contain hazards by enclosure: for example, installing sound proofing enclosure for a noisy machine.
(5) Procedures and measures to reduce worker exposure: for example, reducing exposure to noise by reducing the hours of work.
(6) Procedures and measures to ensure the proper use of personal protective equipment as the last resort; for example, using hearing protectors for workers operating noisy machines.

(Code of Practice on Safety Management Section 5.11.5)

Audit Criteria

- ☐ Auditor should verify with site management whether auditee has developed the safe working procedures/method statements/permit-to-work, etc. based on the results of the risk assessment.
- ☐ The safe working procedures/ method statements should lay out a simple working procedure and sequence of operation for operatives involved in the task or operation.
- ☐ Pictorial/ graphical presentation of safe working procedures/ method statements of identified high risk operations should be prepared for better understanding of front-line personnel.
- ☐ A master list of all safe working procedures/ method statements should be submitted as evidence for verification.

Question 7.2.2 **Weighting: 6**

Is there a written specification of the control measures for each hazard, which includes work sequences, plant and equipment, protective clothing/equipment and training?

Audit Criteria

- ☐ Auditor should verify the appropriateness of the work sequences and written control measures for major hazards. The safe working procedures/ method statements should be results from the risk assessment carried out for the task or operation and the critical control

measures should be identified.

- ☐ The required plant, equipment, personal protective equipment and safety training for the task or operation should be identified.

Question 7.2.3 **Weighting: 6**

Is there a written specification for managers, supervisors or the personnel responsible for ensuring the implementation of the control measures for each hazard?

Audit Criteria

- ☐ Auditor should verify the safety responsibilities have been allocated to relevant staff.
- ☐ Auditor should interview site personnel such as site supervisory staff, workers, etc. to verify if they understand their role and responsibilities of the task or operation.

Question 7.2.4 **Weighting: 6**

Have the developed safe working procedures/method statements/permit-to-work been communicated to the relevant personnel?

Audit Criteria

- ☐ Auditor should interview site personnel such as site supervisory staff, workers, etc. to verify if they understand the developed safe working procedures/ method statements/ permit-to-work.
- ☐ Proof of communication for safety instructions and working procedures is needed such as induction training, specific training, refresher training and toolbox talk, etc.
- ☐ On-site verification is necessary to assess whether critical risk control measures stated in risk assessment reports are strictly implemented on site.

Question 7.2.5 **Weighting: 6**

Is there an arrangement to review and update the safe working procedures/method statements/permit-to-work?

Audit Criteria

- ☐ Auditor should verify safe working procedures/method statements/permit-to-work have been reviewed to assess their on-going effectiveness. All the working procedures should be reviewed if there has been a significant change in the matters to which they are related.
- ☐ Apart from regular review, the safe working procedures/method statements/permit-to-work should be also reviewed if there was an accident happened or a suspension notice received from Labour Department. Otherwise, the answer should be “No”.

Section 8 **Personal Protection Programme**

Sub-section 8.1 **Provision of Suitable Personal Protective Equipment**

Question 8.1.1 **Weighting: 3**

Have all requirements for the provision of protective clothing/equipment been identified in the safety plan?

Reference

Personal protective equipment (PPE) includes the following:

Gloves, safety footwear, safety helmets, high visibility waistcoats, aprons, protective clothing for adverse weather conditions, eye protectors, hearing protectors, life-jackets, respirators, breathing apparatus including those used underwater, and safety harness. *(Code of Practice on Safety Management Section 5.6.2)*

Audit Criteria

- ☐ The project safety plan should specify the requirements for PPE. All requirement and contractual requirement for each PPE should be identified in the project safety plan.
- ☐ A list of PPE standards should be submitted for verification. Auditor should verify whether the listed requirements and PPE standards recommended are related to the hazards identified in the risk assessment. Otherwise, the answer should be "No".

Question 8.1.2 **Weighting: 3**

Is there an arrangement for the selection and procurement of appropriate protective clothing/equipment?

Reference

The contractor should determine what type of PPE is required, taking into consideration the legal requirements for specific situations, the intended use of the PPE, the manufacturer's product standards, the design of the PPE (in line with the principle of ergonomics?), acceptability of PPE to its wearer and user, and, if used in conjunction with other PPE, the question of compatibility, etc. Certain respiratory protective equipment may impose significant physiological burdens to the users. The proprietor or contractor should ensure that the users are medically fit for using the PPE.

(Code of Practice on Safety Management Section 5.6.2)

Audit Criteria

- ☐ Arrangement includes the provision of safety information, written specifications, and related data.
- ☐ Auditor should verify if the PPEs used on site are conforming to suitable standards ; otherwise, the answer should be "No".
- ☐ Contractor should provide each of operatives and site supervisory staff (also includes all visitors) with safety helmets with ventilation vents and Y-type chin straps.
- ☐ The Y-type chin strap shall be supplied by the same manufacturer of the safety helmet used and have a clear identification label, the manufacturer name, model number, and a proof that the safety helmet with the chin strap comply with BS EN397 or other current international and national standards recognized by Labour Department. If the manufacturer of safety helmet does not produce Y-type chin strap, then the manufacturer of safety helmet shall produce test certificate and test report issued by a BSI / CSA / or an approved third party accredited laboratory for compatible Y-type chin straps to demonstrate compliance with BS EN397.
- ☐ Clothing and footwear : provide each of the operatives (other than casual workers who are expected to work on Site for not more than an aggregate total of 7 working days throughout the duration of the Contract) and site supervisory staff with and ensure that each of them

wears on Site the following items:

- Anti-heat stress uniform comprising polo shirt in short sleeves and long sleeves to suit the weather and trousers;
- Reflective vest (for operatives and site supervisory staff involved in lifting operation, roadworks outside Site and controlling vehicular traffic except the tower crane operator);
- High visibility background material with colour complying EN20471 of specified colour fluorescent yellow, fluorescent orange-red or fluorescent red with minimum area of 0.5 square metre, mesh knitted;
  - Retroreflective strips: 50 mm in silver gray with fabric backing, conforming to photometric performance requirements as mentioned in EN20471 class 2;
  - Be durable and can still comply with EN20471 class 2 after washing for a minimum of 25 cycles;
  - The supplier shall submit test reports on retroreflective materials for demonstrating compliance with the following requirements under EN20471 class 2: photometric performance (initial), abrasion, flexing, folding at cold temperatures, exposure to temperature variations, washing and influence of rainfall.
- Wind breaker (to suit the weather);
- Safety boots (except for bamboo scaffolders, plasterers and tilers).
- Eye and ear protection : ensure that
  - Operatives of grinding machines and cutting wheels wear goggles;
  - Operatives chiselling or drilling rock or concrete wear goggles;
  - Welders use visors;
  - Operatives of percussion tools wear ear mufflers;
  - Operatives handling corrosives wear goggles;
  - Operatives using hand held cartridge-operated tools wear goggles and ear mufflers;
  - Operatives of digging operations wear goggles; and
  - Operatives working under direct sunshine wear sunglasses complying with EN166 or equivalent standard.
- Protection for hands : ensure, albeit not exhaustive, that
  - Operatives wear protective cotton gloves to facilitate better grip of objects by absorbing sweat when handling sharp edges and corners;
  - Operatives wear fire retardant leather gloves during gas welding;
  - Operatives wear cut-resistant gloves during cutting;
  - Operatives wear chemical-proof gloves with high mechanical strength when handling chemicals;
  - Operatives wear plastic gloves when handling corrosives;
  - Operatives wear heat insulating gloves when handling hot objects;
  - Operatives wear leather gloves when handling steel reinforcement or sharp objects;
  - Operatives wear electric insulating gloves when carrying out electrical works and electric welding;
  - Operatives wear anti-shock gloves when operating vibrating machines; and
  - Operatives wear anti-slip gloves to facilitate better grip of bamboo sticks when dismantling bamboo scaffolds.

Question 8.1.3 **Weighting: 6**

Has a sufficient stock of carefully selected and appropriate protective clothing/equipment been ensured?

Reference

Steps to ensure adequate supply of PPE, including replacement supply and spare parts. *(Code of Practice on Safety Management Section 5.6.2)*

Audit Criteria

- ☐ Sufficient stock of PPE is provided.
- ☐ Auditor should verify the inventory management system for PPE, whether personal issue or job specific. No inventory record needs to be submitted for verification. Minimum stock level of each PPE should be arranged so as to ensure adequate supply.
- ☐ There are adequate and secure facilities provided for employees to store their personal protective clothing / equipment.

Question 8.1.4 **Weighting: 6**

Has an effective system for the issuance and recording of protective clothing / equipment been established?

Audit Criteria

- ☐ Auditor should verify that there is an appropriate issuing facility to ensure all PPE, e.g. safety harness and safety goggles, on the site with cleaning and maintenance capability.

Question 8.1.5 **Weighting: 6**

Has an effective system for the inspection of protective clothing / equipment and their replacement been established?

Audit Criteria

- ☐ System includes inspection of items upon receipt, handling, storage and control of received PPE items, as well as recording issuance and use of PPE.
- ☐ Special attention shall be addressed to the guidelines in the inspection before use, maintenance procedures, proper storage techniques in accordance with the manufacturer's recommendations and instructions.

Question 8.1.6 **Weighting: 6**

Are there procedures to ensure the proper use of protective clothing/equipment and the provision of training and instruction?

Reference

1. Steps (including supervision) to ensure that workers make proper use of PPE.
2. Adequate training, information and instruction to ensure that workers make safe and proper use of PPE and can maintain it properly.
3. Maintenance should include, where appropriate, cleaning, disinfection, examination, replacement, repair and testing. The responsibility for carrying out maintenance should be

clearly laid down, together with the details of the procedures to be followed and their frequency. Where appropriate, records of tests and examinations should also be kept.

Training, information and instruction should include:

(a) an explanation of the risks present and why PPE is needed;
(b) the operation, performance and limitations of the PPE;
(c) instructions on the selection, use and storage of PPE;
(d) factors affecting the protection provided by the PPE;
(e) identify defects in the PPE and arrangements for reporting loss or defects; and
(f) hand-on practice in putting on, wearing, removing, inspection, testing and maintenance of PPE.

(Code of practice on Safety Management section 5.6.2)

Audit Criteria

- ☐ Auditor should verify there is procedure(s) to instruct, train and practice in use of PPEs.
- ☐ Training should refer to the manufacturer's instruction and the importance for the strictly following.
- ☐ Ensure proper use of PPE through routine supervision and through monitoring via safety inspection.
- ☐ Safety supervisor or the foreman should remind workers to double check their personal protective equipment. Personal protective equipment should also be an item in morning safety meeting and prior to work inspection. Provision of instruction or replacement of PPE is necessary if the PPE is not proper used or damage found.

Question 8.1.7 **Weighting: 6**

Are there appropriate steps taken to monitor the personal protective equipment brought into site including by sub-contractors or workers?

Reference

This includes the steps to monitor the effectiveness of the PPE during use by observing the actual protection provided by the PPE. The results of monitoring would be very useful in providing information for reviewing the selection of the PPE.

(Code of Practice on Safety Management Section 5.6.2)

Audit Criteria

- ☐ Auditor should verify there is procedure(s) to monitor PPEs in use.

Section 9 **Accident / Incident Investigation**

Sub-section 9.1 **Develop Prompt Arrangement to Prevent Recurrence**

Question 9.1.1 **Weighting: 6**

Is there a detailed procedure to ensure that all accidents, incidents and dangerous occurrences are promptly reported and recorded?

Audit Criteria

- ☐ All accidents, incidents and dangerous occurrence refer to ALL cases should be reported

and recorded regardless of the level of severity.

- ☐ Auditor should check the document such as the safety plan to find out whether there is a procedure that can meet the criteria of prompt reporting and recording of accident and dangerous occurrence (including time frame). The detailed procedure should be able to ensure that all accidents and dangerous occurrences are promptly reported and recorded.
- ☐ Report accidents, incidents and dangerous occurrence as defined in the Factories and Industrial Undertakings Regulations to LD in the prescribed Form 2 with Supplementary Information on Accidents on Construction Sites & Dangerous Occurrence Report Form.
- ☐ Notify the CM immediately of all 'reportable accidents' as defined under the Factories and Industrial Undertakings Regulations and of the accidents, incidents to be reported in prescribed forms using smartphone or the web through the Housing Authority Safety Alert Module and followed by submission of a hard copy of the completed documents to the CM under the accident, incident reporting procedures of the HD set out at the Housing Authority Site Safety Website and comply with the procedures.
- ☐ (1) Non-serious accident
    - Contractor to notify HD site staff and HD professional for conventional contract (PSP site supervisory team, PSP professional, HD site surveillance team for D&B contract) immediately.
    - Contractor to create preliminary F787, forward to HD site staff for conventional contract (PSP site supervisory team for D&B contract) for vetting within 24 hours
    - Within 7 days, Contractor to submit to :-
        1. LD, Form 2 and Supplementary Information on Accidents on Construction Sites (SIS)
        2. CM, duplicate of SIS, and Form no. DCMP-F787 (via HD site staff and HD professional for conventional contract) (via PSP site supervisory team, PSP professional and HD professional for D&B contract)
- ☐ (2) Serious/fatal accident
    - Contractor to notify : -
        1. HD site staff, HD professional for conventional contract (PSP site supervisory team, PSP professional, HD site surveillance team and HD professional for D&B contract) and Police immediately.
        2. LD within 24 hours.
    - Contractor to create preliminary F787, forward to HD site staff for conventional contract (PSP site supervisory team for D&B contract) for vetting within 24 hours.
    - Within 7 days, Contractor to submit to: -
        1. LD, Form 2 and SIS.
        2. CM, duplicate of SIS, and Form no. DCMP-F787 (via HD site staff and HD professional for conventional contract) (via PSP site supervisory team, PSP professional and HD professional for D&B contract).
    - Contractor to submit Root Cause Analysis to CM within 2 weeks.
- ☐ (3) Dangerous Occurrence
    - Contractor to notify : -
        1. HD site staff and HD professional for conventional contract (PSP site supervisory team, PSP professional, HD site surveillance team and HD professional for D&B contract) immediately.
        2. LD within 24 hours and submit Dangerous Occurrence Report Form.

(3a) For DO involving inquiry

- Contractor to create preliminary F787, forward with DO form to HD site staff for conventional contract (PSP site supervisory team for D&B contract) for vetting within 24 hours.
- Within 7 days, Contractor to submit to :-
    1. LD, Form 2 and SIS.
    2. CM, duplicate of SIS and Form no. DCMP-F787 (via HD site staff and HD professional for conventional contract) (via PSP site supervisory team, PSP professional and HD professional for D&B contract).

☐ (4) Near miss/incident with potential serious consequence
- Contractor to notify HD site staff and HD professional for conventional contract (PSP site supervisory team, PSP professional, HD site surveillance team and HD professional for D&B contract) immediately.
- Contractor to create preliminary F787, forward to HD site staff for conventional contract (PSP site supervisory team for D&B contract) for vetting within 24 hours.
- Within 7 days, Contractor to submit to CM Form no. DCMP-F787 (via HD site staff and HD professional for conventional contract) (via PSP site supervisory team, PSP professional and HD professional for D&B contract).

☐ (5) Death of person(s) not due to industrial accident
- Contractor to notify : -
    1. HD site staff and HD professional for conventional contract (PSP site supervisory team, PSP professional, HD site surveillance team and HD professional for D&B contract) and Police immediately.
    2. LD within 24 hours.
- Contractor to create preliminary F787, forward to HD site staff for conventional contract (PSP site supervisory team for D&B contract) for vetting within 24 hours.
- Within 7 days, Contractor to : -
    1. LD, Form 2 and SIS.
    2. CM, duplicate of SIS, and Form no. DCMP-F787 (via HD site staff and HD professional for conventional contract) (via PSP site supervisory team, PSP professional and HD professional for D&B contract).

☐ Auditors need to comment on “prompt” reporting and recording. It should be within a reasonable period of time such as serious accident immediately reported to site agent/project manager etc.

☐ Auditor should also interview site personnel such as workers, foreman, etc. to verify the effectiveness of the procedure.

☐ The answer should be “No” if there is any late reporting case(s) for incident, accident and dangerous occurrence. The information from Housing Department shall be used as a reference.

☐ There should be no “N/A” even though there is no accident. Auditor should verify the accident reporting procedures as well as verification with site personnel to ensure they understand the procedure. The answer should be “No” if there is no detailed procedure or the verification proves procedure not effective.

Question 9.1.2 **Weighting: 6**

Is there a detailed procedure to ensure that all accidents, incidents and dangerous occurrences are promptly investigated?

Audit Criteria

- ☐ All accidents/incidents and dangerous occurrence refer to ALL cases no matter it is serious or not.
- ☐ Auditor should check the document such as the safety plan to find out whether there is a procedure that can meet the criteria of prompt investigation of accident and dangerous occurrence (including time frame). The detailed procedure refers to procedure that is capable of ensuring all accidents and dangerous occurrences are promptly investigated.
- ☐ (1a and 1b) Non-serious accident/Non-serious accident with potential serious consequence
  - Contractor to submit investigation report to CM within 2 weeks, and submit Form no. DCMP-F7100 if hospitalization over 1 week is involved.
  - For hospitalization in intensive care unit and involving operations, contractor to submit Root Cause Analysis to CM within 2 weeks.
- ☐ (2) Serious/fatal accident
  - Contractor to submit Root Cause Analysis to CM within 2 weeks.
- ☐ (3) Dangerous Occurrence
  - Contractor to submit Root Cause Analysis to CM within 2 weeks.
- ☐ (4) Near miss/incident with potential serious consequence
  - Contractor to submit Root Cause Analysis to CM within 2 weeks.
- ☐ Auditors need to comment on "prompt" investigation. It should be within a reasonable period of time such as serious accident is immediately investigated by a team consists of Registered Safety Officer.
- ☐ Auditor should also interview site personnel such as workers, foreman, etc. to verify the effectiveness of the procedure.
- ☐ There should be no "N/A" even though there is no accident. Auditor should verify the accident reporting procedures as well as verification with relevant site personnel such as project manager/site agent (or personnel who is responsible for carrying out the investigation) to ensure they understand the procedure.
- ☐ The answer should be "No" if there is (a) no detailed procedure; (b) not ALL accidents/dangerous occurrences investigated promptly; (c) the verification proves procedure not effective.
- ☐ Auditors may need to advise auditee whose safety plans committed only to prompt investigation of serious cases. This is considered generally a higher standard than the normal trade practice.

Question 9.1.3 **Weighting: 3**

Does the person responsible for accident /incident investigation and reporting receive formal training?

Reference

Investigations should be led by someone with the status and knowledge to make authoritative recommendations. Usually, this will be a line manager or a safety officer. However, if events have serious or potentially serious consequences, a safety and health consultant/advisor, a medical or nursing advisor, technical staff or equipment suppliers may be called in to provide assistance, and senior managers should be involved from the very beginning. Adequate training in relevant techniques should also be provided.

(Code of Practice on Safety Management Section 5.7.1)

Audit Criteria

- ☐ Auditor should verify the auditee has provided competent and well trained staff (project manager, site agent, and safety officer) with clearly defined responsibilities for accident/incident investigation and reporting.
- ☐ Auditee should assign trained personnel (at least completed a one-day (8 hours) accident investigation training course organized by OSHC or equivalent) to carry out accident/incident investigation.
- ☐ Persons who have attended 27-hr "Safety Training Course for Site Management Staff" training course and Registered Safety Officer are considered as trained personnel.
- ☐ Simple incident can be done by individual but serious one should be done by a team consists of Registered Safety Officer.

Question 9.1.4 **Weighting: 6**

Does the accident/incident investigation report cover at least the circumstances, causes of accident and recommendations for preventing the recurrence of accident/incident?

Reference

(a) Details of the injured person, including age, sex, experience, training, etc.;
(b) A description of the circumstances, including the place, time, and conditions at the scene;
(c) The direct causes of injuries, ill health or other losses;
(d) The underlying causes like failures in workplace precautions, safety procedures, risk control systems or management arrangements; and
(e) Details of the outcome, including in particular:
  i. The nature of the outcome – examples are injuries, ill health, damage to property, process disruptions and creation of hazards;
  ii. The severity of the harm caused, including the seriousness of injuries, ill health and losses;
  iii. The immediate management response to the situation and its effectiveness. This involves the consideration of the following questions:
    - Has the situation been dealt with promptly?
    - Have the continuing risks been dealt with promptly and adequately?
    - Has the first-aid response been adequate?
    - Have emergency procedures been followed properly?
  iv. Recommendations to prevent the recurrence of the accident or incident.

(Code of Practice on Safety Management Section 5.7.2)

Audit Criteria

- ☐ Auditor is required to comment on the whole accident report. If there are too many accidents, auditor can get the overall summary of the causes of the accident before deciding which accident reports are sampled to comment. Generally, serious accidents such as fatal or DO should be the priority. Accidents that are frequently occurred should also look into. The comment could be purely based on the information of the accident report. Where necessary, verification with knowledgeable person will help in arriving at a desirable and acceptable recommendation.
- ☐ A copy of the selected accident report(s) with related information (if any) should be submitted as evidence for OSHC verification.

- ☐ Any audit report that does not have comment on the accident report for the question must clarify.
- ☐ The accident / incident investigation shall include, but not limited to, the following major items:
  - Causes of the sub-standard safety performance;
  - Potential deficiencies of the safety control system;
  - Areas of review and lessons learnt;
  - Recommendations to prevent recurrences;
- ☐ Improvements to the safety control system to meet the Legislations and recommendations of the investigation report.
- ☐ If the recommendations on the report could not prevent the recurrence of similar accident/incident, the answer should be "No". The answer could be "N/A" if there is no accident/incident occurred.
- ☐ Even though the person in-charges are generally considered competent based on their title/training certificate obtained, auditor still can comment on their competency based on the audit findings ending up with "non-conformity".
- ☐ Root Cause Analysis was submitted onto the HA Safety Alert Module for serious/ fatal accidents, accidents involving hospitalization in Intensive Care Unit and operations, dangerous occurrences, near miss/ incidents with potential serious consequence.

Question 9.1.5 **Weighting: 6**

Have prompt actions been taken on the basis of the results of the investigations?

Reference

The contractor should ensure that there is a mechanism for implementing, with priorities, the aforesaid recommendations to prevent recurrence of accidents/incidents.
(Code of Practice on Safety Management Section 5.7.3)

Audit Criteria

- ☐ Auditor should check the document such as the safety plan to find out whether there is a procedure that can meet the criteria of prompt actions are taken on the basis of the results of the investigation.
- ☐ Auditors need to comment on "prompt action". It should be within a reasonable period of time such as control measures for serious accident are taken immediately.
- ☐ Auditor should also interview site personnel such as workers, foreman, etc. to verify the effectiveness of the procedure.
- ☐ The answer could be "N/A" if there is no accident/incident occurred.

Question 9.1.6 **Weighting: 3**

Is there an arrangement for ensuring the results of investigations and actions taken are notified to employees and where appropriate, to clients, sub-contractors and suppliers?

Audit Criteria

- ☐ After investigation, there should be a report on the detailed cause of the accident or dangerous occurrences and measures to prevent recurrence. A standard form provided by

the Architect/Engineer should be completed to enable them to prepare an up-to-date database on site accident statistics.

- ☐ Safety officer should prepare a monthly report of all accidents involving dangerous occurrence, death, personal injury irrespective of severity or damages to properties in or adjacent to the site. The report has to be endorsed by site agent and a copy will be sent to the Architect/Engineer. The monthly report will be discussed by the site safety management committee.
- ☐ A copy of accident report should be sent to the supervisors to keep them informed about the accident records of their departments.
- ☐ The accident will be released and posted on bulletin board to draw the attention of employees such as:
  - no-injury records
  - unusual accidents
  - frequent causes of accidents
  - charts showing reductions in accidents
  - simple tables comparing departmental records
- ☐ The agenda for the site safety meetings where employee/subcontractor representatives are presented should also include discussion on the causes of accidents and the preventive measures.
- ☐ There should be no 'N/A' even though there is no accident. Auditor should verify that the arrangement for ensuring the results of investigations and actions taken are notified to relevant parties as well as verification with site personnel to ensure that they understand the procedure. The answer should be 'No' if there is no detailed procedure or the verification proves that the procedure is not effective.

Question 9.1.7 **Weighting: 6**

Is there an arrangement to analyse common causes and trends in accident/incident data as an aid to accident prevention?

Reference

It is essential that a proprietor or contractor of a relevant industrial undertaking should perform statistical analysis based on the information collected from the investigation of accidents and incidents. The analysis will enable the management to identify common causes, features and trends which may not be apparent from the investigation of an individual event. This in turn provides valuable information for the management to review the safety plan and formulate corresponding action programmes.

A safety officer or line manager will be able to assist the proprietor or contractor in statistical analysis. However, in highly specialized areas involving, for example, complicated health issues, the proprietor or contractor may seek advice from professionals, like occupational health experts, on the setting up of a data base, and on the analysis and interpretation of the information.
(Code of Practice on Safety Management Section 5.7.4)

Audit Criteria

- ☐ Maintaining accident statistics and performing trend analysis serve the purposes of identifying trends and developing action plan to prevent recurrences. The arrangement

should include:

- The establishment of classifications of accident to group similar data for analysis.
- Housing Authority Safety Alert Module should be used. Purely showing the trend of frequency and incident rate are not acceptable, as they did not serve the purpose.
- Examples are the use of histogram or bar chart to show that a particular type of accident is increasing or decreasing in a period of time to assist the identification of the seriousness and to arrive at a control strategy.
- Use the analysis to provide objective support and justification for budget requests, training programs, or other management safety initiatives.

☐ There should be no "N/A" even though there is no accident. Auditor should verify that the arrangement for accident data analysis as well as verification with site personnel to ensure that they understand the procedure. The answer should be "No" if there is no detailed procedure or the verification proves procedure not effective.

Section 10 Emergency Preparedness
Sub-section 10.1 Emergency Planning, Response Plan and Recovery Plan

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Question 10.1.1 **Weighting: 3**

Does the emergency plan include arrangements such as means of fire escape, designation of a central gathering point, emergency lighting and power sources, availability and locations of emergency plants/equipment, emergency coordinator, emergency and rescue equipment, and liaison with emergency and medical services?

Reference

A working committee or similar set-up should be formed to work out the details of an emergency response plan for each of the possible emergencies on the list. The members of the working committee should come from the departments/sections likely to be involved in the possible emergency situations. The emergency response plan, covering what can and should be done, what equipment is necessary and what people are needed, should be developed for each emergency situation. It should be communicated to all workers and be made readily accessible to managers and supervisors. In addition, a notice outlining the plan should be posted up where it can be seen by all people. The emergency plan should, where appropriate, include the following:

(a) an alarm system;
(b) the procedures for reporting and declaring emergencies and, when they are over, announcing a return to normal;
(c) a control centre – its location and resources (such as radio equipment, records, engineering drawings, a list of supporting personnel, etc.);
(d) an emergency organisation – duties and responsibilities of emergency personnel;
(e) procedures to be followed by employees who must remain to perform critical operations before they evacuate;
(f) special teams for first aid, salvage, rescue, fire-fighting and other operations, if necessary, and their duties;
(g) training of team members, workers and staff;
(h) facilities and equipment to meet the needs of emergencies (such as communication equipment for use during emergencies, fire hoses, fire extinguishers, spill containment materials, breathing apparatus, masks and special suits, first aid boxes, and emergency

power supply to the main switchboard, sensors, alarm systems, and exit signs/lights.);
(i) an evacuation route map and a safe assembly point;
(j) a schedule for emergency drills to test readiness; and
(k) a list of the authorities to contact in case of emergency.
(Code of Practice on Safety Management Section 5.8.2)

Audit Criteria

☐ Auditor should verify the development of emergency plan is corresponding to the potential risks of the auditee.

Question 10.1.2 **Weighting: 3**

Is there an emergency plan for an effective and prompt response to emergency situations that may affect the safety of the site?

Reference

Formulate safety plan and emergency plans with documented procedures on communication, traffic arrangements, evacuation route, safe shelters, first aid facilities and back up services. (Guide on safety at work in times of inclement weather issued by Labour Department/OSHC)

Audit Criteria

☐ Auditor should verify the development of the plans on emergency situation.

☐ Notify HD resident site staff immediately in case of emergency.
An emergency situation means a situation requiring emergency assistance of fire services / police / ambulance etc. It includes:
- An accident which results in death or serious injury;
- A fire breaking out which requires rescue crews from Fire Services Department to effect control;
- A flood that causes or threatens life on site;
- A leakage of dangerous goods or chemicals;
- Any other accident / incident which creates a dangerous situation (e.g. trapped in a suspended working platform).

☐ Evacuation plans to be drawn for all areas. The procedures are to be reviewed and revised periodically, especially when the work-site configuration is altered or changes in some way.

☐ Prepare emergency procedures for the following situations:
- Fire;
- Accidents / Incidents;
- Typhoons;
- Heavy rainstorms, black rainstorms;
- Tree failures;
- Working in confined space.
- Geotechnical concerns such as flood, landslip / rockfall, retaining wall failure, ground subsidence, or any land instability.

☐ Contractors should establish and implement a comprehensive emergency procedure in response to all signals and reminder issued by the Hong Kong Observatory including but not limited to adverse weather warning, signals, special weather tips and forecasts. Particular attention should be given to the site location, local topography and the presence

of nearby buildings, as these factors can significantly alter wind speed, often resulting in exceptionally gusty conditions in outdoor workplaces.

Question 10.1.3 **Weighting: 6**

Are emergency services' locations, telephone numbers and designated personnel listed and displayed prominently?

Audit Criteria

- ☐ Auditor should verify the development of emergency plan including the necessary interface with emergency services (both internal and external).

Question 10.1.4 **Weighting: 6**

Are qualified first aiders, first aid facilities and equipment adequate and maintained to legal and contractual requirements?

Audit Criteria

- ☐ Auditor should verify the emergency medical treatment and first aid.
- ☐ For building, foundation and demolition contracts, contractor shall provide an automated external defibrillator (AED) for resuscitation at the site office with trained personnel to operate the machine.
- ☐ The operator of the AED shall have attained the training course or revalidation training on use of AED organised by the Occupational Safety & Health Council or the Hong Kong St. John Ambulance or equivalent training provided by other organisations subject to verification that the equivalent training is based on course contents of equivalent or higher standard.
- ☐ For building, foundation and demolition contracts, first aid room shall be provided on Site (for civil and geotechnical engineering contracts, it is subject to sufficient space on site or appropriate condition as decided by Project Team) and fitted with :
  - Sufficient first aid supplies and equipment for transporting the injured persons, including but not limited to stretchers;
  - First aid kits, up to the standard required by the Occupational Safety and Health Ordinance (Cap. 509) and the Factories and Industrial Undertakings Ordinance (Cap. 59).

Question 10.1.5 **Weighting: 6**

Have an emergency team(s) established to respond to emergency situations and emergency team members been suitably trained on emergency evacuation, fire prevention and fighting etc.?

Audit Criteria

- ☐ Auditor should verify the emergency team's personnel roles, lines of authority, and communication corresponding to emergency situations of auditee.
- ☐ Auditor should verify and comment on the training of emergency team members.
- ☐ Participation of emergency drill should not be considered as formal training for emergency team member.

Question 10.1.6 **Weighting: 3**

Is there a programme of drills and exercise for all emergency situations?

Audit Criteria

- ☐ Auditor should comment on the adequacy of the programme of drills and exercise to cover all emergency situations specified in Q10.1.2.

Question 10.1.7 **Weighting: 6**

Have the drills and exercises for all emergency situations been conducted and evaluation reports prepared in accordance with the programme?

Audit Criteria

- ☐ Evaluation report(s) is available
- ☐ Check emergency drill reports and verify with workers or staff on site.
- ☐ Comment on the effectiveness of the drills is necessary.
- ☐ Weaknesses uncovered during drills of the emergency are quickly corrected.

Section 11 **Safety Promotion**

Sub-section 11.1 **Promotion, Development And Maintenance of OSH Awareness**

Question 11.1.1 **Weighting: 3**

Is there a plan for "P" and "N" caring programme, safety award/incentive schemes, poster displays, safety statistics displays, safety culture promotion etc. to extend over the life of the project?

Audit Criteria

- ☐ Safety promotion plan apart from normal promotion activities should cover safe working cycle, work safe behaviour programme, safety climate index survey activities and "P" and "N" caring programme. SCI apply to building contract and foundation contract with contract period exceeding 12 months.
- ☐ Daily/Monthly safety meeting provides an opportunity to promote team spirit and cooperation by doing morning exercise in the meeting and to convey safety message and raise workers' vigilance.
- ☐ In order to facilitate the effectiveness of morning safety meeting loudspeakers, or PA systems, demonstration equipment, white boards and full length mirrors etc. should be available on sites. The senior management should alert the workers on the major safety issues, hazards and accident prone activities and the precaution and preventive measures etc. for that day. Relevant safety posters, leaflets and publication should be available for display or distribution on the meeting.

Question 11.1.2 **Weighting: 6**

Is a "P" & "N" Caring programme used to strengthen work safety for new entrants of the construction industry and newcomers to the construction site?

Guidelines on The Implementation of "P" and "N" Caring Programme, Construction Industry Council

Main contractor shall observe the measures and arrangement below when implementing the "P"

and “N” Caring Programme.

(a) Probationer and newcomer have different work experience and needs such that they are identified with the “P” and “N” labels for providing care to meet their needs.

(b) As a “P” worker (i.e. probationer) generally has less than half year of construction work experience, main contractor shall assign a mentor (also known as supervisor) to strengthen the care for them. The proposed ratio of mentor to probationer can be 1:4. Main contractor shall provide a “P” worker with basic induction safety training, as well as safety training in relation to the site environment and the code of practice. Meanwhile, the caring period of a “P” worker shall be no less than 3 to 6 months.

(c) As a “N” worker (i.e. newcomer of a construction site) generally possesses some knowledge of the construction industry, main contractor shall specifically strengthen the safety training in relation to that site environment and the code of practice. The caring period of a “N” worker shall be no less than 2 weeks to 1 month.

(d) Before taking the “Safety Induction Training in Construction Site”, a worker must declare his/her construction work experience for identification purposes. Upon completing safety training, the worker will be given a “P” or “N” label with issue date, name and phone number of the mentor (applicable to “P” worker only) for affixing to the prominent position of the safety helmet.

(e) During the caring period, safety personnel of the main contractor, site supervisor and person-in-charge of the subcontractor will be responsible for assessing the new worker, and the “P” worker will also be assessed by their mentor.

(f) Upon expiration of the caring period, all new workers are required to meet the person-in-charge of the construction site and their mentor for assessment. The assessment includes safety knowledge, safety performance, safety awareness and safety behavior. The assessment will take the following safety items into consideration, including:-

i. if the worker uses appropriate personal protective equipment (PPE) at work;
ii. if the worker complies with relevant safety regulations at work; and
iii. if the worker has done any acts which endanger himself/herself or others.

(g) If a worker has not violated any of the abovementioned safety items during the caring period, the “P” or “N” label can be removed by the safety personnel of the main contractor on the expiry date of the caring period.

(h) If a worker has violated any of the abovementioned safety items for three times or more during the caring period, that worker has to attend safety training to enhance his/her safety awareness, and his/her care period will be extended for 7 working days to 2 weeks (applicable to “N” worker) or for 1 month to 3 months (applicable to “P” worker).

(i) If a “P” or “N” worker has not violated any of the abovementioned safety items during the extension period, the “P” or “N” label can be removed by the safety personnel of the main contractor on the expiry date of the caring period. Otherwise, main contractor shall consider taking appropriate actions such as strengthening safety training and supervision, and closely monitor safety performance of that particular worker.

On the day of reporting duty, all new workers must attend the “Safety Induction Training in Construction Site”. The content includes fundamentals of construction site safety, method statements, and the safety issues to be addressed in construction site (Refer to guidelines for details).

Apart from the above, main contractor shall also consider arranging onsite tour and training for new workers on a regular basis (Refer to guidelines for details).

Main contractor shall arrange trade-related safety training according to the work category of

workers. The Form 2 (attached in the guidelines) is a sample of safety training attendance record for easy reference.

Audit Criteria

☐ Auditor should verify the arrangement.

Question 11.1.3 **Weighting: 6**

Have safety contest awards or recognition for good safety performance of individual and sub-contractors been conducted regularly?

Reference

Safety promotion programmes should have clearly defined objectives. They require very careful thought and consideration if the maximum benefit is to be obtained. The proprietor or contractor should develop, as part of a safety promotion programme, a procedure to recognize and acknowledge good safety performance either by individuals, teams, sections, departments or the Organisation. He should appoint a coordinator for the programme to ensure its smooth implementation.

(Code of Practice on Safety Management Section 5.12.1)

Audit Criteria

☐ There should be a venue, an event or an occasion that specified in the safety plan to present the safety contest awards or recognition for good safety performance of individual and sub-contractors. Otherwise, the award presentation should be part of the agenda in the daily/monthly safety meeting of safe working cycle.

Question 11.1.4 **Weighting: 3**

Are up-to-date accident statistics, safety signs and posters displayed?

Audit Criteria

☐ Auditor should verify the correctness of accident statistics, the appropriateness of safety signs and posters displayed.

☐ Safety posters should be displayed prominently upon all structures or temporary huts on the site throughout the duration of the contract and remove on completion.

Question 11.1.5 **Weighting: 3**

Does the organisation publish a bulletin or newsletter which includes material related to occupational safety and health of the organisation?

Audit Criteria

☐ Auditor should verify and comment the published bulletin or newsletter did cover sufficient occupational safety and health issues.

Question 11.1.6 **Weighting: 6**

Is Work Safe Behaviour (WSB) Programme used to promote a proactive safety culture throughout the life of the project?

Audit Criteria

- ☐ Auditor should verify the safety plan on the development of the WSB.
- ☐ Site safety committee to coordinate and monitor the WSB Programme and a task group is established to implement the programme.
- ☐ Appoint competent WSB observers who have completed the 12-hour Work Safe Behaviour Workshop organized by the OSHC or equivalent. Upon successful completion of the 12-hour "Train-the-Trainer for Work Safe Behaviour and Safety Climate Index Survey" course (WSBCIST) offered by OSHC, personnel could deliver internal training of WSB observers. The course duration of this internal training of WSB observers should be at least 3 hours. The senior management officer and Competent Observer(s) shall not be the Safety Manager or Safety Officer.
- ☐ WSB should cover at least one high risk site activity (of not more than 15 observation items on each observation checklist) at any one time. By the end of the construction project, all critical high risk site activities should have been covered.
- ☐ Auditor is required to verify the progress of WSB Programme during safety audit. Otherwise, the answer should be "No".
- ☐ Use a work safe behaviour programme with reference to the guidebook "Implementing The Work Safe Behaviour (WSB) Programme" issued by the OSHC.
- ☐ Site safety committee and its task group should identify the major high risk activities to the HA site staff for comment according to the construction cycle and review on a half-yearly basis.
- ☐ Based on the major high risk site activities identified, create and develop relevant work safe behaviour checklists and conduct observations with observed data analysed for behaviour interventions. Templates of the work safe behaviour checklists can be downloaded from the Housing Authority Site Safety Website for reference. WSB should cover at least one high risk site activity (of not more than 15 observation items on each observation checklist) at any one time. By the end of the construction project, all critical high risk site activities should have been covered.
- ☐ Analyse the work safe behaviour result and prepare the WSB report.
- ☐ Develop and implement an action plan according to the analysed result.
- ☐ The effectiveness of WSB programme should be evaluated.

Question 11.1.7 **Weighting: 6**

Is Safety Climate Index Survey (SCI) used to promote a proactive safety culture of the project?

Audit Criteria

- ☐ SCI apply to building contract and foundation contract with contract period exceeding 12 months.
- ☐ Auditor should verify the safety plan on the development of the SCI.
- ☐ Conduct a safety climate index survey for at least 30% of employees (the minimum sample size shall be 30 people) every six months with reference to the guidebook "Construction Industry Safety Climate Index Software" issued by the OSHC.
- ☐ Analyse the safety climate index result and prepare the SCI report.
- ☐ Develop and implement an action plan according to the analysed result.

Question 11.1.8 **Weighting: 3**

Is a new safety innovation programme used to promote a proactive safety culture of the project?

Audit Criteria

- ☐ The safety innovation should be either innovative measures (contractor's proposed innovative and functional safety control installation or measure, but not related to BIM/RFID), application of building information modeling (BIM), or radio frequency identification (RFID) for safety.
- ☐ The safety innovation should demonstrate the creativity and uniqueness of the measure and how it contribute to avoid, minimize and/or mitigate major serious accidents, such as falling from height, electrocution, etc. The innovation should make effective and efficient use of resources, e.g., cost-effectiveness.
- ☐ Auditor is required to indicate the safety innovation devised by the contractor in the audit report and the audit summary.
- ☐ The answer should be "Yes" for all audits throughout the whole contract period for any one innovation was recognized. Otherwise, the answer of this question should be "N/A" if no safety innovation was observed.

Question 11.1.9 **Weighting: 3**

Are there enhanced health promotion activities been organised to promote healthy lifestyle?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
- ☐ The auditee should organise a series of body check programme.
- ☐ The auditee should provide a self-checking health station with an automatic arm-through blood pressure machine, and a body mass index (BMI) height and weight machine at the site office to facilitate the body check by workers on their own. Put up a message near the station about the indication of ranges of blood pressure and BMI readings with reference to the information of the World Health Organisation or Department of Health, and healthy diet and life style to prevent cardio-cerebrovascular disease.
- ☐ Provide assistance to the workers to operate the machines as necessary and maintain record of usage of health station by workers such as log book or photo record.

Section 12 **Health Assurance Programme**

Sub-section 12.1 **Assessment and Control of Substances Hazardous to Health**

Question 12.1.1 **Weighting: 3**

Have all substances hazardous to health which are used, or likely to be encountered, been identified and assessed?

Reference

Hazardous chemicals which

- if inhaled can cause asthma, bronchitis or cancer;
- if swallowed can cause poisoning; and
- if spilt onto the skin or splashed into the eyes can cause dermatitis or severe irritation. *(Code of Practice on Safety Management Section 5.14.1(1))*

Audit Criteria

- ☐ Auditor to verify auditee did conduct identification step which involve systematic consideration of the factors producing exposure of a person to substances hazardous to health.
- ☐ Health risks assessment should include the following elements:
  1. consideration of the nature and properties of the substances, the possible health effects, the likelihood of exposure and the consequence of excessive exposures;
  2. consideration of the factors contributing to the exposures such as work processes, duration and engineering controls and systems for controlling potential exposures;
  3. determination of the extent and potential exposures;
  4. comparison to the occupational exposure limits (OELs) of the substances where available; and
  5. conclusion on the health risks, the adequacy of existing control measures and the necessary remedial measures.

Question 12.1.2 **Weighting: 3**

Are there appropriate measures taken to control the risks of health hazardous substances used or encountered in the work been introduced?

Reference

When risks have been analyzed and assessed, decisions about the precautions against occupational health hazards can be made. All final decisions about safety procedures and risk control methods should take into account the relevant legal requirements which establish minimum standards for risk prevention or control.

The following is a summary of the safety procedures and risk control measures in descending order of priority:

(1) Elimination of risks by substituting the hazardous substances or processes with non-hazardous or less hazardous ones.

(2) Combat of risks at source by means of engineering controls. Examples are:
  (a) to separate the operator from the risk of exposure to a known hazardous substance by enclosing the process; and
  (b) to design process machinery and work activities in such a way as to minimize the release of, or to contain, airborne hazards.

(3) Minimization of risk by means of:
  (a) administrative control measures, such as a permit-to-work system; and
  (b) personal protective equipment as a last resort.

(Code of practice on safety management, Section 5.14.3)

There should be a critical appraisal of all routine and non-routine business activities. In the simplest cases, hazards can be identified by observation and by reference to the relevant information include:

(a) legislation and supporting codes of practice;

(b) information and advice from suppliers of equipment, chemicals and other materials used at work;
(c) international standards;
(d) industry or trade association guidance;
(e) the personal knowledge and experience of managers and workers;
(f) accident, ill health and incident data;
(g) expert advice and opinion; and
(h) findings of research.

In more complex cases, measurements such as air sampling may be necessary to identify the presence of health hazards. The assistance of occupational hygienists, occupational physicians and occupational health nurses should be enlisted if necessary. In the most complex cases, special hazard analysis techniques such as hazard and operability studies and fault tree analysis should be used. Specialist advice is needed in choosing and applying the most appropriate method.
(Code of practice on safety management, Section 5.14.1)

A system such as pre-employment and medical examination programme should be implemented for monitoring the exposure of workers to substances which are hazardous to health. The primary objective of health surveillance is to detect adverse health effects at an early stage, thereby enabling further harm to be prevented. In addition, the results of health surveillance can provide a means of:

(a) checking the effectiveness of control measures;
(b) providing feedback on the accuracy of the risk assessment; and
(c) identifying and protecting individuals from increased risk.

The contractor should arrange health surveillance and medical checks for workers, such as those working with carcinogenic substances, with asbestos, in compressed air, or underground in accordance with relevant legal requirements. If a worker is found to be suffering from an occupational disease, the proprietor or contractor should take steps to prevent him from further exposure to the substance or agent causing the disease by, for example, transferring him to another job in the industrial undertaking. He should review the health protection programme to identify the deficiencies and take measures to rectify them.
(Code of Practice on Safety Management Section 5.14.6)

Audit Criteria

- ☐ Auditor should verify the risk control measures followed the hierarchy of control. i.e. elimination of risk, combat of risks and minimization of risk.
- ☐ Pre-employment examination and medical examination would be confined to those trades that are required to have examinations under the law.
  - Health surveillance is basically a system of monitoring the health status of persons to determine departures from normal health, so as to identify potential problem areas and the effectiveness of existing preventive strategies. Medical examination is a common means of conducting such surveillance.
  - Pre-employment examination would then be used as a base-line against which subsequent changes can be evaluated. Pre-employment examination also ensures that the worker selected is fit to undertake the job without risk to him.
  - Periodic medical examinations are useful in detecting “susceptible” groups for whom corrective action may be taken even before they develop clinical signs of the disease.
  - Law stipulates that employees engaged in mines, quarries or compressed air work should undergo pre-employment and periodic medical examinations and receive chest-X ray

examination if necessary to prevent silicosis and compressed air sickness, etc.

☐ Auditor should verify there is such a system existed if required.

Question 12.1.3 **Weighting: 3**

Have procedures been established to ensure that control measures are implemented and that all equipment is properly maintained?

Audit Criteria

☐ Auditor should verify there are procedures to ensure that control measures stated in health risk assessment are properly implemented and all equipment are properly maintained. If no such procedures were developed, the answer should be "No".

☐ Exposures should be measured by using suitable sampling strategies, methodologies, equipment and procedures to obtain correct and accurate results.

Question 12.1.4 **Weighting: 3**

Are there enhanced arrangements to abate dust nuisance?

Audit Criteria

☐ The following safety measures shall apply.

- Apply appropriate measure(s) to abate dust nuisance caused by cement grout mixing. Example(s) for reference: Advanced Cement Grout Mixing System - Enclosed cement tank and Operation panel in an independent room.

Sub-section 12.2 Sprains, Strains and Pains

Question 12.2.1 **Weighting: 3**

Have risk assessments for all manual handling operations been carried out by competent person?

Reference

A Guide to Part VII of the Occupational Safety and Health Regulation (Manual Handling Operations)

A responsible person is required to appoint competent persons to assist in the implementation of preventive and protective measures if 10 or more employees are normally employed to carry out hazardous manual handling operations on the premises.

(a) Make a preliminary risk assessment of a manual handling operation before it is first undertaken at that workplace.

(b) Perform a further risk assessment of a manual handling operation if (a) the preliminary assessment reveals that it may create safety and health risks and (b) where the operation is unavoidable.

Audit Criteria

☐ A manual handling operation takes place every time a load is moved or supported by a person's hands or arms, or by some other forms of bodily effort. It includes lifting, lowering, pushing, pulling and carrying the load.

- ☐ Auditor should verify the competency of the person (Certificate of competence in manual handling operations issued by OSHC or other appropriate institutes or authorities) and appointed by contractor or employer that he had the ability to do the job properly. Competency includes proper training and experience.
- ☐ Auditor should verify the quality of the manual handling operations risk assessment reports.

Question 12.2.2 **Weighting: 3**

Where materials must be handled manually, are workers properly selected to perform those tasks according to their respective capabilities?

Reference

A Guide to Part VII of the Occupational Safety and Health Regulation (Manual Handling Operations)

In the allocation of work tasks, an employer should assess the capabilities of individual employees to perform the manual handling operations without causing safety and health risks to themselves and other persons. The tasks should be assigned only to employees who have been assessed to be capable of performing the jobs.

Audit Criteria

- ☐ Auditor should verify whether auditee had taken into consideration any report or concern raised by employee about his health which may not fit for manual handling operations on the day of work, such as physical injuries, symptoms of musculoskeletal disorders, e.g. aches and pains in the back, shoulders, arms, wrists or hands, pregnancy or health problems e.g. hernia, record of major injury or surgical operations.

Question 12.2.3 **Weighting: 3**

Are workers provided with appropriate personal protective clothing/equipment for manual handling operations and are they used properly?

Reference

A Guide to Part VII of the Occupational Safety and Health Regulation (Manual Handling Operations)

When carrying out hazardous manual handling operations, employees should follow the safe system of work and work practices, and use any mechanical aid or device and protective equipment provided to them. They should also take reasonable care for the safety and health of other persons at the workplaces when such operations are being undertaken.

Audit Criteria

- ☐ Auditor should comment on the personal protective equipment provided to workers even when no operation was being carried out during the physical verification.

Question 12.2.4 **Weighting: 3**

Are there enhanced safety measures to reduce risks of manual operations?

Audit Criteria

- ☐ For items 2 and 3, applicable for newly awarded contracts or ongoing contracts already

incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.

☐ The following safety measures shall apply.

1. Prevent injuries of wheelbarrow users by providing two-wheel wheelbarrow with braking system. Prohibit the use of single-wheel wheelbarrow for works at paved premises.
2. Provide power-assisted trolley or wheelbarrow with "Dead Man's Switch" and lift dump for carrying load exceeding 50kg.
3. Provide fencing barrier clamp or similar means as a gripping hand tool to lift, carry and / or move big panels.
4. Provide safety measures to reduce manual lifting of hand-held pneumatic breaker for works at non-domestic premises. Example(s) for reference :
   - Semi-automatic breaker rack
5. Provide safety measure(s) by mechanical means, certified by Qualified Engineer, to reduce manual lifting of the reinforcement bars during fabrication of large diameter bored piles. Example(s) for reference :
   - T-frame for Lifting Re-bars

Sub-section 12.3 Noise

Question 12.3.1 **Weighting: 3**

Has noise assessment been carried out by a competent person to determine which machines, combinations of machines or work processes including ambient noise, are likely to expose workers to noise levels of 85 dBA or more?

Reference

A Guide to the Factories and Industrial Undertakings (Noise at Work) Regulation

The Regulation requires the proprietor to take certain basic steps where an employee is likely to be exposed to noise at or above the First Action Level. These, together with additional action, must also be taken where an employee is likely to be exposed to noise at or above the Second or Peak Action Level.

Auditor Criteria

☐ Noise assessment should find out whether the noise exposure is likely to reach the 'action levels', and provide enough information about the noise to decide what action to take.

☐ The noise assessment is done by a competent person (Certificate of competence in workplace noise assessment or equivalent courses specified in Guidance Notes on Appointment of Competent Persons for Noise Assessment at Workplaces) and appointed by contractor or employer that he had the ability to do the job properly.

☐ Auditor should verify the quality of the noise assessment reports.

Question 12.3.2 **Weighting: 3**

Where noise levels may lead to the risk of deafness, is there a system implemented to reduce the emission or exposure to noise by planning work, changing machinery or taking appropriate steps to reduce the need for people to work in high noise levels?

Reference

A Guide to the Factories and Industrial Undertakings (Noise at Work) Regulation

Reduce noise exposure as far as is practicable by means other than ear protectors.

Auditor Criteria

- ☐ Auditor should verify the existing of such a system and procedure and also comment on the effectiveness of noise reduction plan, changes or steps.
- ☐ The hierarchy of control measures are:
  - Elimination of hazards
  - Substitution by alternative tools or machines – e.g. the use or replacement with Quality Powered Mechanical Equipment (QPME)
  - Engineering control measures – e.g., enclosure, isolation
  - Administrative measures – e.g., regular repair and maintenance, job rotation and appropriate rest breaks
  - Personal protective equipment
- ☐ Plastic cushion for piling final set operation to replace traditional metal cushion. The plastic cushion shall match with the hammer efficiency of the drop hammer and test proofs shall be submitted for approval.

Question 12.3.3 **Weighting: 3**

Where noise levels may lead to the risk of deafness, or where noise may create a nuisance, are approved hearing protection selected and issued to employees?

Reference

A Guide to the Factories and Industrial Undertakings (Noise at Work) Regulation

Ear protectors

1. Ensure as far as is practicable that suitable approved ear protectors are:
   - provided to employees who ask for them
   - provided to all exposed
   - properly maintained
   - used by all exposed
2. Ensure all operatives within the specified distance wear suitable approved ear protectors
3. Ensure as far as is practicable that all go into an ear protection zone wear suitable approved ear protectors

Audit Criteria

- ☐ Auditor should verify the suitability of the approved type ear protectors.

Question 12.3.4 **Weighting: 3**

Is there an arrangement for identification of noisy operations/machines and marking out high noise level zones?

Reference

A Guide to the Factories and Industrial Undertakings (Noise at Work) Regulation

Provision of information to employees

- Provide adequate information, instruction and training about risks to hearing, what employees should do to minimize risk, and their obligations
- Mark ear protection zones with notices, as far as is practicable
- Specify the distance for noisy machine within which suitable approved ear protectors have to be worn

On construction sites and in places where it is not practicable to make ear protection zones, for example, where noisy machines are moved about frequently from time to time, by attaching a warning label or sign to ensure that the operatives wear suitable approved ear protectors when they are within the 'specified distance'.

Audit Criteria

☐ Auditor should verify the arrangement.

Sub-section 12.4 Other Occupational Health

Question 12.4.1 **Weighting: 3**

Is a suitable assessment of the risk of heat stress to workers properly conducted?

Reference

Guidance Notes on Prevention of Heat Stroke at Work, Labour Department

Employers have to consider various factors when conducting heat stress risk assessments for employees, including working environment, work nature and personal factors, and introduce preventive and control measures that are applicable to different risk factors.

Guidelines on Site Safety Measure for working in hot weather, Construction Industry Council

Identify risks that may affect site personnel, assess their likelihood of occurrence and their possible consequences taking into account all relevant factors, including –

(a) the capability, skill, experience and age of persons doing the work;
(b) the nature and location of construction operations;
(c) the work practices;
(d) the anticipated durations of working;
(e) the type of plant, machinery and equipment to be used;
(f) findings of inspection of the workplace and direct observation of similar construction works;
(g) discussion with workers;
(h) records of accidents and "near misses";
(i) literature and advice provided by equipment and material suppliers;
(j) relevant legislations and related codes of practice, international standards and guidelines issued by industry organisations; and
(k) relevant research findings.

Audit Criteria

☐ Auditor should verify the risk assessment on workplace heat stress (use of Workplace Heat Stress Risk Assessment Form published by Labour Department).

☐ Various heat stress risk factors (including environmental, work and personal factors) have to be considered in the assessment, and appropriate preventive and control measures should be recommended based on the different risk factors identified.

☐ If employees are engaged in work of varying levels of physical demand in different work

environments, employers should conduct different risk assessments for the employees' different job duties.

- ☐ Employers should formulate in advance the hourly work-rest schedules for different categories of employees under different levels of Heat Stress at Work Warning so that necessary arrangements can be made in an orderly manner when Heat Stress at Work Warning is in force.
- ☐ When the circumstances at the time of the assessment have changed significantly so that the assessment results are no longer valid, another risk assessment should be conducted.

Question 12.4.2 **Weighting: 3**

Are effective measures taken out based on the results of heat stress risk assessment?

Reference

Guidance Notes on Prevention of Heat Stroke at Work, Labour Department

In view of the varying nature and demands of job positions, employers and employees should refer to the criteria and recommendations provided in the Guidance Notes to establish reasonable measures for preventing heat stoke during hot weather based on risks.

Guidelines on Site Safety Measure for working in hot weather, Construction Industry Council

The risks identified should be summarized in the form of list containing the following details to facilitate development of a safety plan –

(a) the nature of the risks;

(b) the locations where they will be encountered;

(c) factors giving rise to the risks; and

(d) personnel who will be affected.

Audit Criteria

- ☐ Measures should cover the assessment of workers working in or near of heat-generating machinery and poor ventilated areas/working.
- ☐ Measures should cover the provision of sufficient drinking water, and sheltered resting place. Employers/ responsible persons should, so far as reasonably practicable, provide shade or cover to block the sunlight for employees who work outdoors for extended periods. The shade or cover should shelter most of the body of the employees from direct sunlight in order to minimise the amount of heat radiation they absorb. When employees are working outdoors at temporary locations or when it is not feasible to provide shade or sun-blocking cover, employers or responsible persons should consider the appropriate use of sunshade/parasol to minimise direct exposure to sunlight for employees.
- ☐ For employees who need to work in hot environments for more than two hours, employers may consider providing drinks with electrolytes (such as sodium ions and potassium ions) to enable employees to replenish electrolytes appropriately.
- ☐ For work processes performed under high heat (e.g. metal melting), employers must install appropriate devices, such as exhaust systems and insulation, to regulate the temperature of the employees' work area.
- ☐ Air conditioning system can reduce the temperature and humidity of the environment, helping employees in heat dissipation and reducing heat stress. In the event that provision of air conditioning is not feasible due to particular circumstances or limitations of the

working location, employers may install blowers or misting fans to enhance air flow and promote heat dissipation. If it is difficult to install blowers or misting fans (such as in locations without power or adequate space), or if employees need to work in different locations, employers should also provide portable fans (preferably waist fans) to employees to facilitate heat dissipation and decrease heat stress.

- ☐ Regularly change the water in water tank of misting machine for hygiene purposes.
- ☐ Employers should provide appropriate sun protection equipment for employees (e.g. wide-brimmed hats, safety helmets with neck shades, cooling towels, sun protection sleeves, etc.) to block sunlight and reduce the absorption of heat radiation from the environment. The sun protection arm sleeves shall be made of thin and vapour permeable fabric allowing effective sweat evaporation and having a ultraviolet protection factor of at least 50.
- ☐ Provide air-conditioners or cooling facilities in the cabins of tower cranes or other plant where the operator is likely to be exposed to high temperature.
- ☐ Other measures like specific work arrangements, lower workload or shorter working duration , clothing, etc. should be implemented. Employers or responsible persons should make appropriate work arrangements to reduce the intensity and speed of work, such as providing suitable mechanical aids (including hand trucks, pallet jacks, lifting devices, etc.) for employees to use or instructing employees to take other appropriate measures (e.g. team lifting) to minimize physical exertion, thereby reducing heat stress. If employees need to engage in heavy physical work for long periods or at a rapid pace, they should be arranged to rotate work, or the work should be performed by different employees in turn to reduce the physical demand and pace of work.
- ☐ Subject to measures recommended in risk assessment, monitor periodically the body temperature of workers working under direct sunshine during the very hot weather warning issued by the Hong Kong Observatory.
- ☐ Suitable heat stress preventive measures, including work/rest arrangements, should be implemented when the Heat Stress at Work Warning or extremely hot special weather tips are in force.

Question 12.4.3 **Weighting: 3**

Are Smart Monitoring Devices provided for workers and the Contractor's superintendent (such as smart wristbands or smart helmets)?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
- ☐ Based on the result of risk assessment, provide workers and Contractor's superintendent in need with smart monitoring devices or other equivalent wearable monitoring devices including but not limited to smart wristband and / or smart helmet;
- ☐ The smart monitoring devices or other equivalent wearable monitoring devices shall include, but not limited to, the following functions:
  - ■ Capable of both outdoor and indoor location tracking and visualisation of location in the CMP, and recording of workers and Contractor's superintendent in different areas and time of working. The location data shall be stored in the CMP;

- Real-time detection of any standstill and sending alerts to the CMP; SMS or in-app pop-up notification shall be generated and recorded at the database platform for follow up actions. The period of standstill criteria shall be adjustable;
- Real-time detection of body temperature and heart beat rate and sending alerts to the CMP when the threshold is exceeded. SMS or in-app pop-up notification shall be generated and recorded at the database platform for follow up actions. The threshold of body temperature and heart beat rate shall be adjustable;
- Actual body vital sign data shall not be displayed on the platform for privacy protection;
- Allowing both battery and wireless charging modes and shall have a minimum battery life of 30 hours per charge under continuous operation;
- Wireless connection to cellular, WiFi, NBIoT and/or LoRa networks, or equivalent;
- Warning of entry to restricted area: only authorized workers and Contractor's superintendent could enter the restricted area and any unauthorized entry shall trigger alerts to workers, Site Agent, General Foreman, Safety Officer, Safety Supervisor, Competent Person for confined space and lifting supervisor by means of SMS or in-app pop-up notification;
- Capable of broadcasting up to at least 3 voice messages with continuous light flashing function to alert workers and Contractor's superintendent of various weather conditions, including but not limited to heat stress at work, rainstorm and tropical cyclone warnings

☐ Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.

Question 12.4.4 **Weighting: 3**

Is there adequate provision and properly maintenance of toilet and washing facilities, storage facilities for personal property, drinking water and eating & resting areas?

Reference

Occupational Safety And Health Regulation – Workplace to be provided with sanitary conveniences, etc.

The person responsible for a workplace must ensure that the workplace is provided with sufficient and suitable latrine and washing conveniences and, where persons of both sexes are or are intended to be employed, such conveniences shall afford proper separate accommodation for persons of each sex. Any latrine or washing convenience which does not comply with the provisions of the Buildings Ordinance (Cap 123) shall be deemed not to be sufficient and suitable for the purposes of this section.

Occupational Safety And Health Regulation – Employees to be provided with adequate supplies of drinking water

The person responsible for a workplace must ensure that sufficient potable water is provided at the workplace for the consumption by employees who are employed there.

Audit Criteria

☐ Secure facilities at the work site for changing working clothes and separate changing facilities for male and female workers.

- ☐ Maintain the rest area(s) in clean, tidy and functional condition for use of workers throughout the duration of the Contract.
- ☐ Provide sheltered rest area(s) close to the workplace for all workers employed on the Works or in connection with the Contract. The rest area(s) shall be furnished with drinking facilities, hand washing facilities, chairs, tables, lighting and power, and good mechanical ventilation. The rest area(s) shall be in adequate number taking into account the number of workers and their locations on site.
- ☐ Provide lighting and exhaust fans to the toilet accommodation and washing facilities.
- ☐ Provide shoe cleaning trays, water supply and brushes near the site exit.
- ☐ Provide drainage system for WC, urinal, basin, shower facilities and shoe cleaning trays by installing drainage pipes connection, sewerage/ septic tank or other chemical treatment.
- ☐ For building contract - one male and one female temporary latrine accommodation including hand washing facilities on or adjacent to the ground floor and on every third floor of all multi-storey buildings and maintain in a sanitary condition at all times. Provide chemical treatment, toilet with water tank for flush water supply, wash hand basin with water tank for fresh water supply, foot pumps to flush toilet and wash hands, vent pipe, coat hook, paper roller, toilet paper, mirror, gender sign and in-use indicator for latrine accommodation.
- ☐ Provide cleaning services daily to keep the toilet accommodation and washing facilities in a sanitary condition at all times.

Section 13 Evaluation, Selection and Control of Sub-contractor
Sub-section 13.1 Evaluation and Selection Strategy

Question 13.1.1 **Weighting: 3**

Are evaluation and selection criteria defined to identify suitable bidders (potential sub-contractors) and specific occupational safety and health information provided in the specifications to the bidders?

Reference

(a) Each sub-contractor wishing to qualify as a bidder should be asked to provide a safety policy which should be vetted to assess its adequacy.

(b) The sub-contractor should also be required to submit details of his –
- safety organisation;
- safety track records;
- working experience with clients demanding high safety standards;
- safe systems of work/safety programmes in place;
- current safety management system; and
- training programmes and standards.

These should also be vetted to assess adequacy.

(c) Only when a sub-contractor passes the adequacy test mentioned in (a) and (b) above should he become a qualified bidder.

(Code of Practice on Safety Management Section 5.9.1)

Bidders should identify all the safety and health requirements in the specifications. To help them do this, a checklist of all the common safety and health problems which may arise from the work should be presented to them for reference before the bid is made. Where necessary and

appropriate, an additional 'on site' briefing can be arranged for bidders who want to have a better understanding of the safety and health problems. Some topics that should be included in the checklist are:

- Access to and egress from the places of work;
- Working at heights;
- Lifting appliances operation;
- Fire prevention;
- Electrical requirements;
- Underground and overhead services;
- Lighting requirements;
- Manual handling operation;
- Special hazards such as those inherent in working in confined spaces or working with asbestos, etc.;
- Occupational health risks from noise and toxic fumes, etc.;
- Storage of flammable substances and chemicals;
- Personal protective equipment;
- Emergency rescue/first-aid;
- Welfare amenities such as toilets and drinking water facilities; and
- Worker training requirements.

(Code of Practice on Safety Management Section 5.9.1)

Audit Criteria

- ☐ In the new construction site safety enhancement measures specified in tender document (stated in the selection criteria of contract), contractor is required to restrict the tiers of subcontracting for works or trades involving significant hazards. Otherwise, the answer of this question should be "No".
- ☐ Subletting for specific trades or parts of the Works and New Works contracts (i.e. building contract; piling contract and combined piling and building contract) is restricted to TWO tiers, and;
- ☐ Save for those specified otherwise; subletting of demolition contracts is to be restricted to ONE tier only. (Details please refer to annex D)
- ☐ Auditor should verify the contracts of auditee with sub-contractors on the provisions of specific OSH in specifications.

Question 13.1.2 **Weighting: 3**

Is there a procedure for the identification of suitable sub-contractors?

Reference

The contractor should select the sub-contractor who is able to identify all the safety and health hazards inherent in the work, can ensure that the most proper and adequate provisions will be made for the control of the risks, and has the best outline safety plan. *(Code of Practice on Safety Management Section 5.9.1)*

Audit Criteria

- ☐ Auditor should verify the selection procedure and safety plans of sub-contractors.
- ☐ For Building Contract - If the erection, addition, alteration or dismantling of bamboo

scaffolds is carried out by scaffolding companies with employees less than 50 persons, the companies shall be certified under OSH Star Enterprise - RMAA Safety Accreditation Scheme. If contractor is not able to identify this requirement in selection of scaffolding contractors, this answer should be "No".

Question 13.1.3 **Weighting: 3**

Is there a procedure set up to evaluate the safety performance of the sub-contractor?

Audit Criteria

☐ Auditor should verify the procedure and evaluation forms.

Sub-section 13.2 Control Strategy

Question 13.2.1 **Weighting: 3**

Is there an arrangement to ensure that the sub-contractors are aware of safety policy, safety plan, in-house rules and regulations, emergency plan etc.?

Reference

All safety rules and provisions should be laid down in detail in the contract for the sub-contractor to follow and implement. One of the provisions should be that the sub-contractor abides by all the provisions of the proprietor's or contractor's safety policy, including compliance with workplace safety rules. In case the sub-contractor further sub-contracts all or part of his work to other sub-sub-contractors, the sub-contractor should ensure that the sub-sub-contractors are fully aware of the safety policy and the safety rules.

The following special conditions should therefore be attached to the contract for the sub-contractor to follow:

- to inform any sub-sub-contractor of all safety requirements;
- to include observance of all safety requirements as a condition in any future sub-contract; and
- to require the sub-sub-contractor to do similarly if he in turn sub-contracts his work.

Another provision in the contract should require the sub-contractor to submit a detailed and comprehensive safety plan based on the outline safety plan, setting out how he and the sub-sub-contractors (if any) will implement the safety measures for controlling the risks during work in compliance with all the safety and health provisions stipulated in the contract. The sub-contractor should adhere to the safety plan in carrying out his obligations under the contract and should ensure that his own sub-sub-contractors (if any) receive copies of the safety plan and comply with its requirements as well.

In addition, a subcontractor's participation in on-site safety committees should also be one of the contract conditions.

(Code of Practice on Safety Management Section 5.9.2)

Audit Criteria

☐ Auditor should verify the arrangements of auditee on control of the sub-contractors.

Question 13.2.2 **Weighting: 3**

Have sub-contractors participated in conducting a risk assessment and recommending a safe system of work before commencement?

Reference

The sub-contractor should be requested to conduct a risk assessment before work commences and recommend the necessary safety procedures and risk control measures. The system should spell out how the sub-contractor should organize and perform his work to reduce risks to workers' safety and health.

The sub-contractor should be required to submit the risk assessment report, together with the recommended safe system of work, to the proprietor or contractor for scrutiny and endorsement. *(Code of Practice on Safety Management Section 5.9.2)*

Audit Criteria

- ☐ Auditor should verify the participation of sub-contractors in auditee's risk assessments and safe systems of work.

Question 13.2.3 **Weighting: 3**

Is sub-contractors' staff well in advance of the start of work and in regular progress meetings to discuss occupational safety and health aspects of the work under their contracts?

Reference

The sub-contractor should be required to attend a meeting to discuss the safety aspects of the work prior to the commencement of the contract.

(Code of Practice on Safety Management Section 5.9.2)

The sub-contractor should be required to attend regular progress meetings with all other parties, at which safety and health should be on the agenda.

(Code of Practice on Safety Management Section 5.9.2)

Audit Criteria

- ☐ Auditor should verify the meeting records and minutes.

Question 13.2.4 **Weighting: 6**

Are there appropriate steps taken to communicate and coordinate the occupational safety and health matters to sub-contractors?

Reference

The sub-contractor should be required to appoint a person or a team to co-ordinate all aspects of the contract, including safety and health matters on site. In addition, the sub-contractor should develop communication paths to pass on all relevant safety information to those at the shop floor level.

(Code of Practice on Safety Management Section 5.9.2)

Audit Criteria

Arrangement to communicate and coordinate the occupational safety and health matters to sub-contractors should be stipulated in safety plan including the following:

- ☐ Sub-contractors should joint both the daily and weekly process safety discussion with project manager, general foremen and put forward topics for review during the meeting.
- ☐ Findings of inspections, results from guidance and supervision, next day's work with safety

directions and measures etc. should be assigned to subcontractors.

- ☐ Daily and weekly process safety discussion provides an opportunity for communication and cooperation in solving problems. It also creates opportunities for bringing problems to attention and for an early remedy. Minutes of the process safety discussion should be recorded.
- ☐ The work in last week should be reviewed and the work of coming week should be planned on weekly basis such that different types of work could be coordinated in line with the progress.

Question 13.2.5 **Weighting: 6**

Are there appropriate steps taken to ensure the compliance of occupational safety and health in-house rules and procedures by sub-contractors and their employees?

Reference

- The proprietor or contractor should inspect his sub-contractor's activities at regular intervals. The frequency of inspection should be commensurate with the hazards and complexity of the construction project. Generally, inspection at weekly intervals is desirable.
- The sub-contractor should be required to provide written method statements before carrying out any work with special hazards like demolition work, confined space work, asbestos work, work on electrical installations, falsework erection work, steel erection work and any other work involving disruptions or alterations to main services or other facilities. In the event that there is a need to deviate from the method statement, further progress of work should be withheld until a revised method statement has been drawn up and endorsed.
- The sub-contractor should be required to report all lost-time accidents and dangerous occurrences, including those of sub-sub-contractors.
- The sub-contractor's safety and health training programme should be regularly monitored to ensure effectiveness.

(Code of Practice on Safety Management Section 5.9.2)

Audit Criteria

Safety inspection carried out by senior management serves both as supervision and assurance for the safe operation of daily work. Safety working cycle should be used as tools to monitor compliance of occupational safety and health in-house rules and procedures by sub-contractors and their employees. These include:

- ☐ The daily inspection should be carried out at least once per day before the Process Safety Discussion.
- ☐ Daily and weekly inspection records should include the monitoring of subcontractors.
- ☐ 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 by competent person such as electricians and mechanics etc.

Question 13.2.6 **Weighting: 6**

Are there appropriate measures taken to ensure that the tools, plant, equipment, materials and substances used by sub-contractors and suppliers comply with relevant statutory requirements?

Audit Criteria

- ☐ There should be written document submitted from sub-contractors regarding what they will bring into site and there should be a system for checking and monitoring that they are complied with the requirements. Otherwise, the answer should be "No".
- ☐ Document support and verification by interview of knowledgeable person are required in audit.
- ☐ The tools, plant, equipment, materials and substances should be those stipulated under law and contract and shall include but not limited to the following :
  - Dangerous goods, eg oxy-acetylene cylinders
  - Lifting appliances
  - Cartridge-operated fixing tools
  - Chemicals, e.g. dangerous substances
  - Air receivers
  - Portable electric tools
- ☐ Other than those required under the law and contract, written document submission for checking is not necessary and daily monitoring is acceptable.

Question 13.2.7 **Weighting: 3**

Is there an arrangement to ensure that all necessary information about the hazards from, and safe use of, the tools, plant, equipment, materials, substances, etc. supplied by sub-contractors and suppliers is available?

Audit Criteria

- ☐ Auditor should verify the arrangement that auditee used.
- ☐ Main contractor has the responsibility to manage the sub-contractors about their use of the tools, plant, equipment, materials, substances, etc.

PART B
Section 14 Process Control Programme

The major causes of accidents at work in construction industry involve failures in systems of work – the way things are done. A safe system of work is a formal procedure which results from a systematic examination of a task in order to identify all hazards and assess the risks, and which identifies safe methods of work to ensure that the hazards are eliminated or the remaining risks are minimized. To enhance the effectiveness on auditing the major processes of construction activities, auditor using this version 1.6, will examine the whole safe systems of work of the control of processes which consist of process safety information, process hazards analysis (risk assessment), operating procedures, training and competency of workers, and mechanical integrity (maintenance programme).

PART B

14.1 Management of Place of Work
- 14.1.1 Fire Risks
- 14.1.2 Work in Confined Spaces
- 14.1.3 Working at Height
- 14.1.4 Housekeeping
- 14.1.5 Protection against Falling Objects
- 14.1.6 Overhead and Underground Services
- 14.1.7 Flammable Substances, Gases and Vehicle Fuels
- 14.1.8 Substances hazardous to health
- 14.1.9 Occupational Safety and Health in Offices

14.2 Management of Tasks and Operations
- 14.2.1 Demolition
- 14.2.2 Excavations
- 14.2.3 Lifting Operations
- 14.2.4 Roadworks
- 14.2.5 Falsework
- 14.2.6 Structural Steel Erection/ Dismantling Works
- 14.2.7 Welding / Cutting Operations and Installations
- 14.2.8 Site Traffic
- 14.2.9 Works over Water or Adjacent to Water
- 14.2.10 Piling and Foundations
- 14.2.11 Glazing
- 14.2.12 Grit Blasting
- 14.2.13 Asbestos
- 14.2.14 Machinery Guarding
- 14.2.15 Ground Investigation
- 14.2.16 Work on Slopes
- 14.2.17 Prestressing
- 14.2.18 Modular Integrated Construction (MiC)
- 14.2.19 Temporary Works

14.3 Management of Powered Plant and Equipment
- 14.3.1 Compressed Air Tools\
- 14.3.2 Electrical Supply System
- 14.3.3 Electrical Works and Portable Electric Tools
- 14.3.4 Hand Tools
- 14.3.5 Woodworking Machines
- 14.3.6 Abrasive Wheels
- 14.3.7 Hand-held Power Tools

14.4 Management of Plant and Equipment for Lifting of Material and Persons
- 14.4.1 Tower Crane
- 14.4.2 Mobile Crane
- 14.4.3 Gondola (Suspended Working Platform)
- 14.4.4 Power-operated Elevating Work Platform
- 14.4.5 Material Hoist
- 14.4.6 Power-driven Lifting Appliance for Carrying Persons, Builders' Lift and Tower Working Platform

14.5 Management of Mechanical Plant and Equipment
- 14.5.1 Loadshifting Machineries and Site Vehicles

An audit question, usually the last question of some high risk operations/activities in PART B are designed in line with the process control programme by auditing the contractor did build up the appropriate generic safety checklist as a means for monitoring mechanism. They are:

- Work in Confined Spaces – Q 14.1.2.10
- Housekeeping – Q14.1.4.7
- Protection against Falling Objects – Q14.1.5.6
- Flammable Substances, Gases and Vehicle Fuels – Q14.1.7.7
- OSH in Offices – Q14.1.9.5
- Falsework – Q14.2.5.7
- Piling and Foundation – Q14.2.10.10
- Ground Investigation – Q14.2.15.6
- Modular Integrated Construction – Q14.2.18.18
- Compressed Air Tools – Q14.3.1.3
- Woodworking Machines– Q14.3.5.9
- Abrasive Wheels – Q14.3.6.12
- Hand-held power tools - Q14.3.7.6
- Tower Crane – Q14.4.1.14
- Mobile Crane – Q14.4.2.10
- Gondola – Q14.4.3.9
- Power-operated Elevating Work Platform – Q14.4.4.8
- Material Hoist – Q14.4.5.10
- Power-driven Lifting Appliance for Carrying Person, Builders' Lift and Tower Working Platform – Q14.4.6.7
- Loadshifing Machineries and Site Vehicles– Q14.5.1.10

The above items are by no means exhaustive. Contractors should review the needs of extra generic safety checklists to ensure continuous improvement in monitoring the safety management systems and site safety conditions.

Sub-section 14.1 Management of Place of Work
Part 14.1.1 Fire Risks

Question 14.1.1.1 **Weighting: 3**

Is there accurate process safety information addressing the fire hazards in site?

Audit Criteria

Safety information will need to cover the existing on-site and off-site fire risks and provide relevant information on fire risks in preparing the safety plan. Information includes:

- ☐ Location and nature of flammable substances on site;
- ☐ Location of gas services;
- ☐ Nature of nearby activities especially if they are sensitive to site-generated fire risk or pose fire risks to the construction site;
- ☐ Details of any likely continued occupation of the site (especially in office or residential projects); and/or
- ☐ Details of any design assumptions or suggested construction processes or methods which lead to high fire risk.

Question 14.1.1.2 **Weighting: 3**

Have risk assessments been developed to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of fire hazards in the site?

Audit Criteria

- ☐ A detailed fire risk assessment and required controls need to be developed from the outset identifying the stages and activities which give rise to critical risk points and which, therefore, will need highest levels of control.
- ☐ Process fire risks must be considered in conjunction with the general fire precautions required at particular stages.
- ☐ The fire risk assessment may indicate that additional extinguishers are required especially near escape routes.

Question 14.1.1.3 **Weighting: 6**

Are there appropriate fire extinguishers provided, particularly near places of high risk and are they regularly checked and maintained?

Audit Criteria

Fire extinguishers should be:

- ☐ Located at identifiable fire points at each storey exit.
- ☐ Sufficient number and appropriate for the risk, serviced and maintained.
- ☐ Those carrying out hot work should have appropriate fire extinguishers with them and know how to use them.
- ☐ Provide and properly maintain a sufficient number of portable fire-fighting appliances for multi-storey buildings, carpentry workshop, paint stores for:
  - Domestic buildings: minimum 1 fire extinguisher and 2 buckets of sand in each staircase on alternate floors, i.e. one set per floor;
  - Non-domestic buildings: minimum 1 fire extinguisher and 2 buckets of sand in each

staircase on each floor, and in close proximity of each entrance or exit of the buildings in case the buildings are only 1-storey.

Question 14.1.1.4 **Weighting: 6**

Where relevant, are fixed electric water pumps/water tanks installed properly, and are they regularly checked and maintained?

Audit Criteria

- ☐ Provide electrical or portable pumps to supply water to all floors 30 m or more above ground level in accordance with FSD requirements.
- ☐ In high-rise buildings where there is a need for additional fire protection, it is required to install the equipment as the building progresses.

Question 14.1.1.5 **Weighting: 6**

Is there a safe means of escape from all sections of the site premises and are all fire exits and routes clearly marked?

Audit Criteria

- ☐ All sections of the site premises including site office, if possible, should have at least two escape routes in different directions.
- ☐ Exit onto scaffold, if deemed part of escape plan, should be easily accessible, i.e. not through a window opening unless it is designed for that purpose, with easy access.
- ☐ Escape routes and exits should be kept clear and clearly signed.
- ☐ Emergency lighting should be installed, if necessary, to enable escape.

Question 14.1.1.6 **Weighting: 3**

Have sufficient numbers of employees been trained in fire fighting techniques and in the use of the fire extinguishers provided?

Audit Criteria

- ☐ Auditor should verify the training record of fire fighting.
- ☐ Registered safety officers and representatives from registered fire service installation contractors are acceptable trainers capable to conduct training in the use of fire extinguishers.

Question 14.1.1.7 **Weighting: 6**

Is there a means of raising fire alarm and is it checked regularly?

Audit Criteria

- ☐ Fire warning systems are needed on all sites other than very small sites. The type of alarm needed can range from manual bells or klaxons to sophisticated automatic systems, including visible warning devices. Auditor should consider if:
  - System is appropriate for the size of the building, number of storey and complexity;
  - System can be heard by everyone working on site over normal background noise;
  - System is located so it can be activated immediately;
  - Manual bells or klaxons are only used on very small sites.

Question 14.1.1.8 **Weighting: 6**

Are there planned fire drills and evacuation procedures and are they conducted on a regular basis?

Audit Criteria

- ☐ An up-to-date emergency plan that is appropriate for the circumstances and that makes clear who does what during a fire.
- ☐ Fire drill is conducted.
- ☐ Someone (and a deputy as necessary) is appointed to coordinate fire prevention, fire fighting and evacuation procedure.

Question 14.1.1.9 **Weighting: 6**

Is a non-smoking policy strictly implemented on site?

Audit Criteria

- ☐ Auditor should verify the implementation of non-smoking policy on site.
- ☐ Physical verification is necessary to judge whether the non-smoking policy is being implemented. If a cigarette butt is spotted on site outside the designated areas, the answer should be "No".

Part 14.1.2 Work in Confined Spaces

Question 14.1.2.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information which apply to working in confined spaces been identified?

Audit Criteria

- ☐ Factories and Industrial Undertakings (Confined Spaces) Regulation
- ☐ Code of Practice for Safety and Health at Work in Confined Spaces, Labour Department
- ☐ Guidance Notes on Safety and Health for Prevention of Gas Poisoning in Drainage Works, Labour Department
- ☐ There may be information from engineering drawings, working plans or about relevant soil or geological conditions. Assessment of this information in conjunction with information on any processes that have already taken place or will take place in the course of work to be undertaken and which could affect the condition of the confined space.
- ☐ Consider what measures can be taken to enable the work to be carried out without the need to enter the confined space. The measures might involve modifying the confined space itself to avoid the need for entry, or to enable the work to be undertaken from outside the confined space. In many cases it will involve modifying working practices.
- ☐ Check for the existence of comprehensive review in process control program that all confined space work are identified (such as assessment practice with supply of list of job duties, layout plans of jobs, invitation of ad hoc members from frontline supervisors in assessment process, physical survey of anticipated work in contract for confined space work, etc.)

Question 14.1.2.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control the risks of working in confined spaces on the site?

Audit Criteria

☐ A safe system of work will depend on the nature of the confined space and the risk assessment. The main elements to consider in risk assessment when designing a safe system of work, and which may form the basis of a 'permit-to-work' are:

- Supervision;
- Competence for work in confined spaces (such as certified worker, standby person, onsite rescue personnel);
- Communications;
- Testing/monitoring the atmosphere;
- Gas purging;
- Ventilation;
- Removal of residues;
- Isolation from gases, liquids and other flowing materials;
- Isolation from mechanical and electrical equipment;
- risk to the safety and health of workers working in confined spaces;
- Isolation from mechanical and electrical equipment;
- Selection and use of suitable equipment;
- Personal protective equipment (PPE) and respiratory protective equipment;
- Portable gas cylinders and internal combustion engines;
- Gas supplied by pipes and hoses;
- Access and egress;
- Fire prevention;
- Lighting;
- Static electricity;
- Smoking;
- Emergencies and rescue;
- Limited working time;
- The factors for assessing whether a particular job constitutes underground pipework;
- Proprietors or contractors to adopt technology to record videos at the entrance and exit of the confined space throughout the entire work period to monitor relevant personnel's compliance with the safety precautions and to keep the record; and
- Declaration by the proprietor/contractor or authorised representative.

Question 14.1.2.3 **Weighting: 3**

Has a risk assessment been conducted by a competent person before the work in confined space commenced?

Reference

Factories & Industrial Undertakings (Confined Spaces) Regulation

When work is to be undertaken in a confined space, a competent person (CP) shall be appointed to carry out an assessment of the working conditions in the confined space and make

recommendations on measures to be taken in relation to safety and health of workers while working in that space.

Audit Criteria

- ☐ Appoint a competent person to carry out a risk assessment for the working environment in the confined space and make recommendations on the safety precautions to ensure the safety and health of workers while working in the confined space.
- ☐ "competent person" means a person -
  (a) who has attained the age of 18 years;
  (b) who is either—
    i. a safety officer with registration under the Factories and Industrial Undertakings (Safety Officers and Safety Supervisors) Regulations (Cap. 59 sub. leg. Z); or
    ii. a person who holds a certificate issued by a person whom the Commissioner has authorized to certify persons as being competent to prepare risk assessment reports; and
    iii. who has at least one year's relevant experience, after obtaining the registration or certification referred to in paragraph (b)(i) or (ii), in assessing risk to the safety and health of workers working in confined spaces.
- ☐ All the significant findings of a risk assessment should be recorded by the competent person in a risk assessment report, including the hazards identified, the necessary safety precautions to be taken, the type and the number of workers being affected, the period during which workers may remain safely in the confined space and the details of the competent person who has carried out the risk assessment.
- ☐ All workers having the qualification of a competent person under Factories and Industrial Undertakings (Confined Spaces) Regulation and involved in the works in confined space in connection with or in the vicinity of underground pipework, drainage or sewage manholes or chambers, or structure alike shall complete the 1-day Confined Space Safety Training Course for Competent Persons Engaged in DSD's Works provided by the CIC or equivalent training provided by other organizations subject to verification that the equivalent training is based on course contents of equivalent or higher standard.

Question 14.1.2.4 **Weighting: 6**

Have all processes which may create dangerous atmospheres in confined spaces been identified and tested by atmospheric testing equipment?

Audit Criteria

- ☐ Appropriate air testing of a confined space shall be carried out to ensure the absence of any hazardous gas and no deficiency of oxygen before it is certified to be safe to enter.
- ☐ Air testing of a confined space should be conducted to decide and specify the related safety precautions necessary to be taken upon entry into such confined space.
- ☐ The air testing should include the testing of the oxygen content and the presence of flammable, toxic or harmful gases, fumes or vapours.
- ☐ Additional tests may be required for the presence of contaminants in liquid or solid form when the risk assessment indicates that they may be present. It is important not to overlook the flammable properties of substances that also have toxic properties, even if they are only slightly toxic.

- ☐ The atmosphere in a confined space can often be tested from the outside, without the need for entry, drawing samples through a long probe.
- ☐ In selecting appropriate air monitoring equipment for air testing, the types and concentration ranges of atmospheric hazards, as well as parameters such as instrument type, detection range, error, accuracy, resolution, response time, and applicable environment should be considered. It is also essential to consider whether interference could reduce or compromise its detection capabilities.
- ☐ Testing equipment should be in good working order and where necessary calibrated and checked in accordance with the intervals and recommendations accompanying the equipment, or at other suitable intervals. Explosimeters will need to be calibrated for different gases or vapours.
- ☐ Check for risk assessment report that dangerous atmosphere and deficiency of oxygen factors are considered and identified if any.
- ☐ In case flammable or explosive gases or vapours may be present in the confined space, the air monitoring equipment should be of the explosion-proof type. It should have both audio and visual alarms so that it can quickly alert workers if a hazardous situation exists or is developing in the confined space.
- ☐ In a confined space, the percentage of oxygen in air should not be less than 19.5% by volume nor greater than 22% by volume at normal atmospheric pressure.
- ☐ The air monitoring equipment should have a two-level alarm system to alert workers to take appropriate actions correspondingly. Level 1 Alarm is a warning level indicating that there is a threat of atmospheric hazards, but the situation of worker is still safe. Action should be taken to determine the cause of the threat and implement appropriate remedial measures. Under normal circumstances, when reaching Level 2 Alarm level, it indicates the atmospheric hazards pose risks to the workers, the emergency procedures should be activated, and the workers should be evacuated immediately.

Question 14.1.2.5 **Weighting: 3**

Where relevant, are personnel responsible for atmospheric testing properly trained?

Audit Criteria

- ☐ Before a person is allowed to carry out the duties as a competent person, he is required to attend an approved safety training course in connection with confined space work and holds a relevant certificate (sec. 2 of F&IU(Confined Spaces) Reg.).
- ☐ Risk assessment report should identify if the confined space works involves underground pipework, hazardous gas, vapour, dust or fume, or deficiency of oxygen present in the confined space, etc. and all the assessment items listed in the Appendix I - Risk Assessment Form for Confined Spaces in the Code of Practice for Safety and Health at Work in Confined Spaces issued by Labour Department.
- ☐ Check the equipment and training record.

Question 14.1.2.6 **Weighting: 3**

Where relevant, has a defined procedure and arrangement been established for entry to and work in confined spaces?

Reference

- ☐ A proprietor or contractor shall ensure that no worker enters a confined space for work unless safety precautions, including (but not limited to) isolation, purging, air testing and ventilation, have been taken before the work begins [Section 7 of the Confined Spaces Regulation].
- ☐ A proprietor or contractor shall ensure that all workers who enter or work in a confined space are certified workers [Section 8(a) of the Confined Spaces Regulation]. When allocating work to confined space workers, every step should be taken to ensure that the demands of the work activities do not exceed the workers' skills and abilities to carry out the work without risks to themselves or others.

Audit Criteria

- ☐ All isolation points should remain fully secure to ensure that the dangerous materials will not go into the confined space whilst the workers are working inside.
- ☐ Purging with inert gas, steam cleaning and forced ventilation may be necessary to remove all the hazardous substances contained in the confined space.
- ☐ Blanking-off, clean out and lockout procedures should be established if necessary.
- ☐ When work is being carried out in a confined space by a certified worker, a standby person must be assigned to station outside the confined space throughout the time of operation to maintain communication with the worker inside.
- ☐ The standby person shall be trained on how to maintain communication with those workers inside the confined space.
- ☐ Unless alternative suitable arrangements are made, the standby person shall have sufficient physical strength to be capable of pulling workers out from outside the confined space.
- ☐ Means of escape must be suitable for use by the individual who enters the confined space so that they can quickly escape in an emergency. Suitable means to prevent access should be in place when there is no need for anybody to work in the confined space.
- ☐ The size of openings to confined spaces needs to be adequate. Openings allowing safe access to confined spaces, and through divisions, partitions or obstructions within such spaces, need to be sufficiently large and free from obstruction to allow the passage of persons wearing the necessary protective clothing and equipment, and to allow adequate access for rescue purposes.
- ☐ Hinged covers and doors should be secured in the open position. Suitable ladders may be needed to make entry and exit easier.
- ☐ During the continuous or periodic monitoring of the working environment as recommended by the risk assessment, air monitoring equipment should have two levels of alarm systems to alert workers to take appropriate action.
- ☐ The air monitoring equipment should have a two-level alarm system to alert workers to take appropriate actions correspondingly. Level 1 Alarm is a warning level indicating that there is a threat of atmospheric hazards, but the situation of worker is still safe. Action should be taken to determine the cause of the threat and implement appropriate remedial measures. Under normal circumstances, when reaching Level 2 Alarm level, it indicates the atmospheric hazards pose risks to the workers, the emergency procedures should be activated, and the workers should be evacuated immediately.
- ☐ For works in confined space in connection with or in the vicinity of underground pipework, drainage / sewage manholes / chambers or structures alike, the following additional

requirements shall apply:

1. Appoint the person-in-charge (e.g. foreman or ganger) of the confined space works and the person-in-charge shall ensure that:
   - a designated competent person is appointed to carry out risk assessment of the working environment and the works to be carried out in the confined space and make recommendations on measures to be taken in relation to safety and health of workers when work is to be undertaken, and he shall not be the certified worker in the same confined space operation;
   - he shall not act as the Contractor's representative on confined space works or designated competent person in the same shift of confined space works concurrently;
   - he shall attend the Site at the commencement of the confined space works and shall not leave the Site until all personnel entering the confined space have left that space and return to the open atmosphere;
   - he shall not enter the confined space to carry out any work thereat throughout the period of discharging the duties as the person-in-charge for the confined space works;
   - arrange the responsible designated competent person to closely monitor the health and safety of all personnel staying in the confined space.
2. Designate a competent person for the confined space works and the designated competent person shall:
   - attend the Site and shall not leave the Site until all persons entering the confined space have left that space and return to the open atmosphere;
   - carry out risk assessment of the work environment and the works to be carried out in the confined space and make recommendations on measures to be taken in relation to safety and health of workers when work is to be undertaken in compliance with the Factories and Industrial Undertakings (Confined Spaces) Regulations.
3. Specify the responsible person for confined space works (e.g. site agent or project manager) and the specified responsible person shall:
   - be responsible for endorsing the risk assessment and issue / void the permit-to-work in the confined space;
   - determine the continuation / suspension / resuming of confined space operation at the onset of / during / after adverse weather conditions and / or the lowering of adverse weather warning signals;
   - attend the Site and shall ensure all persons entering the confined space have left that space and returned to the open atmosphere.
4. Arrange the standby person to:
   - keep in touch with the personnel staying in the confined space via two-way communication device at reasonable intervals, normally not more than every 2 minutes (direct calling / shouting is NOT encouraged and the Contractor is required to explore and formulate alternative more effective two-way communication device before the commencement of confined space operation;
   - continuously monitor the worker entering a confined space via direct line of sight or CCTV visual display panel when the direct line of sight between the standby person and the worker entering the confined space is blocked;
   - ensure the lifelines are holding firmly on the man-lifting tripod, or other

approved lifting equipment, pay out and reel in the lifelines as required, so that at all times the lifeline can be used in an emergency;

- in the event of a warning being received that working environment is likely to become dangerous, or if they suspect danger themselves, instruct all personnel staying in the confined space to return to the open atmosphere immediately;
- hold a valid Certificate for Certified Worker and to be responsible for the lookout for signs of danger including sudden increase in flow, heavy rain falling in the area or upstream, and signs of hot or peculiar smelling discharges;
- ensure all confined space including manholes etc. required for ventilation are kept open;
- avoid entering the confined space thereat throughout the period of discharging the duties as "standby person" in the same shift of confined space operation.

5. Station a Safety Officer or the designated competent person qualified under the Factories and Industries Undertakings (Confined Spaces) Regulation at the site during the execution of work inside the confined space. The Safety Officer or the designated competent person shall not leave the Site until all persons entering the confined space have left the confined space and returned to the open atmosphere.
6. Implement a permit-to-work system:
   - Notify the CM two clear working days in advance of any proposed work in confined space in writing. The Contractor shall also notify the CM the proposed time of commencement for the confined space works. In case of emergency situations where the 2-day advance notification requirement cannot be met, the Contractor shall obtain verbal consent from the CM prior to the commencement of any confined space works. The verbal consent shall be recorded in writing by the CM before noon on the next working day following the granting of verbal consent;
   - Avoid man-entry to sewers or drains with a diameter not greater than 900mm or equivalent. For CCTV survey, avoid man-entry to sewers or drains with a diameter not larger than 1300mm or equivalent. Where man-entry cannot be avoided under anomalous circumstances, obtain prior approval from the CM. The Contractor's attention is drawn to that approval from the CM would not normally be given for man-entry to carry out opening of lateral connections inside a lined pipeline due to lack of robotic cutting machine / equipment or the like;
   - Avoid work to proceed in a confined space located in industrial areas unless the persons working therein are wearing suitable breathing apparatus of approved type;
   - Set up CCTV cameras at manhole or end of pipeline for real-time monitoring of the conditions of the workers staying in the confined space where the direct line of sight between the standby person stationed at the entrance of a confined space and the person entering a confined space is impossible;
   - Take video throughout the whole work duration, including entry to and exit from the confined space. Submit electronic copy of the videos to the CM within two working days for record purpose;
   - Conduct regular rescue drill on confined space works at an interval of not more than six months or a more frequent interval when considered necessary by the risk assessment.

Question 14.1.2.7 **Weighting: 6**

Where relevant, is a permit-to-enter and a permit-to-work system in operation and have all persons involved been trained?

Audit Criteria

- ☐ Entry into a confined space for work should be permitted only after the issuance of a valid certificate ("permit-to-work certificate") by the proprietor or contractor within which the confined space work is carried out.
- ☐ The proprietor or contractor of the confined space work, after receiving a risk assessment report completed by the competent person, should then consider issuing a certificate. Such certificate should specify the location and types of work to be done, and should state: (a) that all necessary safety precautions in relation to the hazards identified in the risk assessment report have been taken (*sec.6(1)(a)(iii)A of F&IU(Confined Spaces) Reg.*); and (b) the period during which workers may remain safely in the confined space (*sec. 6(1(a)(iii)B of F&IU(Confined Spaces) Reg.*)
- ☐ The permit-to-work procedure is an extension of the safe system to work, not a replacement for it. The use of a permit-to-work system does not, by itself, make the job safe. It supports the safe system, providing a ready means of recording findings and safety measures required to proceed with the entry. It also contains information, such as time limits on entry, results of the gas testing, and other information that may be required during an emergency and which, when the job is completed, can also provide historical information on original entry conditions.
- ☐ The permit-to-work certificate should be properly signed for confirmation by the proprietor or contractor or persons authorised by him (e.g. safety supervisory personnel of confined space work). The items in the certificate should be written or printed in permanent ink or otherwise so as to be indelible.
- ☐ Effective measures should be taken to ensure that no worker would enter the confined space during the period of time until completion. Permit-to-work certificate is being delivered to the proprietor or contractor for proper cancellation.
- ☐ Before a person is allowed to work in confined space as a certified worker, he is required to attend an approved safety training course in connection with confined space work and holds a relevant certificate (*sec. 8(a) and 2 of F&IU(Confined Spaces) Reg.*).
- ☐ The person using the approved breathing apparatus should have received appropriate training in using that particular type or model of breathing apparatus.
- ☐ All workers having the qualification of a certified worker under Factories and Industrial Undertakings (Confined Spaces) Regulation and involved in the works in confined space in connection with or in the vicinity of underground pipework, drainage or sewage manholes or chambers, or structure alike shall complete the 1-day Confined Space Safety Training Course for Certified Workers Engaged in DSD's Works provided by the CIC or equivalent training provided by other organizations subject to verification that the equivalent training is based on course contents of equivalent or higher standard.
- ☐ For works in confined space in connection with or in the vicinity of underground pipework, drainage / sewage manholes / chambers or structures alike, the following additional requirements shall apply:
  Ensure that all persons entering or staying in manholes, sewers, drains and other confined

space should:

- carry a gas detector with them and perform continuous gas monitoring throughout the period of stay;
- wear an audio-visual dead-man type personal alarm maintaining in active operating mode throughout his /her stay in that space, and capable of emitting signals that can alert the standby person stationed at the entrance of that space;
- wear spark-proof / explosion-proof two-way telecommunication equipment to enable communication with the standby person stationed at the entrance of a confined space;
- place safety chains etc. in manholes where facilities are provided for them, in particular, downstream of the area being worked.

Question 14.1.2.8 **Weighting: 3**

Are there Smart Site Safety component (SSSS) for monitoring confined space works?

Audit Criteria

☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.

☐ i. Implement a confined space monitoring system to monitor the locations on the Site which are defined as confined spaces under the Factories and Industrial Undertakings (Confined Spaces) Regulation (Cap. 59AE) and considered necessary to have this confined space monitoring system by the risk assessment. The Confined Space Monitoring System shall fulfil the following functions:

- Real-time site worker counting and location tracking inside confined spaces;
- Confined space environment monitoring including oxygen level, temperature, PM2.5 level, carbon monoxide, carbon dioxide, hydrogen sulphide and methane level, combustible gas;
- Real-time alert if any monitoring parameter exceeds the pre-determined safety levels as mentioned in the Code of Practice on Safety and Health at Work in Confined Spaces issued by Labour Department or any anomaly of workers' conditions is detected.

ii. All sensors and related warning signals / alerts shall be managed by the CMP;

iii. The warning alerts / signals and response times collected by the confined space monitoring system shall be automatically transferred to the CMP for viewing.

Question 14.1.2.9 **Weighting: 6**

Where relevant, has an emergency rescue procedure been developed and communicated to all persons involved, and is rescue equipment available?

Reference

Factories & Industrial Undertakings (Confined Spaces) Regulation

When work is taking place in a confined space, a sufficient number of persons, commensurate with the scale of the job, who know how to use the safety equipment and rescue equipment.

Audit Criteria

☐ The standby person shall be trained on how to maintain communication with those workers

inside the confined space, including the use of new technology to maintain effective communication with those workers inside the confined space.

- ☐ The standby person should keep the workers inside the confined space informed of any change in environmental conditions that would adversely affect their safety in the confined space. The arrangements for rescue and resuscitation should include consideration of: rescue and resuscitation equipment, raising the alarm and rescue, safeguarding the rescuers, fire safety control of plant, first aid public emergency services training.
- ☐ Unless alternative suitable arrangements are made, the standby person shall have sufficient physical strength to be capable of pulling workers out from outside the confined space.
- ☐ All members of the rescue team should have been properly and adequately trained in the related emergency rescue procedures, including the detailed particulars of an emergency rescue plan and should have full knowledge of how to properly use all those rescue equipment.
- ☐ Suitable and sufficient rescue equipment, including standby approved breathing apparatus, safety harness, life-lines, reviving apparatus and emergency lighting, and properly trained rescue personnel should be readily available for rescue purposes at all times when workers are working inside a confined space. Rescue equipment provided should be appropriate in view of the likely emergencies identified in the risk assessment and be properly maintained. For the use of resuscitators, reference should be made to recognized international or national standard such as British Standard BS 6850:1987 Specification for Ventilatory Resuscitators or equivalent.
- ☐ Where practicable, appropriate lifting equipment, e.g. rescue hoist or winch, split-leg tripod with a frame-mounted hoist and one-man access cradle should be available for rescue purposes.
- ☐ The emergency procedures should include situations that trigger evacuation, such as fire, adverse weather conditions (such as heavy rain), in-rush of large amounts of mud or water, undesirable changes to atmospheric hazards, failure of ventilation or fresh air supply system, and failure of emergency response equipment (such as communication devices, respirators, etc.).
- ☐ If the risk assessment report does not recommend the use of an approved breathing apparatus to work in confined spaces and underground pipework is not involved, the proprietor or contractor should consider providing workers with emergency escape breathing apparatus based on the working environment of the confined space to allow workers to escape safely in emergencies. However, it should be noted that an emergency escape breathing apparatus is not a substitute for an approved breathing apparatus.

Question 14.1.2.10 **Weighting: 6**

Where relevant, has the effectiveness of management of confined space been regularly monitored?

Audit Criteria

- ☐ The contractor should have a system for access control on the confined space work, recording the workers entering and leaving the confined space and ensuring only relevant workers are allowed to enter the confined space. Common practices include setting up a “tag in/tag out” notice at the entrance of a confined space so that people outside the confined space can easily be aware of workers’ details and the time of entering the confined

space.

- ☐ The contractor shall exercise sufficient supervision over confined space work, including recording videos at the entrance and exit of the confined space throughout the entire work period to monitor that relevant personnel have complied with the safety precautions. The video records shall be kept for one year after the work is completed and made available for inspection within a reasonable timeframe.
- ☐ The contractor may, where reasonably practicable, provide video surveillance or body-worn video cameras to workers who need to enter confined spaces. It allows the standby person outside the confined space to monitor the workers' work in real-time and promptly call for rescue when necessary.
- ☐ Each worker should be equipped with a personal motion-sensing alarm device which can emit audio and visual alarm so that the standby person outside is immediately alerted to arrange for rescue in case the worker inside confined space is unconscious.
- ☐ Drills for the rescue and emergency procedures should be conducted periodically for testing of the emergency response plan, and for practicing the procedures and use of rescue equipment.
- ☐ Conduct field inspection and work safe behaviour observation to assess the workers safe working practices while working in confined space. For confined space works which are short, the baseline observation period could be shortened to a couple of days, instead of the regular four weeks.

Part 14.1.3 Working at Height

Question 14.1.3.1 **Weighting: 6**

Have all the requirements in regulations, codes of practice and safety information which apply to working at height operations been identified?

Audit Criteria

- ☐ The identifications in regulations, codes of practice and guidance which apply to provide a safe place of work and suitable and sufficient steps to be taken so far as is reasonably practicable to prevent any person falling.
- ☐ There should be no "N/A" for piling and foundation work as working at height is also anticipated in piling and foundation work such as load test, stockpile and adjustment of dropping hammer, etc.
- ☐ Code of Practice for Bamboo Scaffolding Safety, Labour Department
- ☐ Code of Practice for Metal Scaffolding Safety, Labour Department
- ☐ A Guide to the Provisions for Safe Places of Work under Part VA of the Construction Sites (Safety) Regulations, Labour Department.
- ☐ Guidance Notes on Classification and Use of Safety Belts and their Anchorage Systems, Labour Department
- ☐ Guide on Construction and Work Safety of Truss-out Bamboo Scaffolds, Labour Department (if applicable)
- ☐ Overview of Working at Height, Labour Department
- ☐ Guidelines on the Design and Construction of Bamboo Scaffolds, Buildings Department
- ☐ Guidelines on Work-Above-Ground Safely, Construction Industry Council
- ☐ Guidelines on Planking Arrangement for Providing Working Platforms on Bamboo Scaffolds,

Construction Industry Council

- ☐ Guidelines on Safety Enhancement of and Notification Arrangement for Truss-out Bamboo Scaffolds, Construction Industry Council (if applicable)
- ☐ Standard and Guide on Scaffolding Safety, Construction Industry Council (if applicable)

Question 14.1.3.2 **Weighting: 6**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of working at height on the site?

Audit Criteria

- ☐ It is recommended to cover all the activities in the survey of risk assessment and develop appropriate control measures to prevent workers falling from height.
- ☐ The auditor should verify the quality and coverage of risk assessments for working at height activities. Task-specific risk assessment should be prepared for all high risk activities such as scaffolding works for external wall and truss-out scaffolding works.
- ☐ Unless in very exceptional circumstances that working platforms or light-duty working platforms are impracticable to be used for work-above-ground below 2m, use of ladders for work-above-ground should be prohibited. Under such exceptional circumstances where ladders have to be used, task-specific risk assessment should be conducted and safe system of work, such as a permit-to-work system, should be formulated and implemented beforehand.

Question 14.1.3.3 **Weighting: 9**

Is a safe means of access (and egress) to the work area, taking into account the conditions on site such as gangways, stairs and ladders etc. provided?

Audit Criteria

- ☐ There should be no "N/A" for piling and foundation site as access and egress is also anticipated in piling and foundation work such as carrying out load test, stockpile and adjustment of dropping hammer, etc.
- ☐ If safe means of access and egress could not be identified or provided, the answer should be "No".
- ☐ Safe access to and egress from place of work should be provided for the scaffolders and the users of the scaffold. One way of providing a safe access to and egress from a scaffold is to provide a safe gangway between the existing building/ structure and the scaffold. Access and egress provided should be used and no climbing along the standards/ ledgers of the scaffold should be allowed.
- ☐ Access and egress openings constructed on consecutive scaffold layers must be positioned in an off-set pattern, and an appropriate number of access and egress openings positioned in accordance with working requirements.
- ☐ Access and egress openings must be well covered when not in use. Each covering provided for an opening shall be so constructed as to prevent the fall of persons, materials and articles, and clearly and boldly marked to show its purpose or securely fixed at an appropriate position.
- ☐ Where additional bamboo members are erected as foot-hold members for scaffolder or the

users of the scaffold to climb from one layer to another ('rungs'), the spacing between two adjacent rungs should comply with overseas or international standards or regulations, such as British Standard BS EN 131- 1:2015+A1:2019, such spacing should be not less than 250mm and not more than 300mm.

- ☐ Ladders and other means of support used should possess international/ national standards such as British Standard etc. with safe working load displayed.
- ☐ For safe means of access (and egress) to working platforms of a reverse circulation drill, an alternative could be considered by using extendable or adjustable ladders to suit different heights of the working platforms instead of using a number of ladders in various sizes to avoid manual handling.
- ☐ When permanent staircases are unavailable and the level difference is not less than 600mm, provide a secure temporary staircase or other safe means of access. The temporary staircase provided shall have top railings at a height of 900 mm to 1100 mm and middle railings at a height of 450 mm to 500 mm. The riser and the tread shall not be more than 175mm and less than 250mm respectively whereas the sum of two times the riser plus the tread shall not be less than 600mm.
- ☐ When secure permanent railings are not available for permanent staircases:
  - Provide secure top railings at a height of 900 mm to 1150 mm;
  - Provide secure middle railings at a height of 450 mm to 600 mm.

Question 14.1.3.4 **Weighting: 9**

Has every worker been provided with a safe place of work such as provision of proper working platform, scaffold and light-duty working platform etc. for all activities?

Reference

The contractor responsible for any construction site shall take adequate steps to prevent any person on the site from falling from a height of 2 meters or more. (Construction Sites (Safety) Regulations 38B(1) and 38B(1A).

Audit Criteria

- ☐ The measures to control the risks associated with falls from heights are not solely determined by conducting a risk assessment. Instead, a hierarchy of controls, which relate solely to the risks associated with people falling from heights. The controls measures in order are:
  (i) The provision and maintenance of a stable and securely fenced work platform (such as scaffolding or other form of portable work platform)
  (ii) If complying with (i) is not reasonably practicable, the provision and maintenance of secure perimeter screens, fencing, handrails or other forms of physical barriers that are capable of preventing the fall of a person.
  (iii) if complying with (ii) is not reasonably practicable, the provision of other forms of physical restraints that are capable of arresting the fall of a person from a height of more than two metres.
- ☐ Auditor should verify the risk control measures follow the hierarchy.
- ☐ All special scaffolds should be properly designed and certified by a professional engineer.
- ☐ Auditor should verify if proper work equipment are provided for all activities involving a possible fall from height. In addition, auditor should verify whether the provided work

equipment is properly used in accordance with established safety standards and guidelines.

- ☐ Locking device shall be provided to movable working platforms to ensure that the platforms are stable when in use.
- ☐ If working platform or scaffold used does not comply with the relevant legal requirement or code of practice, or if it is not used properly, the answer should be "No".
- ☐ Erecting bamboo scaffold should comfort to one of the following:
  i. Laying working platforms on every lift of a bamboo scaffold; or
  ii. Erecting a suitable working platform at every working location on a lift where the entire scaffold is designed as closely spaced bamboo scaffold.
- ☐ Proper working platform should be used for working at height involving a possible fall of 2m or more.
- ☐ For working involving a possible fall of less than 2m, suitable light-duty working platforms such as hop-up platform and step platform/ platform ladder with compliance of safety standards such as BS EN131-7 should be used. Working on the access steps of a light-duty working platform is prohibited.
- ☐ For bamboo scaffolds, suitable and adequate quantities of planks and toe-boards that are of good construction and adequate strength and thickness should be provided to serve as working platforms; planks and toe-boards should be laid safely and properly, and maintained in safe conditions.
- ☐ The use of metal scaffolding is mandatory in case scaffolding is required for the construction of any part or parts of the Works. In the event that special circumstance arises which renders the Contractor unable to use the metal scaffolding, the contractor may propose to use other types of scaffolding with justifications to the CM for approval. Auditor should consider relevant clauses in the contract specification.
- ☐ Design, erect, maintain, add, alter and dismantle the metal scaffolding. Plan and implement the scaffolding works safely in compliance with the safety legislations. Arrange a professional engineer as defined in the CoP for Metal Scaffolding Safety to design the scaffold before erection.
- ☐ For mobile metal towers, the height to the least base dimension ratio should be limited to 3.5 when within buildings; the height to the least base dimension ratio should not be greater than 3 when outside buildings, when in use in exposed situations, the scaffold should be tied to the building it is serving. No more than one working platform should be permitted on all mobile metal scaffold at any one time.
- ☐ For stationary metal towers, to cater for this overturning moment, the height to least base dimension ratio should not be greater than 4 when within buildings; The height to the least base dimension ratio for stationary towers outside buildings without special means of anchoring should not be greater than 3.5 when outside buildings.
- ☐ The following safety measures shall apply.
  Suitable Materials as Gangway of Bamboo Scaffold
  - Use either metal or wooden planks as gangway for bamboo scaffold. The contractor shall consider the use of metal planks to promote lower risk of manual handling.

Question 14.1.3.5 **Weighting: 9**

Are all scaffolds and working platforms provided with sufficient supports such as standards and metal brackets?

Audit Criteria

- ☐ For double-row bamboo scaffolding, the distance between two adjacent standards on the same scaffold plane should not be greater than 1.3m, while for between two adjacent transoms, the distance should not be greater than 0.75m. Furthermore, the distance between two ledgers should not be greater than 1.2m and the height of boarded lift for forming working platform should be between 1.9m to 2.1m.
- ☐ For truss-out scaffolding, rakers, standards and parallel ledges must be supported by metal brackets fixed to the structural elements of a building. The horizontal spacing between the steel brackets should not be larger than 1.3m.
- ☐ Each metal bracket support truss-out scaffolding must be fixed with three or more anchor bolts. All anchor bolts should be installed strictly in accordance with the manufacturer's recommendations. Sufficient embedment depth and spacing distance should be maintained. If anchor bolt(s) was not properly installed, the answer should be "No".
- ☐ For truss-out scaffolding with height not exceeding 6m, 50 x 50 x 5mm Grade S275 equal angle with at least 3 nos. of 12mm diameter heavy duty anchor bolts, or suitable sizes subject to submission of justifications/ calculations by contractors. The anchor bolts should have a tensile capacity greater than 7kN. The installation details and procedures of anchor bolts should be in strict accordance with the manufacturer's recommendations.
- ☐ The concrete strength of the structural element to which the metal bracket is fixed should be not less than 25N/mm^2.

Question 14.1.3.6 **Weighting: 9**

Are all scaffolds and working platforms provided with suitable bracings, rakers, ties and putlogs to restrict any horizontal movement?

Audit Criteria

- ☐ For every bamboo scaffold erected, there should be bracings provided all over it. Each bracing section should consist of two bamboo members that are tied in a "X" shape over the section of scaffold to be braced. The horizontal span of each "X" shape bracing section should not be greater than 9m.
- ☐ When a bamboo scaffold having a height 7m or below, bamboo rakers should be provided and connected from the ground to the third lift or fourth lift of the scaffold. The angle of the rakers from ground should approximately be equal to 60°. For every 7m apart horizontally or less on the scaffold, there should be one such raker provided.
- ☐ For bamboo scaffold, an effective lateral restraint takes the form of putlog which consists of a metal tie and a bamboo strut. It secures the scaffold to the face of building/ structure. To safeguard structural stability of bamboo scaffold, including under extreme weather conditions, putlogs should be provided at a horizontal spacing not greater than 3.0m. At a height less than 100m above ground, the vertical spacing of putlogs should not be greater than 6.3m while at a height of 100m or more, the vertical spacing should not be greater than 4.2m.
- ☐ To safeguard structural stability of bamboo truss-out scaffold, including its status under adverse weather conditions, putlogs should be provided at spacings not greater than 3m both horizontally and vertically.
- ☐ The metal tie should be made of a mild steel bar of at least 6mm diameter with a yield strength of 250N/mm^2 and a minimum elongation of 15% or a bundle of mild steel wires

or other materials (metal brackets) with equivalent tension capacity and mechanical properties should be used.

- ☐ At every position of ties, a short length of bamboo of effective diameter not less than 40mm (acts as a strut) should be connected between the inner scaffold and the building face to restrict the inward movement of the scaffold.
- ☐ For metal scaffold, bracings should be provided in accordance with the approved design to stiffen the scaffold.
- ☐ For independent tied metal scaffold, ledger bracing should be on alternate pairs of standards. Any pair of standards, which are ledger braced, should be made into a complete series of triangles. When the bay length is 1.5m or less, the ledger bracing may be fixed to every third pair of standards and longitudinal bracing should be provided to all scaffolds in which the movement along the facade of the building/structure is not prevented by other means. The longitudinal bracing should be achieved by tubes set at between 35^{o} and 55^{o} to the horizontal, reaching from bottom to top of the scaffold. For example, individual tubes could be set in zig zag pattern, the top of a tube and the bottom of the next preferably being attached to the same transom.
- ☐ For independent tied metal scaffold, the spacing of lines of ties should not exceed 8.5m, either horizontally or vertically. Ties which will not be removed during the use of a scaffold should be inserted and maintained at a frequency of one for every 40m^2 of the scaffold surface and should be reasonably evenly distributed over the scaffold face area, both horizontally and vertically.
- ☐ Unauthorized dismantling of putlog is prohibited. Provided with putlogs (metal ties) painted in bright red colour and warning signs to putlogs for alerting workers not to make any alteration to bamboo or metal scaffold and putlogs without CM's approval. The signs shall display the words "DANGER: DO NOT ALTER SCAFFOLD & PUTLOG 危險: 不可改動棚架及連牆器(拉搵)" in red on a white background for bamboo scaffold. The signs shall display the words "DANGER: DO NOT ALTER SCAFFOLD & PUTLOG 危險: 不可改動棚架及連牆器" in red on a white background for metal scaffold. The height of each letter / Chinese character on the signs shall not be less than 20mm.

Question 14.1.3.7 **Weighting: 9**

Has every worker been provided with a suitable fall-arresting system if provision of proper working platform is not practicable?

Audit Criteria

- ☐ Where the provision of guard-rails or coverings to prevent fall from openings is impracticable, provide fall arrest system comprising appropriate safety harness, independent lifelines and adequate, stable and sufficient anchor points so as to facilitate continuous anchorage of safety harness.
- ☐ The anchorage point of fall-arresting system should be certified by a professional engineer. Referring to the "Guidance Notes on Classification and Use of Safety Belts and their Anchorage Systems" issued by Labour Department, eyebolt/fixed anchorage should be assessed by "Professional Engineer of the Structural Discipline" if the independent lifeline is connected.
- ☐ If eyebolt/ fixed anchorage for fall protection purpose is certified by professional engineer other than "Structural Discipline" (for example, if statutory form – Form 6 and Form 7

certified by professional engineer but not in “Structural Discipline”) which will be considered as non-compliance.

- ☐ The "Competent Person of Selection, Installation, Use, Inspection and Testing of Anchor Devices and Cast-in Anchors for Attachment of Personal Fall Protection Equipment for Truss-out Bamboo Scaffolds" (ACCP) is suitable to carry out inspections and tests on cast-in anchor and anchor devices used in works of truss-out scaffolds.
- ☐ The fall arresting system shall comprise a full body harness with double hook lanyard to allow a user to stay linked to at least a rigid anchor point. The anchor point shall be planned in advance, installed and tested.
- ☐ The lanyard of the safety harness should not be anchored to the railings or any member of a temporary scaffolding or bamboo scaffolding, or to any section of water, gas and drainage pipes as these structures or device are not designed to withstand sudden shock load or impact force.
- ☐ Auditor should verify if the fall arresting system is properly used.
- ☐ If secure anchorage point is not provided or properly used, the answer should be “No”. The concern of safe use PPE should be reflected in question 14.1.3.15.

Question 14.1.3.8 **Weighting: 6**

Are there competent persons and trained workmen with adequate training and experience to carry out supervision, inspections, erecting, maintenance and dismantling of scaffolds/working platforms?

Audit Criteria

- ☐ Competent Person – means a person appointed by the contractor by reason of his/her substantial training and practical experience, competent to perform the duty.
- ☐ A trained workman in respect of bamboo scaffolding refers to a scaffolder who is responsible for on-site erection, substantial addition, alteration and dismantling of bamboo scaffold under the immediate supervision of a competent person, and has satisfactorily completed a formal training in bamboo scaffolding works equivalent to any of those mentioned for a competent person or has satisfactorily passed the intermediate trade test for bamboo scaffolder of the CIC and possesses at least 1 year of experience in bamboo scaffolding works (inclusive of experience under the formal training period).
- ☐ Substantial training of a competent person in respect of bamboo scaffolding works - refers to a person who has satisfactorily completed a formal training in bamboo scaffolding work such as an apprenticeship in the trade of bamboo scaffolder under section 28 of Apprenticeship Ordinance (Cap.47) or the 1-year full-time training course in bamboo scaffolding of CIC/ other similar courses or has satisfactorily passed the trade test for bamboo scaffolder of the CIC. Practical experience of a competent person in respect of bamboo scaffolding works refers to experience of 10 years or more in scaffolding work.
- ☐ A competent person should be appointed in writing and should have authorization to take prompt corrective measures to eliminate existing and predictable hazards.
- ☐ A trained workman in respect of truss-out bamboo scaffolding, refers to a person who holds a valid certificate of "Advanced Level Truss-out Scaffolder Safety Training" or "Intermediate Level Truss-out Scaffolder Safety Training" issued by the CIC.
- ☐ A trained workman in respect of metal scaffolding refers to a scaffolder who is responsible for on-site erection, addition, alteration and dismantling of metal scaffold under the

immediate supervision of a competent person, and has satisfactorily completed a formal training in metal scaffolding works equivalent to any of those mentioned for a competent person or has satisfactorily passed the intermediate trade test for metal scaffolder of the CICTA and possesses at least 1 year of experience in metal scaffolding works (inclusive of experience under the formal training period).

- ☐ Substantial Training and practical experience of a competent person in respect of metal scaffolding refer to a person-
  - i. who has satisfactorily completed a formal training in metal scaffolding works organised by CIC or other similar metal training courses/ programmes and processes an experience of 4 years or more in metal scaffolding works; or
  - ii. (ii) who has at least possessed a higher certificate in civil/structural engineering or other similar disciplines and has satisfactorily completed a metal scaffolding training course/programme organized by the CIC or other similar metal scaffolding training courses/programmes and possesses an experience of 1 year or more in metal scaffolding works; or
  - iii. who has satisfactorily passed the trade test on metal scaffolding of the CIC and possesses an experience of 4 years or more in metal scaffolding works.
- ☐ Scaffold has been inspected by a competent person before being taken into use for the first time and at regular intervals not exceeding 14 days immediately preceding each use.
- ☐ Dismantling work should be carried out according to the plan. The dismantling work shall be done by trained workmen under the immediate supervision of a competent person. The competent person who immediately supervises workmen carrying out scaffolding works shall not actively engage himself or herself in such work.

Auditor Guidance

Auditor has to obtain the followings evidence:

1. Check the appointment letter for the competent person to carry out regular inspections of scaffolds and supervision required.
2. Verify records (Form 5) to prove the competent person who has carried out inspections/supervisions.

Scenarios

- If the scaffold work has not started yet, Auditor should check item No.1.
- If the scaffold work is in progress, Auditor should check item No.1 and 2.
- If no scaffold work is anticipated or all scaffold work had been completed, the answer should be “N/A”.

Question 14.1.3.9 **Weighting: 9**

Are inspections carried out at appropriate intervals to scaffolds including working platforms/anchors and results entered in the prescribed forms?

Audit Criteria

Auditor has to obtain the following evidence:

- ☐ Inspection records (Construction Sites (Safety) Regulations Form 5) to prove the competent person has conducted the inspections in 14 day interval with his designation and signature.
- ☐ Name and designation of the person responsible for regular inspection should be clearly

stated in the statutory inspection form. As this is a mandatory requirement, the form should be properly filled in name and designation otherwise the answer should be "No".

- ☐ The competent person should submit photo or video records to demonstrate the comprehensiveness of the inspection carried out for completion of Form 5 for the purpose of Regulation 38F(1) of the Construction Sites (Safety) Regulations.
- ☐ The designated persons of contractor should check the quantities of putlogs of scaffolds on a daily basis and rectifying anomalies immediately once identified.

Question 14.1.3.10 **Weighting: 9**

Are necessary precautionary measures taken to ensure scaffolding work safety before and after adverse weather conditions?

Audit Criteria

- ☐ Contractors shall suspend all outdoor work in exposed areas immediately and take shelter in a safe place if they are endangered by adverse weather or "extreme conditions".
- ☐ Contractors shall take the necessary precautions so far as is reasonably practicable to ensure the structural strength and stability of scaffolds preceding the adverse weather conditions.
- ☐ The competent person should carry out thorough inspection prior to such weather conditions and any other weather conditions that could have an adverse effect on the scaffolding work such as strong wind or typhoon and make improvement or enhancement over the scaffolds as required.
- ☐ Prior to the occurrence of typhoon or strong winds, the competent person should also ensure the protective screen of scaffolds were lowered and tied up or removed, and remove the materials kept on the scaffolds.
- ☐ After adverse weather conditions, the competent person should check the strength and stability of the scaffold and ascertain that there are no defects and deterioration and determine whether the scaffold is safe, secure and safe for workers to stay on or it needs to be repaired, in order to prevent the overturning or collapsing of part of or the whole scaffold and endanger other workers working in the vicinity.
- ☐ Checklist and photo records shall be submitted as supporting evidence.

Question 14.1.3.11 **Weighting: 9**

Are special scaffolds and temporary loading platforms properly designed and certified by a professional engineer and with safe working loads displayed?

Audit Criteria

- ☐ A "professional engineer" means an engineer of structural or civil discipline. He should be a corporate member under the constitution of the Hong Kong Institution of engineers or equivalent and should have adequate training and experience, and be able to justify how and why the scaffold he designed can safely resist the imposed loads in accordance with recognized engineering principles.
- ☐ For a bamboo scaffold greater than 15m in height, it should be designed and approved by a professional engineer.
- ☐ For a bamboo scaffold less than 15m in height (including all or part of the standards of the scaffold supported by the metal brackets fixed on the structural elements of a building), if

more than 2 consecutive layers of working platforms are used at the same time at any bay (space between two adjacent standards along the face of a scaffold) for light duty purpose or more than 1 working platform for heavy duty purpose, the stability of the scaffold should be verified by a professional engineer.

- ☐ Auditor should verify the specification for scaffolding contract document which incorporate particular requirements and essential information for the scaffolding work to be planned and implemented safely. (For example, the provision of design drawings and method statement; phasing of work – particularly with other contractors; periodic maintenance and repair of scaffold.)
- ☐ Realistic assessment of loadings on the scaffold at all work stages should be made. In considering the wind load on the scaffold, reference should be made to the Code of Practice on Wind Effects in Hong Kong 2004, prepared under the direction of the Ad hoc Committee on Review of the Code of Practice on Wind Effects or its latest edition.
- ☐ The assessed maximum allowable loading (includes vertical and lateral loads) on the scaffold/working platform.
- ☐ Documents such as scaffolding plan, method statement, design drawings and specifications of the scaffold, etc. should be made available.

Question 14.1.3.12 **Weighting: 9**

Are all floor edges and stairways provided with suitable guard-rails and toe-boards?

Audit Criteria

- ☐ Take adequate steps to prevent any person on construction site or any place where any construction work is carried out with a risk of fall a height of 2m or more.
- ☐ The height of a top guard-rail above any place of work at a floor edge or on a stairway shall be not less than 900mm and not more than 1150mm.
- ☐ The height of an intermediate guard-rail above any place of work at a floor edge or on a stairway shall be not less than 450mm and not more than 600mm.
- ☐ Provide guard-rails, immediately after removal of slab table-forms or slab formworks, provide protective middle and top steel railings at heights of 600mm and 1100mm respectively at slab edges where parapet walls have not yet been constructed.
- ☐ Temporarily removed guard-rails, toe-boards and barriers shall be replaced or erected as soon as practicable after the expiration of the time when the removal was necessary to allow the access of persons or the movement of materials or other purposes of the work concerned.
- ☐ Brightly coloured safety nets should be provided onto the guard-rails and toe-boards for slab edges along building periphery.

Question 14.1.3.13 **Weighting: 9**

Are all floor openings, lift shaft openings and stairwell openings provided with suitable guard-rails and toe-boards or are they properly covered?

Reference

1. Every covering provided for an opening shall be-

(i) so constructed as to prevent the fall of persons, materials and particles; and

(ii) clearly and boldly marked as to show its purpose or be securely fixed in position.

(Schedule 3, Construction Sites (Safety) Regulations)

Audit Criteria

- ☐ Cover all floor openings or provide railings around floor openings and voids to prevent people falling from height as follows:
  a. Cover all floor openings with solid and sound material constructed and securely fixed in position to prevent the fall of persons, materials and articles. These covers shall be clearly and boldly marked to show its purpose; or
  b. Provide rigid guard-rails and toe boards around floor openings with, including but not limited to, the following:
     i. Secure top railings at a height of 900mm to 1150mm;
     ii. Secure middle railings at a height of 450mm to 600mm;
     iii. Secure toe boards of 200mm high above the surface of the slab where no permanent upstand exists;
     iv. Brightly coloured safety nets onto the railings and toe boards; and
     v. At floor opening with considerable risk or safety concerns, provide safety nets of sufficient size and strength covering the floor openings to catch falling persons and objects. The safety nets shall be clear of any debris.
- ☐ Openings generally refer to superstructures which have floor openings, lift shaft openings and stairway openings on site likely to cause fall of person. Also brittle roofs, skylights and roof openings within the work area, or access to the work area, should be identified. This should be done as part of a site survey prior to starting the work. Hazardous areas should be clearly marked as “no go” zones during set up. Building contractor is required to incorporate full height temporary protective barriers to lift shaft openings during the course of construction. Otherwise, the answer of this question should be “No”.
- ☐ The performance specification of full height temporary protective barriers to lift shaft openings is provided as follow:
  - ☐ Function as protection against fall of persons and falling objects through lift shaft openings from the respective floor levels;
  - ☐ Be locked when no access of person or material and no work inside lift shaft;
  - ☐ Be self-closing and readily open from the inside of lift shafts at any time without the need of separate key operations. Such self-closing operation shall impose minimal momentum without affecting the stability of a person’s foothold.
  - ☐ Height of steel gates: full height of the lift shaft opening with minimum 2100mm high;
  - ☐ Mesh size for steel gates: maximum 50 x 50 mm;
  - ☐ Dismantle and clear away the steel gates properly and safely when they are not required anymore;
  - ☐ Ensure that no part of the temporary steel gates shall obstruct the installation of the permanent lift doors and architraves;
  - ☐ Ensure that other permanent works such as wall and floor finishes and tiles, where affected by this temporary installation, shall be completed to contractual requirements upon dismantling of the temporary steel gates;
  - ☐ Maintain the steel gates to operate in a proper, efficient and safe manner until the permanent cover is provided by the nominated subcontractor/ specialist subcontractor for lift installation and clear away.
- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager’s instruction and the following

safety measures shall apply. Auditor should consider relevant clauses in the contract specification.

1. Implement an automated access control and warning system to prevent unauthorized entry of floor opening equal to or larger than 500mm x 500mm and lift shaft opening.
2. Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.

Question 14.1.3.14 **Weighting: 9**

Are all other places included edges, working platforms, mobile tower scaffolding, gangways, etc. provided with proper guard-rails and toe-boards?

Audit Criteria

- ☐ Take adequate steps to prevent any person on construction site or any place where any construction work is carried out falling from a height of 2m or more.
- ☐ These all other places exclude those covered in Question 14.1.3.12.

Question 14.1.3.15 **Weighting: 9**

Are workers carrying out work at height activities provided with appropriate personal protective equipment and are they used properly?

Audit Criteria

- ☐ Suitable personal protective should be provided. Protective equipment include safety harness, lanyard, safety helmet with Y-type chin strap, etc.
- ☐ If there is no issuance record of personal protective equipment for workers, the answer should be “No”.
- ☐ Special attention shall be addressed to the guidelines in the inspection before use, maintenance procedures, proper storage techniques in accordance with the manufacturer’s recommendations and instructions.
- ☐ According to Guidance Notes on Classification and Use of Safety Belt and their Anchorage Systems issued by Labour Department, two lanyards should not be hooked together.
- ☐ The answer could be “N/A” if no working at height activity was carried out during physical verification provided that auditor had verified the provision of personal protective equipment to workers.

Part 14.1.4 Housekeeping

Question 14.1.4.1 **Weighting: 6**

Is there accurate safety information readily available and are procedures addressing the housekeeping properly maintained on site?

Reference

Construction Site (Safety) Regulations

1. Necessary precautions shall be taken to protect workmen employed on site from falling or flying debris.
2. Platforms, gangways, floors, or other places used as passageways on a construction site

shall be kept clear of any loose materials which are not required for immediate use.

3. Materials kept or stored on a construction site shall not be insecurely stacked in a place where they may be dangerous to workmen at the site.
4. Materials kept or stored on a construction site shall not be stacked in such a way as to overload and render unsafe any floor or other part of a building or structure on the site.
5. No timber or other material with projecting nails or sharp objects shall be used or left on a construction site if such nails or objects are a source of danger to workmen employed there.

Audit Criteria

- ☐ The "Daily and Weekly Tidying Up" should be included as one of the procedures to ensure that housekeeping is properly maintained on site. The 5S programme or other management tools should be adopted to assist the implementation of good housekeeping.
    1. The step of tidying up after work assists to maintain a safe environment when workers return to work the next day. All workers must tidy up his own work area after he finishes his work for that day such as properly disposal of wastes, sorting out the unused materials for future use, putting tools in designed area, keep the passageways clear.
    2. In addition to the tidying up after work, weekly tidying up should be conducted on the last working day of the week by all workers and be in charge by foremen from contractor and subcontractors.
    3. Contractor should assist in determining the location and the methods for storing the materials, equipment and tools; set aside storage stations for wastes; provide containers for different wastes; make site arrangements for the removal of wastes.
    4. Rewards should be given to those workers who have done a good housekeeping work.
- ☐ Auditor should focus on the hazards related to housekeeping:
    1. Is the observed evidence of hazards (trip, slips and striking against objects, collapse or falling objects) likely to cause injuries to site workers?
    2. If creating a temporary obstruction is unavoidable, e.g. for loading and unloading, does contractor have a system of warning people about the hazard, or ideally prevent access?
    3. Does the observed evidence suggest a breach of the legal requirements?
- ☐ Auditor when assessing the audit question could recommend the following improvement actions:
    - Many trip and slip hazards can be eliminated at the design and fitting out stages;
    - Regular maintenance is important in eliminating and reducing hazards;
    - Conducting a housekeeping risk assessment.

Question 14.1.4.2 **Weighting: 6**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of housekeeping?

Audit Criteria

- ☐ Auditor should focus on the hazards related to housekeeping:
    - ☐ Is the observed evidence of hazards (trip, slips and striking against objects, collapse or falling objects) likely to cause injuries to site workers?
    - ☐ If creating a temporary obstruction is unavoidable, e.g. for loading and unloading, does contractor have a system of warning people about the hazard, or ideally prevent access?

- ☐ Does the observed evidence suggest a breach of the legal requirements?

☐ Entrance, passages and stairs should be kept clear and free from obstructions. Passage means designated walkways to and from the place of work, but does not cover walkways of work areas. Stairs means general access between levels and does not cover the temporary stairs provided for working platform. Entrance means site entrance.

Question 14.1.4.3 **Weighting: 9**

Are there appropriate measures taken to ensure good housekeeping and proper waste disposal?

Reference

Platforms, gangways, floors, or other places used as passageways on a construction site shall be kept clear of any loose materials which are not required for immediate use. *(Construction Site (Safety) Regulations 52(1) and 52(1A))*

Audit Criteria

☐ Auditor should focus on the hazards related to housekeeping:

1. Is the observed evidence of hazards (trip, slips and striking against objects, collapse or falling objects) likely to cause injuries to site workers?
2. If creating a temporary obstruction is unavoidable, e.g. for loading and unloading, does contractor have a system of warning people about the hazard, or ideally prevent access?
3. Does the observed evidence suggest a breach of the legal requirements?

☐ The question covers working areas where construction works are carried out including all walkways, passages, stairs, landings, working platforms, and storage places.

☐ Working areas should be kept as clear as possible of unnecessary materials and waste.

☐ Auditor when assessing the audit question could recommend the following improvement actions:

People may trip over, or strike against objects, so it is important to keep work areas clear of obstructions and loose materials.

- The floors of work areas should be kept dry and in a non-slippery condition.
- Designate areas for waste collection, provide skips and bins where needed and make clear the responsibilities for waste removal.
- Provide and maintain proper drainage and means of sewage disposal.

Question 14.1.4.4 **Weighting: 9**

Are there appropriate measures taken to ensure no timber or other material with projecting nails or other sharp objects are used or left on the site?

Reference

No timber or other material with projecting nails or sharp objects shall be used or left on a construction site if such nails or objects are a source of danger to workmen employed there. (Construction Site (Safety) Regulations 51(1) & 51(2))

Audit Criteria

☐ Projecting or sharp objects must be adequately protected.

☐ Protection should be provided to the projected re-bars near temporary refuse chute.

☐ Auditor when assessing the audit question could recommend the following improvement

actions:

- Rebar caps, or mushroom caps with larger heads, can be used to protect workers from cuts and scratches.
- Nails or sharp objects protruding from lumber or boards must be removed.

Question 14.1.4.5 **Weighting: 9**

Are temporary refuse chutes maintained in a good condition and kept locked when not in use?

Audit Criteria

- ☐ Temporary refuse chute should be properly connected to the refuse collection point.
- ☐ The refuse chute door should be closed and locked whenever the refuse chute is not in use. If no workers are seen using the refuse chute, the refuse chute will be considered as not in use.
- ☐ Refuse should not be accumulated inside the refuse chute.
- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
  - An effective alerting system should be provided for refuse chute to alert users that it is in use.

Question 14.1.4.6 **Weighting: 9**

Are materials and equipment stored and stacked safely?

Reference

Materials kept or stored on a construction site shall not be insecurely stacked in a place where they may be dangerous to workmen at the site. Materials kept or stored on a construction site shall not be stacked in such a way as to overload and render unsafe any floor or other part of a building or structure on the site. (Construction Site (Safety) Regulations 52(2)(a) & 52(2)(b))

Audit Criteria

- ☐ Auditor should focus on the hazards related to housekeeping:
  1. Is the observed evidence of hazards (trip, slips and striking against objects, collapse or falling objects) likely to cause injuries to site workers?
  2. If creating a temporary obstruction is unavoidable, e.g. for loading and unloading, does contractor have a system of warning people about the hazard, or ideally prevent access?
  3. Does the observed evidence suggest a breach of the legal requirements?
- ☐ Auditor when assessing the audit question could recommend the following improvement actions:
  - Bagged or sacked material should be stacked or piled no more than ten bags/sacks high and should be cross piled on skids to prevent the materials from falling, rolling, overturning or breaking;
  - Skids of brick blocks or other such material should be stockpiled in such a manner as to prevent tipping or collapsing;
  - Provide proper storage of steel reinforcement and keep clear of ground surface by suitable timber battens;

- Storage of large panel formwork in a securely manner and fenced off with warning notices in both Chinese characters and English;
- Materials must be properly stored, stacked or piled away from power lines and to prevent tipping/spilling;
- Tools must not be left on the floor, or in any location where they can be easily dislodged.

Question 14.1.4.7 **Weighting: 9**

Do regular workplace inspections include housekeeping?

Auditor Criteria

- ☐ SOSS Form 3A could alternatively be used as a record of field inspection. However, a list of checking items should be prepared and be readily available during inspection.
- ☐ The weekly site inspection covering the weekly housekeeping inspection is acceptable.
- ☐ Attention should be on hazards caused by slipping and tripping.

Question 14.1.4.8 **Weighting: 9**

Are there appropriate measures taken to warn and prevent the general public and other workers from entering or trespassing?

Auditor Criteria

- ☐ Construction activity must not present a risk to members of the public, especially to children.
- ☐ Where members of the public and other workers are in the vicinity of construction work, suitable and safe routes must be provided to ensure that the safety of them is not put at risk from the construction work activity.
- ☐ Auditor when assessing the audit question could recommend the following improvement actions:
  - Other warning devices such as warning notice, mirror, warning light and signaller should be provided if necessary;
  - Suitably constructed fencing must be used to secure sites;
  - Consideration must also be given to persons with disabilities.

Question 14.1.4.9 **Weighting: 9**

Is suitable and adequate lighting provided to all places where lighting is necessary to secure workers' safety?

Reference

Suitable and adequate lighting necessary to secure workmen's safety shall be provided. (Construction Site (Safety) Regulations)

Auditor Criteria

- ☐ Auditor when assessing the audit question could recommend the following improvement actions:
  - Adequate lighting must be afforded to persons accessing and working in darkened areas to prevent workers from slipping, tripping, falling or being hit by protruding objects;
  - Provide lighting on hoarding or external fencing for public safety;
  - Install all lighting systems in such a way as to ensure even distribution and absence of

glare;
- Provide emergency lighting to escape route and workplaces where necessary.

Part 14.1.5 Protection against Falling Objects

Question 14.1.5.1 **Weighting: 6**

Is there accurate safety information and procedures addressing the risk of materials falling from height and injuries arising out of such risks are substantially reduced?

Audit Criteria

- ☐ The intent of this question is to ensure that there is an order/ way (planned) to ensure that the risk of being injured by falling objects is reduced. This includes identifying activities that will create a risk of falling in a survey and then develop the appropriate control measures, etc.
- ☐ Workers and passers-by can be injured by the premature and uncontrolled collapse of structures, and by flying debris. A safe system of work is one that keeps people as far as possible from the risks.

Question 14.1.5.2 **Weighting: 6**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of falling objects?

Audit Criteria

- ☐ For risks associated with falling objects, some of the following risk control measures may be used:
  - Safe means of raising and lowering objects;
  - Secure physical barriers to prevent the free fall of objects;
  - Measures to arrest the falls of objects;
  - Personal protective equipment.
- ☐ There should be no "N/A" for auditing piling and foundation sites as falling objects are foreseeable e.g. hand tools falling down.
- ☐ It is recommended to cover the activities in the survey of risk assessment and develop appropriate control measures to prevent falling objects.
- ☐ If the anticipated hazard(s) were not adequately identified, the answer should be "No".

Question 14.1.5.3 **Weighting: 9**

Are there appropriate measures taken to provide adequate protection such as nylon mesh and catch-fan to guard against falling objects?

Audit Criteria

- ☐ The intent of the question is to ensure the protection against falling objects in cases where the objects are likely to fall from height. Examples of the arrangements are measures such as provision of temporary protective canopy at 1/F, protective fans and/or nets with the purpose of retaining objects falling from height (e.g. superstructure construction, slope protection works etc.)

- ☐ Erection of the protective canopy should be completed no later than the seventh floor slabs have been cast.
- ☐ At least a sloping catch-fan at not more than 15m vertical intervals to give a minimum horizontal projection coverage of 1,500mm should be provided for bamboo scaffolding. The sloping catch-fan should consist of timber boarding and a layer of galvanized metal sheeting, both adequate thickness to capture and retain falling objects.
- ☐ On the face of the scaffold, suitable protective screen of fire retardant material should be provided to confine falling objects. If tarpaulin is being used as protective screen, its fire retardant characteristic should meet the requirements of BS 5867-2: 2008 (Type B performance requirements) or other equivalent national/ international standards or provisions. Entire scaffolds should be covered with protective screen.
- ☐ Building contractor is required to incorporate full height temporary protective barriers to lift shaft openings as protection against fall of persons and falling objects during the course of construction. Otherwise, the answer of this question should be "No". (Details of performance specification should refer to Question 14.1.3.13)

Question 14.1.5.4 **Weighting: 6**

Are there enhanced safety measures for protection above steel bending yard and to the public against falling objects?

Audit Criteria

- ☐ This question is only applicable for building contract.
- ☐ The following safety measure shall apply:
  1. Design, construct, operate, maintain, and remove after use, electrically-operated retractable protection net for protecting workers at steel bending yard by the time of casting of concrete slab on 3/F.
  2. Provide safety measure(s) to protect the public against falling objects from the building under construction, within the area that is out of site boundary yet within inclined projection plane from the top outer edge of the building at 10 degrees from the vertical at ground level such as, erecting catch fan(s) at appropriate level(s). Exemption shall be permitted at the area / part of the area where no public access is allowed.

Question 14.1.5.5 **Weighting: 6**

Are there enhanced safety measures for protection against falling objects by providing wall mounted catch fan from the building under construction?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
  1. Provide safety measure(s) to protect the public against falling objects from the building under construction, within the area that is out of site boundary yet within inclined projection plane from the top outer edge of the building at 10 degrees from the vertical at ground level such as, erecting catch fan(s) at appropriate level(s) and providing wall mounted catch fan immediately below the external wall mounted working platform at

the gable end wall. Exemption shall be permitted at the area / part of the area where no public access is allowed.

Question 14.1.5.6 **Weighting: 9**

Is there a system for monitoring the frequency of inspections to these arrangements to ensure that there are no gaps, holes or accumulated debris?

Audit Criteria

- ☐ Regular inspection to those arrangements mentioned such as temporary protective canopy at 1/F, protective fans and/or nets, full height temporary protective barriers to lift shaft openings should be carried out to ensure that they are functioning properly (no gaps, holes or accumulated debris, etc.)
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection. However, a list of checking items should be prepared and be readily available during inspection.

Question 14.1.5.7 **Weighting: 9**

Where relevant, are there covered walkways and adequate fencing to protect workers and pedestrians?

Audit Criteria

- ☐ When considering control measures to contain or catch falling objects, identify the types of objects that could fall, as well as the fall gradient and distance, to ensure that any protective equipment or structures are strong enough to withstand the impact forces of the falling object. Examples of these control measures include:
  - erecting a covered pedestrian walkway
  - erecting a catch platform with vertical sheeting or perimeter screening
  - providing overhead protective structures on mobile plant
- ☐ Auditor should verify the provision and adequacy of the covered walkways and fencing.
- ☐ The need to exclude other personnel from scaffolding areas when scaffolding work is in progress should be considered.
- ☐ Enclosing areas over which loads are being lifted.

Question 14.1.5.8 **Weighting: 9**

Are there appropriate measures taken to prevent materials from falling from height in stacking/storage area?

Audit Criteria

- ☐ The stacking/storage area must be well organized with appropriate stacking/storage systems to ensure the material is not:
  - insecurely stacked in a place;
  - stacked in such a way as to overload and render unsafe any floor or other part of a building or structure on the site;
  - placed or stored near the edges.
- ☐ Secure loose or light material stored on roofs and open floors to keep it from blowing away in the wind.

Question 14.1.5.9 **Weighting: 9**

Are there appropriate measures taken to prevent materials, hand tools etc. from falling from height during work activities?

Audit Criteria

- ☐ Working platforms, staircases and floor edges provided with guard-rail and toe-boards.
- ☐ Closely boarded working platform.
- ☐ Adequate measures and arrangements to avoid objects from falling down from height during the process of cutting, transferring or during lifting and lowering.
- ☐ There should be no "N/A" for auditing piling and foundation as falling objects from piling and foundation work are foreseeable e.g. sheet pile falling down during cutting. Auditor should verify the effectiveness and reliability of the control measures and arrangements.
- ☐ Control measures that can be implemented to manage the risk of falling objects when undertaking construction work include:
  - securing and properly bracing structures;
  - securing loose material such as plywood, iron sheets and off-cuts against the wind;
  - using chutes when placing debris into a skip below the work area;
  - erecting perimeter containment screens;
  - fully enclosing hoistway of material hoist;
  - not stacking materials close to un-meshed guardrails and perimeter edges;
  - not stacked or stored materials higher than edges of receptacles;
  - using rigid toe-boards on edge protection;
  - using tool straps with appropriate international/national standards such as ANSI/ISEA 121-2018;
  - erecting catch platforms and/or nets;
  - using a gantry where work involving multiple levels is being performed beside a footpath;
  - using a spotter on the ground level when loads are being lifted to higher levels.

Question 14.1.5.10 **Weighting: 9**

Are suitable safety helmets properly worn by all workers?

Audit Criteria

- ☐ There should be no "N/A" for auditing piling and foundation sites as falling objects or striking against hard objects are foreseeable e.g. hand tools falling down.
- ☐ Auditor should verify whether all workers properly wear suitable safety helmets with Y-type chin straps. The answer should be "No", if the Y-type chin strap cannot fix the safety helmet onto worker's head securely.
- ☐ The standard of safety helmet and expiry date of safety helmet should be checked.
- ☐ Chin strap is an integral part rather than an accessory of a safety helmet for better head protection to the workers. The proper use of chin strap is important to keep the helmet in place to prevent it from dropping off and thus enhances the protection against impact on the workers' heads, in particular during a fall from height. A safety helmet without a chin

strap will not be regarded as a suitable safety helmet.

- ☐ Contractor should provide each of operatives and site supervisory staff (also includes all visitors) with safety helmets with ventilation vents and Y-type chin straps and ensure that each of them wears the safety helmet on-site.

Part 14.1.6 Overhead and Underground Services

Question 14.1.6.1 **Weighting: 3**

Has all possible information about underground services and overhead power lines from utility undertakers and from the owners or occupiers of adjacent sites been obtained?

Reference

Construction Site Safety Regulations

1. Effective measures shall be taken to prevent workmen from being endangered by live electric cables or apparatus.
2. Adequate and suitably placed barriers or other means shall be provided to prevent electrically charged overhead cable or apparatus being a source of danger to workmen.

Code of Practice on Working near Electricity Supply Lines, EMSD

1. "Electricity supply line" means an electric line or any cable used in conjunction with such a line for the purpose of transmitting control signals, which is owned by an electricity supplier.
2. "Overhead electricity line" means an electricity supply line located at or above ground level.
3. "Underground electricity cable" (U/G cable) means an electricity supply line located below ground level.

Gas Safety (Gas Supply) Regulations, Chapter 51B

23A Works in the vicinity of gas pipes

1. No person shall carry out, or permit to be carried out, any works in the vicinity of a gas pipe unless he or the person carrying out the works has, before commencing the works, taken all reasonable steps to ascertain the location and position of the gas pipe.
2. A person who carries out, or permits to be carried out, any works in the vicinity of a gas pipe shall ensure that all reasonable measures are taken to protect the gas pipe from damage arising out of the works that would be likely to prejudice safety.

Code of Practice on Avoiding Danger from Gas Pipes, EMSD

"Gas" means-
(a) town gas;
(b) liquefied petroleum gas (LPG);
(c) natural gas; or
(d) any mixture of such gases,
whether in the form of a liquid or vapour.

"Gas pipe" means -
(a) an installation pipe;
(b) a service pipe; or

(c) a gas main.

For the purposes of Part V of the Gas Safety (Gas Supply) Regulations, "gas pipe" does not include "an installation pipe" and therefore this code of practice only covers works in the vicinity of service pipes and gas mains.

Audit Criteria

- ☐ The term 'service(s)' means all underground pipes, cables and equipment associated with the electricity, gas, water (including piped sewage) and telecommunications industries. It also includes other pipelines which transport a range of petrochemical and other fluids. It does not include underground structures such as railway tunnels etc.
- ☐ Up-to-date, readable plans, which show the recorded line and depth (where known) of all their known services buried in the proposed work area are provided, along with any other relevant information.
- ☐ In connection with electrical supply and gas pipes, auditor should assess all audit questions in this part of overhead and underground power lines according to the "Electrical Supply Lines (Protection) Regulation (Cap. 406)", "Code of Practice on Working near Electrical Supply Lines" and "Code of Practice on Avoiding Danger from Gas Pipes" published by EMSD.
- ☐ The suspension of in-house electric cable lines at the entrance or around the site would be dealt with under Electricity (Section 14.3.3). Auditor should also comment on sufficient arrangement of barriers, goal posts and signs, etc. where applicable to those cables.

Question 14.1.6.2 **Weighting: 3**

Have risk assessment to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of working in the vicinity of underground/ overhead utilities ?

Audit Criteria

- ☐ Risk assessments should consider how the work is to be carried out; ensuring local circumstances are taken into account.
- ☐ The following hazards should be considered during preparation of risk assessment for working in the vicinity of underground/ overhead utilities.
  - Fire and explosion;
  - Electric shock;
  - Flooding;
  - Damaging underground/ overhead utilities.

Question 14.1.6.3 **Weighting: 6**

Where relevant, are there appropriate measures taken to ensure that barriers, goal posts, signs, etc. are provided and properly maintained in position of overhead power lines?

Audit Criteria

- ☐ Steps should cover precautions near live overhead lines, work beneath power lines and passage beneath power lines.
- ☐ If work beneath live overhead power lines cannot be avoided, barriers, goal posts and warning notices should be provided. Ground-level barriers can be constructed using:
  - posts and rail fences;

- a high-tensile wire fence earthed at both ends (this should have warning flags or flicker tape on the wire so that it is clearly visible);
- large steel drums, brightly painted, filled with rubble and placed at frequent intervals;
- an earth bank at least 1 m high and marked by posts;
- timber balks which act as wheel stops.

☐ Auditor should verify the steps have been implemented.

Question 14.1.6.4 **Weighting: 3**

Where relevant, have all workers in the vicinity of power lines been provided with information and instruction on the safety procedures?

Audit Criteria

☐ Before excavation work commences, workers must have proper safe work procedures and adequate supervision. For working near underground cable, a site briefing given by competent person should be arranged to ensure that workers engaged in excavation works aware of the risks and control measures.

☐ Instruction should cover hand-digging when nearing the assumed line of the cable.

☐ Where it is necessary to work beneath live overhead cables additional precautions and instructions will be required to prevent the upward movement of ladders, scaffold poles, crane jibs, excavation buckets.

☐ Auditee should keep a copy of cable alignment record and competent person written report on site and make available the relevant document for inspection (if applicable). The cable alignment record/ competent person written report should be posted on the barrier or railing on the site. If the record/ report is not readily available on site, the answer should be “No”.

☐ For locating underground gas pipes, contractor must ensure that the information obtained is passed to the person actually carrying out the works and that he understands what safety precautions are required. Pipe locators should only be used by experienced people who have received specific training on how to use them. They are used to check the accuracy of the record plans provided by the gas supply company, and trial holes are dug to confirm the positions of gas pipes.

Question 14.1.6.5 **Weighting: 6**

Has proper excavation method been adopted to prevent damaging underground utilities during excavation works?

Reference

Code of practice on Working near Electricity Supply Lines, EMSD

As the position of excavation by mechanical excavators and hand-held power tools cannot be precisely controlled in practice, adequate minimum safe working distance shall be maintained between any U/G cable and the point where the equipment is used:

(a) Hand-held power tools - 500mm in any direction from any U/G, except when breaking out paved concrete surface where a horizontal safe working distance of 250mm is required;

(b) Mechanical excavators and others- 1m in any direction, for U/G cables of voltage below 132 kV and 3m for voltage 132kV or above.

Code of Practice on Avoiding Danger from Gas Pipes, EMSD

1. After a pipe locating device has been used and the location of the gas pipe established, the Competent Person shall determine the number of trial holes based on the gas pipe alignment and the number of underground services. Trial holes shall only be dug by hand tools to expose and confirm the position of any buried gas pipes.
2. In many situations, it will be necessary to use hand-held power tools to break out paved surfaces to facilitate excavation of trial holes. As the position of excavation by hand-held power tools cannot be precisely controlled in practice, hand-held power tools shall not be used directly over the marked position of a gas pipe. A minimum horizontal clearance of 1m shall be maintained from the side of any gas pipe to the point where the equipment is used. Furthermore, great care must be exercised and use of such tools shall be limited to a depth of 150mm in footpaths and 300mm in roads. Putting a mark or a stopper on the tool may help visualize and control the depth of penetration.
3. Hand-held power tools shall not be used directly over the marked position of a gas pipe unless:
   (a) the pipe has already be found at that position by careful hand digging and it is at a safe depth (at least 300mm) below the surface to be broken out; or
   (b) physical means have been used to prevent the tool striking it.

Audit Criteria

- ☐ Auditor should verify whether proper excavation method was adopted as well as verification with site personnel to ensure that they understand the procedure.
- ☐ Maintain adequate safety clearance from underground electricity cables or gas pipes during excavation.

Question 14.1.6.6 **Weighting: 6**

Where relevant, have those pipes and cables which are still live or potentially hazardous been marked and supported?

Audit Criteria

- ☐ Before work begins, underground cables must be located, identified and clearly marked. The position of the cable in or near the proposed work area should be pinpointed as accurately as possible by means of a locating device, using plans, and other information as a guide to the possible location of services and to help interpret the signal.
- ☐ After locating the underground electricity cables or gas pipes, mark the alignment and depth on the road surface clearly.
- ☐ The following approaches shall be adopted until the identity of the gas pipe has been positively confirmed:
  (a) Water pipes may look very like gas pipes and shall be treated as live gas pipes if uncovered.
  (b) Some electricity cables are also yellow in colour and may be mistaken for PE gas pipes. It must be treated as being live and potentially hazardous until proved otherwise.
  (c) Occasionally gas pipes may run in ducts, making them difficult to identify. Whenever there is doubt as to the identity of an exposed service (gas, water or electric), it must be treated as being live and potentially hazardous until proved otherwise.
  (d) New PE gas pipes may be inserted into reserved old metallic pipes.

- ☐ Underground utilities uncovered in an excavation need to be suitably supported and protected.
- ☐ Gas pipe shall never be used as handholds or footholds for climbing out of excavations.

Question 14.1.6.7 **Weighting: 6**

Have competent persons with adequate training and experience been appointed to undertake underground utilities investigation and proper detection equipment been provided?

Audit Criteria

- ☐ Appoint a competent person (approved by the Director of Electrical and Mechanical Services) to identify the alignment and depths of underground electrically cables/gas pipes; the contractor and/or person who actually carries out the works is responsible for ensuring where electricity cables/gas pipes are located before works begin.
- ☐ Before excavations are carried out near utility services by means of mechanical plant, carry out full and adequate preliminary investigations to locate utility service by means of hand-dug trial holes.
- ☐ The excavation trial hole shall be supervised by the competent person personally on site until target cable is exposed or the excavation work of trial cable is completed.
- ☐ Upon completion of active cable detection/pipe locating, the competent person shall prepare a proper record for submission to the working party appointing him. Auditor should collect investigation report during the audit.
- ☐ Upon completion of passive cable detection, the competent person shall prepare a proper record form. This form should include the following details:
  (a) name and approval number of competent person;
  (b) name of the site contractor or other working party;
  (c) location, date and time for which the work on locating the U/G cable alignment was carried out;
  (d) U/G cable alignment (for each U/G cable or for each group of cables) based on common reference points (e.g. lamp pole, traffic light post or hydrant, etc.)
  (e) brand name, model number, serial number, calibration record and mode of operation of the U/G cable detection device used for the detection;
  (f) proposed trial hole locations; and
  (g) photos showing site markings for cable alignment and proposed trial hole locations.
- ☐ Upon completion of active cable detection, the competent person shall prepare a proper record for submission to the working party appointing him. The record should include the following details:
  (a) name and approval number of competent person;
  (b) name of the site contractor or other working party;
  (c) location, date and time for which the active detection was carried out;
  (d) the cable layout plan detailing the alignment of each U/G cable based on common reference points (e.g. lamp pole, traffic light post, or hydrant, etc.) and any cable sections in shallow depth;
  (e) depth profile of each U/G cable (i.e. cable depth corresponding to each measurement point along the cable alignment);
  (f) voltage level of each U/G cable;
  (g) electricity supplier's advice, such as advice sought from the electricity supplier upon

detecting major deviations of cable alignment on site from electricity supplier's cable plans, if any;

(h) photos showing the toroidal active detection and site markings for cable alignment and depth; and

(i) brand name, model number, serial number, calibration record and the adopted frequency of the U/G cable detection device used for the detection.

- ☐ Upon completion of pipe locating, the Competent Person shall issue a note in writing with respect to the existence of any underground gas pipes and related gas installations at the works site or its vicinity. This written record shall be regarded as an "underground gas pipes survey record".
- ☐ People who use a locator should have received thorough training in its use and limitations. Locating devices should always be used in accordance with the manufacturer's instructions, regularly checked and maintained in good working order.
- ☐ Pipe locating devices of radio frequency detection or transmitter/receiver types are suitable for metallic gas pipes and polyethylene (PE) gas pipes furnished with metallic tracer wire. Although no PE gas pipe shall be permitted to be laid unless an approved means for position tracing of that pipe is provided following the issue of this Code of Practice on Avoiding Danger from Gas Pipes in July 1997, a few PE gas pipes might not bear any metallic tracer elements prior to issue of this code of practice. Extra care shall be taken in excavation near PE gas pipes. As a result it is especially important to use plans and safe digging practices.
- ☐ The goal of calibration is to minimise any measurement uncertainty by ensuring the accuracy of test equipment. The detection equipment should be calibrated at least annually (or according to the manufacturers' guidance).

Question 14.1.6.8 **Weighting: 3**

Where relevant, have emergency procedures in relation to utilities services been established and communicated to the work-force?

Audit Criteria

- ☐ Buried service suffers damage during the excavation or subsequent work, the owner/operator must be informed. In the case of electricity cables, gas pipes, other pipelines or high-pressure water mains, arrangements should be made to keep people well clear of the area until it has been repaired or otherwise made safe by the owner/operator.
- ☐ If a gas leak is suspected, repairs should not be attempted. Evacuate everyone from the immediate vicinity of the escape. If the service connection to a building or the adjacent main has been damaged, warn the occupants to leave the building, and any adjoining building, until it is safe for them to return.
- ☐ If a gas pipe suffers damage, however slight, the gas pipe owner/operator shall be informed immediately and arrangements shall be made to keep people well clear of the area until it has been repaired or otherwise made safe.

Part 14.1.7 Flammable Substances, Gases and Vehicle Fuels

Question 14.1.7.1 **Weighting: 3**

Have all relevant requirements in regulations and codes of practices and safety information that apply to use, storage or transport of flammable substances and gases and vehicle fuels

(including petrol diesel and LPG) been identified?

Reference

- ☐ Factories & Industrial Undertakings (Dangerous Substances) Regulation
- ☐ Dangerous Goods Ordinance
- ☐ Dangerous Goods (Control) Regulation
- ☐ Dangerous Goods (Application and Exemption) Regulation
- ☐ Gas Safety (Gas Supply) Regulations
- ☐ Code of Practice for Control of Dangerous Goods on Land, Fire Services Department
- ☐ Chemical Safety in the Workplace - Guidance Notes on Safe Use of Flammable Liquids, Labour Department

Audit Criteria

- ☐ Flammable substances includes solvents and all types of mixtures and solutions such as oil based paints, white spirit, thinners, coating formulations which contain volatile flammable solvents and petroleum based adhesives.
- ☐ Auditor should verify the requirements for the storage of flammable liquids, gases and vehicle fuels including storage in open air and storage inside a building.

Question 14.1.7.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action for the use of flammable substances such as petrol, thinner, diesel, LPG and acetylene gases or other materials and substances which could pose a high fire risk?

Audit Criteria

- ☐ Risk assessment should consider risk arising from the interface of different works.
- ☐ Combustible materials need to be stored in suitable stores outside buildings under construction, especially volatile flammable materials such as LPG. If combustible materials are stored inside buildings, they need to be kept in an area where the safety of people (on and adjacent to the site) is not threatened in the case of a fire. For example, do not put paint stores next to emergency exits or under any means of escape, e.g. steps/staircases.
- ☐ Locate external stores in open air, in a well-ventilated area that is shaded from the sun. LPG cylinders and tanks should be stored away from construction activities and ignition sources.
- ☐ Petrol-driven equipment should be installed in designated safe areas that are outside and well ventilated. Petrol cans should not be stored or used inside the structure or on escape routes.
- ☐ Store oxygen cylinders separately from cylinders of flammable gases such as LPG and acetylene.
- ☐ Auditor should verify the correctness and coverage of risk assessments of auditee in providing suitable storage of flammable liquids, gases and vehicle fuels.

Question 14.1.7.3 **Weighting: 3**

Are there procedures in safety plan regarding the storage and handling of flammable substances, gases and vehicle fuels?

Audit Criteria

- ☐ Auditor should verify what kinds of arrangements actually done on site with reference to the safety plan such as there are responsible persons for receiving those flammable liquids or gases with record and have it stored at the appropriate location; there is system to control how it is dispatched to workers or parties who need to use these flammable liquids or gases, etc.

Question 14.1.7.4 **Weighting: 6**

Where stored flammable liquids, gases and vehicle fuels exceed the exempted quantities, have the appropriate licenses been obtained?

Audit Criteria

- ☐ Class 2 DG (Flammable Gases, etc.) exceeding 450 litres in aggregate in industrial premises shall be stored in a separated fire-resisting room constructed in accordance with the requirements of the Dangerous Goods Ordinance.
- ☐ Class 3 DG (Flammable Liquids) exceeding 150 litres in aggregate in industrial premises shall be stored in a separated fire-resisting room constructed in accordance with the requirements of the Dangerous Goods Ordinance.
- ☐ Valid DG licenses should be obtained if any stored flammable liquid and gas such as diesels, thinner, LPG for forklift truck, oxygen & acetylene cylinders etc. exceed the exempted quantities. Otherwise the answer should be "No".
- ☐ If it is less than the exempted quantity, the answer should be "N/A".

Question 14.1.7.5 **Weighting: 6**

Where the stored flammable liquids, gases and vehicle fuels do not exceed the exempted quantities, have these been properly stored?

Audit Criteria

- ☐ Flammable gases / substances not exceeding in the exempted quantity and aggregate exempted quantity accordingly shall be stored in suitable closed containers and the containers shall be kept in a metal cupboard or bin. The metal cupboard or bin shall be situated in a position where it is least likely that the flammable gases / substances will catch fire.
- ☐ Every container, storeroom, cupboard and bin used for storing inflammable substances shall be clearly and boldly marked 'Inflammable Substance 易燃物品'.

Question 14.1.7.6 **Weighting: 6**

Are there "No Smoking" signs displayed in all locations containing readily combustible or flammable materials?

Audit Criteria

- ☐ Steps shall be taken to ensure that smoking or the use of naked lights is prohibited in a site where flammable liquid or any mixture containing any such liquid or any substance or thing which will involve danger from fire is used.
- ☐ Auditor should verify the implementation of non-smoking policy on site.

Question 14.1.7.7 **Weighting: 6**

Is there a system such as safety inspection for monitoring the storage of flammable substances, gases and vehicle fuels?

Audit Criteria

- ☐ SOSS Form 3A could alternatively be used as a record of field inspection. However, a list of checking items should be prepared and be readily available during inspection.
- ☐ Auditor should verify the licenses (if applicable) and records.

Part 14.1.8 Substances Hazardous to Health

Question 14.1.8.1 **Weighting: 3**

Is there a register of hazardous substances which indicates the chemical and physical properties, health hazard information, precautions for use and safe handling information of individual hazardous substances on the site?

Audit Criteria

- ☐ Auditor should verify the register of hazardous substances.

Question 14.1.8.2 **Weighting: 3**

Have workers who have to use these substances been adequately trained and instructed?

Audit Criteria

- ☐ Auditor should verify the training records.

Question 14.1.8.3 **Weighting: 6**

Are all hazardous substances in workplace labelled correctly?

Audit Criteria

- ☐ On-site verification is necessary.

Question 14.1.8.4 **Weighting: 6**

Are all hazardous substances in the workplace stored correctly?

Audit Criteria

- ☐ Hazardous substances mean all substances hazardous to health. Auditor should verify whether all these substances are stored correctly and comment on the storage condition.
- ☐ Visual evidence should be provided for verification.

Question 14.1.8.5 **Weighting: 6**

Are workers handling substances hazardous to health provided with appropriate personal protective equipment and are they used properly?

Audit Criteria

- ☐ Auditor should comment on the personal protective equipment provided to workers handling substances hazardous to health even when no operation was being carried out during the physical verification.

- ☐ If there is no issue record of personal protective equipment for the workers, the answer should be "No".
- ☐ The answer may be "N/A" if no activity was carried out during physical verification provided that the auditor had verified the provision of personal protective equipment to the workers.

Part 14.1.9 Occupational Safety and Health in Offices

Question 14.1.9.1 **Weighting: 3**

Have all relevant requirements in regulations and codes of practices and safety information that apply to site offices been identified?

Audi Criteria

- ☐ Occupational Safety and Health Regulation
- ☐ Occupational safety and Health (Display Screen Equipment) Regulation
- ☐ Code of Practice for Working with Display Screen Equipment
- ☐ Every person employed shall be allowed a cubic space of not less than 7 cubic metres (250 cubic feet).

Question 14.1.9.2 **Weighting: 3**

Have risk assessments been conducted for display screen equipment to identify any foreseeable hazards, assess their risks, and recommend action for office in the site?

Audit Criteria

- ☐ The Workstation Risk Assessment Checklist at the Annex of The Occupational Safety and Health (Display Screen Equipment) Regulation may be used in performing risk assessments of workstations.
- ☐ An employee would be a “user” if he, by the nature of his work, e.g. data processing, telecommunications, computer graphic design, etc. is required to use display screen equipment almost every day,
  (a) continuously for at least 4 hours during a day; OR
  (b) cumulatively for at least 6 hours during a day.
  Breaks not exceeding 10 minutes in an hour away from the display screen equipment shall not be regarded as breaking the continuity of use of the display screen equipment.
- ☐ DSE assessment applies to “DSE users” only.
- ☐ As for risk assessment on Display Screen Equipment (DSE) at work station, it requires competent person with sufficient training (6 hours in two half-day Certificate of Competency in Display Screen Equipment Assessment course organized by OSHC or equivalent).
- ☐ Registered safety officer is considered as a competent person to conduct DSE risk assessment.

Question 14.1.9.3 **Weighting: 6**

Are all steps, stairs and floors in the office maintained in good condition and free from trip hazards?

Audit Criteria

- ☐ Slip and trip hazards around the office workplace, such as uneven floors, trailing cables, areas that are sometimes slippery due to spillages.
- ☐ Floors need to be checked for loose finishes, holes and cracks, worn rugs and mats etc.

Question 14.1.9.4 **Weighting: 6**

Is all electrical equipment properly installed and maintained?

Audit Criteria

- ☐ The ends of flexible cables should always have the outer sheath of the cable firmly clamped to prevent the wires (particularly the earth) from pulling out of the terminals.
- ☐ Use proper connectors or cable couplers to join lengths of cable. Do not use strip connector blocks covered in insulating tape.
- ☐ Protect light bulbs and other equipment which could easily be damaged in use.
- ☐ All electrical equipment and installations in office should be maintained to prevent danger. An appropriate system of visual inspection and, where necessary, testing by competent person is required.

Question 14.1.9.5 **Weighting: 6**

Are inspections of the office buildings carried out regularly?

Audit Criteria

- ☐ SOSS Form 3A could alternatively be used as a record of field inspection. However, a list of checking items should be prepared and be readily available during inspection.
- ☐ Auditor should verify the safety inspection of the site cover the office area.

Sub-section 14.2 Management of Tasks and Operations

Part 14.2.1 Demolition

Question 14.2.1.1 **Weighting: 3**

Have all the requirements in all regulations, codes of practice and safety information which apply to demolition work been identified?

Audit Criteria

- ☐ This question is not only applicable to all demolition contracts that required permission from Office of the Building Authority, but also the renovation, refurbishment, alteration and additional works etc. that involve demolition of original structural elements of a building such as walls, slabs etc. Auditor should verify whether all the requirements in all regulations, codes of practice and guidance that may be applicable to the demolition work involved have been identified.

Question 14.2.1.2 **Weighting: 3**

Has a survey been carried out to identify the structural arrangement and condition prior to demolition?

Audit Criteria

- ☐ The structural survey should consider the age of the structure, its previous use; the type of

construction nearby buildings or structures the weight of removed material or machinery on floors above ground level.

- ☐ The method statement for the demolition should identify the sequence required to prevent accidental collapse of the structure.
- ☐ Demolition sequence should start from the top of the structure to be demolished when hand tools, such as jackhammers, sledge hammers, and picks are used.

Question 14.2.1.3 **Weighting: 3**

Has a method statement in English and Chinese detailing the sequence and method of demolition, taking into account survey information and risk assessment, been produced?

Audit Criteria

- ☐ A written method statement has been prepared and agreed with the Architect/Engineer.
- ☐ Consult the utility companies and disconnect or divert all services.
- ☐ Existing floors planned to be used are not overloaded. Otherwise, shoring should be installed to support the floors.
- ☐ The demolition procedure is prepared and is appropriate for the demolition method to be used. The procedure should be specific for the site and sequential.
- ☐ When removing entire wall sections using manual demolition methods that incorporate hand tools, such as jackhammers, sledge hammers, and picks, avoid weakening the wall by:
  - ■ never taking down multiple rows of brick at once or starting at the bottom of the wall
  - ■ removing the top course of bricks using a hammer and chisel
  - ■ finishing an entire row before starting the next

Question 14.2.1.4 **Weighting: 3**

Is there a "Specialist Contractor" appointed to carry out the demolition of a building?

Audit Criteria

- ☐ In the new construction site safety enhancement measures specified in tender document, when sub-letting part of the demolition works, contractor is required to engage no more than one tier of sub-contractor who must be on the Housing Authority List of Demolition Contractors and/or the Buildings Department List of Registered Specialist Contractors (Demolition Works). Otherwise, the answer of this question should be "No".

Question 14.2.1.5 **Weighting: 3**

Is there a "Competent Person" appointed to supervise the demolition of a building?

Audit Criteria

- ☐ Verify that a competent person is in charge of the operation.

Question 14.2.1.6 **Weighting: 3**

Have all demolition workers including plant operators been trained?

Audit Criteria

- ☐ Verify the workers' and operators' training record.

- ☐ Plant operators/workers for demolition works should receive trade specific training.

Question 14.2.1.7 **Weighting: 3**

Have all demolition workers been instructed on the requirements of the method statement?

Audit Criteria

- ☐ Verify that the training and briefing contents did cover the method statement.
- ☐ A safe work method statement is developed for any high risk construction work that is undertaken as part of the demolition work. This must be prepared in consultation with workers undertaking the activity and implemented during the demolition.

Question 14.2.1.8 **Weighting: 6**

Are there appropriate measures taken to protect members of the public likely to be in the vicinity of the demolition work?

Audit Criteria

- ☐ Erect warning notices.
- ☐ Adequate protection steel hoarding and covered walkway with lighting and safe access for the public.
- ☐ Exclusion zones are established to keep unauthorised people outside of potential collapse zones and areas affected by rebounding material.

Question 14.2.1.9 **Weighting: 6**

Have all materials and processes likely to create health hazards, e.g. noise and dust, been identified by risk assessment and have all necessary precautions been taken?

Audit Criteria

- ☐ During demolition and dismantling, workers can be injured by falling from edges, through openings, fragile surfaces and partially demolished floors.
- ☐ Workers and passers-by can be injured by the premature and uncontrolled collapse of structures, and by flying debris.
- ☐ Uncontrolled collapse.
- ☐ Gas, electricity, water and telecommunications services need to be isolated or disconnected before demolition work begins
- ☐ Effective traffic management systems are essential on site, to avoid putting workers at risk of being hit by vehicles turning, slewing, or reversing.
- ☐ Hazardous materials that need to be considered include dust, asbestos and respirable crystalline silica (RCS).
- ☐ Fire is a risk where hot work (using any tools that generate spark, flame or heat) is being done.
- ☐ Noise and vibration.

Question 14.2.1.10 **Weighting: 6**

Is flame-retardant sheeting installed to cover the building to be demolished?

Audit Criteria

☐ Site is properly enclosed. Scaffold with flame-retardant screen and catch-fan.

Part 14.2.2 Excavations

Question 14.2.2.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information which apply to excavations been identified?

Audit Criteria

☐ Relevant information on: ground conditions; underground structures or water courses; and the location of existing services. This information should be used during the planning and preparation for excavation work.

☐ Construction Sites (Safety) Regulations

☐ Code of practice on Safe Use of Excavator, Labour Department

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Question 14.2.2.2 **Weighting: 3**

Is there a risk assessment to assess if the selected excavation plant is suitable for the work to be carried out?

Audit Criteria

☐ Plant and vehicles driven too close to the edge of an excavation site, particularly while reversing, may cause the sides to collapse.

☐ Excavators, loaders and combined excavator loaders may be used as cranes in connection with work directly associated with an excavation. These machines should be fitted with check valves or other device to prevent the gravity fall of the load, in the event of hydraulic failure.

☐ Chains or slings for lifting must not be placed around or on the teeth of the bucket. Lifting gear may only be attached to a purpose made point on the machine.

Question 14.2.2.3 **Weighting: 3**

Has a risk assessment been conducted for the excavation work and for the support of the excavation and all associated protection?

Audit Criteria

☐ Undertake a risk assessment and develop, implement and maintain a system of work that ensures safety for work in or near an excavation.

☐ Hazards commonly associated with excavation work which should be considered by risk assessment are:

- fall or dislodgement of earth and rock;
- the instability of the excavation or any adjoining structure;
- the inrush or seepage of water;
- unplanned contact with utility services;
- the placement of excavated material;
- falls into excavations;
- the movement and positioning of heavy plant and equipment affecting the excavation;
- ground vibration affecting the excavation ;

- vehicle movement;
- excessive noise from the operation of machinery and plant;
- manual handling injuries.

Question 14.2.2.4 **Weighting: 6**

Is the excavation adequately shored in accordance with the design of the temporary support systems?

Audit Criteria

- ☐ Before digging any trench pit, or other excavations, a plan and/or a method statement will be required to decide what temporary support systems and safety precautions to be taken.
- ☐ Make sure the equipment and precautions needed (trench sheets, props, balks etc) are available on site before work starts.
- ☐ Check that excavations do not undermine scaffold footings, buried services or the foundations of nearby buildings or walls. Decide if extra support for the structure is needed before start. Surveys of the foundations and the advice of a structural engineer may be required.
- ☐ When removing the shoring supports, the support system should be extracted/dismantled in the reverse order of its installation. Persons working inside the excavation should work inside the protection of the ground support.
- ☐ Battering the excavation sides to a safe angle of repose may also make the excavation safer.

Question 14.2.2.5 **Weighting: 6**

Are there appropriate measures taken to prevent the fall of persons and drowning in excavation?

Audit Criteria

- ☐ Suitable guardrails and toe-boards inserted into the ground immediately next to the supported excavation side; or
- ☐ Using support system itself, e.g. trench box extensions or trench sheets longer than the trench depth.
- ☐ During excavation work, where excavation is likely to collect or retain water, the excavation should be covered or fenced off. Provision of rescue means such as lifebuoys should be considered.

Question 14.2.2.6 **Weighting: 6**

Are there appropriate measures taken to prevent materials or plant from being stacked or worked too close to edges of excavation?

Audit Criteria

- ☐ Plant and vehicles close to the sides of excavations can make extra loadings to the sides of excavations more likely to collapse.
- ☐ Loose materials may fall from spoil heaps into the excavation. Edge protection should include toe-boards or other means, such as projecting trench sheets or box sides to protect against falling materials.
- ☐ Suitable and sufficient measures shall be taken so as to prevent any vehicle from falling into

any excavation or pit, or into water, or overrunning the edge of any embankment or earthwork.

Question 14.2.2.7 **Weighting: 6**

Are safe means of access and egress provided to the excavation?

Audit Criteria

- ☐ Where there is reason to apprehend danger to persons employed therein from rising water or from an eruption of water or material, adequate means are provided, so far as practicable, to enable such persons to reach positions of safety in the event of emergency
- ☐ Provision of a safe means of movement between different levels of the excavation. Use of intermediate platforms for deep excavation.
- ☐ Where ladders are used for access, the ladder should be secured at both top and bottom to prevent displacement and must be set up at an angle of 1:4 (75 degree). A safe and adequate sized landing place when stepping off the ladder and stiles of the ladder should be provided and extended at least one metre above the landing place.

Question 14.2.2.8 **Weighting: 6**

Where applicable, are there appropriate control measures taken to protect workers against airborne and soil contaminants?

Audit Criteria

- ☐ Where there is a risk of inhalation of harmful airborne substances such as silica dust or contact harmful soil contaminants such as asbestos, a safe system of work including monitoring of airborne contaminants and soil samples should be conducted and specific measures for protection, handling and removing should be taken.

Question 14.2.2.9 **Weighting: 3**

Have competent persons with relevant training and experience been appointed to carry out regular inspections and examinations?

Audit Criteria

- ☐ Auditor has to obtain the following evidence:
  1. Training and experience records of the competent person i.e. qualification in engineering and acceptable experience.
  2. Appointment letter for the competent person to carry out regular inspections of all excavations.

Auditor Guidance

Scenarios

- ☐ If the excavation work has not started, Auditor should check item No.1 & 2.
- ☐ If the excavation work is in progress, Auditor should check item No.1 & 2.
- ☐ If no excavation work is anticipated or all excavation work has been completed, the answer should be “N/A”.

Question 14.2.2.10 **Weighting: 6**

Are inspections and examinations carried out at appropriate intervals and are the results entered in the prescribed form?

Audit Criteria

Auditor has to obtain the following evidence:

- ☐ Training, experience records and appointment letter as per Question 14.2.2.9.
- ☐ Updated and proper inspection records (Form 4) bearing the designation and signature of the competent person to prove that competent person has conducted the inspections in a 7-day interval as necessary.
- ☐ Name and designation of the person responsible for regular inspection should be clearly stated on the statutory inspection form. As this is a mandatory requirement, the form should be properly filled in with the name and designation; otherwise the answer should be "No".

Part 14.2.3 Lifting Operations

Question 14.2.3.1 **Weighting: 6**

Have all the requirements in regulations, codes of practice and safety information which apply to lifting operations been identified?

Audit Criteria

- ☐ Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations
- ☐ Code of Practice for Safe Use of Tower Cranes, Labour Department
- ☐ Code of Practice for Safe Use of Mobile Cranes, Labour Department
- ☐ Guidelines on Safety of Tower Cranes, Construction Industry Council
- ☐ Lifting appliances and gear manufacturers' manual and certificates etc.
- ☐ The objective of obtaining safety information is to ensure that every lifting operation involving lifting equipment can be properly planned by a competent person.

Question 14.2.3.2 **Weighting: 6**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of lifting operations?

Audit Criteria

- ☐ Specific risk assessments should be carried out for all high-risk lifting operations involve the following lifting appliances:
  - Tower crane;
  - Lorry-mounted crane;
  - Crawler crane;
  - Mobile crane; and
  - Others such as winch, derrick crane, mono-rail system, etc.

Question 14.2.3.3 **Weighting: 6**

Is there a lifting plan in place which covers the transportation, erection and dismantling, operation, communication, guarding of dangerous parts, inspection, testing and examination

and maintenance to ensure that lifting operations are carried out safely?

Audit Criteria

- ☐ The lifting plan is a set of plans which is created for use in any lifting operations. All lifting operations shall be accompanied by a lifting plan supported by a risk assessment, a safe work procedure and/or method statement. Frequent or routine lifting operations may only require a basic lifting plan. Non-routine or complex lifts however, requires additional planning and engineering design efforts to ensure that the lifting is conducted safely.
- ☐ The lifting plan will need to identify the resources required, the procedures and the responsibilities so that any lifting operation is carried out safely.
- ☐ The lifting plan shall include but not limited to following:
  - Personnel required;
  - Personnel's roles, responsibilities and competencies;
  - Nature, weight and dimension of loads;
  - Selection of appropriate lifting equipment and lifting gear;
  - Application of the correct lifting methods;
  - Position of personnel and lifting equipment;
  - Assessment of the need for tag lines;
  - Means of communication.
- ☐ For loading / unloading of vehicles:

  a. Planning:
    i. Conduct risk assessment of lifting operations by the safety officer or a competent person to identify hazards and risk control measures beforehand;
    ii. Prepare statement with substantiation for the extent of danger zone to be fenced off in relation to loading and unloading of vehicles;
    iii. Provide appropriate and adequate warning signs, guards, fences or barriers around danger zone to prevent unauthorized entry.

  b. Crane Operators and Personnel:
    i. Maintain a list of lorry-mounted crane / operators employed by the Contractor and his sub-contractors of all tiers for handling loading and unloading operations on the Site. All operators shall be trained as both qualified riggers & signallers and worker(s) assisting in unloading material from the vehicle on the Site shall be trained in lifting operation;
    ii. Provide a lifting supervisor to monitor and supervise the whole lifting process. The lifting supervisor shall possess certificate for lifting safety supervisors provided by CIC. The lifting supervisor shall have a minimum of four-year experience in lifting operation.

  c. Operation:
    i. Park the vehicle on a level ground as far as possible before loading / unloading. If a level site condition is not available, adjust the vehicle to be level with outriggers fully stretched to rest on pads for stability;
    ii. Stretch the outriggers of the lorry-mounted crane fully to rest on pads laid on solid ground.

  d. Handling Load:
    i. If there is a risk of the load falling down from the vehicle, secure and keep the load to be unloaded from the vehicle in a position by a device or method such as a crane before the strap / chain fastening the load is unfastened;
    ii. When the load is higher than the sideboard of the vehicle, provide lateral barriers

which may take the form of a metal frame mounted on the vehicle to restrain the position of the load;

iii. When the load comprises layers stacked over one another, add devices between the layers to secure them altogether to avoid risk of sliding;

iv. Tie all loads on the vehicle securely to the vehicle to prevent undue movement during transportation

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Question 14.2.3.4 **Weighting: 9**

Are there appropriate measures taken to ensure that all lifting appliances and associated lifting gear are suitable for the operations?

Audit Criteria

- ☐ Thorough planning of the operations, along with the selection, provision and use of suitable lifting appliance(s) and associated lifting gear.
- ☐ The position and movement of lifting appliances are safe and suitable.
- ☐ Check for any ramps, slopes, gates, archways, buildings, trees or overhead lines that would present an obstacle or danger, and make sure that refuelling or other service vehicles can gain access without causing a hazard.
- ☐ The method of determining the weight of the load to be hoisted. This information can be obtained from shipping papers, design plans, catalogue data, manufacturer's specifications, and other dependable sources. When such information is not available, it is necessary to calculate the load weight.
- ☐ All types of crane, except those with maximum safe working load of 1 tonne or less or those operate with a grab or by electromagnetic means, shall be fitted with an automatic safe load indicator.
- ☐ The outrigger beams should be marked or painted in a manner to indicate the fully extended position.
- ☐ Motion limit devices should be fitted to limit hoisting, derricking, travelling, slewing or any other crane motion.
- ☐ If safety latch is provided on the lifting hook, maintain a safe working condition of safety latch to prevent displacement of the sling.
- ☐ Where a sling is employed, the sling should not be allowed to damage the load, nor should the sling itself be damaged.
- ☐ Provide interlock devices or other measures to secure the safety latches of crane hooks (Not applicable for mobile cranes which are rented and are not expected to be used on site for more than six months). The safety latches shall only be released manually, so as to prevent slipping of lifting gear out of the hooks.

Question 14.2.3.5 **Weighting: 9**

Are there appropriate measures taken to ensure that all lifting operations are carried out safely?

Audit Criteria

- ☐ Comply with the following measures in lifting operations:
  - Conduct a trial of the lifting operation of large panel formwork, large metal components and precast concrete components (including volumetric precast concrete elements, precast concrete slabs, facades, staircases), as recommended by risk assessment, when

the load is lifted not more than 300-500mm off the level where it is originally placed and ensure the load is securely rigged before the load is further lifted;
- Ensure all workers to leave the danger zone of lifting operation before the load being lifted is started to be lifted above 300-500mm off the level where it is originally placed, but the crane operator is an exception if it is not feasible to have remote control of mobile crane by the crane operator.
- The lifting supervisor(s) shall monitor and supervise lifting process involving mobile cranes and tower cranes.

☐ If it is not reasonably practicable to fence off the lifting zones due to space constraint, etc. the taking of effective measures such as appointment of sufficient watch-out personnel to ensure no unauthorized entry into the zones.

☐ If outriggers are provided, the beams should be fully extended as far as practicable. The jacks should be suitably extended so that all the crane tyres are clear of the ground. Use of partially extended outriggers should be avoided as far as practicable because the stability of the crane may be greatly reduced.

☐ The mat or timber blocking should be at least 3 times larger in area than the float (unless a smaller area is specified by the manufacturer) and completely support the float. For timber blocking, it should be tightly spaced and level to guarantee a right angle (90 degrees) between the cylinder and the float of the outrigger.

☐ Proper rigging methods should be established. Consideration should be given to the effect of increasing tension on the sling with increasing sling angle to the vertical or with increasing choker angle to the vertical.

☐ Loose materials such as stones, bricks, tiles, slates or other objects have to be lifted in a receptacle of adequate strength. Where a receptacle is used for raising or lowering stones, bricks, tiles, slates or other objects, the owner of the lifting appliance or lifting gear shall cause the receptacle to be enclosed or to be so constructed or designed as to prevent the accidental fall of any such objects. In addition, no materials should be stored higher than edges of receptacles.

☐ Long bars should be securely tied up before a sling is being applied and a tag line or control rope should be provided to prevent the swing or rotation.

☐ No load is left suspended from a lifting appliance unless a competent person is in charge of the lifting appliance during the period of suspension.

☐ Reflective vest (for operatives and site supervisory staff involved in lifting operation except the tower crane operator) shall conform to the contract specification. The reflective vest should possess high visibility with features as specified in current BS EN ISO 20471.

Question 14.2.3.6 **Weighting: 6**

Are there enhanced safety measures to avoid rigging at height?

Audit Criteria

☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.

1. Provide a permanent working platform on the trailer or other suitable working platform

for rigging of precast concrete facades.

2. Provide bridging chains on the four corners of the steel frame housing generator set to avoid rigging at height.

Question 14.2.3.7 **Weighting: 9**

Are all non-standard lifting operations such as tandem lifting carried out safely?

Audit Criteria

- ☐ Where more than one lifting appliance is used to raise or lower one load, each lifting appliance shall be so arranged and fixed that it is at no time loaded beyond its safe working load or rendered unstable.
- ☐ A competent person shall be specially appointed to supervise the operation of using more than one lifting appliance to raise or lower one load.
- ☐ Apply permit-to-work system for multiple lifting appliances.

Question 14.2.3.8 **Weighting: 6**

Are all operators, signallers, riggers, lifting supervisor(s) and responsible persons engaged on lifting operations trained for the work and competent to carry out their tasks?

Audit Criteria

- ☐ For delivery of materials to site, a list of lorry-mounted crane / operators employed by the contractor and his sub-contractors of all tiers for handling loading and unloading operations on the site should be maintained. All operators shall be trained as both qualified riggers & signallers and worker(s) assisting in unloading material from the vehicle on the Site shall be trained in lifting operation.
- ☐ An operator should be appointed and had the following:
  - A power-driven lifting appliance (other than a crane) shall only be operated by a person who has attained the age of 18 years.
  - A power-driven lifting appliance (other than a crane) shall only be operated by a person who is trained and competent to operate it.
  - A crane shall only be operated by a person who holds a valid certificate issued by the CIC or by any other person specified by the Commissioner for Labour
  - A crane shall only be operated by a person who is competent to operate it by virtue of his experience.
- ☐ A signaller shall be appointed and stationed to give effective signals to the operator of a lifting appliance to ensure its safe working.
- ☐ A signaller shall have attained the age of 18 years unless he is undergoing training under the supervision of a competent person.
- ☐ The signaller shall also have completed A12 Silver Card and Signalman for Hoisting Operations at Construction Sites Course or A12S Safety Training Course for Construction Workers of Specified Trade - Rigger and Signaller provided by the CIC. Acceptance of training provided by other organisations is subject to verification by the CM's Representative that the training is based on course contents of equivalent or higher standards and the appointed signaller has attained the associated qualification.
- ☐ The riggers have received appropriate A12 Silver Card training on general safe lifting

operations, and are capable of selecting lifting gear suitable for the loads and liaise with the signaller for directing the movement of the crane safely.

- ☐ Lifting Supervisor for mobile cranes and tower cranes:
  - The lifting supervisor(s) shall monitor and supervise lifting process involving mobile cranes and tower cranes.
  - The lifting supervisor shall possess Certificate for Lifting Safety Supervisors provided by the CIC.
  - The lifting supervisor shall have a minimum of four-year experience in lifting operation.
- ☐ The responsible person is appointed by the contractor and is responsible for the control of the overall tower crane lifting operation and for the proper implementation of a site safety management system.

Question 14.2.3.9 **Weighting: 6**

Have competent persons with training and experience been appointed to carry out regular inspections, examinations, thorough examinations and tests?

Audit Criteria

- ☐ Auditor should refer to the definition of competent examiners and competent person in the Code of Practice for Safe Use of Mobile Cranes and Code of Practice for Safe Use of Tower Cranes.
- ☐ Auditor has to obtain the following evidence:
  - Training and experience records of the competent person i.e. qualification in engineering and acceptable experience.
  - Appointment letter for the competent person to carry out regular inspections of all lifting appliances.

Question 14.2.3.10 **Weighting: 6**

Are inspections, examinations, thorough examinations and tests carried out at appropriate intervals and are the results entered in the prescribed form?

Audit Criteria

Auditor has to obtain the following evidence:

- ☐ Training, experience records and appointment letter as Question 14.2.3.9.
- ☐ Updated and proper inspection records (Labour department Form 1) bearing the designation and signature of the competent person to prove that the competent person has conducted the inspections in a 7-day interval or as necessary.
- ☐ Examinations and tests record produced by RPE.
- ☐ Preliminary certificate will not be accepted as a proof on certification of safe operation. Auditee is advised to obtain the RPE certificate as soon as possible. Name and designation of the person responsible for regular inspection should be clearly stated in the statutory inspection form. As this is a mandatory requirement, the form should be properly filled in with the name and designation otherwise the answer should be “No”.
- ☐ A well-planned program of regular inspection carried out by an experienced person. All lifting appliances and lifting gear in continuous service should be checked daily during normal operation and inspected on a weekly basis. A record of each rope should include date of installation, size, construction, length, extent of service and any defects found.

Question 14.2.3.11 **Weighting: 6**

Are necessary precautionary measures taken to ensure lifting safety before and after adverse weather conditions?

Audit Criteria

- ☐ Contractors shall suspend all outdoor work in exposed areas immediately and take shelter in a safe place if they are endangered by adverse weather or "extreme conditions".
- ☐ Crane shall not be used under weather conditions likely to endanger its stability or affecting its safe operations. Before a crane is taken into use after exposure to weather conditions likely to have affected the stability of the crane, the crane's anchorage or ballast, where applicable, shall be tested by a competent examiner.
- ☐ Cranes are generally designed to operate in conditions of normal steady wind speed and should not be operated in wind speeds that are in excess of those specified in the operating instructions for the crane. Gusty wind conditions may have an adverse effect on safe working loads and machine stability. Even in relatively light wind conditions it is prudent to avoid handling loads presenting large wind-catching surfaces. The large surfaces might result in loss of control of the load or overturning of the crane despite the dead weight of the load being within the normal working capacity of the machine.
- ☐ Before a lifting operation is started, information on wind conditions should be obtained through the weather forecast to ensure the wind speed limit specified by the manufacturer is not exceed.
- ☐ Any lifting operation should be stopped and the mobile crane should be secured in an appropriate out-of-service condition whenever the wind speed limit specified by the manufacturer is exceeded.
- ☐ There should be a procedure for inspecting and examining relevant plant and equipment after adverse weather conditions. Site supervisory staff should be well aware of this procedure.
- ☐ Examination certificate, checklist and photo records shall be submitted as supporting evidence.

Part 14.2.4 Roadworks

Question 14.2.4.1 **Weighting: 3**

Is there an approved Temporary Traffic Management Scheme (TTMS) which includes a layout plan for lighting, signing and guarding equipment in place for the safe operation of roadworks and work near moving traffic?

Audit Criteria

- ☐ Traffic flows should be assessed at the design and planning stage, and before beginning temporary traffic management works to ensure flows are appropriate for the system of work employed.
- ☐ Planning for road works includes not only how the works are to be carried out but also how the works are to be lit, signed and guarded. It is essential that proper and adequate lanterns, traffic signs and guarding equipment are available for the various stages of the works in accordance with the Code of Practice for the Lighting, Signing and Guarding of Road Works.

Question 14.2.4.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of roadworks?

Audit Criteria

- ☐ Collisions between moving vehicles, collisions between pedestrians and moving vehicles, or the impact of a vehicle with stationary plant, vehicles or equipment can lead to physical injuries and damage or a loss of containment of chemicals.
- ☐ Activities at site access and egress, unloading and storage areas, traffic and pedestrian routes.
- ☐ The use of thermoplastic substances and bituminous materials in hot form.

Question 14.2.4.3 **Weighting: 6**

Are there appropriate measures taken for ensuring a safety clearance between the works area and any part of the trafficked carriageway?

Audit Criteria

- ☐ For expressways and roads with speed limit of 80 km/h or above, the lateral safety clearance between the works area and any part of the trafficked carriageway shall not be less than 1.2 m. Where it is impractical to provide such safety clearance, the lateral safety clearance shall be as wide as practicable with an absolute minimum of 0.5 m. Also, measures to temporarily reduce the speed of traffic passing the site to 70 km/h shall be put in place. For roads other than expressways and with speed limit of 70 km/h or below, the lateral safety clearance shall not be less than 0.5m. The above are the minimum lateral clearance requirements. Where it is reasonably practicable to provide additional clearance by closing the traffic lane adjacent to the road works, this should be done.
- ☐ For situation where the required closure of part or whole of the adjacent lane to provide the lateral clearance is restrained by site conditions, the available options could include :
  - Closing the road for the road works and diverting its traffic to other route if practicable ;
  - By setting up guide island, imposing speed limit reduction temporarily or other means, reducing the speed of the oncoming and passing traffic to a safe limit that the traffic will not pose any hazard to the road works personnel.

Question 14.2.4.4 **Weighting: 6**

Do all road warning signs comply with the requirements of the code of practice for Lighting, Signing and Guarding of Roadworks?

Audit Criteria

- ☐ Ensure that adequate number of traffic signs, cones, barriers, lighting and publicity signs are provided. Cones shall be provided on carriageway to delineate the boundaries of all roadworks, while barriers should be provided for the protection of pedestrians/work zones.

Question 14.2.4.5 **Weighting: 6**

Are there appropriate measures taken to ensure the safety of other road users, especially

pedestrians?

Audit Criteria

- ☐ Access should be planned to eliminate dangerous movements of site traffic. All necessary signage and barriers are to be put in place to protect pedestrians at the site entrance and at access and egress points.
- ☐ Works area should not be left unattended without adequate signing, lighting and guarding. Steps to be taken to ensure that only authorized persons are allowed into any parts of the site.
- ☐ Barriers with detachable horizontal members made of hard objects should not be used on high speed roads.
- ☐ Adequate separation should be provided between the works area and the public access.

Question 14.2.4.6 **Weighting: 6**

Are workers carrying out roadworks provided with appropriate personal protective clothing/equipment, including high visibility clothing and are they used properly?

Audit Criteria

- ☐ Reflective vest (for operatives and site supervisory staff involved in roadworks outside the Site and controlling vehicular traffic) shall conform to the contract specification. The reflective vest should possess high visibility with features as specified in current BS EN ISO 20471.

Question 14.2.4.7 **Weighting: 3**

Where relevant, have workers been instructed on the hazards involved in the use of thermoplastic substances and bituminous materials supplied and used in hot form?

Audit Criteria

- ☐ Site specific safety training with reference to traffic diversion, site protection, vehicle on site and use of PPE, hazardous substances, emergency procedures, etc.

Question 14.2.4.8 **Weighting: 6**

Are there appropriate measures taken to control the movement and parking of vehicles and plants in or beyond the boundary of roadworks?

Audit Criteria

- ☐ Vehicle should be fitted with amber flashing beacons, and/or multiple sequence warning sign.
- ☐ Vehicles fitted with automatic reverse warning indicator.

Part 14.2.5 Falsework

Question 14.2.5.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information which apply to falsework been identified?

Audit Criteria

- ☐ Guidance Notes : Safety at Work (Falsework - Prevention of Collapse), Labour Department
- ☐ Falsework is a temporary structure used to support a permanent structure while the latter is not self-supporting.
- ☐ The competent engineer should prepare a set of instructions in the form of drawings and specifications specifying the framing, construction details (especially for connections), methods and sequences of erection, standard of materials and workmanship, and method statement for dismantling. Safe access and egress for workmen should also be clearly shown.
- ☐ The design of any falsework shall be checked and certified by an engineer who is independent from the contractor and not associated with the design of the falsework.
- ☐ The independent checking engineer shall be a professionally qualified engineer and a member of the Hong Kong Institution of Engineers or the UK Institution of Civil Engineers or equivalent, whom the contractor considers to have suitable experience and is acceptable to the Engineer.

Question 14.2.5.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of falsework?

Audit Criteria

- ☐ Specific and comprehensive risk assessment should be conducted for the erection, alteration and dismantling of falsework.
- ☐ The falsework collapsing under load. Concrete pouring by crane, skip, barrow, dumper or pumping produces impact forces.
- ☐ The works under construction should be suspended when any undue movement of the falsework occurs.
- ☐ Fall from height.
- ☐ Risks to the health and safety of others who may be working on, or passing by, the construction activity. Risks could arise, for example, from falling materials, wind-blown plywood or scaffold boards, noise and dust.

Question 14.2.5.3 **Weighting: 3**

Is there a procedure/method statement for erection and dismantling of falsework?

Audit Criteria

- ☐ The design of any Falsework shall be checked and certified by an engineer independent of the Contractor and not associated with the design of the falsework. The design so certified shall be referred to as the certified design.
- ☐ The methods for erecting and for dismantling the falsework should be included in the drawings in a clear and understandable form. Such a method statement should at least include:-
    - (a) details of the methods in each stage of erection/ dismantling;
    - (b) sequence of erection / dismantling;
    - (c) plant and equipment to be used;
    - (d) details of working platforms and access routes; and

(e) details of anchorage if any.

- ☐ Specific safety procedures e.g. permit-to-work/load should be established.
- ☐ Feed-back information from the site during progress of work, such as change of site conditions and problems associated with methods of erection, use or dismantling should be reported to the competent engineer or the falsework coordinator if appointed.
- ☐ Amended drawings or specifications if required should be issued to meet the prevailing circumstances.
- ☐ Prior to the falsework erection, the Contractor shall submit to the Project Structural Engineer (PSE) for approval the design, supporting calculations, working drawings and working procedures of falsework; the Contractor shall also provide independent checking and certification for identified types or locations of falsework by an Independent Checking Engineer (ICE).
- ☐ The design, construction, use, alteration and dismantling of falsework shall comply with BS 5975 or other equivalent national / international standards or provisions. The falsework shall be designed by professional engineer. If the falsework may cause any effect on the permanent structure or as instructed by the CM, a Qualified Engineer shall be arranged to cross-check the design and certify completion of such works.

Question 14.2.5.4 **Weighting: 3**

Is someone appointed with clear duties and responsibilities to co-ordinate and implement the falsework procedures in relation to standard solutions and to fully designed falsework system?

Audit Criteria

- ☐ Appoint a competent construction supervisor to supervise the construction of falsework. The supervisor should have sufficient technical knowledge and management skills, and be able to read and understand the drawings and specifications for the falsework.
- ☐ Contractor should appoint a competent person structural quality coordinator as temporary works co-ordinator (TWC) with responsibility for the co-ordination of all activities related to the temporary works including falsework.
- ☐ Site management personnel and workmen should be trained to fully understand the contents of the drawings and specifications for the falsework, especially the sequence of erection which should be strictly adhered to.
- ☐ All works, especially interface works between different trades should be continuously supervised by competent site management personnel.
- ☐ Appoint a competent dismantling supervisor to supervise the dismantling work. The supervisor should have sufficient technical knowledge and management skills, and be able to read and understand the method statement for dismantling the falsework.
- ☐ The supervisor should have a set of drawings showing the method statement for dismantling the falsework. The method of safe removal, lowering and transportation of dismantled materials by suitable means, including safe working platforms and safe access should be specified.
- ☐ The workmen should be trained to fully understand the contents of the method statement, especially the sequence of dismantling which should be strictly adhered to.

Question 14.2.5.5 **Weighting: 3**

Where relevant, has a permit to load certificate been prepared for a fully designed falsework before loading?

Audit Criteria

- ☐ Once complete, all falsework should be inspected and certified as ready for use (a written permit-to-load procedure, e.g. DEI-F26 – Examination of Work before Covering Up, is strongly recommended).
- ☐ The sequence of placing permanent works such as wet concrete should comply with the competent engineer's intentions expressed in the drawings and specifications.
- ☐ Concrete pouring by crane, skip, barrow, dumper or pumping produces impact forces. The free fall should not exceed 0.5 m unless otherwise permitted by the competent engineer. Heaping of wet concrete within a small area should be avoided, e.g. in an area of one square metre the height of the heap above the formwork surface should not exceed three times the depth of the slab unless otherwise shown in the drawings. Unless otherwise permitted by the competent engineer, equipment for concrete pumping should not be fastened to the falsework.

Question 14.2.5.6 **Weighting: 6**

Are safe means of access and safe working platforms provided for falsework workers, including those who have to check the installations?

Audit Criteria

- ☐ Falsework is defined as any temporary structure used to support a permanent structure while it is not self-supporting, either in new construction or refurbishment. Contractor conducting activities within falsework structures should observe the following:
  - preventing the falsework collapsing under load;
  - ensure those constructing and dismantling the falsework can carry out their work safely, with particular to prevent fall from height;
  - eliminate risks to the health and safety of others who may be working on, or passing by, the construction activity. Risks could arise, for example, from falling materials, wind-blown plywood or scaffold boards, noise and dust.
- ☐ The framing of falsework should give a robust and stable structure, especially for falsework near vehicular traffic. The structure should be designed and constructed so that it is not unreasonably susceptible to effects of impacts or vibrations. Damage to small areas of a structure should not lead to collapse of major parts of the structure. To avoid accidents, adequate headroom, lighting, warning signs and signals, and impact protection measures should be provided.
- ☐ The falsework should be constructed according to the approved design drawing. Verification is necessary through physical inspection and interview with relevant workers.

Requirements for Large Panel Formwork and Working Platforms to Domestic Blocks

- ☐ Requirements for working platforms shall include but not be limited to the following:
  - Paint steel doors/gates in contrasting colour for clear identification;
  - Add fall arrest device to prevent movable steel door from falling at height;

- Seal up the gaps between the working platform and precast façade by openable metal plate attached to working platform;
- Provide protective barrier such as fencing or equivalent at an effective height of 1350mm with mesh infill panel covered with nylon net of minimum 15 core threads with grids in spacing of not more than 12mm or equivalent on the inside, along building edges and gable end wall.

Question 14.2.5.7 **Weighting: 6**

Are inspections carried out at appropriate intervals and are the results entered in the record?

Audit Criteria

- ☐ The frequency of subsequent inspections will depend on the nature of the falsework. They should be carried out frequently enough to enable any faults to be rectified promptly.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection. However, a list of checking items should be prepared and be readily available during inspection.

Part 14.2.6 Structural Steel Erection / Dismantling Works

Question 14.2.6.1 **Weighting: 3**

Where work involves the erection/dismantling of steel structures, has a method statement been developed based on consultation with the designer of the structure?

Audit Criteria

- ☐ Structural steel is defined as steel shaped for use in construction. In this section, structural steel mainly refers to shaped steel used to support temporary or permanent works during construction such as I-beam erected for excavation and lateral support works (ELS).
- ☐ Sufficient information should be provided by designers so that the contractor is aware of the precautions which need to be taken to ensure the stability of the steelwork.
- ☐ Contractor should provide method statement of the proposed erection/dismantling method and submit to the designer for acceptance.

Question 14.2.6.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of steel structure erection/dismantling?

Audit Criteria

- ☐ The erection/dismantling of steel structures and building frames involves work at heights and exposed positions.
- ☐ The time spent at individual work points is often relatively short; access scaffolding is frequently not used.
- ☐ The movement of structural steelwork by cranes.
- ☐ Collapse of structures.
- ☐ Structural steel columns blow down by the wind.

Question 14.2.6.3 **Weighting: 6**

Have safe means of access and safe working platforms been provided where high level work is necessary?

Audit Criteria

- ☐ Working platforms designed to be attached at ground level, raised with the components and removed by crane after use.
- ☐ Ladders fixed to stanchions before erection should be used for vertical access.
- ☐ Provision of horizontal access between points of structural frames by means of permanent staircases and walkways complete with guard-rails.
- ☐ Mobile scaffold towers and mobile hydraulic extending platforms can be used with great improved safety.

Question 14.2.6.4 **Weighting: 6**

Are temporary supports provided to steel structures during erection/ dismantling works?

Audit Criteria

- ☐ Substantive support shall be provided to support the steel structure to be erected/ dismantled and its adjourning structures from accidental detaching, collapsing or failure during such works.
- ☐ Temporary supports should be provided in accordance with the approved method statement and design drawings.

Question 14.2.6.5 **Weighting: 3**

Are there enhanced safety measures to eliminate the risk of striking by free swinging sections?

Audit Criteria

- ☐ The following safety measures shall apply.
  During strut removal for Building and Foundation Contracts with ELS Works, provide safety measure(s) by mechanical means, certified by the Qualified Engineer, to prevent free-swinging of the section being cut and eliminate the risk of striking any persons. Example(s) for reference:
  - Temporary Supporting Device for Strut Removal

Question 14.2.6.6 **Weighting: 6**

Is there clear access for all mobile access equipment, cranes, etc.?

Audit Criteria

- ☐ Construction of ground-floor concrete slabs access roads to provide a cleaner and safer site.

Question 14.2.6.7 **Weighting: 6**

Are there suitable storage areas for structural steel components?

Audit Criteria

- ☐ The layout of the storage area for steelwork and materials needs to be arranged so that vehicles and cranes can move about without risk of collision.

Question 14.2.6.8 **Weighting: 6**

Have all the personnel involved in erection/dismantling of steel structures works been trained and provided with appropriate personal protective clothing/equipment and are they used properly?

Audit Criteria

- ☐ Auditor should comment on the training records and the proper use of PPE on site.

Part 14.2.7 Welding/Cutting Operations and Installations

Question 14.2.7.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for safe welding and cutting been identified?

Audit Criteria

- ☐ Factories And Industrial Undertakings (Gas Welding And Flame Cutting) Regulation
- ☐ Code of Practice: Safety and Health at Work for Gas Welding and Flame Cutting, Labour Department
- ☐ Code of Practice: Safety and Health at Work for Manual Electric Arc Welding, Labour Department
- ☐ Keep the quantity of gas cylinders in storage to a practical minimum and in compliance with the requirements under the Dangerous Goods (Application and Exemption) Regulation.
- ☐ A gas installation may be used in which each gas is supplied from several cylinders connected in a manifold or from a bulk supply through pressure regulator with pressure gauge, associated piping and gas hose to the blowpipe. Such gas installation and associated piping should comply with relevant legislation, such as the Dangerous Goods Ordinance (Chapter 295) and Gas Safety Ordinance (Chapter 51).

Question 14.2.7.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of welding/cutting operations and equipment?

Audit Criteria

- ☐ The main hazards of gas welding are from fire and explosion. These are caused by careless handling of a lighted blowpipe resulting in burns to the user or others; using the blowpipe too close to combustible material; cutting up or repairing tanks or drums which contain or may have contained flammable materials; gas leaking from hoses, valves and other equipment; misuse of oxygen; backfires and flashbacks.
- ☐ The main hazards of welding on metals may lead to a build-up of dangerous fumes requiring exhaust ventilation.
- ☐ Other hazards include electric shock, radiation and burns.

Question 14.2.7.3 **Weighting: 3**

Are all personnel involved electric arc welding or/ and gas welding operations competent?

Audit Criteria

- ☐ The general welder shall have at least attained the level of intermediate tradesman and registered as Registered Semi-skilled Worker under the Construction Workers Registration Ordinance.
- ☐ The general welder undertaking flame cutting and gas welding work shall have attained the training qualification of a gas welding safety training course approved by Labour Department and holds a valid training certificate.

Question 14.2.7.4 **Weighting: 6**

Are there appropriate steps taken to facilitate routine inspection and maintenance of the gas installation and associated piping?

Audit Criteria

- ☐ Gas hoses should be easily inspected and should not be easily damaged by other activities in the workplace, such as being run over or struck by heavy equipment.
- ☐ Gas hoses should not be coiled around the gas cylinder or the pressure regulator.

Question 14.2.7.5 **Weighting: 6**

Are gas welding/cutting cylinders stored as per regulations/guidance?

Audit Criteria

- ☐ If the oxygen & acetylene cylinders used on site have exceeded the exempted quantities and a valid DG license was not obtained, the answer should be “No”.
- ☐ If the cylinders used on site do not exceed the exempted quantities, Auditor should verify whether cylinders are stored as per Code of Practice for Safety and Health at Work for Gas Welding and Flame Cutting etc.
- ☐ Auditors should comment on the storage condition and visual evidence should be provided for verification.

Question 14.2.7.6 **Weighting: 6**

Are safety devices provided in gas supply system to prevent fire and explosion?

Audit Criteria

- ☐ The use of safety devices to prevent fire and explosion, including flashback arrester, non-return valve, pressure relief device, vent and purge device.

Question 14.2.7.7 **Weighting: 6**

Have purpose-built trolleys /carriers been provided for moving cylinders?

Audit Criteria

- ☐ Moving cylinders in suitable trolleys which they are secured upright.

Question 14.2.7.8 **Weighting: 6**

Are all welding operatives provided with appropriate personal protective clothing/equipment and are they used properly?

Audit Criteria

- ☐ Suitable personal protective equipment should be selected appropriate to the hazards encountered, and should be properly used and maintained.
- ☐ PPE includes eye protection, skin and body protection. If local ventilation cannot be arranged, welder should be provided with respiratory protection and a supply of fresh air.
- ☐ Auditor should comment on the personal protective equipment provided to welding operatives even when no operation was being carried out during the physical verification.
- ☐ If there is no issue record of personal protective equipment for the welding operatives, the answer should be "No".
- ☐ The answer may be "N/A" if no activity was carried out during physical verification provided that the auditor had verified the provision of personal protective equipment to the operatives.

Question 14.2.7.9 **Weighting: 6**

For electric arc welding, are there appropriate measures taken to protect people from electrocution hazard?

Audit Criteria

- ☐ The workpiece should be well earthed, and all equipment should be earthed and insulated.
- ☐ Welding machines having a maximum current output exceeding 30A single phase or half the maximum demand of an installation in any one phase is directly connected to the mains on a 3-phase supply.
- ☐ Turn off the welding machine when left unattended.
- ☐ Use welding machine for enclosed type, and ensure that terminals of the welding machine are properly protected to avoid accidental contact.
- ☐ The welding machine should be equipped with a voltage reducing device to automatically reduce the out voltage at no-load condition

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Question 14.2.7.10 **Weighting: 6**

Are welding operations adequately screened or isolated?

Audit Criteria

- ☐ The work area should be screened off with sturdy opaque or translucent materials.
- ☐ Fire retardant screen to prevent spread of sparks generated from the welding or flame cutting operation onto other areas should be provided.
- ☐ Remove any combustible/ flammable materials from the work area. No welding operation should be conducted in an environment having a flammable atmosphere or having flammable materials in the vicinity.
- ☐ Ensure that adjacent areas, which may be affected by the heat, sparks and slag generated by the welding operation, are free from combustible/ flammable materials and fire hazards.
- ☐ Ventilate the indoor workplace using air blowers and exhaust fans to remove poisonous fumes and gases that are given off during welding.

Question 14.2.7.11 **Weighting: 6**

Where relevant, is a permit-to-work system in welding operations and have all persons

involved been trained?

Audit Criteria

- ☐ Hot-work permit system requiring at least one supervisory staff to check on the adequacy of control measures prior commencement of work should be implemented.
- ☐ Permit-to-work system should include the following that: (a) define the work to be done; (b) state how to make the safe working area; (c) identify any residual hazards and the precautions to be taken; (d) describe checks to be carried out before normal work can be resumed; (e) issue the permit-to-work and specify its validity period before commencing the work; and (f) assign competent persons to monitor the work.
- ☐ No fires caused by sparks or globules of molten metal generated during the welding work and no ignition of combustible material in the vicinity of the work.
- ☐ Permit-to-work record should be submitted as supporting evidence.
- ☐ If welding works had been conducted within the audit period, the answer should not be "N/A". Auditor should comment on the implementation of permit-to-work system.

Part 14.2.8 Site Traffic

Question 14.2.8.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for site traffic control been identified?

Audit Criteria

- ☐ Site traffic control relies upon a combination of physical features such as the selection of appropriate vehicles to carry out the necessary work in the conditions that prevail, road layout and marking, signs and signals and other considerations such as systems, procedures and training.
- ☐ Traffic routes should be determined and can be classified as either access/through routes to site for deliveries, shuttle routes between buildings for on-site activities, or emergency access routes for fire engines, ambulances etc.

Question 14.2.8.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of site traffic?

Audit Criteria

- ☐ Site congestion and poor traffic layout.
- ☐ Lack of proper roadways combined with uneven ground and debris.
- ☐ Careful planning and consideration of site traffic control issues can result in a reduction in the likelihood of collisions between vehicles and/or equipment.

Question 14.2.8.3 **Weighting: 6**

Are there appropriate measures taken to control traffic flow in the site?

Audit Criteria

- ☐ Speed limits should be required and clearly displayed (at least displayed at the site entrance); they should be reduced for adverse site conditions and for areas near work in progress;
- ☐ Traffic lights can be used to control flow at busy junctions, in narrow locations and at entry and exit locations to the site;
- ☐ One-way systems should be considered where necessary to reduce the likelihood of collision, reduce congestion and improve traffic movement;
- ☐ Traffic calming devices such as speed humps, rumble strips, width restrictors etc can be incorporated into road design to encourage a reduction in speed. (Such devices are not appropriate in areas where fork lift trucks routinely operate since they introduce additional hazards for this type of vehicle).
- ☐ Gate at Vehicular Ingress/Egress for Traffic Control
  Provide an electrically-operated gate system at vehicular ingress / egress points of the hoardings and covered walkways fronting public footpaths, including gantries to control vehicular and pedestrian flow across footpath. Operate the gate system (including vehicular gates and pedestrian gates) by a single action. The pedestrian gates shall be closed before the vehicular gates are opened for ingress / egress of vehicles; and the vehicular gates shall be closed before the pedestrian gates are opened for pedestrian passage at the site vehicular entrance.

Question 14.2.8.4 **Weighting: 6**

Are there appropriate measures taken to protect hazardous installations, routes approaching overhead structure, overhang power lines, excavations or openings in the site?

Audit Criteria

- ☐ Physical barriers should be incorporated into road design to protect vulnerable and hazardous installations such as storage tanks, pipe-work systems, buildings or pedestrian access areas;
- ☐ Erecting warning barriers of the goalpost type for overhead structure or power lines;
- ☐ Barriers, banksmen and fixed stops to prevent vehicles from getting too near the edge of excavations and openings.

Question 14.2.8.5 **Weighting: 6**

Have site roads been properly demarcated and separated from locations where people have to work?

Audit Criteria

- ☐ Entrances and exits – provide separate entry and exit gateways for pedestrians and vehicles;
- ☐ Walkways – provide firm, level, well-drained pedestrian walkways that take a direct route where possible;
- ☐ Crossings – where walkways cross roadways, provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly.

Question 14.2.8.6 **Weighting: 6**

Are there appropriate measures taken for minimizing vehicle movements in the site?

Audit Criteria

- ☐ The term 'vehicles' includes: cars, vans, lorries, low-loaders and mobile plant such as excavators, lift trucks and site dumpers etc.
- ☐ Provide car and van parking for the workforce and visitors away from the work area if possible;
- ☐ Control entry to the work area; and
- ☐ Plan storage areas so that delivery vehicles do not have to cross the site.
- ☐ Properly design site layout and traffic circulation routes as follows:
  - Minimize movements of vehicles and plant through appropriate measures;
  - Impose speed limits on traffic routes through erecting of speed limit sign and road humps or other similar devices;
  - Minimize reversing movements of vehicles and plant. Where reversing cannot be avoided, reversing vehicles or plant is not guided by a banksman, provide and install reversing video device (RVD) for vehicles / plant in accordance with the above mentioned Guidelines enabling the operator to have full view of 360° around the vehicles or plant;
  - Provide appropriate facilities for the safe movement of personnel within the site. Vehicular circulation is segregated from pedestrian access with zebra crossing for pedestrians.

Question 14.2.8.7 **Weighting: 6**

Is there a designated and sufficient location for vehicles to reverse, so as to avoid driving backwards?

Audit Criteria

- ☐ The need for vehicles to reverse should be avoided where possible as reversing is a major cause of fatal accidents.
- ☐ One-way systems can reduce the risk, especially in storage areas.

Question 14.2.8.8 **Weighting: 3**

Is a visual and audio alarm system installed at site entrance / exit for alerting unsafe acts or conditions?

Audit Criteria

- ☐ Implement a visual and audio alarm system at site entrance / exit to alert drivers and security guards to stop a mobile plant from entering or leaving the Site when the mobile plant exceeds the height limit of haul road of the Site or the height limit of vehicles regulated by the Transport Department, whichever is the lower;
- ☐ Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.

Question 14.2.8.9 **Weighting: 6**

Are there facilities to clean and remove mud from vehicles at site exit?

Audit Criteria

- ☐ Auditor should verify the effectiveness of these facilities provided.

Part 14.2.9 Works Over Water or Adjacent to Water

Question 14.2.9.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for work over water or adjacent to water been identified?

Audit Criteria

- ☐ Risk areas include lakes, ponds (natural and man-made) reservoirs, rivers, streams, swimming pools water holding tanks (if of sufficient size) and the sea, the vicinity of culvers, outfalls and other discharge points, and at coastal sites.
- ☐ Construction Sites (Safety) Regulations
- ☐ Code of Practice Safety and Health at Work (Land-based Construction Work Over Water – Prevention of Fall), Labour Department

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Question 14.2.9.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of working over water or adjacent to water?

Audit Criteria

Foreseeable hazards such as :

- ☐ Fall from heights;
- ☐ Drowning;
- ☐ Loss of balance, e.g. caused by high winds;
- ☐ Rising swell or swell from passing waterborne traffic.

Question 14.2.9.3 **Weighting: 3**

Is there an arrangement to plan the work so as to eliminate working alone?

Audit Criteria

- ☐ Periodic checks should be made to ensure nobody is missing. Personnel should work in pairs or in sight of each other to enable one person to raise the alarm in the event of an emergency.

Question 14.2.9.4 **Weighting: 6**

Are there appropriate measures taken to prevent workers from falling into water?

Audit Criteria

- ☐ Where there is a risk of fall from the edge of adjacent land, a structure, scaffolding or a floating stage, etc., guardrails or fencing must be provided.
- ☐ Safety nets can be used where it is not possible to provide a full and proper scaffold or gangway with handrails and toe-boards, etc. provided that everything practicable has been done in respect to providing scaffolding.
- ☐ Safety harnesses can be used instead of nets provided that secure anchorage points exist and the harness is constantly worn and attached.

Question 14.2.9.5 **Weighting: 6**

Are adequate illumination and lighting in darkness provided?

Audit Criteria

- ☐ Permanent illumination should be provided for night work and in dark areas including immediate water surfaces. The light should be evenly spread so as to avoid deceptive shadows and glare.
- ☐ Spotlights mounted on swivels should be installed at strategic locations close to the shore so that any person fallen into water can be spotted easily.
- ☐ Appropriate navigation light signals should be provided close to the shore in compliance with the relevant regulations and directions, e.g. those made under the Shipping and Port Control Ordinance, Cap. 313.

Question 14.2.9.6 **Weighting: 3**

Is there an emergency and rescue procedure and equipment?

Audit Criteria

- ☐ If there is any risk of persons falling into water and drowning, suitable rescue equipment should be provided nearby and persons should be trained or instructed in its use.
- ☐ All personnel working over or near water and at risk of falling in should wear some form of lifejacket or buoyancy aid.
- ☐ Lifebuoys should be available wherever workers are working on, over, or near water and should comply with the ISO 12402 standard.
- ☐ Standard 760 mm diameter lifebuoys with rope or cord lifelines (30m) attached should be placed on conspicuous positions near the water's edge.
- ☐ Emergency procedure should include audible alarm, communications, emergency series, site access for vehicles and fist aiders.
- ☐ Communication among workers, supervisors and site management should be implemented.
- ☐ Regular inspection and maintenance of the lifesaving equipment should be arranged.

Question 14.2.9.7 **Weighting: 6**

Is there a stand-by boat, under the control of a boatman who is experienced in call-out, man overboard, and other necessary emergency procedures?

Audit Criteria

- ☐ At least one rescue boat should be provided and kept ready for immediate use whenever workmen are employed to work over or adjacent to turbulent or tidal water where their rescue would have to be carried out by boat. The rescue boat may be a rigid or an inflatable vessel. It should comply with the requirements stipulated in the Merchant Shipping (Safety) (Life-Saving Appliances) (Ships built on or after 1 July 1986) Regulations and should be properly maintained so that it is operational in good condition at any time.
- ☐ The rescue boat should be power-driven with a fixed self-starting engine. Effective two-way radio communication should be set up between the rescue boat and the management on the shore. If night work is to be carried out, a powerful swivel-mounted spotlight should be installed on the rescue boat so that any person fallen into water can be spotted easily.

Question 14.2.9.8 **Weighting: 6**

Are all workers working over or in the vicinity of water receiving training and instruction in safe methods and systems of work?

Audit Criteria

- ☐ Personnel should be fully trained in the use of safety harnesses, lifejackets and buoyancy aids.
- ☐ Emergency procedures and rescue techniques.

Part 14.2.10 Piling and Foundations

Question 14.2.10.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for piling and foundations work been identified?

Audit Criteria

- ☐ In this section, foundations mainly refer to the foundations transfer the loads at a point far below the superstructure or substructure into the earth.
- ☐ This section covers sheet piling works for excavation and lateral support works.
- ☐ Construction Sites (Safety) Regulations
- ☐ Safety Guide for Interlocking of Steel Sheet Piles, Labour Department
- ☐ Guidelines on Fabrication of Reinforcement Cages of Bored Piles, Construction Industry Council
- ☐ Carrying of persons by means of lifting appliance
- ☐ Borehole should be treated as a confined space
- ☐ Fabrication of metal cage design plan and drawing
- ☐ Sufficient information provided so that plant and processes can be used and carried out in a stable environment.

Question 14.2.10.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of piling and foundations works?

Audit Criteria

- ☐ Toppling of reverse circulation drilling system
- ☐ Exposure to dangerous substances, noise or vibration – fluids used by processes and those in the ground as contaminants or services.
- ☐ Manual handling
- ☐ Interactions with heavy plant – this may be in circulation around the site or in the process itself, may be struck by or trapped by the machinery.
- ☐ Poor access to the workplace – working in confined spaces or in poor conditions underfoot.
- ☐ Workplace stability – excavations or near temporarily unstable structures or machinery.
- ☐ Fall from height.
- ☐ Falling objects or debris.

- ☐ Revolving spindle and other moving dangerous parts of drilling rig.
- ☐ Collapse of metal cages and cage lifting safety

Question 14.2.10.3 **Weighting 3**

Has a method statement with risk assessment been produced for piling work and loading test process?

Audit Criteria

- ☐ Written method statement setting out the precautions relevant to the type of piling employed.
- ☐ Written method statement of erection and dismantling of reverse circulation drilling system.
- ☐ Written method statement of fabrication of metal cage.

Question 14.2.10.4 **Weighting 6**

Are there appropriate measures taken to ensure that all piling and foundation works are carried out safely?

Audit Criteria

- ☐ A robust mechanical integrity program shall be put in place to ensure the bored piling plant, equipment and all parts thereof are properly maintained.
- ☐ The upper and lower clamps of the Casing Oscillator shall be pressurized and the power pack of the Casing Oscillator shall be connected to control panel prior to the addition of loading on the steel casing, when the toe of steel casing does not rest on firm in-situ soil and/or rock according to related site investigation report.
- ☐ For long idling period of the Casing Oscillator, both the upper and lower clamps of the Casing Oscillator shall be re-pressurized before resumption of work to ensure that the casing is firmly and properly clamped and held.
- ☐ Both the upper and lower clamps of the Casing Oscillator shall be re-pressurized before the power pack is switched off.
- ☐ In case the toe of steel casing does not rest on firm in-situ soil and/or rock during the reaming process according to related site investigation report, prior to the application of additional loading on the steel casing, four triangular wedges shall be welded onto the steel casing at a level right above the top of the upper clamps of the Casing Oscillator to prevent the casing from subsiding downwards.
- ☐ All personnel including RCD operator working on the hinged covers at the RCD platform shall wear safety harnesses and properly attach them to independent lifelines suspended from the portal frame of the RCD. No one shall be allowed to stay on the RCD platform at the time of re-driving the temporary steel casing into ground by the Casing Oscillator after reaming.
- ☐ Where an excavator is used for sheet pile extraction operation, ensuring that the excavator is by design suitable for the purpose and only the manufacturer's designated lifting point on the excavator is used for lifting sheet piles.
- ☐ Ensure that the lifting appliance and the lifting gear used in connection with sheet pile extraction work have been certified in safe working order through tests and thorough examinations by a competent examiner and regular inspections by a competent person before they are put into operation.

- ☐ Ensure that an extracted sheet pile is securely suspended or supported before detaching from the attachments/ lifting gear of the lifting appliance.
- ☐ Ensure that a metal member which is to be cut off is securely suspended or supported before detaching from the structure or temporary works.

Question 14.2.10.5 **Weighting: 6**

Have adequate means been provided for properly supporting all machines and materials used?

Audit Criteria

- ☐ A selected working platform should be designed which is adequate to support all the machines and materials which will be used during ground treatment. This is a particularly onerous requirement for the large crawler cranes used in dynamic compaction. The effect of sloping ground should be considered. Inspection and maintenance procedures should be built into the design. Dynamic compaction will inevitably cause disruption of the working platform and continuous remedial work is required.
- ☐ Piles or sheet piling stored on the ground shall be adequately supported by blocking. Pipe piles should be stacked in well supported and braced racks or frames, unless other provision is made to prevent their movement.

Question 14.2.10.6 **Weighting: 6**

Has a suitable plant or equipment been used and have procedures been provided for the safe operation of workers?

Audit Criteria

- ☐ Design adequate working platform for access by plant and workers.
- ☐ If the RCD working platform of piling machine is permanently attached as an integral part of the machine, then the working platform will be required to be examined as part of the piling machine.
- ☐ Otherwise, the RCD working platform will be treated as a scaffold i.e. the RCD working platform should be inspected in accordance with the requirements of Regulation 38F of the CSSR. Re-inspection of the RCD working platform may not be necessary after each time relocation, provided that its structure and components have not been damaged and/or altered in any way from the original design.
- ☐ For crane used for raising or lowering workers, the requirements of F&IU (Lifting Appliance and Gear) Regulations Reg. 18B Carrying of persons by means of lifting appliances must be followed.
- ☐ A sheet pile threader is a mechanical device designed for interlocking sheet piles such that no worker is required to work at height.
- ☐ If a worker is required to climb on the driving lead, the operator of the equipment will apply all brakes and necessary safety switches to ensure no uncontrolled motion of the equipment.

Question 14.2.10.7 **Weighting: 3**

Are there enhanced safety measures to eliminate releasing shackles manually by using man-cage?

Audit Criteria

- ☐ The following safety measures shall apply.
  1. Safety measure(s) by mechanical means, certified by Qualified Engineer to eliminate releasing shackles for H-pile and sheet pile at height manually and prohibit the use of man-cage. Example(s) for reference :
     - Double lock remote release shackle

Question 14.2.10.8 **Weighting: 3**

Are there enhanced safety measures to monitor the clamping device of reverse circulation drill?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
  1. Implement a visual and audio alarm system for monitoring the clamping device of reverse circulation drill.

Question 14.2.10.9. **Weighting: 6**

Are there appropriate measures taken to prevent any tilting and settlement caused to nearby structures?

Audit Criteria

- ☐ Design should take into account the stability of the neighbouring buildings, and ensure excavations are stable in temporary conditions or parameters are known, so that adequate temporary shoring can be designed.

Question 14.2.10.10 **Weighting: 6**

If work involves the fabrication of reinforcement cages and interlocking steel pile sheets have special precautions and monitoring been taken to prevent collapse or displacement of cages and piles during lifting?

Audit Criteria

- ☐ During hoisting, tag lines or similar devices shall be used where necessary to control rotation of the load.
- ☐ Piles or sheet piling shall be adequately supported during placing or removal.
- ☐ Secure all shackles with steel wire or other means.
- ☐ Use a pile line attached directly to the casing or pile. Safety lugs must be welded to steel piles to prevent the pile line from slipping.
- ☐ Check pile tops, handling holes, and splices of casings for damage from driving.
- ☐ No worker shall be in an area where piles or sheet-piling are being hoisted, placed, removed or withdrawn unless the worker is directly engaged in the operation.
- ☐ Level concrete floor slabs provided to ensure the stability of fabrication metal cage process.
- ☐ Safety checklist established and used to monitor the processes.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection. However, a list of checking items should be prepared and be readily available during inspection.

Question 14.2.10.11 **Weighting: 3**

Are there enhanced safety measures to provide working platform for different sizes of reinforcement cage?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
  1. Provide extendable reinforcement cage working platform when the platform is used for fabricating different size of reinforcement cage.

Part 14.2.11 Glazing

Question 14.2.11.1 **Weighting: 3**

Is there accurate safety information readily available and are procedures addressing the glazing works properly performed on site?

Audit Criteria

- ☐ Glazing means the processes or activities in curtain walls, glazing panels, skylight, window, doors or fixed opening of buildings under construction and installation.
- ☐ Activities involve lifting, moving and fitting glazed panels.

Question 14.2.11.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of lifting and carrying sheets of glass and installing glazing?

Audit Criteria

- ☐ Cuts from broken glass or cutting tools;
- ☐ Manual handling injuries;
- ☐ Working at height;
- ☐ Falling objects;
- ☐ Contact with hazardous chemicals (e.g. sealants);
- ☐ Environmental hazards (working at the roadside, adverse weather etc.).

Question 14.2.11.3 **Weighting: 3**

Are glass panes/ curtain walls properly transported at site?

Audit Criteria

- ☐ Workers provided with glass lifting suckers with proper lifting capacity.
- ☐ Sheets placed in accessible area close to fixing point.
- ☐ Sheets are handled by two or more workers.
- ☐ Where possible, sheets of glass placed on pallets and moved by mechanical manual handing

devices.
- ☐ Use scissor lifts, crane etc.

Question 14.2.11.4 **Weighting 6**

Is the work area properly separated from the general public and other workers?

Audit Criteria
- ☐ By hoardings.
- ☐ Barricade area below to separate public and other workers including floor and deck opening.
- ☐ Erect appropriate signage.

Question 14.2.11.5 **Weighting 6**

Are workers protected from exposure to glass breakage and fixed sharp edges and are precautions taken when using glues and adhesives?

Audit Criteria
- ☐ Safety equipment (Safety shoes, gloves, gauntlets) when glazing and/or deglazing.
- ☐ Clearly identify newly installed glass panels.
- ☐ Follow directions specified in MSDS.
- ☐ Use PPE and work in a well-ventilated area.

Part 14.2.12 Grit Blasting

Question 14.2.12.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for grit blasting been identified?

Audit Criteria
- ☐ Factories and Industrial Undertakings (Blasting by Abrasives) Special Regulations
- ☐ "Blasting process" means the cleaning, smoothing, roughening or removing of part of the surface of any substance or thing including granite, stone or brick by the use as an abrasive of a jet of sand, metal shot or grit or other material propelled by a blast of compressed air or steam or water or by a wheel.

Question 14.2.12.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of grit blasting?

Audit Criteria
- ☐ No person shall use sand or other material containing free silica as an abrasive in any blasting process.
- ☐ Exposure to vibration with grit blasting.
- ☐ Exposure to dust and noise.

Question 14.2.12.3 **Weighting 6**

Is a wet process being used in preference to a dry process if possible?

Audit Criteria

- ☐ Alternative methods of surface cleaning which do not generate high levels of dust, are to be used if reasonably practicable, for example, wet blasting and ultra-high pressure water jetting.

Question 14.2.12.4 **Weighting: 6**

Are there appropriate control measures taken to control the dust hazard?

Audit Criteria

- ☐ For smaller items, booths are available which separate the worker from the process. Large blasting booths and ventilated enclosures should be designed so that there is directional movement of air across the worker from the back to the front, or from side to side. To prevent the spread of dust, booths and enclosures should have an inward air velocity of at least 2 m/s across openings away from the immediate blasting area.
- ☐ Blasting helmets are an essential method of protection in many situations and should be selected carefully. Equipment should be suitably robust for the job being done and kept well maintained. For hired equipment, records of maintenance should be available to users and should be examined.

Question 14.2.12.5 **Weighting: 6**

Has the site been effectively sheeted and screened?

Audit Criteria

- ☐ The principle for dust control in confined areas should be to produce a flow of dusty air away from the worker, with dust laden air extracted as close as possible to the work.
- ☐ In the immediate blasting area there should be no gaps which would allow the escape of dust which may be at a greater velocity than the inward air current.

Question 14.2.12.6 **Weighting: 3**

Have all personnel been instructed on the safety procedures?

Audit Criteria

- ☐ Training should be provided on the correct use of respiratory Protective Equipment, including helmets according to the instructions. Training should include how to fit and wear the equipment, and the limitations of its protection.
- ☐ Training in maintenance procedures should be given to whoever is to be responsible.
- ☐ Workers doing blasting should not eat or drink in the work area; they should take a shower before leaving work and put on a new change of clothing. Personal protective gear including hearing protection, gloves and aprons can help to reduce exposure to the dust.

Part 14.2.13 Asbestos

Question 14.2.13.1 **Weighting: 3**

Is the work with asbestos or asbestos-based materials carried out by a specialist contractor

with a duly prepared method statement?

Audit Criteria

- ☐ The contractor is required to appoint a registered asbestos contractor and a registered asbestos consultant from the Registers of Asbestos Professionals under Environmental Protection Department.
- ☐ The manager of the registered asbestos contractor and the registered asbestos consultant is required to attend the Asbestos Management Course (with a course duration of 33 hours including theory and practical examination) provided by the Occupational Safety and Health Council.
- ☐ Acceptance of training by other organisations is subject to verification that the following aspects are attained. The aspects are
  - i) course content,
  - ii) mode of delivery (classroom delivery, handouts),
  - iii) course assessment (exam, practical, attendance),
  - iv) trainer qualification,
  - v) quality assurance.
- ☐ Asbestos Professionals under Environmental Protection Department. The supervisor is required to attend the Safe Handling of Asbestos Course (with normal course duration of 24 hours including theory and practical examination).
- ☐ The workers involved in the asbestos works are required to attend the General Safety in Handling of Asbestos Course (with course duration of 6 hours including examination).
- ☐ The course should be provided by the Occupational Safety and Health Council. Acceptance of training by other organisations is subject to verification that the following aspects are attained. The aspects are
  - i) course content,
  - ii) mode of delivery (classroom delivery, handouts),
  - iii) course assessment (exam, practical, attendance),
  - iv) trainer qualification,
  - v) quality assurance.

Question 14.2.13.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of asbestos?

Audit Criteria

- ☐ Take account of other risks as well as asbestos, e.g. working at height, and take the precautions necessary to do the job safely.
- ☐ Look at building plans, previous asbestos surveys and any other relevant documents to identify asbestos hazards.

Question 14.2.13.3 **Weighting: 3**

Has the safe system of work been regularly monitored to ensure that dust levels are kept to a minimum and below statutory control limits?

Audit Criteria

- ☐ Local exhaust ventilation should draw the airborne material away from the workman's breathing zone and entrain asbestos dust. It should be kept in use during the performance of asbestos work and for such time after the cessation of the work as is necessary to keep the air clear of asbestos fibres.
- ☐ Local exhaust ventilation system should be inspected weekly and thoroughly examined and tested at intervals of not more than six months.
- ☐ HEPA Filter-equipped Appliances — air extraction equipment and vacuum cleaner should be inspected at least weekly to ensure that there is no leakage and that the performance meets the manufacturer's specifications.
- ☐ The air monitoring is carried out by a laboratory that is accredited for the relevant asbestos test by the Hong Kong Laboratory Accreditation Scheme (HOKLAS) managed by the Industry Department or by a scheme with which HOKLAS has a mutual recognition agreement.

Question 14.2.13.4 **Weighting: 6**

Are all employees likely to be exposed to risk provided with approved respiratory protective equipment and protective clothing and are they used properly?

Audit Criteria

- ☐ The area is clearly demarcated and identified by notices indicating that it is a protective equipment zone, that entry into it is limited to persons authorized by the proprietor and that any person who enters the area must wear suitable approved respiratory protective equipment and suitable protective clothing.
- ☐ Provide adequate and suitable protective clothing for use by any workman who is exposed to asbestos unless no asbestos likely to be deposited on the body or personal clothing of the workman.
- ☐ The protective clothing is either disposed of as asbestos waste within the meaning of the Waste Disposal Ordinance (Cap. 354) and the Waste Disposal (Chemical Waste)(General) Regulation (Cap. 354 sub. Leg.), or adequately cleaned at suitable intervals.
- ☐ Non-disposable RPE should be checked and cleaned before and after each use. Repairs to RPE must be performed only by competent persons using parts specifically designed for the RPE.

Question 14.2.13.5 **Weighting: 3**

Have all employees been instructed about the health risks of exposure to asbestos, the precautions to be taken and how to fit and maintain respirators and other equipment?

Audit Criteria

- ☐ Training and instruction should be provided prior to commencement of the work with asbestos, and before a workman is engaged in work with asbestos.
- ☐ Proper fit of the RPE and face-seal (a close seal between the face and facepiece of the RPE) for individual workman who is required to wear RPE, such as by providing several brands of the appropriate type of RPE in various sizes and performing test to ensure fitness of the RPE to individual workman.
- ☐ Instruct all workmen to refrain from eating, drinking or smoking in asbestos work area or the washing and changing facilities; and from taking food, drink or cigarettes into such areas. Sufficient notices should be put up in prominent places in and around asbestos work area to

warn workmen of the prohibition of eating, drinking and smoking.

Question 14.2.13.6 **Weighting: 3**

Has a procedure been established to ensure that employees exposed to dust will be medically examined?

Audit Criteria

- ☐ Persons working with asbestos have undergone a chest X-ray (radiographic examination of the chest) within the 4 months immediately preceding the commencement of such employment and are certified by a registered medical practitioner to be fit to do such work.
- ☐ A health register is held in the approved form for every person employed in working with asbestos.

Question 14.2.13.7 **Weighting: 6**

Are there appropriate measures taken to prevent or reduce the spread of asbestos from the asbestos work area to other areas of the workplace to the lowest level reasonably practicable?

Audit Criteria

- ☐ Suppression of dust at source achievable as appropriate by wetting, by processing the asbestos component with dust suppressing materials or compounds, or by the application of vacuum/extraction techniques at the work-face.
- ☐ Total enclosure – the dust-producing part of the process is localized and totally enclosed. The enclosure should incorporate a dust extraction system which is capable of removing the dust generated in the course of the process. The dust extraction system should incorporate HEPA filter.
- ☐ Partial enclosure — used together with dust extraction when total enclosure is not practicable. As with totally enclosed system, dust extraction used in association with hoods or partial enclosures must be capable of removing the dust that is generated in the course of the process and the air filtration (by HEPA filter) must be effective and reliable.

Question 14.2.13.8 **Weighting: 6**

Have cleansing units been provided with showers and storage for clothing?

Audit Criteria

- ☐ Adequate and suitable washing and changing facilities must be provided.
- ☐ The facilities provided for the storage of personal protective clothing, of personal clothing and of respiratory protective equipment shall be separated from each other and indicated in both English and Chinese.
- ☐ Showers should be provided in the ratio of one for every six workmen as a minimum and size of the shower room should be at least 1m square and 2m headroom for every shower provided.

Question 14.2.13.9 **Weighting: 6**

Have procedures been established and followed for the temporary storage and subsequent

disposal of materials?

Audit Criteria

- ☐ Practices for treating asbestos waste (including the requirements for the heavy duty plastic bags and the metal drums) covered in the Code of Practice on the Handling, Transportation and Disposal of Asbestos Waste issued by the Secretary for Planning, Environment and Lands should be followed.
- ☐ Where any asbestos is required to be put in a container, that container shall have a clear and visible label affixed to it.

Part 14.2.14 Machinery Guarding

Question 14.2.14.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for machinery guarding been identified?

Audit Criteria

- ☐ Machinery in this part does not cover woodworking machinery, abrasive wheels, portable and hand tools
- ☐ No young person shall be permitted to clean any dangerous part of the machinery while the machinery is in motion by the aid of any mechanical power.
  - A contractor responsible for a construction site shall ensure that no young person is permitted to clean any dangerous part of any machinery or plant in the construction site while the machinery or plant is in motion by the aid of any mechanical power. (Chapter 59I, Reg. 46)
  - "Young Person" means a person who has attained the age of 15 years but not the age of 18 years. (Chapter 57, Section 2)
- ☐ Every flywheel and moving part of a prime mover, every part of the transmission machinery and every dangerous part of the other machinery shall be effectively guarded by one or more of the following methods :
  - an automatic guard;
  - a fixed guard;
  - an interlocking guard;
  - a trip guard;
  - a two-hand control device.

Question 14.2.14.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of the dangerous parts of machinery?

Audit Criteria

- ☐ Identify machinery with dangerous parts.
- ☐ Risks may be caused by:
  - failure to fit adequate guards on machines, leading to accidents caused by entanglement, shearing, crushing, trapping or cutting;
  - failure to fit adequate controls, or the wrong type of controls, so that equipment cannot

be turned off quickly and safely, or starts accidentally;
- failure to properly maintain guards, safety devices, controls, etc. which renders the machines or equipment unsafe;
- failure to provide the right information, instruction and training for those using the equipment.

Question 14.2.14.3 **Weighting 6**

Have all the dangerous parts of machines and equipment that could cause injury been effectively guarded?

Audit Criteria

- ☐ Use fixed guards wherever possible, properly fastened in place with screws or nuts and bolts which can only be removed by using tools.
- ☐ If employees need regular access to parts of the machine and a fixed guard is not possible, use an interlocked guard for those parts. This will ensure that the machine cannot start before the guard is closed and will stop if the guard is opened while the machine is operating;
- ☐ Consider the best materials for guards – plastic may be easy to see through, but can be easily scratched or damaged. If wire mesh or similar materials are used, make sure the holes are not large enough to allow access to the danger area. As well as preventing such access, a guard may also be used to prevent harmful fluids, dust etc. from escaping.

Question 14.2.14.4 **Weighting 3**

Are there enhanced safety measures of reinforcement bar bending machines to avoid striking and trapping hazards?

Audit Criteria

- ☐ Apply following safety measure(s) to machines for small reinforcement bars or stirrups (Y16 or below), to avoid striking and trapping by the moving parts of machines or the bending reinforcement bars.
  1. Install an interlock guarding to the rotating part and a timer switch to isolate power supply automatically after a time interval set according to risk assessment, if the guarding is not closed properly;
  2. Install an angle indicator on the top to visually indicate the angle set for the current operation.

Question 14.2.14.5 **Weighting: 3**

Have regular maintenance and preventive checks, and inspections of the guarding of machinery been conducted?

Audit Criteria

- ☐ Daily inspection and checking of all machinery guarding before starting work. As an alternative to using a safety checklist, a logbook covering all machines that require guarding could be kept by the sub-contractor-in-charge to cover the functioning of such guards. The logbook should contain a list of checking items and an updated list of machines. Report by

exception is acceptable.

- ☐ Inspections should be carried out by a competent person at regular intervals to make sure the equipment is safe to operate. The intervals between inspections will depend on the type of equipment, how often it is used and environmental conditions. Inspections should always be carried out before the equipment is used for the first time or after major repairs.
- ☐ Keep a record of inspections made as this can provide useful information for maintenance workers when planning maintenance activities.

Question 14.2.14.6 **Weighting: 6**

Are there appropriate steps taken such as lockout procedures and checklists to ensure the maintenance work is carried out safely?

Audit Criteria

- ☐ Safe work practice such as:
  - where possible, shut down or ideally disconnect the equipment or remove the fuses or keys before carrying out maintenance work particularly where access to dangerous parts will be needed;
  - isolate equipment and pipelines containing flammable fluid, gas, steam or hazardous material. Isolating valves should be locked off, where possible, particularly if access to dangerous parts will be needed;
  - support parts of equipment which could fall;
  - allow moving equipment to stop; allow components which operate at high temperatures time to cool;
  - to prevent fire and explosions, thoroughly clean vessels that have contained flammable solids, liquids, gases or dusts and check them before hot work is carried out.

Question 14.2.14.7 **Weighting 3**

Have employees been instructed and trained to use and maintain equipment safely?

Audit Criteria

- ☐ Provide employees with all necessary information, e.g. manufacturer's instructions, operating manuals, training courses and check they understand them.
- ☐ Instruct them on how to avoid risks.
- ☐ Specific safety rules, operating instructions, etc. should be assessed.

Part 14.2.15 Ground Investigation

Question 14.2.15.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for ground investigation been identified?

Audit Criteria

- ☐ Ground investigation (GI) describes the subsurface investigation which aims to identify geotechnical and geo-environmental properties of the ground, including groundwater and any adverse ground conditions.

- ☐ Related safety regulations and code of practice.
- ☐ Guide to Site Investigation (GEO guide 2)

Question 14.2.15.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of ground investigation?

Audit Criteria

- ☐ The construction process may expose site workers to particular risks from ground related hazards associated with:
  - i. Excavations;
  - ii. Contamination;
  - iii. Dust;
  - iv. Temporary works instability;
  - v. Loading and unloading materials;
  - vi. Excavated material stacking;
  - vii. Machine instability; and
  - viii. Overhead and undergrounding services.
- ☐ In addition it would take into account:
  - a. The nature of the site;
  - b. The controlling depth and spatial extent of substructure works that will be required;
  - c. The likely construction process e.g. cranes handling heavy loads will require a temporary platform that needs design information; and
  - d. The need for temporary works e.g. parameters to ensure the stability of temporary excavations.

Question 14.2.15.3 **Weighting 3**

Have safety rules and operation procedures been produced for ground investigation work?

Audit Criteria

- ☐ A working platform should be designed and checked/certified by professionally qualified engineer which is adequate to support all the machines which will be used during ground treatment.
- ☐ All overhead services need to be identified. Where necessary these should be diverted or an exclusion zone defined so that machines do not come near them.
- ☐ The location and depth of local buried services should be identified. Where necessary these should be diverted or protected.
- ☐ Protective screens should be provided to shield the flying debris.
- ☐ Situations in which workers have to work close to machines should be minimized
- ☐ Maintenance of the stability of the building may require temporary supports such as scaffolding or props during the construction activity.

Question 14.2.15.4 **Weighting 6**

Are there appropriate measures taken to ensure that all ground investigation works are carried

out safely?

Audit Criteria

- ☐ The drilling rig should be examined by a Registered Professional Engineer before operation and a copy of valid certificate should be displayed on the drilling rig.
- ☐ A crane should be used for mobilization of the drilling rig and winch should be avoided for self-pulling the drilling rig whenever possible. Specific risk assessment and safety precautionary measures should be implemented when self-pulling work is unavoidable.
- ☐ The drilling rig should be lowered down before mobilization. When lowering the mast, a signaller should coordinate the speed of the lowering mast and ensure that the two backstays are not obstructed. If workers need to hold the backstays, their bodies and hands must be kept away from the end of backstays and end-hole for a distance of at least 20cm.
- ☐ The drilling rig should rest on levelled and firm ground surface. If the ground condition is rough, uneven and loose, an excavator should be arranged for levelling and compaction before loading down the drilling rig.
- ☐ A drain outlet near the drill rod location should be excavated and relevant drain outlet facilities (including water pump and drain water hose, etc.) should be arranged to ensure that the dry, clean and firm ground surface is maintained.
- ☐ Machinery guard should be installed in front of a drilling rod and should be used during operation.
- ☐ The drilling rig should be powered off immediately when the machinery guard is damaged. The engine should be powered off during the repair of the drilling rig or the water pump.
- ☐ When lifting and extending or dismantling the drill rod or casing, control panel should be operated by the drill operator, whereas the drilling assistant should be responsible for the assembling and disassembling of drill rod/casing.
- ☐ Avoid holding the end of casing by a single hand and fingers should not be placed under the casing. Instead, the casing should be carried by both hands.
- ☐ Only when a lifting load is completely stationary, then installation/dismantling of drill rod/casing can be taken by hand tools (e.g. plier and chain plier, etc.). Use plier to loosen and chain plier to take out the drill rod/casing. The drill operator should ensure that the worker has fixed the hand tool in position and kept his body away from the machinery before re-operating the drilling rig.
- ☐ The drilling rig working area should be barricaded and no entry is allowed except authorized persons.
- ☐ Casing rack should be kept at least 1m away from the location of the drill rod to provide sufficient working space.
- ☐ For sloping ground, drill rod should not be propped on the ground for adjusting the drilling rig. When it is seated on an even and levelled surface, the following conditions should be observed for adjustment of drilling rig:-
    i. When the drill rod is propped on the ground, the base of the drilling rig should not be propped up for more than 200mm from the ground. (The vertical angle of the drill rod should not be exceed 30^{o})
    ii. The drill operator with a valid license should supervise the whole process of drilling rig mobilization. The stacking height of sample boxes should not exceed 1.5m.

Question 14.2.15.5 **Weighting 3**

Have arrangements been produced for safe operation of machinery?

Audit Criteria

- ☐ The safe operation of machinery depends in part on the suitability of the ground support.
- ☐ Machinery exhaust fumes and noise can be hazardous, especially in enclosed or confined spaces, e.g., in basements. The effects of fumes and noise should be given careful consideration and, if possible, alternative techniques adopted. In some cases, electrical equipment or power packs for hydraulic equipment located away from the confined space can be used.

Question 14.2.15.6 **Weighting: 6**

Have safety checklists been developed and used for monitoring the safe operation of ground investigation?

Audit Criteria

- ☐ Safety checklist should cover the items of operative's items in order to monitor the safe operation of ground investigation.
- ☐ As an alternative to using a safety checklist, a logbook covering all ground investigation machinery could be kept by the sub-contractor-in-charge to cover the items of operation, before use, and after use. The logbook should contain a list of checking items and an updated list of ground investigation machinery. Report by exception is acceptable.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection. However, a list of checking items should be prepared and be readily available during inspection.

Part 14.2.16 Work on Slopes

Question 14.2.16.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for work on slopes been identified?

Audit Criteria

- ☐ Construction Sites (Safety) Regulations
- ☐ Code of Practice for Metal Scaffolding Safety, Labour Department
- ☐ Guideline on Safe Access for Slope Maintenance (GEO Report No.136), CEDD
- ☐ Layman's Guide to Slope Maintenance, CEDD
- ☐ Guide to Slope Maintenance (Geo guide5), CEDD
- ☐ Code of Practice on Monitoring and Maintenance of Water-Carrying Services Affecting Slopes
- ☐ Code of Practice for the Lighting, Signing and Guarding of Road Works

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Question 14.2.16.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of working on slopes?

Audit criteria

- ☐ A risk assessment with particular regard to the condition of the slope and nearby work

environment should be conducted by safety officer and engineer with relevant experience on slope works.

- ☐ The assessment should be conducted before work commencement and reviewed during the course of work.
- ☐ The common causes of accidents on slopes are due to fall of persons from height, erection & dismantling of scaffolding/ working platform , working under inclement weather, sudden landslide or earth movement and improper use of mechanical equipment.

Question 14.2.16.3 **Weighting: 6**

Are there appropriate measures taken to prevent sudden landslide and earth movement?

Audit criteria

- ☐ Crest channels should be provided and kept clear of debris to divert storm water runoff and ground seepage. All open cut slope face including temporary cut slope should be protected with tarpaulin sheet or other impervious membrane against inclement weather.
- ☐ For any unstable slope with imminent risk of sudden collapse, adequate measures should be taken to prevent any personnel from accessing dangerous area(s) on the slope.
- ☐ If emergency work has to be carried out on the slope, an experience supervisor/ geotechnical engineer should be assigned to identify any possible sudden danger.
- ☐ Suitable alarm system(s), such as emergency contact list, evacuation plan, should be readily accessible by all site personnel in case there is any sign of undue earth movement.

Question 14.2.16.4 **Weighting: 3**

Is competent person(s) assigned to supervise the implementation programme and examination of the slope works, including any structure erected?

Audit criteria

- ☐ A competent person preferably with sound geotechnical engineering background and experience should be appointed on site for overall supervision of the implementation programme.
- ☐ The slope, including any structure erected, should be examined by a competent person as and when the site conditions warrant and in regular basis.
- ☐ Further examinations should be carried out where there is indication of sign of distress on slope.

Question 14.2.16.5 **Weighting: 6**

Are suitable means of access and egress and working platform provided for the slope works?

Audit criteria

- ☐ Provision of a safe means of access and egress between different levels of slope. Suitable stairway with handrails should be provided.
- ☐ The temporary platform for carrying plant and equipment should be designed to withstand the anticipated load.
- ☐ Auditor should verify if the access and platform provided are suitable for the slope works.

Question 14.2.16.6 **Weighting: 6**

Are there appropriate measures taken to ensure that the ground on which excavators or other mechanical equipment sit is stable?

Audit criteria

- ☐ Measures are taken the ground is compacted and can withstand the weight.
- ☐ The lifting appliances are stationed on level ground.

Question 14.2.16.7 **Weighting: 6**

Are there appropriate measures taken to protect workers against falling of displacement objects or earth or rock materials?

Audit criteria

- ☐ Suitable temporary protection measures, e.g., barrier at the toe of slope, should be considered for preventing workers from being endangered by falling or displacement of earth or rock materials.
- ☐ Materials are not stacked close to the edge of a slope.
- ☐ Place load or move plant not too close to the edge of a slope to avoid inducing excessive stress onto the slope.

Question 14.2.16.8 **Weighting: 6**

Are all plants and machines well maintained and operated by competent operators?

Audit criteria

- ☐ All plants and machines are well maintained and operated by operators who have been properly trained and are competent to carry out works on slopes.

Part 14.2.17 Prestressing

Question 14.2.17.1 **Weighting: 3**

Have all the requirements in regulations and codes of practice which apply to prestressing process been identified ?

Audit Criteria

- ☐ Prestressing is an operation that places tension in the cable or stretches it by putting it under an applied load.
- ☐ The different forms of construction used in a number of more or less conventional structures built during the last few decades will give rise to a variety of problems when the time comes for them to be demolished. Prestressed concrete structures fall in this general category. The most important aspect of demolishing a prestressed concrete structure takes place during the engineering survey. During the survey, a qualified person should determine if the structure to be demolished contains any prestressed members.

Question 14.2.17.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of prestressing?

Audit Criteria

- ☐ The demolition contractor should inform all workers on the demolition job site of the presence of prestressed concrete members within the structure. They should also instruct them on the safe work practice which must be followed to safely perform the demolition. Workers should be informed of the hazards of deviating from the prescribed procedures and the importance of following their supervisor's instruction.
- ☐ Prestressed beams and slabs may be lifted and lowered to the ground as complete units after the removal of any composite concrete covering to tops and ends of the units. When units are too large to be removed, consideration should be given to temporary supporting arrangements.

Question 14.2.17.3 **Weighting 3**

Have safety rules and operation procedures and approved statement been produced for prestressing process or handling of prestressed concrete members?

Audit Criteria

- ☐ Before breaking up, prestressed unit should be lowered to the ground, if possible. It is advisable to seek the counsel of a professional engineer before carrying out this work, especially where there are ungrouted tendons. After lowering the units can be turned on their side with the ends up on blocks after any composite concrete is removed. This may suffice to break the unit and release the prestress; if not, a sand bag screen, timbers, or a blast mat as a screen should be erected around the ends and demolition commenced, taking care to clear the area of any personnel. It should be borne in mind that the end blocks may be heavily reinforced and difficult to break up.
- ☐ Display warning signs in the immediate area of the stressing operation.

Question 14.2.17.4 **Weighting 6**

Are there appropriate steps taken to check the compliance of the approved working method and safe work procedure?

Audit Criteria

- ☐ Auditor should verify the existence of the approved working method and procedure and also its implementation.

Question 14.2.17.5 **Weighting 6**

Have the approved working method and the safe working procedures been communicated to all relevant personnel in appropriate languages, and are other people working in the vicinity on the site also made aware of the stressing operation?

Audit Criteria

- ☐ Auditor should verify that the relevant personnel understood the approved working method.
- ☐ Steps should be taken to ensure that other people working in the vicinity are made aware of the operation

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Part 14.2.18 Modular Integrated Construction (MiC)

Question 14.2.18.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information which apply to MiC been identified?

Audit Criteria

- ☐ Modular Integrated Construction (MiC) refers to a construction whereby free-standing integrated modules (completed with finishes, fixtures and fittings) are manufactured in a prefabrication factory and then transported to site for installation in a building.
- ☐ Practice Notes for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) ADV36 - Modular Integrated Construction, Buildings Department
- ☐ Code of Practice for the Loading of Vehicles, Transport Department
- ☐ Guidelines on Application for Wide Load Permit, Transport Department
- ☐ Reference Material on Logistics and Transport for Modular Integrated Construction Projects, Construction Industry Council
- ☐ Reference Material on the Statutory Requirements for Modular Integrated Construction Projects, Construction Industry Council
- ☐ Guidelines on Safety of Site Vehicles and Mobile Plant, Construction Industry Council

Question 14.2.18.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend measures to eliminate or control risks of MiC?

Audit Criteria

- ☐ The risk assessment report should cover all anticipated work activities which include but not limited to transportation, lifting, storage and installation of modules on site.
- ☐ The risk assessment should identify all potential hazards associated with all work on and near the workplace, taking into account the nature of work, the work environment and the impact to the works under inclement weather conditions.
- ☐ If hazards related to MiC are not sufficiently identified, the answer should be “No”. The following hazards should be considered in the risk assessment report:
  (a) Fall of person;
  (b) Falling objects and loads;
  (c) Failure of lifting appliance such as collapse of crane and breakage of jib;
  (d) Crushed by a moving load or lifting equipment.

Question 14.2.18.3 **Weighting: 3**

Where work involves MiC, has a method statement been developed based on accurate process information?

Audit Criteria

- ☐ All possible information from engineering drawings, work method and construction programme should be considered in method statement.
- ☐ The method statement should explain in detail the safe system of work for the operation and should at least cover the following topics:

- Details of the construction works with a site layout;
- Operating procedures with key points illustrated by diagrammatic illustrations;
- Plant and equipment involved in the construction works;
- General safety measures for the operation and emergency procedures, e.g. measures to secure the modules, fencing off of no entry safety zones before giving consent to commencement of operations on site, as well as inspections and checks during the safety critical operations.

☐ Lifting operation plan and method statement, including plant, equipment, operatives and safety supervision personnel to be deployed, procedures to set up the lifting plant and equipment with adequate foundation support constructed, the lifting procedures and the hold points required, covering different stages of construction under the Contract. The relevant legal requirements and the relevant requirements of the CIC Guidelines on Safety of Site Vehicles and Mobile Plant and Safety of Tower Cranes shall be complied with. Certification by competent persons with relevant qualifications and experience (e.g. RPE (Mechanical), RPE (Structural) and RPE (Geotechnical)) of the adequacy of the plant, equipment and foundation shall be provided.

Question 14.2.18.4 **Weighting: 3**

Is there a specific plan in place which covers the storage, lifting and installation of modules to ensure that all corresponding works are carried out safely?

Audit Criteria

☐ The plan should at least include details of loads, allocation of storage area, composition of lifting team, selection of lifting equipment, rigging method, lifting route and work sequence for each type of module.

☐ The roles and responsibilities of each individual involved in the operations must be clear. There shall be proper leadership within the crew so that instructions are relayed appropriately.

☐ The plan should be delivered to all involved parties before commencement of works and all involved parties should be familiar with the applicable risk control measures. Training courses are to be completed by the related workers and safety supervision personnel before they are approved to commence works. Proof of communication for safety instruction such as specific safety training record should be verified.

☐ Verification is necessary to ensure that workers are well aware of the working procedure as well as their safety responsibilities.

Question 14.2.18.5 **Weighting: 6**

Are all modules transported securely with sufficient protection for installation?

Audit Criteria

☐ Transport routes from the factory to the site, MiC module delivery schedules, and traffic management plan.

☐ All modules shall be securely loaded on the truck in a proper manner and stacking should be avoided unless it has been designed to do so with secured stacking frames.

☐ Temporary covering to modules should be provided to prevent potential damage to the

finishes, fixtures and fittings and avoid ingress of water during transportation or unloading.

- ☐ Proper protection should be provided to all protruding parts of modules from mechanical damage during transportation.
- ☐ Additional tie down straps should be used to secure the covering of modules during transportation.
- ☐ The total width of the load and any part of the vehicle must not exceed 2.5m.
- ☐ The total height of the load on medium/ heavy goods vehicle must not exceed 4.6 m above the road surface, even with a wide or long load permit.
- ☐ According to Regulation 54 of the Road Traffic (Registration and Licensing of Vehicles) Regulations (Cap. 374E), a wide or long load permit must be obtained before the wide or long load can be transported along any roads.
- ☐ The relevant legal requirements, Code of Practice for the Loading of Vehicles published by Transport Department and the relevant requirements of the CIC Guidelines on Safety of Site Vehicles and Mobile Plant shall be complied with.

Question 14.2.18.6 **Weighting: 6**

Are all modules stored in a designated storage area and adequately supported?

Audit Criteria

- ☐ Site logistics plan for the MiC modules and temporary storage locations onsite and offsite.
- ☐ A designated storage with sufficient space should be arranged onsite or offsite in case "Just-in-time" installation is not feasible and all modules should be stored in the storage area in a secure manner.
- ☐ Modules should not be stacked on top of each other unless it has been designed to do so.
- ☐ Effective measures, such as installation of vertical steel guard posts securely fixed on the ground, should be adopted to support modules if applicable.
- ☐ Even "Just-in-time" installation is used, a designated storage area should still be needed as a contingency, the answer could not be "N/A".

Question 14.2.18.7 **Weighting: 6**

Are safe means of access and egress provided to the top of module?

Audit Criteria

- ☐ Proper means of access and egress should be designed and provided for the following situations:
  - From the ground to the top of the module loaded on the truck;
  - From the ground to the top of the module in designated storage area;
  - From the working floor to the top of the module which will be installed;
  - From the working floor to the top of the module which has been installed.
- ☐ Such access provisions include the use of mobile elevating work platforms (MEWPs), mobile working platform, fixed ladder with proper fixtures and use of permanent/ temporary staircase.
- ☐ A safe work method such as use of MEWPs/ working platform should be explored. Where possible, the contractor should avoid to use straight ladder placed beside the modules as a mean of access. The straight ladder should only be used where a task-specific risk assessment indicates that this is a safe and most effective means of accessing a particular

location, taking into account the actual circumstance and the availability of other means of access such as working platform, MEWP, fixed ladder with proper fixture, etc. In addition, continuous fall protection shall be provided to workers assessing straight ladder and the ladder shall be properly secured to prevent from overturning/ slip off.

- ☐ MEWP should only be left at a height where a rigorous risk assessment indicates that this is a safe mean of accessing a particular location. MEWPs should never be used where a dedicated access to the location is already provided.
- ☐ For an operation which involves exiting the work platform at height, the following measures should be taken:
  - The MEWP should be equipped with anchorage points which could provide continuous fall protection to workers and fall protection measures should be maintained at all times during the operation.
  - The MEWP should be provided with a competent operator who should remain in the MEWP at all times during the operation.
  - The area around the chassis of the MEWP should be free of vehicular traffic.

Question 14.2.18.8 **Weighting: 6**

Are all edges of installed module provided with suitable guard-rails and toe-boards?

Audit Criteria

- ☐ The sides of the top of the module from which workers are liable to fall should be effectively guarded to prevent any workers from falling from height. The connections for the guard-rails should be built-in with the module if possible.
- ☐ Guard-rails and toe-boards shall be installed immediately after the installation of module and it can only be removed when the next stack of module is to be installed.

Question 14.2.18.9 **Weighting: 6**

Is a safe working platform provided for works on external wall?

Audit Criteria

- ☐ The external working platform should be erected as close to the external wall as practicable. The gap between the working platform and the structure should be as minimum as possible.
- ☐ For metal working platform for external wall, ties which will not be removed during the use of a scaffold should be inserted and maintained at minimum one for every 40m^2 of the scaffold surface and should be evenly distributed over the scaffold area, both horizontally and vertically.

Question 14.2.18.10 **Weighting: 6**

Are there appropriate fall preventive measures taken while workers are required to work on the top of module / in vicinity of the edges of module?

Audit Criteria

- ☐ Effective fall preventive measures such as use of retractable fall arrestor should be adopted for workers working on the top of module/ in vicinity of the edges of module.
- ☐ Retractable fall arrestor shall be attached to designated anchorage point certified by registered professional engineer.

- ☐ Where possible, pre-cast anchor should be provided on the top of module / concrete structure of the building. The position of pre-cast anchor should be safely accessible for workers and workers should not be exposed to any risk of falling in the course of attaching or detaching the anchor.

Question 14.2.18.11 **Weighting: 6**

Are there appropriate measures taken to prevent materials from falling from height?

Audit Criteria

- ☐ The stacking and storage area should be well organized to ensure that materials are securely stored in a proper manner.
- ☐ Loose materials should not be stored on the top of and/ or inside the modules.
- ☐ Proper tool straps should be used while working at height.
- ☐ The intent of this question is to ensure the protection against falling objects induced by MiC. This question mainly focuses on material storage and proper use of tool strap. The lifting operations for modules should refer to Question 14.2.18.12 – 14.2.18.14 in this sub-section.

Question 14.2.18.12 **Weighting: 3**

Are suitable cranes with sufficient loading capacity selected to lift all types of modules?

Audit Criteria

- ☐ Sizing and arrangement of cranes on site should be dictated by the maximum weight of the module and the reach of the crane.
- ☐ The crane must be able to handle the weight of all types of module, but at the same time be able to provide sufficient coverage of the whole building block.

Question 14.2.18.13 **Weighting: 6**

Are suitable lifting beams and associated lifting gear designed or selected to lift each type of module?

Audit Criteria

- ☐ The lifting points must be strategically positioned to hoist the entire module safely and ensure that the load distribution to all lifting points is reasonably uniform.
- ☐ The module shall be hoisted with the aid of lifting frame so that the module would not be subjected to inclined forces from lifting gear unless it has been designed and endorsed by a registered professional engineer.
- ☐ It is necessary to maintain the centre of gravity of the load directly beneath the load line during the whole lifting process unless it has been designed and endorsed by a registered professional engineer.

Question 14.2.18.14 **Weighting: 6**

Are there appropriate measures including trial lifting taken to ensure that precast component and module are lifted safely?

Audit Criteria

- ☐ Trial lifting of modules shall be conducted to ensure the loads are securely rigged, at 300 – 500 mm off the ground, before the loads are further lifted. All workers should leave the danger zone of the lifting operation.
- ☐ Each module should be attached with at least two guide ropes for controlling the swing or rotation of the load.

Question 14.2.18.15 **Weighting: 3**

Are project manager, site agent and foreman(s) trained for the MiC installation works and competent to plan and control the MiC operations?

Audit Criteria

- ☐ Project Manager and site agent involved in contract with Modular Integrated Construction (MiC) must have satisfactorily completed the Master Class on MiC Project Implementation (Project Managers) offered by the CIC.
- ☐ General Foreman and Block Foreman involved in contract with MiC must have held a Certificate in Modular Integrated Construction (MiC) for Foreman issued by the CIC.

Question 14.2.18.16 **Weighting: 3**

Are all operatives received enhanced safety training for the MiC installation works and competent to carry out their tasks?

Audit Criteria

- ☐ It is beneficial for operatives to enhance their safety awareness in MiC operations. All operatives staff involved in MiC operations are encouraged to complete a training course comparable to the 3.5-hours “Safety Training Course for Modular Integrated Construction Work” provided by Occupational Safety and Health Council (OSHC).
- ☐ The answer should be “Yes” if appropriate training had been completed. Otherwise, the answer should be “N/A” since this is not a compulsory item.

Question 14.2.18.17 **Weighting: 3**

Are all project management staff received enhanced safety training for the MiC installation works and competent to plan and control the MiC operations?

Audit Criteria

- ☐ It is beneficial for managerial level staff to enhance their knowledge in MiC operations. All management staff such as Project Manager and Site Agent involved in MiC operations are encouraged to complete a training course comparable to the 7-hours “Safety Training Course For Modular Integrated Construction Project Management Staff” provided by Occupational Safety and Health Council (OSHC).
- ☐ The answer should be “Yes” if appropriate training had been completed. Otherwise, the answer should be “N/A” since this is not a compulsory item.

Question 14.2.18.18 **Weighting: 6**

Have safety checklists been developed and used for monitoring the safe operation of MiC?

Audit Criteria

- ☐ A well-planned programme of regular inspection should be carried out by a supervisory staff.
- ☐ Safety checklist should cover a list of checking items in relation to transportation, lifting, storage and installation of module in order to monitor the safe operation of MiC.

Part 14.2.19 Temporary Works

Question 14.2.19.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information which apply to temporary works been identified?

Audit Criteria

- ☐ Temporary works covers all temporary works of every kind required in or about the execution, completion or maintenance of works and includes all temporary to support either existing structure or permanent works during construction.
- ☐ Code of Practice for Site Supervision, Building Department
- ☐ A temporary works management plan should be prepared.
- ☐ Temporary Works Management Plan, Construction Industry Council

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Question 14.2.19.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of temporary works?

Audit Criteria

- ☐ Specific and comprehensive risk assessment should be conducted for the erection, alteration, use and dismantling of temporary works.
- ☐ A task-specific risk assessment should be conducted prior to commencement of works to identify the risks inherent in the temporary works construction as well as those from adjacent activities, and then devise measures to avoid those hazards.
- ☐ Based on the task-specific risk assessment, and taking into account of the scale and complexity of the design and works, the risk level of the temporary works should be determined.

Question 14.2.19.3 **Weighting: 6**

Are arrangements in place to manage and monitor the erection, alteration, use, and dismantling of temporary works and are they strictly implemented?

Audit Criteria

- ☐ There should be no “N/A” for this question.
- ☐ The temporary works classification should refer to Annex G.
- ☐ The temporary works classification is applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager’s instruction.
- ☐ For on-going contracts without CM’s instruction, the arrangement should follow the legal requirement and existing contract specification.
- ☐ Temporary works on site should be classified based on the appropriate categories and

importance levels prior to the commencement of work, and appropriate control measures have been developed and put in place to reduce the risks.

- ☐ Ensure erection, alteration, use and dismantling of temporary works through routine supervision and through monitoring via safety inspection.
- ☐ Maintain a set of plans, method statement including precautionary and protective measures, completion certificates, and safety certificates on site.
- ☐ Submit the register of certification status of the design, method statement, completion, safety certificate and dismantling method statement for temporary works in the monthly site meeting for monitoring.
- ☐ Guidance on related questions:
  Double deduction on scores would be possible if the contractor's performance is not satisfactory. Unsatisfactory performance in the relevant subsection of the specified type of temporary work should also be reflected in this section. For example, for Question 14.4.1.10, if the developed standards for safe operation of tower crane were not strictly implemented, the answer should be "No" for both Question 14.4.1.10 and Question 14.2.19.3.
- ☐ Propose tests required for temporary works supplied as proprietary products based on the recommendations of the suppliers for the CM's approval and carry out the tests as approved by the CM;
- ☐ Propose tests required for Level III items, Level IV items and Level V items under Case 2 and Case 3 Temporary Works as defined in the contract specification that are not supplied as proprietary products for the CM's approval and carry out the tests as approved by the CM. Unless otherwise specified in the Specifications, Drawings, imposed by ICU or as agreed by the CM, the minimum tests required shall be:
  i) Tests of bolts, nuts and washers;
  ii) Tests of steel sections;
  iii) Weld tests;
  iv) Pull-out tests and/or shear load tests as appropriate in accordance with BS 5080 for fixings and anchors shall have the following sampling rates:

Item	Temporary fixings and anchors	Sampling rate
A	Drilled-in anchors used for cantilevered structure and hanger	5% or 5 numbers, whichever is more
B	Fixings and anchors other than Item A	1% or 5 numbers, whichever is more

- ☐ Carry out tests required for Case 1 Temporary Works as defined in contract specification in accordance with the prescribed drawings, prevailing Code of Practice and/or approval conditions imposed by ICU;
- ☐ All test results for temporary works shall be issued by testing laboratories in accordance with contract specification and certified by QCM for submission to the CM before the request for the CM's inspection. Propose any remedial measures for any failed test results to the CM for agreement.

Question 14.2.19.4 **Weighting: 3**

Are design, method statement, and completion certificate certified by the appointed qualified persons for temporary works?

Audit Criteria

- ☐ There should be no "N/A" for this question.

- ☐ The temporary works classification should refer to Annex G.
- ☐ The temporary works classification is applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction.
- ☐ For on-going contracts without CM's instruction, the arrangement should follow the legal requirement and existing contract specification.
- ☐ Sufficient number of qualified persons who meet the required accountabilities and competencies including Registered Structural Engineer (RSE), Qualified Engineer (QE), Temporary Works Coordinator and Independent Checking Consultant, etc. should be appointed.
- ☐ Auditor has to obtain the following evidence:
  - Qualification and experience records of the qualified persons i.e. qualification in engineering.
  - Appointment letter for the qualified person to carry out his/her duty.
- ☐ Control measures on the certification of the design, method statement, and completion of temporary works depend on the classification and the importance level of the temporary works.
- ☐ All temporary works classified as Case 1 as defined in the contract specification including the design, method statement and completion should be certified by RSE. Unless otherwise specified, submit the completion certificate of Case 1 Temporary Works certified by RSE prior to the request for the CM's inspection. Before dismantling/removal of Case 1 Temporary Works, submit the method statement including precautionary and protection measures certified by RSE
- ☐ Level II items under Case 2 Temporary Works as defined in the contract specification, submit the design of Case 2 Temporary Works certified by QE (or equivalent as approved by the CM).
- ☐ Level III items under Case 2 and Case 3 Temporary Works as defined in the contract specification, submit the design, method statement including precautionary and protection measures, and completion certificate of Case 2 and Case 3 Temporary Works all certified by QE (or equivalent as approved by the CM) prior to the request for the CM's inspection.
- ☐ Level IV items under Case 2 and Case 3 Temporary Works as defined in the contract specification, submit the design, method statement including precautionary and protection measures, and completion certificate certified by RSE. Before dismantling/removal, submit the method statement including precautionary and protection measures certified by RSE.
- ☐ Level V items under Case 2 and Case 3 Temporary Works as defined in the contract specification, submit the design certified by RSE and independently certified by ICC, and submit the method statement including precautionary and protection measures certified by RSE. The completion of these Case 2 and Case 3 Temporary Works shall be certified by RSE (or equivalent as approved by the CM) and independently inspected and certified by ICC. Before dismantling/removal, submit the method statement including precautionary and protection measures certified by RSE.

Question 14.2.19.5 **Weighting: 6**

Are temporary works erected based on the approved design drawings?

Audit Criteria

- ☐ There should be no "N/A" for this question.
- ☐ The temporary works classification should refer to Annex G.
- ☐ The temporary works classification is applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction.
- ☐ For on-going contracts without CM's instruction, the arrangement should follow the legal requirement and existing contract specification.
- ☐ Temporary works should be erected according to the approved design drawing and procedures. Verification is necessary through physical inspection and interview with relevant personnels.
- ☐ Temporary Works Coordinator is responsible for monitoring the erection, use, maintenance and dismantling of temporary works in accordance with the approved design drawings and procedures.
- ☐ Guidance on related questions:
  Double deduction on scores would be possible if the contractor's performance is not satisfactory. Unsatisfactory performance in the relevant subsection of the specified type of temporary work should also be reflected in this section. For example, for Question 14.1.3.5, if the scaffolds and working platforms are not provided with sufficient supports such as metal brackets, the answer should be "No" for both Question 14.1.3.5 and Question 14.2.19.5.

Question 14.2.19.6 **Weighting: 3**

Has video been taken throughout the dismantling/removal process of specified temporary works?

Audit Criteria

- ☐ The temporary works classification should refer to Annex G.
- ☐ The temporary works classification is applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction.
- ☐ For Temporary works classified as Case 1, Level IV items under Case 2 and Case 3, and Level V items under Case 2 and Case 3 Temporary Works as defined in contract specification:
  Take video throughout the dismantling/removal process at location(s) to be agreed with the CM and keep video records for at least 14 days or as agreed with the CM.

Question 14.2.19.7 **Weighting: 3**

Is the annual safety certificate certified by Registered Structural Engineer submitted for specified temporary work lasting over a year?

Audit Criteria

- ☐ The temporary works classification should refer to Annex G.
- ☐ The temporary works classification is applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction.
- ☐ For temporary works classified as Case 1, and Sub-clause (9) - Level V items under Case 2

and Case 3 as defined in contract specification erected and retained on Site for over a year, RSE shall submit the annual safety certificate not less than 7 days before each anniversary of the date of the completion certification.

Question 14.2.19.8 **Weighting: 6**

Are inspections carried out at appropriate intervals and are the results entered in the record?

Audit Criteria

- ☐ Temporary Works Coordinator shall prepare a comprehensive task-specific Inspection and Test Plan (ITP) indicating the hold points required during the installation, erection and dismantling of the temporary works, frequency of inspections (including those required under the Supervision Plans, responsible personnel, required records and acceptance criteria). Taking into account the category, scale and complexity of the design and works, the inspection frequency and critical elements of temporary works for inspection should be determined, including all stages such as prior to each interim stage of loading or change of loading. Temporary Works Coordinator shall carry out inspections/checking as specified in the Construction Method Statement and Inspection and Test Plan.
- ☐ Hold points are particularly needed for the following:
  i. after completion of temporary works installation/erection and prior to loading;
  ii. prior to each interim stage of loading or change of loading where the loads are applied in stages or repetitive cycles (e.g. strutted cofferdam, climbing form for high rise structures, segment launching girders, or other partial temporary works construction with loading applied in stage);
  iii. after partially completing “critical elements” of temporary works installation/erection where further construction works will otherwise obscure inspection of the as-built condition (e.g. critical structural connections for which future access will be impeded by the completed temporary works installation/erection);
  iv. falsework supporting reinforced concrete construction (in this case, two-stage hold points shall be implemented: the first sign-off prior to the commencement of rebar fixing and the second sign-off prior to concreting);
  v. checking of temporary supports for dismantling of the temporary works (only if Form T4 is required); and
  vi. other specified hold point specified by TWD in the drawings.
- ☐ In addition to the hold point inspections, the assigned competent personnel such as temporary work coordinator shall carry out formal inspections at least once in a week when the temporary works are in service to ensure they remain compliant. Inspections of temporary works, in particular falsework and scaffolds, should be conducted immediately after adverse weather conditions, such as heavy rain, high winds, etc.

Sub-section 14.3 **Management of Powered Plant and Equipment**
Part 14.3.1 **Compressed Air Tools**

Question 14.3.1.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information in respect to compressed air work been identified?

Audit Criteria

- ☐ Boilers And Pressure Vessels Regulations
- ☐ Code of Practice for Owners of Boilers and Pressure Vessels, Labour Department
- ☐ A Guide to the Construction, Installation, Operation and Maintenance of Air Receivers, Labour Department

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Question 14.3.1.2 **Weighting:3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of compressed air tools?

Audit Criteria

- ☐ The major hazard associated with compressors is over-pressurisation, which may arise from:
  (a) a blocked outlet or some other restriction to flow;
  (b) failure of automatic controls combined with low air consumption;
  (c) compressor malfunction, e.g. overspeeding;
  (d) an external fire near the pressure system; and
  (e) overheating and the build-up of carbonaceous deposits, both of which can lead to fires or explosions. Although they are rare, fires and explosions can also occur as a result of oil or oil vapour being ignited in the pressure system.
- ☐ Dirty or 'wet' air can cause a system to fail e.g. by causing fine particles of debris to agglomerate, blocking safety related valves.
- ☐ Awareness of headline dangers of air compression use, e.g. orificial bodily entry, skin penetration, explosions and optical damage caused by particles
- ☐ Compressor noise is one of the most common noise problems associated with the workplace and is potentially damaging.
- ☐ Both blow guns and hand held tools are usually connected to a length of flexible hose which during the course of its life will be subject to mechanical damage and considerable flexing. This damage and/or flexing particularly at connection points can cause the hose to rupture. This can lead to sudden discharges of compressed air and may cause unsupported lengths of hose to 'whip' and 'snake' dangerously.

Question 14.3.1.3 **Weighting: 6**

Are the air compressor and all compressed air tools regularly inspected?

Audit Criteria

- ☐ Daily inspection and checking of all air compressors and tools before starting work.
- ☐ As an alternative to using a safety checklist, a logbook could be kept for all compressed air tools to cover the items of operation. The logbook should contain a list of checking items. Report by exception is acceptable.
- ☐ The efficient safe running of a compressed air system relies on cleanliness, filtration, cooling and lubrication. The best way of achieving these four conditions is to operate the plant in accordance with the operator's manual and to draw up and follow a written schedule of

maintenance work which can be revised in the light of experience.

- ☐ The written schedule should identify areas for attention, how often attention should be given and the responsibilities of those who carry out and supervise the work.

Question 14.3.1.4 **Weighting: 3**

Has the air receiver been examined at statutory intervals by a competent person and is a record kept for the examination?

Audit Criteria

- ☐ The Boilers And Pressure Vessels Regulations set out the duties of users and owners of air receivers.

Question 14.3.1.5 **Weighting: 6**

Have the appropriate valves and gauges been set and maintained?

Audit Criteria

- ☐ A receiver should be clearly marked, in a conspicuous position, with its safe working pressure and other relevant information required by the Regulations. The details should be clearly visible on the vessel or a plate attached to it.
- ☐ A receiver should be readily distinguishable. This can be achieved by painting on identification markings or by affixing a manufacturer's plate, giving the name of the manufacturer, serial number etc.
- ☐ The drain valve, safety valve, examination holes and manholes need to be accessible.
- ☐ The scale of any gauges needs to be clearly visible.

Question 14.3.1.6 **Weighting: 6**

Are compressed air hose joints fitted with whip check or other devices to prevent accidental dislodge?

Audit Criteria

- ☐ Tubes and hoses used to connect cylinders to their control valves are available in a variety of colours to make fault finding and maintenance easier. They should be neatly run and adequately secured. If the failure of a flexible hose would be hazardous it should be further restrained or shielded.
- ☐ Coupling a portable tool to the outlet point is usually achieved by use of a quick-acting connector. The connector should be designed so that when disconnected it automatically seals the air pressure on the upstream side and slowly vents the air pressure on the downstream side.
- ☐ Alternatively, a plug with a controlled venting action should be used. These safety features prevent inadvertent tool operation and uncontrolled whipping of the hose when its inlet end is uncoupled from the socket. Another way of reducing 'whipping' or 'snaking' is to fit emergency shut-off valves, hose rupture valves or air fuses as close as practicable to the connector. The valves will close or reduce flow to a very low level in the event of excessive air-flow conditions caused by a failure of the hose.

Question 14.3.1.7 **Weighting: 6**

Are air hoses disconnected from air compressor if necessary?

Audit Criteria

- ☐ Air hose not in use shall be disconnected from the air compressor.
- ☐ Handle locking device for valve of air hose connected to air compressor should be used to prevent the handle from being accidentally turned on.

Part 14.3.2 Electrical Supply System

Question 14.3.2.1 **Weighting: 6**

Have all the requirements in regulations and codes of practice which apply to the use of electricity on site, in workshops and in offices been identified?

Audit Criteria

- ☐ Factories And Industrial Undertakings (Electricity) Regulations
- ☐ Construction Sites (Safety) Regulations
- ☐ Electricity Ordinance (Cap 406)
- ☐ Code of Practice for the Electricity (Wiring) Regulations, EMSD

Question 14.3.2.2 **Weighting: 6**

Have the electrical supply system and all subsequent alterations or extensions thereto been carried out and certified by a registered electrical contractor/worker using prescribed Work Completion Certificates (WR1)?

Audit Criteria

- ☐ Temporary installation providing supplies during the execution of construction or demolition works, or for repair and testing purposes should comply with the requirement of the Electricity (Wiring) Regulations.
- ☐ The Registered Electrical Worker/ Registered Electrical Contractor to complete a Work Completion Certificate (Form WR1) after satisfactory inspection and testing of the electrical installation as required by the Code of Practice for the Electricity (Wiring) Regulations.

Question 14.3.2.3 **Weighting: 6**

Is an up-to-date as-fitted electrical schematic diagram for the electrical supply system displayed near the main switch and is the electrical supply system in accordance with the electrical schematic diagram?

Audit Criteria

- ☐ The electrical wiring diagram for the switchboard is provided and displayed prominently in its vicinity.

Question 14.3.2.4 **Weighting: 6**

Are the name, designation and contact telephone number of the registered electrical contractor/worker responsible for the temporary electrical supply and installations

permanently displayed near the main switch of the installation?

Audit Criteria

- ☐ Verify the registered electrical worker and the logbook of the record results of regular inspection and testing on the electrical installations.

Question 14.3.2.5 **Weighting: 6**

Are appropriate signages/notices displayed in areas where electricity is used?

Audit Criteria

- ☐ Adequate "Danger" notices/signs are provided to indicate that the switchboard is live. Warning signs and locks, as appropriate, shall be provided on doors of switch rooms to guard against unauthorized entry.
- ☐ If more than one switchboard is located on a site, markings must be provided to distinguish one switchboard from another.
- ☐ Mandatory notice in the Chinese and English languages, regarding the treatment of persons receiving electric shock shall be displayed in all parts of the premises where electricity is generated, transformed and on every temporary distribution box. If it is not practicable, then legible notices with reduced sizes should be displayed whilst some notices of original size should be displayed elsewhere on the site.

Question 14.3.2.6 **Weighting: 9**

Are temporary distribution boards securely mounted on supports and kept locked?

Audit Criteria

- ☐ Construction supply switchboards are of robust, weatherproof construction and have a locking device.
- ☐ No illegal connections/extensions, however temporary, are allowed.
- ☐ Keep the doors of switchboards locked.
- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
  1. Implement an automated access control and warning system to prevent unauthorized opening of electrical distribution board carbinet by means of electronic lock and key provided with automated warning system through the implementation of smart site safety system.
  2. Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.

Question 14.3.2.7 **Weighting: 9**

For electrical supply system used on site such as distribution board, are these of a weatherproof type or contained in an appropriate weatherproof enclosure?

Audit Criteria

- ☐ Temporary switch boxes and socket outlets are of splash-proof type with a protection class of IP54 or above.

Question 14.3.2.8 **Weighting: 9**

Have appropriate earth leakage protection devices been installed and maintained properly for the electrical supply system?

Audit Criteria

- ☐ The switchboards and distribution circuits shall be equipped with suitable protection devices such as Miniature Circuit Breaker (MCB) and Residual Current Device (RCD) to protect against over current and earth leakage respectively.
- ☐ The switchboards and devices are regularly checked and maintained by Registered Electrical Workers.
- ☐ MCB must be able to be locked in the "open" position to ensure that they cannot be accidentally closed if isolated by a licensed electrician.
- ☐ Protect every single phase sub circuit and final sub circuits supply hand held or portable equipment with a core balance earth leakage device.
- ☐ Verify the logbook of the record results of regular inspection and testing on the electrical installations.

Question 14.3.2.9 **Weighting: 9**

Are reduced voltage systems used for portable and hand-held tools and temporary site lighting?

Audit Criteria

- ☐ Portable electrical tools are tools that are not part of a fixed installation, but are intended to be connected to a fixed installation, or a generator, by means of a flexible cable and either a plug and socket, or a spur box, or similar means. This includes tools that are either hand-held or hand-operated while connected to the supply, intended to be moved while connected to the supply, or likely to be moved while connected to the supply.
- ☐ Portable and hand-held tools and temporary site lighting operate of the 110V supply.
- ☐ All insulated or double insulated tools to BS 2754 give extra protection against electric shock.
- ☐ Emergency lighting must be sufficient to allow the safe egress of all workers from the site. It must be capable of running for a minimum of one hour in case of loss of normal lighting in the area.

Question 14.3.2.10 **Weighting: 9**

Is an appropriate earthing conductor provided for connecting the main earthing terminal of the electrical supply system to an effective earth electrode and is the effectiveness of the earthing system regularly checked and recorded?

Audit Criteria

- ☐ Earthing systems are recommended for all transportable plant operating at any voltage above 110V and supplied with flexible cables.
- ☐ Periodic maintenance, inspection, trip and calibration tests should be carried out by a

qualified electrician.

Question 14.3.2.11 **Weighting: 9**

Where a generator is installed, is there any switch provided to isolate electricity supply from the generator?

Audit Criteria

- ☐ Provision of Isolation switch.
- ☐ Protection by a core balance earth leakage device with a rated tripping current not exceeding 30 mA.
- ☐ Generators are operated only by authorized persons who should be adequately trained. Training should include emergency and shutdown procedures.

Question 14.3.2.12 **Weighting: 9**

Where generator is installed, is it appropriately earthed and are exhaust fumes discharged in a direction so as not to cause harm or nuisance?

Audit Criteria

- ☐ The generator is properly earthed. The overall diameter of copper rod electrode should not be less than 12.5 mm. The overall diameter of a rod electrode of materials such as stainless steel and galvanised steel should not be less than 16 mm. All rod electrodes thus installed should be connected together by means of earthing conductors of adequate size enclosed in PVC ducts and laid at a minimum depth of 600 mm below the ground surface.
- ☐ The impedance of the earthing electrode and connection is periodically checked by a Registered Electrical Worker. Code 11 Earth Leakage And Earth Fault Currents of Code of Practice for the Electricity (Wiring) Regulations refers.
- ☐ The exhaust pipe of the generator is not directed to people and work areas.

Question 14.3.2.13 **Weighting: 9**

Are the electrical installations and supply system readily accessible for repair and maintenance works to be carried out?

Audit Criteria

- ☐ Adequate access, lighting and working space must be provided for repair and maintenance works to be carried out.

Part 14.3.3 Electrical Works and Portable Electric Tools

Question 14.3.3.1 **Weighting: 6**

Are cables securely installed, properly supported and protected against mechanical damage, heat, vibration and ingress of moisture and corrosive substances?

Audit Criteria

- ☐ Wires and cables are protected against chafing, pinching, cutting, or other hazards, which damage the insulation of the metal conductor leading to an electric shock.
- ☐ The locations of underground cables are marked so that they will not be damaged by

excavating equipment.

Question 14.3.3.2 **Weighting: 6**

Where relevant, are electric cables adequately suspended/installed to prevent them from being unduly laid on floor?

Audit Criteria

- ☐ All outgoing cables shall be protected and supported.
- ☐ Wires and cables are kept off floors to allow the passage of vehicles (height 5.8 m above ground). If they must be on the floor, ensure that they are adequately protected against damage.
- ☐ Suspended cables should be adequately marked for protection, supported on proper hooks, and no tension or strain should be applied on connections. Over 3 m spans supported by catenary wires on poles.
- ☐ Provide hangers for hanging cables of the generators.

Question 14.3.3.3 **Weighting: 6**

Are there appropriate steps taken to inspect, test and record details of all electrical installations including switch boxes, cables, sockets, switches before they are used, and again at regular intervals?

Audit Criteria

- ☐ Daily inspection and checking of all electrical installations before starting work.
- ☐ All electrical installations are regularly checked and maintained by Registered Electrical Workers.
- ☐ Maintain a logbook to record results of regular inspection and testing on the electrical installations.
- ☐ Testing and inspections include:
  - Visual inspection;
  - Continuity of final circuit conductors;
  - Continuity of protective conductors;
  - Earth electrode resistance;
  - Insulation resistance;
  - Polarity;
  - Earth fault loop impedance;
  - Operation of residual current devices and fault voltage operated protective devices.

Question 14.3.3.4 **Weighting: 6**

For electric tools used in damp environments or exposed to weather, are these of a weatherproof type or contained in an appropriate weatherproof enclosure?

Audit Criteria

- ☐ Plugs and cable couplers are of splash-proof type with a protection class of IP54 or above.

Question 14.3.3.5 **Weighting: 6**

Are tough rubber workshop cables/ armoured cables used as trailing cables and weather proof

connections kept in good condition?

Audit Criteria

- ☐ Cables on ground are only permitted for short periods of time. Additional protection is required and clearly marked so as not to constitute a tripping hazard.
- ☐ Tough Rubber Sheathing (TRS) resistant to wear and abrasion (not used near solvents or oils).

Question 14.3.3.6 **Weighting: 6**

Are portable tools and equipment connected to the electrical supply system with approved type of connectors, and provided with appropriate protection against earth leakage and suitably located means of cutting off the electricity supply when necessary?

Audit Criteria

- ☐ All electrical connections must be proper plugs and sockets. Makeshift connections and taped joints are not permitted.
- ☐ Check for BS2769 (Kite Mark) or double insulated Mark (BS 2754).
- ☐ Check that the tool is fitted with correct plug; type and size, and also that the plug is undamaged.
- ☐ Check that trailing lead is not cut or frayed.
- ☐ Check that the nameplate is secure with details of type, voltage, frequency, current, speed and other details depending on manufacturer.
- ☐ Check that the “earth pin” on three-prong plugs is not cut off or bent back.
- ☐ Using industrial three-way adaptor should be avoided to prevent overloading socket outlets.

Question 14.3.3.7 **Weighting: 6**

Are there any appropriate means to prevent unexpected restarting of motors where such restarting might cause damage, and for motors designed for automatic restarting, is an appropriate notice displayed to warn about the possibility of automatic starting?

Audit Criteria

- ☐ Adequate precautions must be taken to prevent any danger when work is taking place near equipment that has been made electrically dead, especially to prevent it from becoming live again.
- ☐ Check for the provision of such arrangement if necessary.

Question 14.3.3.8 **Weighting: 6**

Are all live parts of apparatus, equipment and tools appropriate to prevent accidental personal contact either by design and construction of the apparatus or by the manner of its installation?

Audit Criteria

- ☐ ‘Permit-to-work’ systems are essential to ensure safe working and freedom from hazards, where high voltage electrical supplies, cables and equipment exist, particularly in installation, maintenance or construction work.
- ☐ Provisions for the physical locking off of switches etc.

- ☐ BS2769 (Kite Mark) or double insulated Mark (BS 2754) for portable tools.
- ☐ Prohibits the placing of switches in the neutral side of a circuit.

Question 14.3.3.9 **Weighting: 3**

Are there enhanced safety measures for the use of cordless electric portable tools?

Audit Criteria

- ☐ The following safety measures shall apply.
  1. Safety of Electric Portable Tools
     - Ensure the use of cordless electric portable tools by operatives, including: circular saws for cutting wood or metal, reciprocating saws, angle grinders, rotary hammers, combination hammers for drilling, impact drivers, impact wrenches, demolition hammers, masonry cutters and jig saws. Prohibit the use of the above tools that are with cords;
     - Inspection records to verify that the cordless electric portable tools are in safe and serviceable conditions shall be kept on site for checking. Verification record shall be either:
       1. annual certificates issued by the original manufacturer; or
       2. quarterly records certified by Registered Electrical Worker.
     - Arrange centralised charging facilities to ensure safe use of electricity with at least one 6 kg dry chemical (automatic type) fire extinguisher, or its equivalent, and at least one fire detector which will trigger audio and visual alarm with alert to the site office in case of a fire.

Question 14.3.3.10 **Weighting: 3**

Are there enhanced safety measures taken to prevent the hazard of electrical shock where metal planks are used as gangway for bamboo scaffold?

Audit Criteria

- ☐ In case metal planks are used as gangway for bamboo scaffold, in order to prevent the hazard of electrical shock, install equipotential bonding if the metal plank fails to present an electrical conductivity resistance of 45000 ohms.

Part 14.3.4 Hand Tools

Question 14.3.4.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for hand tools been identified?

Audit Criteria

- ☐ Hand tools refer to tools operated manually without electricity or other power source.
- ☐ Construction Sites (Safety) Regulations
- ☐ Working Safely with Hand Tools, Labour Department

Question 14.3.4.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of hand tools?

Audit Criteria

- ☐ Accidents with hand tools always arise from human failure – not knowing the right tool for the job, ignorance of safety precautions, or failure to maintain tools and to keep them properly.

Question 14.3.4.3 **Weighting: 3**

Is there an arrangement to select, use and maintenance hand tools and a record maintained?

Audit Criteria

- ☐ There are many different types of hand tool for different kinds of work, such as shovels, axes, crowbars, chisels, screwdrivers, hammers and wrenches. Proper selection, use and maintenance should be ensured.
- ☐ Use only tools of good-quality steel – tools made of inferior steel chip and may even shatter when struck, tool heads mushroom, tool jaws open out and cutting tools lose their edge.
- ☐ Handles should have a smooth finish, should be easy to grasp and should have no sharp edges or corners.
- ☐ Tools should be firmly fixed and should be regularly checked for splits and cracks.
- ☐ Tools should be kept free of grease and dirt, and moving and adjustable parts should be well oiled.
- ☐ Damaged tools should be repaired or replaced.
- ☐ The filling of daily pre-use checklists of hand tools is not compulsory. Report by exception via any appropriate means is sufficient.

Question 14.3.4.4 **Weighting: 6**

Are hand tools properly stored in safe working conditions?

Audit Criteria

- ☐ Hand tools should be properly stored in boxes, racks, holders or pocket belts and should not be left so that they can fall, roll or be tripped over; cutting edges should be sheathed.
- ☐ Carry tools in tool holders and not in the pockets of worker clothing.

Question 14.3.4.5 **Weighting: 6**

Are the used hand tools fit the tasks?

Audit Criteria

- ☐ A good quality hand tool should be designed to fit the hand and the task.
- ☐ For work on or near electrical apparatus only properly insulated tools should be used.
- ☐ Use spark resistant tools where highly flammable vapours may be present.
- ☐ Select the correct weight, size and tool for the job. Avoid static load at the shoulder or arm due to the continuous holding of a tool at a raised position or the gripping of a heavy tool.
- ☐ Use the correct size spanner. Never use a hammer or extension handle on a spanner for

tightening up nuts.

- ☐ Hand tools should be equipped with suitable tool straps with appropriate international/national standards such as ANSI/ISEA 121-2018.
- ☐ Workers should use hand tools with hand straps and should put them in the waist gear or tool box or fix to personal protective gear when they are not in use.

Part 14.3.5 Woodworking Machines

Question 14.3.5.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for woodworking machines been identified?

Audit Criteria

- ☐ Woodworking machines include circular saw, band saws, grooving machines, planning machines, chain sawing machines, mortising machines, tenoning machines, vertical spindle moulding machines, multi-cutter moulding machines, trenching machines, boring machines, automatic and semi-automatic lathes.
- ☐ Factories And Industrial Undertakings (Woodworking Machinery) Regulations
- ☐ A Guide to the Factories and Industrial Undertakings (Woodworking Machinery) Regulations, Labour Department

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Question 14.3.5.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of the dangerous part of woodworking machines?

Audit Criteria

- ☐ Woodworking machine cutters can inflict very serious injuries and it is essential that their guarding is strictly observed.

Question 14.3.5.3 **Weighting: 6**

Are all cutters of woodworking machines effectively guarded?

Audit Criteria

- ☐ 'Cutter' includes saw blades, chain cutters, knives, boring tools, detachable cutters and solid cutters.
- ☐ Cutters must be guarded to the greatest practicable extent, in regard to the work being done.
- ☐ Guards must be of substantial construction, properly secured and adjusted, and constantly in position while cutters are in motion.
- ☐ No adjustment may be made to any guard while cutters are in motion, unless safe means (i.e. mechanical adjusters) are provided.
- ☐ Please note that portable, hand-held machines are covered in this question.
- ☐ Keep the circular saw cutters sharp at all times, and properly adjust the riving knife and top

guard.

- ☐ Use a push stick to prevent the hand from coming into contact with the cutter of a circular saw, planning machine or vertical spindle moulding machine.

Question 14.3.5.4 **Weighting: 6**

Have emergency switch or dead man switch been provided to all the woodworking machines?

Audit Criteria

- ☐ A woodworking machine shall be provided with an efficient stopping and starting appliance, and the control of this appliance shall be in such a position as to be readily and conveniently operated by the person operating the machine.
- ☐ Every woodworking machine is provided with a readily accessible emergency stop button.

Question 14.3.5.5 **Weighting: 6**

Are the produced wood chips and dust regularly removed and properly stored?

Audit Criteria

- ☐ Exhaust extraction equipment should be provided for circular saws and planners to convey chips and particles from cutters into a suitable receptacle.
- ☐ Remove sawdust regularly to minimize fire hazard.

Question 14.3.5.6 **Weighting: 6**

Are woodworking machines installed and operated in suitable location and suitable fire extinguishers provided in vicinity of work area?

Audit Criteria

- ☐ Sufficient clear and unobstructed space should be provided around machine to allow work without risk of injury.
- ☐ Floors should be level, in good condition, free of loose material and not slippery.
- ☐ Adequate natural or artificial lighting (No illumination will be considered adequate which provides less than 160 lux of light of working area) must be provided for the work being done on each machine. Where artificial light is provided it must be positioned, or shaded, to prevent glare affecting the operator.
- ☐ The location must be away from any source of ignition and smoking should be prohibited.
- ☐ Provide suitable fire extinguishers adjacent to the work location.

Question 14.3.5.7 **Weighting: 3**

Have all employees working with woodworking machinery been trained and instructed on the hazards, the operating procedures and the necessary precautions for safe use?

Audit Criteria

- ☐ No person should be employed on a woodworking machine, unless he has been trained and instructed in its operation.
- ☐ No person under 16 years of age shall be employed on any woodworking machine.
- ☐ Operator must be familiar with the type of machine and with manufacturer's operating instructions.

Question 14.3.5.8 **Weighting: 6**

Are all employees working with woodworking machines provided with appropriate personal protective equipment including hearing protectors and are they used properly?

Audit Criteria

- ☐ Auditor should comment on the personal protective equipment such as ear protectors, dust mask, etc. provided to workers involved in woodworking even when no operation was being carried out during the physical verification.
- ☐ If there is no issue record of personal protective equipment for woodworkers, the answer should be "No".
- ☐ The answer may be "N/A" if no activity was carried out during physical verification provided that the auditor had verified the provision of personal protective equipment to the workers.

Question 14.3.5.9 **Weighting: 6**

Have safety checklists been developed and used for monitoring the safe operation of woodworking machinery?

Audit Criteria

- ☐ Safety checklist should cover operative's items in order to monitor the safe operation of woodworking machinery.
- ☐ Pre-use safety checklist should be prepared and used.
- ☐ As an alternative to using a safety checklist, a logbook covering all woodworking machinery could be kept by the sub-contractor-in-charge to cover the items of operation. The logbook should contain a list of checking items and an updated list of woodworking machinery. Report by exception is acceptable.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection when such woodworking machinery is in use. However, a list of checking items should be prepared and be readily available during inspection.

Part 14.3.6 Abrasive Wheels

Question 14.3.6.1 **Weighting: 3**

Have all the requirements in all regulation, codes of practices and safety information in the use of abrasive wheels been identified?

Audit Criteria

- ☐ Factories And Industrial Undertakings (Abrasive Wheels) Regulations
- ☐ Safety in the Use of Abrasive Wheels, Labour Department

Question 14.3.6.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of the abrasive wheels?

Audit Criteria

- ☐ The risk of breakage is inherent in every abrasive wheel. If the number of breakages is to be kept low, the initial care exercised in the design, manufacturing and testing by abrasive wheel and machine makers must be coupled with the adoption of safety measures by the users.
- ☐ Eye injuries.
- ☐ Noise hazard.
- ☐ Angle grinder should not be used on wood cutting works.

Question 14.3.6.3 **Weighting: 3**

Have all users of abrasive wheels been trained and instructed on the hazards and precautions on safe use?

Audit Criteria

- ☐ Training through the specific safety training, tool-box talks etc.

Question 14.3.6.4 **Weighting: 3**

Have all abrasive wheels mounters been trained in accordance with the requirements of the Factories and Industrial Undertakings (Abrasive Wheels) Regulations, and have they been assessed as competent and been given written authority to carry out their duty?

Audit Criteria

- ☐ An abrasive wheel shall not be mounted except by a person who has been appointed in writing for that purpose by the proprietor of an industrial undertaking and is competent to carry out the task by reason of training and practical experience.

Question 14.3.6.5 **Weighting: 6**

Are all grinding/cutting machines and abrasive wheels selected for their suitability and are they marked with their maximum permissible speed?

Audit Criteria

- ☐ The maximum speed of the spindle should be marked on every grinding/cutting machine so that it is easy to compare the speed marked on the wheel with the speed of the machine spindle. Where the spindle can be operated at more than one specific speed, each speed must be shown, and if the speed is infinitely variable within a specified range, the notice must show the maximum and minimum speeds.
- ☐ The maximum permissible speed in revolutions per minute (rpm) and metres per second (m/s) specified by manufacturers should be marked on every abrasive wheel larger than 55 mm in diameter, or on the blotter or identification label which is sometimes attached to it. Since it is not practicable to mark smaller wheels, the maximum permissible speed in rpm of wheels 55 mm in diameter or less should be stated in a notice posted in a position where it can easily be read.
- ☐ Angle grinder should not be used on woodworking works.

Question 14.3.6.6 **Weighting: 6**

Are all angle grinders equipped with auxiliary handles and are they used properly?

Audit Criteria

- ☐ Angle grinder used must be provided with an auxiliary handle.
- ☐ Angle grinder without auxiliary handle shall not be used for any types of work.

Question 14.3.6.7 **Weighting: 6**

Are all angle grinders equipped with enhanced safety features including double-action switch, electric brake and kick back detection device?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
  1. Angle grinders used shall have the following safety features:
     - Double-action switch to prevent accidental start-up and stop the grinder when released;
     - Electric brake to stop the abrasive, grinding or cut-off wheel in three seconds or less;
     - Kick back detection to shut down the grinder automatically when rotation of wheel is suddenly forced to stop.

Question 14.3.6.8 **Weighting: 6**

Are all abrasive wheels adequately guarded?

Audit Criteria

- ☐ A guard has two main functions: firstly to contain the wheel parts in the event of a burst; and secondly to prevent, as far as possible, the operator from coming into contact with the wheel. A guard also has the secondary functions of protecting the wheels against inadvertent damage and preventing an oversize wheel from being fitted.
- ☐ The aim of a guard is to enclose the wheel to the greatest possible extent, and to keep the opening as small as possible, consistent with the nature of the work. To compensate for the increased exposure caused by wheel wear, either an adjustable visor is provided or the guard is constructed so that it can be adjusted manually as the wheel wears down.
- ☐ Guards for portable machines should be so designed that in the event of a wheel bursting or breaking, the guard remains attached to the machine.

Question 14.3.6.9 **Weighting: 6**

Has the statutory warning notice in respect of use of abrasive wheel been posted?

Audit Criteria

- ☐ Statutory warning notice shall be posted.

Question 14.3.6.10 **Weighting: 6**

Are all abrasive wheels properly examined, handling and stored?

Audit Criteria

- ☐ Wheels should be carefully unpacked, cleaned with a brush and examined for possible damage in transit. In unpacking, the careless use of a tool may cause damage to the wheel. The soundness of wheels can be further checked by tapping them with a light, non-metallic implement. This is known as the 'ring' test. Wheels must be dry and free from sawdust for the ring test otherwise the sound will be deadened. It should also be noted that organic bonded wheels do not emit the same clear metallic ring as inorganic bonded wheels. Heavy wheels should be supported on a clean hard floor for the ring test while light wheels should be suspended from their hole on a finger or small pin. If the wheel sounds dead, for example due to cracking, it should not be used.
- ☐ Handle wheels carefully to prevent dropping or bumping. Do not roll abrasive wheels. Where this is unavoidable because of the large size of the wheel, a soft, resilient floor surface is essential. Use trucks or suitable conveyors which will provide proper support for transporting wheels which cannot be carried by hand.
- ☐ Suitable racks, bins or compartmented drawers should be provided to accommodate the various types of wheels used.

Question 14.3.6.11 **Weighting: 6**

Are all abrasive wheel users provided with appropriate personal protective equipment and are they used properly?

Audit Criteria

- ☐ Auditor should comment on the personal protective equipment provided to the users even when no operation was being carried out during the physical verification.
- ☐ If there is no issue record of personal protective equipment for all users, the answer should be "No".
- ☐ The answer may be "N/A" if no activity was carried out during physical verification provided that the auditor had verified the provision of personal protective equipment to the users.

Question 14.3.6.12 **Weighting: 6**

Have safety checklists been developed and used for monitoring the safe operation of abrasive wheels?

Audit Criteria

- ☐ Safety checklist should cover the operative's items in order to monitor the safe operation of grinding/cutting machines.
- ☐ Pre-use safety checklist should be prepared and used. Pre-use safety checklist should cover the major safety item which include but not limited to protective guard, disc, handle, etc.
- ☐ As an alternative to using a safety checklist, a logbook covering all abrasive wheels and discs could be kept by the sub-contractor-in-charge to cover the items of operation. The logbook should contain a list of checking items and an updated list of equipment and tools. Report by exception is acceptable.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection when such abrasive wheels and discs are in use. However, a list of checking items should be prepared and be readily available during inspection.

Part 14.3.7 **Hand-held Power Tools**

Question 14.3.7.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for hand-held power tools been identified?

Audit Criteria

- ☐ Construction Sites (Safety) Regulations
- ☐ Factories And Industrial Undertakings (Abrasive Wheels) Regulations
- ☐ Factories And Industrial Undertakings (Cartridge-Operated Fixing Tools) Regulations
- ☐ Adequate information relating to the safe and proper use of powered portable tools must be provided.
- ☐ Hand-held power tools refer to all power tools whether powered electrically, by internal combustion engines, hydraulically or by compressed air. All portable electric tools such as portable circular saw are covered in this section.
- ☐ This section should not be "N/A" if a portable electric tools is spotted during physical verification.

Question 14.3.7.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of the hand-held power tools?

Audit Criteria

- ☐ Eye injuries, noise and vibration, and dust.
- ☐ Contact of revolving parts of the tools.
- ☐ Use in atmosphere containing flammable vapours, flammable gases or explosive dust.
- ☐ Metal cutting and curve cutting with ordinary portable circular saw is prohibited. If portable circular saw would be used at site, such consideration should be addressed in the risk assessment.
- ☐ Control measures in prevention in hand-held power tools falling from height should be identified in risk assessment report and implemented on site.

Question 14.3.7.3 **Weighting: 6**

Are there appropriate steps taken for the regular inspection and maintain a maintenance system for hand-held power tools and is a record maintained?

Audit Criteria

- ☐ Spot checks or tests before work start.
- ☐ There is a procedure for the inspecting and repair/replacement of hand-held power tools to ensure the compliance with regulations and standards.
- ☐ The inspection record should cover the major safety items such as chuck, hammer/drill bit etc. Otherwise, the answer should be 'No'.

Question 14.3.7.4 **Weighting: 3**

Have all operators been instructed and trained in the proper care and use of hand-held power tools?

Audit Criteria

- ☐ All operatives know the safety regulations bearing on their activities, and their own responsibilities.
- ☐ Safety instructions including in-house safety rules should be provided to all operators.
- ☐ Hand-held power tools should be equipped with appropriate auxiliary handle in accordance with the manufacturers' instruction.
- ☐ If hand-held power tool is not properly used in accordance with the manufacturers' instruction, the answer should be "No".

Question 14.3.7.5 **Weighting: 3**

Have all operators who use specific hand-held power tools such as cartridge-operated fixing tools and chainsaw been trained/certified as appropriate?

Audit Criteria

- ☐ All operators of these specific hand-held power tools are trained and hold the appropriate certificates as required by law or have completed special trainings by tools suppliers etc. and are aware of hazards (identified in risk assessment) associated with their operation.

Question 14.3.7.6 **Weighting: 6**

Have safety checklists been developed and used for monitoring the safe operation of hand-held power tools?

Audit Criteria

- ☐ Specific tools are issued to and used by authorized persons only.
- ☐ Safety checklist should cover the operative's items in order to monitor the safe operation of hand-held power tools.
- ☐ Pre-use safety checklist should cover the major safety items such as chuck, hammer/drill bit etc. Otherwise, the answer should be 'No'.
- ☐ As an alternative to using a safety checklist, a logbook covering all hand-held power tools should be kept by the sub-contractor-in-charge to cover the items of operation. The logbook should contain a list of checking items and an updated list of tools. Report by exception is acceptable.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection when hand-held power tools are in use. However, a list of checking items should be prepared and be readily available during inspection.

Question 14.3.7.7 **Weighting: 6**

Are all operators of hand-held power tools provided with appropriate personal protective clothing/equipment and are they used properly?

Audit Criteria

- ☐ Auditor should comment on the personal protective equipment provided to operators even when no operation was being carried out during the physical verification.
- ☐ If there is no issue record of personal protective equipment for the operators, the answer should be "No".
- ☐ The answer may be "N/A" if no activity was carried out during physical verification provided

that the auditor had verified the provision of personal protective equipment to the operators.

Sub-section 14.4 Management of Plant and Equipment for lifting of material and persons
Part 14.4.1 Tower Crane

Question 14.4.1.1 **Weighting: 6**

Have all the requirements in regulations, codes of practice and safety information for tower crane been identified?

Audit Criteria

- ☐ Factories And Industrial Undertakings (Lifting Appliances And Lifting Gear) Regulations.
- ☐ Code of Practice for Safe Use of Tower Cranes, Labour Department.
- ☐ Guidelines on Safety of Tower Cranes, Construction Industry Council (CIC).
- ☐ site specific work instructions, including operational plan, site plans, specifications, quality requirements and operational details are obtained and confirmed.
- ☐ Tower crane is provided with the correct operator's manual as well as load charts, safety decals, maintenance, inspection, and instructional decals, crane signal charts, and other safety information provided by the manufacturer.
- ☐ The Code of Practice on Wind Effects in Hong Kong 2004, prepared under the direction of the Ad hoc Committee on Review of the Code of Practice on Wind Effects or its latest edition.

Question 14.4.1.2 **Weighting:6**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of the tower crane?

Audit Criteria

- ☐ Risk assessment in due time before the commencement of any operation on tower cranes to identify the hazards inherent in the operation and the hazards which could result from adjacent activities. The assessment should be conducted by a safety professional (e.g. a Registered Safety Officer), and Registered Professional Engineers with suitable qualification and experience in appropriate disciplines should be consulted on issues related to structural and mechanical stability.
- ☐ The risk assessment should inform on the planning process for each climbing job at a site. The assessment, taken together with the climbing instructions provided by the manufacturer or supplier, should then be used to develop a detailed statement of work procedures (method statement) for the safe transportation, assembly, erection, use and dismantling of the climbing frame at that site.
- ☐ Assessment should take into account the local conditions. Issues to be considered could include:
  - access routes for vehicles and people including highways, railways, rivers and air paths;
  - ground bearing capacity;
  - free unloading & storage areas (e.g. for the climbing frame and new mast sections);
  - segregation of the work area from other construction activities and public spaces;
  - proximity hazards such as adjacent cranes, overhead electric lines, underground services, nearby structures and stacked materials;

- local arrangements for obtaining detailed weather forecasts for the site;
- the maximum wind speed to be permitted and likely variations in wind speed and direction in that location;
- the specification of ties to the structure and likely effect on verticality and unrestrained mast height;
- arrangements for communication.

☐ Change of physical conditions on the site or adjacent area, which require the risk assessment to be reviewed.

☐ Chinese version of the risk assessment report should be made available on site for reference by Specialist Contractors engaged in tower crane operations.

Question 14.4.1.3 **Weighting:6**

Where work involves tower crane operation, has a method statement been developed based on accurate process information?

Audit Criteria

☐ The method statement will explain in detail the safe system of work for the operation and should as a minimum cover the following topics

- details of the construction site and construction works including a site layout plan;
- general safety measures for the works including erection, telescoping, climbing, dismantling of tower crane;
- pre-construction plan;
- operating procedures with key points illustrated by diagrammatic illustrations;
- personal protective equipment; and
- safety measures for the operation and procedures to be followed in case of emergency situations.

Question 14.4.1.4 **Weighting: 6**

Has pre-delivery checking by a Competent Mechanical Engineer been conducted before the tower crane was delivered onto the site?

Audit Criteria

☐ "Competent Mechanical Engineer" (CME) means a Registered Professional Engineer registered under the Engineers Registration Ordinance (Cap 409) in the Mechanical Engineering or Naval Architecture & Marine discipline.

☐ CME should issue the following documents for checking:

- Report on Pre-delivery Verification of Components; and
- Report on Pre-delivery Checking

☐ The Report on Pre-delivery Checking of Tower Crane is valid for 12 months.

☐ The anchorage of the tower crane should also be certified by a CME before the tower crane may be erected.

☐ If a derrick crane is used, ensure that the pre-delivery checking of critical parts of the derrick crane has been carried out in accordance with the procedures provided in the latest edition of the CoP for Safe Use of Tower Cranes issued by LD and the Guidelines on Safety of Tower Cranes issued by CIC.

Question 14.4.1.5 **Weighting: 6**

Has a Safety Supervision Personnel been appointed to certify the adequacy of the design of the temporary works for supporting and anchoring the crane?

Audit Criteria

- ☐ "Safety Supervision Personnel" means the "Technically Competent Person of Grade T5" (TCP T5) who possesses the academic or professional qualifications and experience of building works or street works that satisfy the requirements set out in the Code of Practice for Site Supervision issued by the Buildings Department for a particular type of site supervision or management tasks; or the person responsible for engineering safety supervision as specified in the works project(s) of the government departments of the Hong Kong Special Administrative Region, as the case may be.
- ☐ Appoint a Safety Supervision Personnel to certify the plans, design information and/or method statement of the works which are to be submitted to the Project Engineer. The person so appointed will also certify the completion of works.

Question 14.4.1.6 **Weighting: 6**

Has a supervising engineer been appointed in writing to supervise the on-site operations (erection, telescoping and climbing, dismantling) of tower cranes, along with engaged specialist contractors for the operations?

Audit Criteria

- ☐ A supervising engineer must directly supervise the on-site operations (erection, telescoping and climbing, dismantling) of tower cranes except in the period where there is no such operation.
- ☐ The appointment letter of supervising engineer should mention the model of tower crane at the site and its identification and site location.
- ☐ The appointment letter is valid on site basis. Details of appointment of the supervising engineer with his/her name and contact phone number should be clearly posted up a prominent location near the tower crane.
- ☐ Engaged Specialist Contractors registered on the specialty of "Erection, dismantling and climbing" (Code 4.1.1) of the Tower Crane trade of the Voluntary Subcontractor Registration Scheme (the VSRS) administered by CIC to execute tower crane operations. Specialist Contractors should possess relevant experience and sufficient technical capability and directly employ at least one (1) Competent Person and three (3) Senior Workmen with appropriate skills and experience.

Question 14.4.1.7 **Weighting: 6**

Has a thorough examination and load test been conducted to verify if the tower crane is fit to use after completion of each operation in pre-use verification?

Audit Criteria

- ☐ A CME to conduct a thorough examination and a load test to verify that the tower crane is fit for use.
- ☐ The anchorage of the tower crane should also be certified by a CME before the tower crane

may be used.

Question 14.4.1.8 **Weighting: 6**

Is there a lifting plan in place, which covers all factors affecting tower crane stability in the site?

Audit Criteria

- ☐ The lifting plan required in this question has special emphasis on stability and loading.
- ☐ Critical lifting plan should be in writing. A thorough understanding of the relationship between the crane design and the dynamic effects of traveling and moving with hoisted loads is crucial to the development of these plans.
- ☐ Procedures to be followed in case of emergency situations.

Question 14.4.1.9 **Weighting: 6**

Have standards for safe operation of tower crane been established?

Audit Criteria

- ☐ Standards required include:
  - Lifting plans;
  - Slinging techniques;
  - Hand signals;
  - Radio communication;
  - Lift supervision;
  - Wind speed policy;
  - Anti-collision and zoning arrangements;
  - Audio-visual warning devices shall be installed at lifting locations on ground for clear indication of any by-pass effected and other effective communication systems must be in place;
  - CCTV camera at each designated lifting zone and associated equipment in the tower crane cabin ;
  - CCTV camera (wireless type) fixed onto tower crane saddle or fixed onto the end of the tower jib / boom when there is no saddle and associated equipment in the tower crane cabin;
  - CCTV camera at each tower crane cabin and associated equipment in Contractor's Site office;;
  - Video recording system and associated equipment
  - Provide interlock devices or other measures to secure the safety latches of crane hooks. The safety latches shall only be released manually, so as to prevent slipping of lifting gear out of the hooks.
- ☐ Comply with the following measures in lifting operations:
  - Ensure all workers to leave the danger zone of lifting operation before the load being lifted is started to be lifted above 300-500mm off the level where it is originally placed, but the crane operator is an exception if it is not feasible to have remote control of mobile crane by the crane operator;
  - Conduct a trial of the lifting operation of large panel formwork, large metal components and precast concrete components (including volumetric precast concrete elements, precast concrete slabs, facades, staircases), as recommended by risk

assessment, when the load is lifted not more than 300-500mm off the level where it is originally placed and ensure the load is securely rigged before the load is further lifted;
- The lifting supervisor shall monitor and supervise lifting process involving tower cranes.

☐ Apply permit-to-work system to all special lifting operations including:
- Lifting in overlapping area where the anti-collision system of tower crane is by-passed;
- Lifting in restricted area in which lifting operations are not normally allowed unless in exceptional circumstances;
- Use of multiple lifting appliances.

☐ Where a special lifting operation is involved, Site Agent shall ensure a block foreman is appointed as the lifting coordinator in addition to the signaller, slinger and tower crane operator for the operation.

☐ Provide a direct power supply from the mains to each tower crane if possible. If not, provide a power supply from a generator for each tower crane and do not share the power with other plant.

☐ Provide secondary brake to handle situations not covered by the primary brake and offer protection when the primary brake fails. The secondary brake shall be located over the hoisting drum so as to brake the shaft, lifting gear and motor effectively. The secondary brake shall be provided with an independent signal system, and it is capable of overriding the primary brake and the motor for braking and cutting the driving system. The braking mechanism shall be as follows
- In case of power shutdown / no power supply, the brake shall be automatically activated to hold the hoisted load to prevent it from falling from height.
- The driving system shall be cut off, the power supply turned off, the primary brake and secondary brake activated if any of the following situations occurs during the operation of the tower crane:
- The hoisting drum continues to rotate (regardless of the direction of motion of the hoisting drum) when the crane operator does not touch the control lever and the control lever is in the neutral position or when the crane operator returns the control lever to the neutral position and the primary brake is activated;
- When the crane operator is lowering or raising the lifting hook, the rotation of the hoisting drum exceeds the allowable speed limit by 10% or changes in direction of motion;
- When the speed of the motor and the hoisting drum do not synchronize and either of them exceeds the allowable speed limit

☐ Persons engaged in crane lifting operations including Slinger, Signallers, Crane Supervisors, Crane Coordinators , Operators, Appointed Persons and relevant managers should attend a specific site crane induction.

☐ Reflective vest (for operatives and site supervisory staff involved in lifting operation except the tower crane operator) shall conform to the contract specification. The reflective vest should possess high visibility with features as specified in current BS EN ISO 20471.

Question 14.4.1.10 **Weighting: 9**

Have developed standards for safe operation of tower crane been communicated to all persons engaged in crane lifting operations and strictly implemented?

Audit Criteria

- ☐ Auditor should verify if the arrangement for ensuring the developed standards are implemented on site as well as verification with site personnel to ensure that they understand the safe working procedures.
- ☐ All operatives should know the developed standards of safe operation and their own responsibilities.

Question 14.4.1.11 **Weighting: 9**

Has a system of work been established to prevent collision of tower cranes on site?

Audit Criteria

- ☐ Risk assessment should be carried out to identify hazards of collisions, along with suitable safety precautionary measures and safe method statements implemented and strictly followed.
- ☐ If overlapping zone cannot be avoided, a safe system of work comprising precautionary measures and safe method statements should be developed to prevent tower cranes from colliding, including coordination among parties on arrangement of work area and work schedule, installation of anti-collision system etc.
- ☐ Extra attention to the following is required in regard to using an anti-collision system:

  - For overlapping zone straddling more than one construction site, contractors involved should communicate with one another before commencing works. Proper safe system of work on the use of tower cranes should be developed. Ensure that the anti-collision system installed enables the workers to communicate with each other (e.g. from the same supplier);
  - Manufacturer's instructions and manual including proper installation, calibration, testing, inspection, maintenance and use of the anti-collision system must be followed;
  - Continuous audible and visual signal should be provided at the tower crane operator's cabin to remind the operator to slow down crane movement when approaching a zone with possible risks of collision;
  - Setting of anti-collision system should be carried out by a competent person (e.g. technician from the supplier / trained personnel on site) after alteration of tower cranes;
  - Physical performance of tower cranes should be considered during setting, e.g. braking time and distance, to ensure that the tower cranes can be stopped without collision after receiving signals from the anti-collision system. Appropriate safe distance should be calculated and maintained;
  - Detailed work planning should be developed to reduce the frequency of entering the overlapping zones, where possible e.g. by arranging alternative locations of lifting operations using the tower cranes;
  - An effective communicating system solely for these tower cranes should be provided for the lifting operations;
  - Ensure that the anti-collision system is in use at all times. If by-pass function is to be activated for special operations, e.g. crane testing, special operations in protected zone, a permit-to-work system should be developed for such operation, which must

be closely supervised and monitored. The by-pass key should not be directly controlled by the tower crane operator and should be kept by a responsible person on site;

- Ensure that the anti-collision system is in good working condition at all times. Regular checking of anti-collision system by a competent person e.g. trained mechanic should be arranged and the record should be kept for monitoring.

Question 14.4.1.12 **Weighting: 6**

Are all operators, signallers, riggers, lifting supervisor(s) and responsible persons engaged on tower crane lifting operations trained for the work and competent to carry out their tasks?

Audit Criteria

☐ Competent Examiner:

i. The Competent Examiner shall be a registered professional engineer registered under the Engineers Registration Ordinance within the discipline of Mechanical Engineering and Marine & Naval Architecture or a relevant discipline specified by the Commissioner for Labour;

ii. The Competent Examiner shall be competent to carry out testing and examination of tower crane as required by the Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations.

☐ Tower Crane Operator:

i. The tower crane operator(s) shall hold qualifications and possess relevant experience as specified in the Code of Practice for Safe Use of Tower Cranes issued by Labour Department;

ii. The tower crane operator(s) shall be competent to operate the tower cranes in accordance with Code of Practice for Safe Use of Tower Cranes issued by Labour Department;

iii. Proper training of crane operators in the mandatory use of load charts is important for safe hoisting operations. Crane operators need to know and understand how to use load charts provided by the crane manufacturer. Automatic Safe Load Indicator (ASLI) device is an important safety feature on modern crane.

☐ Slinger (Construction Materials Rigger):

i. The slinger(s) shall possess relevant experience as specified in the Code of Practice for Safe Use of Tower Cranes issued by Labour Department;

ii. The slinger(s) shall be competent to attach and detach the load to and from the tower crane, and to use the lifting gear correctly in accordance with the planning of the operation;

iii. The slingers should work in pair inside the lifting zone.

☐ Signaller:

i. The signaller(s) shall possess relevant experience as specified in the Code of Practice for Safe Use of Tower Cranes issued by Labour Department;

ii. The signaller(s) shall be competent to carry out duties in accordance with the Code of Practice for Safe Use of Tower Cranes issued by Labour Department;

iii. The signaller role can be taken up by a slinger who possesses relevant experience in

carrying out the duties.

iv. The signaller shall also have completed A12 Silver Card and Signalman for Hoisting Operations at Construction Sites Course or A12S Safety Training Course for Construction Workers of Specified Trade - Rigger and Signaller provided by the CIC. Acceptance of training provided by other organisations is subject to verification by the CM's Representative that the training is based on course contents of equivalent or higher standards and the appointed signaller has attained the associated qualification.

☐ Lifting Supervisor for Tower Cranes:

i. The lifting supervisor shall monitor and supervise lifting process involving tower cranes;

ii. The lifting supervisor shall possess Certificate for Lifting Safety Supervisors provided by CIC;

iii. The lifting supervisor shall have a minimum of four-year experience in lifting operation.

☐ Implement a mentoring programme for tower crane operators under which a junior tower crane operator with less than 1 year post-qualification experience (mentee) is allowed to sit behind an experienced tower crane operator (mentor) inside the cabin to learn the technique unless the Contractor can demonstrate that there is no mentee willing to join the mentoring programme. Allow at least 1 mentee for each tower crane in the contract period. Minimum duration of the programme for each mentee shall be 2 months.

Question 14.4.1.13 **Weighting: 9**

Has an inspection and maintenance system for tower crane been established and is it used?

Audit Criteria

☐ Updated inspection records and examination records should be submitted as documentary evidence.

☐ Weekly inspection shall be carried out by a competent person whilst test and examination shall be carried out by a competent examiner in accordance with Code of Practice for Safe Use of Tower Crane.

☐ The crane should not be used unless it has been thoroughly examined by a competent examiner at least once in the preceding 12 months & during the preceding 4 years it has been tested and thoroughly examined by a competent examiner.

☐ A CME to conduct a thorough examination and a load test to verify that the tower crane is fit for use.

☐ The anchorage of the tower crane should also be certified by a CME before the tower crane may be used.

☐ Inspection and maintenance technician(s) holding "the Training Certificate of Routine Inspection and Maintenance of Tower Cranes" should perform inspection and maintenance for the tower crane(s) erected on construction site at least once a month.

☐ Permit-to-work for maintenance for safe maintenance or repair work and notification of all affected persons that the crane is out of service.

☐ Provision of a log-book for competent examiner/competent person to enter the details of testing, examination, inspection, maintenance/repair works.

☐ Allow a minimum continuous duration of 2 hours weekly during daytime for inspection and maintenance of the tower crane which shall be stopped for other operation. Maintain and indicate in the master construction programme the time for erection, telescoping, climbing,

maintenance and dismantling of tower crane.

Question 14.4.1.14 **Weighting: 9**

Have safety checklists been developed and used for monitoring the safe operation of tower crane?

Audit Criteria

- ☐ Safety checklist should cover checking items in order to monitor the safe operation of tower crane.
- ☐ As an alternative to using a safety checklist, a logbook could be kept for each tower crane to cover the items of operation. The logbook should contain a list of checking items.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection when tower crane is in operation. However, a list of checking items should be prepared and be readily available during inspection.

Question 14.4.1.15 **Weighting: 6**

Is the Smart Site Safety System (SSSS) component provided for alerting against unsafe acts or conditions in tower crane lifting zone?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
- ☐ Implement an automated warning system on tower cranes to alert tower crane operator and any personnel encroaching upon the tower crane loading / unloading danger zone to the risk of being hit by the moving load under the crane hook. The automated warning system shall include an adequate number of sensors installed on or around the tower crane to ensure full coverage of all loading / unloading areas danger zone at all floor levels involved. The loading / unloading danger zones of the tower crane operation shall be determined by the Safety Officer according to risk assessment but in no case shall the extent of the danger zone be less than 7m radius from the crane hook. The minimum clearance between the load being lifted and the loading / unloading area activating the automatic warning system shall be determined by the Safety Officer according to risk assessment but in no case be less than 3m from the crane hook;
- ☐ When clearance between the load and the loading / unloading area is less than the minimum clearance for system activation and any one of the sensors detect person encroaching upon the danger zone, a warning light signal shall flash on the plant operating dashboard and an automated warning message shall be delivered via speaker or headphone to the tower crane operator to stop all crane motion. At the same time, siren speaker attached to the crane hook shall automatically turn on with flashing red light and continuous alarm at a minimum of 100 dB to warn away any encroachment of the danger zone. All warning signal shall be automatically turned off when the encroaching person has left the danger zone, the plant operator stopped the plant operation and the workers or Site Personnel concerned addressed the warning signals / alerts. An alert message shall be generated to the Site Agent, General Foreman, Safety Officer, Safety Supervisor and lifting

supervisor by means of SMS or in-app pop-up notification and be recorded at the CMP for follow up actions. The alert message shall include the date and time of the encroachment upon the lifting danger zone and the video clip capturing 15 seconds before the encroachment of loading / unloading danger zone until 10 seconds after the encroaching person has left the loading / unloading danger zone.

- ☐ Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.

Part 14.4.2 Mobile Crane

Question 14.4.2.1 **Weighting: 6**

Have all the requirements in regulations, codes of practice and safety information for mobile crane been identified?

Audit Criteria

- ☐ Code of Practice for Safe Use of Mobile Cranes, Labour Department.
- ☐ Factories And Industrial Undertakings (Lifting Appliances And Lifting Gear) Regulations.
- ☐ Mobile crane is provided with the correct operator's manual as well as load charts, safety decals, maintenance, inspection, and instructional decals, crane signal charts, and other safety information provided by the manufacturer.
- ☐ The Code of Practice on Wind Effects in Hong Kong 2004, Buildings Department

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Question 14.4.2.2 **Weighting: 6**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of the mobile crane?

Audit Criteria

- ☐ Injuries and deaths of workers exposed to mobile crane tip-over, boom collapse, and un-controlled hoisted loads.
- ☐ Critical lifts include the following situations:
  - The weight of the hoisted load approaches the crane's maximum capacity (70% to 90%).
  - Two or more cranes simultaneously lift the same load.
  - Personnel are being hoisted.
  - Nonstandard or specially modified crane configurations are used.
  - Special hazards are associated with the lift, such as
    - the crane is located inside an industrial plant;
    - loads are lifted close to powerlines; and
    - high winds or other environmental conditions are present.
  - Working near trench
- ☐ Most mobile crane upsets (tip-overs) are attributed to operators exceeding the crane's operational capacity, and also are the result of swinging the boom or making a lift without the outriggers fully extended.

Question 14.4.2.3 **Weighting: 6**

Is there a lifting plan in place, which covers all factors affecting mobile crane stability in the site?

Audit Criteria

- ☐ The lifting plan required in this question has special emphasis on stability and loading.
- ☐ Critical lifting plan should be in writing. A thorough understanding of the relationship between the crane design and the dynamic effects of traveling and moving with hoisted loads is crucial to the development of these plans.
- ☐ To prevent crane tip-over, the critical lifting plan should be based on the operational limitations specified by the crane load chart, measured (as opposed to calculated) effect on the crane and hoisted load, and consideration of the effects of ground conditions and dynamic forces on the crane's stability.
- ☐ Procedures to be followed in case of emergency situations.

Question 14.4.2.4 **Weighting: 6**

Have standards for safe operation of mobile crane been established?

Audit Criteria

- ☐ Required standards include:
  - Lifting plan.
  - Cranes must be located on solid, stable ground capable of supporting the weight of the crane plus the suspended load.
  - The arrangements for fixing and anchoring the lifting appliance are adequate to ensure its safety.
  - Outriggers must be fully extended. Cribbing blocks placed under outrigger pads are firmly supported and of adequate size.
  - The actual hoisted load includes the weights of the lifted materials, hook block, slings, and other lifting accessories. However, additional loads may be imposed on the crane by factors present in the work environment.
  - Workers are not located within the swing radius or under a suspended load at any time.
  - Specifications for communication during the lift. All parties involved in the lift, including crane operator(s), riggers, signal persons, and supervisors must have a thorough understanding of how communication will take place.
  - Mobile crane safety features:
    - jib/boom angle indicator;
    - automatic safe load indicator (BS7262 or equivalent);
    - safe working load charts;
    - motion limit devices;
    - overload cut-out device;
    - spirit level for leveling the outriggers;
    - carpenter's level;
    - rear view mirrors of each at least 625 sq. cm at both sides;
    - a suitable fire extinguisher;
    - warning notices in English and Chinese on the sides and rear of the crane.
  - Safe distance of work while working near excavation or slope
  - Working near or beneath overhead power lines

- Crane for carrying persons
- Proper fencing off of all lifting zones (e.g. providing fencing or barricade) with suitable warning notices displayed.
- If it is not reasonably practicable to fence off the lifting zones due to space constraint, etc. the taking of effective measures such as appointment of sufficient watch-out personnel to ensure no unauthorized entry into the zones.
- Provide interlock devices or other measures to secure the safety latches of crane hooks (Not applicable for mobile cranes which are rented and are not expected to be used on site for more than six months). The safety latches shall only be released manually, so as to prevent slipping of lifting gears out of the hooks.
- The lifting supervisor shall monitor and supervise lifting process involving mobile cranes.
- Reflective vest (for operatives and site supervisory staff involved in lifting operation except the tower crane operator) shall conform to the contract specification. The reflective vest should possess high visibility with features as specified in current BS EN ISO 20471.
- Comply with the following measures in lifting operations:
    1. Conduct a trial of the lifting operation of large panel formwork, large metal components and precast concrete components (including volumetric precast concrete elements, precast concrete slabs, facades, staircases), as recommended by risk assessment, when the load is lifted not more than 300-500mm off the level where it is originally placed and ensure the load is securely rigged before the load is further lifted;
    2. Ensure all workers to leave the danger zone of lifting operation before the load being lifted is started to be lifted above 300-500mm off the level where it is originally placed, but the crane operator is an exception if it is not feasible to have remote control of mobile crane by the crane operator.

Question 14.4.2.5 **Weighting: 9**

Have developed standards for safe operation of mobile crane been communicated to all persons engaged in crane lifting operations and strictly implemented?

Audit Criteria

- ☐ Auditor should verify if the arrangement for ensuring the developed standards are implemented on site as well as verification with site personnel to ensure that they understand the safe working procedures.
- ☐ All operatives should know the developed standards of safe operation and their own responsibilities.

Question 14.4.2.6 **Weighting: 9**

Are there appropriate measures taken to ensure that mobile cranes are operated with proper setup?

Audit Criteria

- ☐ Mobile crane should only be operated on uniform, level and firm ground with sufficient load bearing capacity to withstand maximum in-service loadings of the crane.
- ☐ In order to avoid the collapse of the supporting surface and overturning of the crane, the

loading should be distributed over a sufficiently large area. Steel plates or adequate strength, suitable mats or suitable timber blocking should be used.

- ☐ Sitting the crane on solid ground and using suitable mat or timber blocking with area of at least 3 times of the outrigger's float for complete and secure support of the float.
- ☐ If outriggers are provided, the beams should be fully extended as far as practicable.
- ☐ Applicable for newly awarded or ongoing contracts issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.

  For use of mobile cranes with safe working load of 70 tonnes or more, contractor should conduct firm ground loading capacity testing using a firm ground tester. In assessing the applied bearing pressure, the crane suppliers must be consulted to obtain the load distribution diagram. An average value of bearing pressure cannot be assumed because the maximum pressure will exceed this average value. As lifting is a temporary operation, the absolute magnitude of settlement under the test load is not the prime concern. Measure the trend of settlement using a dial gauge. As long as the ground reaches a plateau in settlement and does not settle further at the test load, the ground is considered firm enough for the lifting operation. The firm ground tester is a designated truck equipped with a set of hydraulic jack and measurement devices (for load and settlement). The hydraulic jack is fixed with a float having a plan size of 316mm x 316mm, giving a contact area of about 0.1m^2. The testing mechanism is like that of plate loading tests. The kentledge is provided by the self-weight of the truck and the concrete blocks it carries. Once activated for testing, the load in the hydraulic jack can be read from the Force Indicator (unit in tonne). Obtain the specific ground bearing capacity using the conversion of 1 tonne shown in the Force Indicator to 100kPa.

Question 14.4.2.7 **Weighting: 9**

Has a detailed working procedure formulated for erection, dismantling and substantial repair of mobile crane and is it strictly followed?

Audit Criteria

- ☐ A step-by-step working procedure should be formulated for erection, dismantling and substantial repair of mobile crane such as rope replacement work.
- ☐ It is essential that crane manufacturer's instructions should be strictly adhered to.
- ☐ The erection or dismantling operation shall be supervised by a competent person who have been adequately trained and have experience of erecting/ dismantling the particular type of crane.
- ☐ For jib assembly, sections should be assembled in a correct manner and sequence as specified in the manufacturer's instructions and procedure, and that the bracing pattern continuity is maintained throughout the jib length.
- ☐ Lowering the crane boom to its horizontal position or completely to the ground for changing the wire rope as necessary.
- ☐ Prohibiting the replacement of wire rope by means of welding ends of the used and new wire ropes unless it is recommended by the manufacturer and the work is done by relevant specialists.
- ☐ If erection, dismantling and substantial repair of mobile crane are not anticipated, the answer could be "N/A".

Question 14.4.2.8 **Weighting: 6**

Are all operators, signallers, riggers, lifting supervisor(s) and responsible persons engaged on mobile crane lifting operations trained for the work and competent to carry out their tasks?

Audit Criteria

- ☐ Competent Examiner:
  - i. The Competent Examiner shall be a registered professional engineer registered under the Engineers Registration Ordinance within the discipline of Mechanical Engineering and Marine & Naval Architecture or a relevant discipline specified by the Commissioner for Labour;
  - ii. The Competent Examiner shall be competent to carry out testing and examination of mobile crane as required by the Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations and the BS7121.
- ☐ Mobile Crane Operator:
  - i. The mobile crane operator(s) shall hold qualifications and possess relevant experience as specified in the Code of Practice for Safe Use of mobile Cranes issued by Labour Department;
  - ii. The mobile crane operator(s) shall be competent to operate the mobile cranes in accordance with Code of Practice for Safe Use of Mobile Cranes issued by Labour Department;
  - iii. Proper training of crane operators in the mandatory use of load charts is important for safe hoisting operations. Crane operators need to know and understand how to use load charts provided by the crane manufacturer. Automatic Safe Load Indicator (ASLI) device is an important safety feature on modern crane.
- ☐ Slinger (Construction Materials Rigger):
  - i. The slinger(s) shall possess relevant experience as specified in the Code of Practice for Safe Use of Mobile Cranes issued by Labour Department;
  - ii. The slinger(s) shall be competent to attach and detach the load to and from the mobile crane, and to use the lifting gear correctly in accordance with the operation plan;
  - iii. The slingers should work in pair inside the lifting zone.
- ☐ Signaller:
  - i. The signaller(s) shall possess relevant experience as specified in the Code of Practice for Safe Use of Mobile Cranes issued by Labour Department;
  - ii. The signaller(s) shall be competent to carry out duties in accordance with the Code of Practice for Safe Use of Mobile Cranes issued by Labour Department;
  - iii. The signaller role can be taken up by a slinger who possesses relevant experience in carrying out the duties.
  - iv. The signaller shall also have completed A12 Silver Card and Signalman for Hoisting Operations at Construction Sites Course or A12S Safety Training Course for Construction Workers of Specified Trade - Rigger and Signaller provided by the CIC. Acceptance of training provided by other organisations is subject to verification by the CM's Representative that the training is based on course contents of equivalent or higher standards and the appointed signaller has attained the associated qualification.
- ☐ Lifting Supervisor for Mobile Cranes:

i. The lifting supervisor shall monitor and supervise lifting process involving mobile cranes;
ii. The lifting supervisor shall possess Certificate for Lifting Safety Supervisors provided by CIC;
iii. The lifting supervisor shall have a minimum of four-year experience in lifting operation.

- ☐ Erection or dismantling operation of mobile crane should be supervised by a competent person.

Question 14.4.2.9 **Weighting: 9**

Has a mobile crane inspection and maintenance system been established and is it used?

Audit Criteria

- ☐ Updated inspection records and examination records should be submitted as documentary evidence.
- ☐ Weekly inspection shall be carried out by a competent person whilst test and examination shall be carried out by a competent examiner in accordance with Code of Practice for Safe Use of Mobile Crane.
- ☐ The crane should not be used unless it has been thoroughly examined by a competent examiner at least once in the preceding 12 months & during the preceding 4 years it has been tested and thoroughly examined by a competent examiner.
- ☐ Permit-to-work for safe maintenance or repair work and notification to all affected persons that the crane is out of service.
- ☐ Provision of a log-book for competent examiner/competent person to enter the details of testing, examination, inspection, maintenance/repair works.

Question 14.4.2.10 **Weighting: 9**

Have safety checklists been developed and used for monitoring the safe operation of mobile crane?

Audit Criteria

- ☐ Pre-use checklist should cover major safety items which include but not limited to outriggers, jib, oil hoses, hook, safety latch, control lever, automatic safe load indicator, emergency stop button, cut-off device, etc.
- ☐ Safety checklist should cover checking items in order to monitor the safe operation of mobile crane.
- ☐ As an alternative to using a safety checklist, a logbook could be kept for each mobile crane to cover the items of operation. The logbook should contain a list of checking items.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection when mobile crane is in operation. However, a list of checking items should be prepared and be readily available during inspection.

Question 14.4.2.11 **Weighting: 6**

Is the Smart Site Safety System (SSSS) component provided for alerting against unsafe acts or conditions in mobile crane danger zone?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
- ☐ Implement an automated warning system on mobile cranes to alert the operator and any personnel who enters mobile crane danger zone to the risk of being hit by the plant moving components. The automated warning system shall include an adequate number of sensors installed on the mobile crane chassis and moving components to ensure full 360^0 coverage around the mobile crane danger zone. The danger zones of the mobile crane operation shall be determined by the Safety Officer according to risk assessment but in no case shall the extent of the danger zone be less than 2m from any part of the mobile crane;
- ☐ When any one of the sensors detect a person encroaching upon the mobile crane danger zone, a warning light signal shall flash on the plant operating dashboard and an automated warning message shall be delivered via speaker or headphone to the plant operator to stop all plant operation. At the same time, siren speaker attached to the top of the mobile crane shall automatically turn on with flashing red light and continuous alarm at a minimum of 100 dB to warn away any encroachment of the mobile plant danger zone. All warning signal shall be automatically turned off when the encroaching person has left the danger zone, the operator stopped the operation and the workers or Site Personnel concerned addressed the warning signals / alerts. An alert message shall be generated to the Site Agent, General Foreman, Safety Officer, Safety Supervisor and lifting supervisor by means of SMS or in-app pop-up notification and be recorded at the CMP for follow-up actions. The alert message shall include the date and time of the person encroached upon the danger zone of the mobile plant and the video clip capturing the person 15 seconds before the encroachment of the danger zone until 10 seconds after the encroaching person has left the plant danger zone.
- ☐ Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.

Part 14.4.3 Gondola (Suspended Working Platform)

Question 14.4.3.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for gondola been identified?

Audit Criteria

- ☐ Factories and Industrial Undertakings (Suspended Working Platforms) Regulation
- ☐ Code of Practice for Safe Use and Operation of Suspended Working Platforms, Labour Department
- ☐ Guidance Notes on the Inspection, Thorough Examination and Testing of Suspended Working Platforms, Labour Department
- ☐ Code of Practice on Wind Effects in Hong Kong 2004, Buildings Department
- ☐ Overview of Work-at-Height, Labour Department

Question 14.4.3.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of the gondola?

Audit Criteria

- ☐ Auditor should verify the quality and coverage of risk assessments for gondola operation. The following safety factors should be considered during preparation of risk assessment for gondola operation.
  - Gondola came off the haul/suspension rope;
  - Fell from gondola;
  - Strong wind;
  - Falling objects;
  - Safe means of egress and access;
  - Stability of roof rig;
  - Safety devices malfunctions;
  - Gondola overloading;
  - Gondola upward / downward tilting.
- ☐ Risk assessments for installation and dismantling of gondola should be submitted as supporting evidence.

Question 14.4.3.3 **Weighting: 6**

Have all gondolas been installed based on all factors affecting gondola stability in the site?

Audit Criteria

- ☐ Selection of a suitable gondola for the type of the job and the working environment.
- ☐ Method of installation and means of securing the stability of the suspended working platform.
- ☐ The details of anchorage and support of a gondola that may affect the structural integrity of the building should be submitted to the Housing Department or relevant authority for approval. The maximum total suspended load and the maximum rope tension of a permanent suspended working platform should be calculated and the details submitted to the architect or professional engineer in charge of the building or structure for approval.
- ☐ The gondola should be of sound construction and adequately supported. If the gondola installed the gondola does not comply with regulations or Code of Practice, the answer should be “No”.
- ☐ Contractor should install the gondola according to the approved drawing. Any deviation from the approved drawing should be considered as non-conformance for this question.
- ☐ When roof fixings of a temporary suspended working platform are relied upon as the sole means of achieving stability, they should be capable of providing a factor of safety of at least 3 against uplift. Where a roof is insufficiently strong to provide this factor of safety, counterweights should be added to provide an overall factor of safety against overturning of at least 3. The roof fixing should be approved by a professional engineer.
- ☐ Emergency stop device should be located at each operator control station and other places where emergency stop may be required.
- ☐ It is not recommended to bolt working platforms of two or more gondolas together to provide a longer working range except under the written permission and authorization of the manufacturer.

- ☐ Enclosure for electrical equipment which are exposed to open air should be protected from ingress of water or solid foreign objects by having an IP rating of not less than 54.
- ☐ The automatic safety device must be designed to cover the following situations:
  (a) the breaking of one of the suspension wire ropes; and
  (b) the mechanical failure of one of the winches or climbers, causing a slow or rapid slippage of the wire rope. The maximum incline of the working platform deck should be less than 25% (i.e. 1:4). (Both upward and downward movement)
- ☐ The suspension and safety rope should at all times be kept vertical during the raising, lowering or suspension of the working platform. (Code of Practice for Safe Use and Operation of Suspended Working Platforms, Section 5.6.5) To ensure no slacking of the ropes above the safety devices especially when the gondola begins to ascend from the ground, contractor should consider attaching some weights at the end of the safety ropes, subject to their RPE's assessment.
- ☐ When a wire rope is fixed to a jib or outrigger arm, the rope termination should be attached to the outrigger or jib with a shackle or other suitable means. Where a wire rope is attached to a working platform, the rope termination should be attached to a structural load bearing portion of the working platform with a shackle or other suitable means. U-bolt grips should not be used. (Section 5.7.7, Code of Practice for Safe Use and Operation of Suspended Working Platforms)

Question 14.4.3.4 **Weighting: 3**

Have standards required for safe operation of gondola been established?

Audit Criteria

- ☐ Every person working on the working platform receives suitable training and possesses a certificate of training.
- ☐ Provision of personal protective equipment and communication system between the person on the working platform and the person in charge of the operation.
- ☐ Termination of the use of the suspended working platform during unsafe condition.
- ☐ Emergency preparedness including the recovery procedure of the plant and the personnel staying on the working platform.
- ☐ The personnel on the working platform are wearing and using proper personal protective equipment, such as a safety harness and a helmet with chin strap.
- ☐ Properly take care of hand tool and equipment.
- ☐ Working platform is not so loaded with building materials that may affect worker's foothold and handhold, and endanger the stability of the working platform.
- ☐ All wire ropes shall be inspected prior to commencement of daily work.
- ☐ Every person carried on a suspended working platform should be provided with a suitable safety belt, an independent lifeline or suitable anchorage and fitting. Each safety belt, lifeline, anchorage and fitting should be of such a design, so constructed and properly maintained as to prevent serious injury in the event of a fall of any person using it (regulation 15 of the SWPR). Reference should be made to the Guidance Notes on Classification and Use of Safety Belts and their Anchorage Systems. (Code of Practice for Safe Use and Operation of Suspended Working Platforms, Section 6.3.1)
- ☐ All loose items of suspended working platform are securable to fixed structures so that during the typhoon conditions, the items will not be disintegrated or damaged.

- ☐ Every gondola should be marked clearly and legibly on its working platform :
  - the safe working load applicable to the suspended working platform;
  - the maximum number of persons that may be carried at any one time; and
  - an appropriate mark to distinguish it from other similar gondolas.
- ☐ Accumulation of debris / materials on working platform are strictly prohibited. Overloading may lead serious consequences including fall from height / falling objects. Auditors should pay attention during on-site assessment. Site management / operator interview should include the arrangements in prevention of SWP overload.
- ☐ The area underneath a suspended working platform must be fenced off to avoid risk of falling objects.
- ☐ Protection of climbers against the effect of weather, dust or material.
- ☐ Provide safety measure(s) to collect loose objects from the external wall and reduce the risk of falling objects during chipping, grinding or similar operations on the external wall. Example(s) for reference:
  - Movable Slanting aluminium Plate of Gondolas

Question 14.4.3.5 **Weighting: 6**

Have developed standards for safe operation of gondola been communicated to all persons engaged in gondola operations and strictly implemented?

Audit Criteria

- ☐ Auditor should verify if the arrangement for ensuring the developed standards are implemented on site as well as verification with site personnel to ensure that they understand the safe working procedures.
- ☐ All operatives should know the developed standards of safe operation and their own responsibilities.

Question 14.4.3.6 **Weighting: 6**

Are necessary precautionary measures taken to ensure gondola safety before and after adverse weather conditions?

Audit Criteria

- ☐ Suspended working platform should not be used under weather conditions likely to endanger its stability or cause danger to the persons carried thereon. Contractors shall suspend all outdoor work in exposed areas immediately and take shelter in a safe place if they are endangered by adverse weather or “extreme conditions”.
- ☐ When winds give rise to unsatisfactory working conditions, work should be stopped until the winds subside. Wind conditions which arise during the use of suspended working platforms can do damage to the buildings they serve and the ropes on which the working platforms are suspended. Suspended working platform should not be used where there is thunder and storm in the vicinity, during rainy periods or when a strong wind signal is hoisted.
- ☐ Contractors should lower and park the suspended working platforms on the ground or designated areas and keep all movable components at a safe condition during a typhoon or inclement weather.
- ☐ Contractors should establish and implement a comprehensive emergency procedure in

response to special weather tips and forecasts issued by the Hong Kong Observatory. Particular attention should be given to the site location, local topography and the presence of nearby buildings, as these factors can significantly alter wind speed, often resulting in exceptionally gusty conditions in outdoor workplaces.

- ☐ To ensure vigilance regarding weather conditions, provide workers with real-time weather information such as installation of anemometers on gondolas, enables workers to take immediate measures in accordance with the established emergency procedure.
- ☐ After exposure to weather conditions likely to have affected the stability of the suspended working platform, the suspended working platform should be load tested and thoroughly examined by a competent examiner as soon as practicable thereafter and before the suspended working platform is used again.

Question 14.4.3.7 **Weighting: 3**

Are the engaged personnel competent to examine, test and operate the gondola safely?

Audit Criteria

- ☐ Testing and thorough examination of the suspended working platform by a competent examiner.
- ☐ Weekly inspection of the suspended working platform by a competent person. A competent person for erection, repositioning and dismantling of the gondola should be appointed.
- ☐ Every person operating the suspended working platform or working thereon should:
  - be at least 18 years old;
  - be fit, agile and not height phobic;
  - have undergone training that is either recognized by the Commissioner or provided by the manufacturer of the suspended working platform or its local agent; and
  - has obtained a certificate in respect of such training from the person who provided the training.

Question 14.4.3.8 **Weighting: 6**

Has an inspection and maintenance system for gondola been established and is it used?

Audit Criteria

- ☐ Updated inspection records and examination records should be verified.
- ☐ Every gondola should be inspected in the immediately preceding 7 days before its use by a competent person. (SWP-F1)
- ☐ Provision of periodic maintenance of the gondola, including on-site maintenance.
- ☐ Provision of operation and maintenance manual and certificates of thorough examination of Suspended Working Platform (SWP-F2) and certificate of load test and thorough examination of suspended working platform (SWP-F3) of the gondola.
- ☐ After exposure to weather conditions likely to have affected the stability of the suspended working platform, the suspended working platform should be load tested and thoroughly examined by a competent person and examiner as soon as practicable thereafter and before the suspended working platform is used again.
- ☐ Unless there are justifications and evidence to indicate that the drive chains or reduction gear of the climber are in good condition and free from excessive wear, opening up

examination should be carried out as far as practicable. Opening up examination of climber should be carried out in accordance with the manufacturers' manual.

Question 14.4.3.9 **Weighting: 6**

Have safety checklists been developed and used for monitoring the safe operation of gondola?

Audit Criteria

- ☐ Safety checklist should cover checking items in order to monitor the safe operation of gondola.
- ☐ Prior to commencement of daily work, pre-use safety inspection should be conducted. Pre-use safety checklist should cover the major safety item which include but not limited to roof fixing, suspension ropes, safety ropes, weights attaching to safety ropes, climbers and independent lifeline, emergency stop button, brake, titling device, manual descend facility and control panel, etc.
- ☐ As an alternative to using a safety checklist, a logbook could be kept for each gondola to cover the items of operation. The logbook should contain a list of checking items.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection when gondola is in operation. However, a list of checking items should be prepared and be readily available during inspection.

Part 14.4.4 Power-operated Elevating Work Platform

Question 14.4.4.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for power-operated elevating work platforms been identified?

Audit Criteria

- ☐ Guidance Notes on Safe Use of Power-operated Elevating Work Platforms, Labour Department
- ☐ Construction Sites (Safety) Regulations
- ☐ Regulation 45 of the Construction Sites (Safety) Regulations requires that only a trained and competent workman over 18 years of age is allowed to operate mechanical equipment inside a construction site. No person under 18 years of age is allowed to give signals to the operator of the equipment.
- ☐ If the power-operated elevating work platform is to be driven on a public road or private road, its owner has to apply for vehicle registration or a movement permit from the Transport Department.
- ☐ All operations near to highways are adequately signed with the appropriate notices as specified in the Code of Practice for the Lighting, Signing and Guarding of Road Works.
- ☐ A power-operated elevating work platform must have visible permanent markings or notices to indicate the following information:
  (a) manufacturer's name;
  (b) machine model;
  (c) serial number;
  (d) year of manufacture;
  (e) safe working load;

(f) number of persons that can be carried by it; and
(g) maximum reaching height and radius.

Question 14.4.4.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of the power-operated elevating work platform?

Audit Criteria

- ☐ The working environment, the ground condition and the limitations of the type of mobile elevating work platform (MEWP) should be considered.
- ☐ Other hazards including unauthorized operation, the width and the gradients of the slope, ineffective maintenance, overloading or misuse should also be properly assessed and documented.
- ☐ A MEWP should not be operated when weather condition is likely to endanger its stability or cause danger to the person carried thereon.
- ☐ For the scissor type MEWP, a suitable safety device such as captive chock within the scissor mechanism should be used to prevent trapping of persons during maintenance.
- ☐ Where stability is dependent on the correct use of outriggers, the lifting mechanisms must be interlocked to the outriggers.
- ☐ A MEWP should be provided with safe means of access to and egress from the platform.
- ☐ Where a MEWP is required to work in the vicinity of any public utilities including overhead electricity lines, gas pipes or other public utilities, the person responsible for the machine operation should take precautions to prevent any operator or worker from being endangered by it.
- ☐ When a risk of contact with an obstacle in the use of a MEWP is identified by the risk assessment, the Contractor shall consider the need of smart device as secondary guarding device (SGD) for protecting the operator from the risk of entrapment. The SGD shall be one of the SSSS component following the requirements in the contract specification (wireless communication technologies). The Contractor shall maintain a register to monitor whether all MEWPs on Site are fitted with SGD and the register shall be included in the monthly safety report.
- ☐ Fell from the platform. It is strongly recommended that a safety harness is worn by workers working from a MEWP. It should be attached to a secure anchorage point within the platform.
- ☐ In areas of very high public access, a risk assessment may indicate that additional controls (e.g. barrier tape, barriers, extra manning) are required.
- ☐ Wind speeds exceed the manufacturer's recommendations, or there is a risk of unplanned movements or platform overturn.
- ☐ Collision with obstructions or other vehicle.
- ☐ Additional interlocks or guards may be necessary to prevent the operation of or any tampering with ground level controls by unauthorized persons.
- ☐ While the MEWP is travelling, ensuring that a safe distance is kept from nearby obstacles such as fixed pipes underneath the ceiling.

Question 14.4.4.3 **Weighting: 3**

Have standards for safe operation of power-operated elevating work platform been established?

Audit Criteria

- ☐ The safe working load specified by the manufacturer must not be exceeded. SWL should be specified for all conditions of height and reach.
- ☐ Steps, ladders, hop-ups or boxes must never be used on the platform to gain extra reach or height.
- ☐ Power-operated elevating work platforms are often fitted with outriggers or stabilizers and these must always be deployed and used as recommended by the manufacturer.
- ☐ Ground is firm and will support loading.
- ☐ Travel with the platform occupied or boom extended should only be undertaken when this mode of operation is within the machine's specified capabilities.
- ☐ A signaller or responsible person is employed if necessary.
- ☐ Warning and safety devices including reversing alarm and CCTV device, flashing lights and horns are provided.
- ☐ A power-operated elevating work platform must have visible permanent markings or notices to indicate the following information: -
  - manufacturer's name;
  - machine model;
  - serial number;
  - year of manufacture;
  - safe working load;
  - number of persons that can be carried by it; and
  - maximum reaching height and radius.
- ☐ Must not be used in wind speeds exceeding that specified by the manufacturer.
- ☐ MEWP must not be used as jacks, props, ties or supports, primarily for the transfer of goods or materials and as a crane or lifting appliance.
- ☐ When a risk of contact with an obstacle in the use of a MEWP is identified by the risk assessment, the Contractor shall consider the need of smart device as secondary guarding device (SGD) for protecting the operator from the risk of entrapment. The SGD shall be one of the SSSS component following the requirements in the contract specification (wireless communication technologies). The Contractor shall maintain a register to monitor whether all MEWPs on Site are fitted with SGD and the register shall be included in the monthly safety report. Provide the SGD with the following consideration:
  a. If the SGD is not an integral part of the original MEWP from the manufacturer, then the Contractor, who intends to fit SGD as an attachment to existing MEWP shall be liable for the adaptation, addition, modification and safe operation of a MEWP with SGD;
  b. The smart device shall be one of the SSSS component following the requirements in the contract specification (wireless communication technologies) and an anti-collision sensor fitted at a MEWP for detecting any obstacles around and above the MEWP. When the distance between any operator or worker on the MEWP and any obstacle around or above the MEWP becomes less than 500mm or other distance as pre-determined by the risk assessment, the device is to trigger a warning siren with a minimum of 70 dB noise level and a flashing red light to alert the operator and workers on the MEWP. When the distance between any operator or worker on the MEWP becomes less than the distance as pre-determined posing imminent danger by the risk

assessment, the smart device could automatically carry out a function of stopping the MEWP operation at emergency. All warning signal shall be automatically turned off when the MEWP operator resume the plant operation and address the warning signals. The device shall have a minimum battery life of two working days per charge under continuous operation and a lighting display showing its battery is in normal operation mode. All warning signals and the status of the smart device during operation shall be automatically transmitted to a CMP for record where the data transmitted shall be digitalised signal in chronological sequence and marked with the time and date and be available for integration by Open Application Programming Interface (API) format. Conduct all necessary maintenance, repair and / or replacement of smart device within 24 hours upon reporting of any device abnormality, malfunction or damage of the smart device;

c. Display warning notices at prominent location of all MEWPs on Site to alert all operators and workers to the potential hazards on using MEWPs such as the hazard of entrapment;
d. The SGD shall only be retracted or collapsed when:
    i. The MEWP is at stationary status;
    ii. The presence of SGD will render works to be carried out not practicable;
    iii. Other types of safety precautionary measures are in place to completely eliminate the risk of entrapment of any operator or workers on MEWP;
    iv. The retract and collapse of SGD shall be done under supervision of a Safety Supervisor / Safety Officer;

☐ MEWPs are required to be provided with a system using wireless communication technologies incorporated with artificial intelligence, RFID, infrared, internet of things or equivalent, for authenticating authorized operation of the plants. In some ongoing contracts in which only MEWPs used on sites for at least six months are required to be provided with a system using wireless communication technologies for authentication authorized operation of the plants.

☐ Emergency procedures for accidents / incidents arising from or in connection with the use of MEWP should be prepared.

Question 14.4.4.4 **Weighting: 6**

Have developed standards for safe operation of power-operated elevating work platform been communicated to all people engaged in power-operated elevating work platform operations and strictly implemented?

Audit Criteria

☐ Auditor should verify if the arrangement for ensuring the developed standards are implemented on site as well as verification with site personnel to ensure that they understand the safe working procedures.

☐ All operatives should know the developed standards of safe operation and their own responsibilities.

Question 14.4.4.5 **Weighting: 6**

Is effective Secondary Guarding Device (SGD) provided for the power-operated elevating work platform?

Audit Criteria

- ☐ Smart device as secondary guarding device (SGD) for protecting the operator from the risk of entrapment should be installed for all power-operated elevating work platform.
- ☐ The SGD shall be one of the SSSS component following the requirements in the contract specification (wireless communication technologies). The Contractor shall maintain a register to monitor whether all MEWPs on Site are fitted with SGD and the register shall be included in the monthly safety report. Provide the SGD with the following consideration:
  a. If the SGD is not an integral part of the original MEWP from the manufacturer, then the Contractor, who intends to fit SGD as an attachment to existing MEWP shall be liable for the adaptation, addition, modification and safe operation of a MEWP with SGD;
  b. The smart device shall be one of the SSSS component following the requirements in the contract specification (wireless communication technologies) and an anti-collision sensor fitted at a MEWP for detecting any obstacles around and above the MEWP. When the distance between any operator or worker on the MEWP and any obstacle around or above the MEWP becomes less than 500mm or other distance as pre-determined by the risk assessment, the device is to trigger a warning siren with a minimum of 70 dB noise level and a flashing red light to alert the operator and workers on the MEWP. When the distance between any operator or worker on the MEWP becomes less than the distance as pre-determined posing imminent danger by the risk assessment, the smart device could automatically carry out a function of stopping the MEWP operation at emergency. All warning signal shall be automatically turned off when the MEWP operator resume the plant operation and address the warning signals. The device shall have a minimum battery life of two working days per charge under continuous operation and a lighting display showing its battery is in normal operation mode. All warning signals and the status of the smart device during operation shall be automatically transmitted to a CMP for record where the data transmitted shall be digitalised signal in chronological sequence and marked with the time and date and be available for integration by Open Application Programming Interface (API) format. Conduct all necessary maintenance, repair and / or replacement of smart device within 24 hours upon reporting of any device abnormality, malfunction or damage of the smart device;
  c. Display warning notices at prominent location of all MEWPs on Site to alert all operators and workers to the potential hazards on using MEWPs such as the hazard of entrapment;
  d. The SGD shall only be retracted or collapsed when:
     i. The MEWP is at stationary status;
     ii. The presence of SGD will render works to be carried out not practicable;
     iii. Other types of safety precautionary measures are in place to completely eliminate the risk of entrapment of any operator or workers on MEWP;
     iv. The retract and collapse of SGD shall be done under supervision of a Safety Supervisor / Safety Officer;

Question 14.4.4.6 **Weighting: 3**

Are the engaged personnel competent to examine, test, supervise and operate the power-operated elevating work platform safely?

Audit Criteria

- ☐ Any person assigned to perform inspection, test, maintenance and repair of a power-operated elevating work platform should be suitably trained and competent for such work.
- ☐ A competent mechanic or the operator, if authorized and competent, should conduct the weekly inspection.
- ☐ The person responsible for the machine operation should ensure that all records of examinations, tests, inspections, maintenance and repairs of the power-operated elevating work platform are documented and properly kept.
- ☐ The operator of a power-operated elevating work platform should:
  - be at least 18 years of age;
  - have reasonable degree of both physical and mental fitness;
  - have undergone training for the relevant model of power-operated elevating work platform;
  - have adequate authorization to operate the power-operated elevating work platform by the person responsible for the operation of the machine.
- ☐ All workers on a MEWP shall have attained the training course provided by the supplier of the MEWP on the use of the respective type of MEWP. When a trained worker is newly employed for operating a MEWP, the Contractor shall verify the adequacy of the training and relevant experience of such trained worker for the use of respective type of MEWP. Provide the trained workers with all necessary information, instructions, training and supervision regarding the safety of work at heights. Prepare emergency procedures for accidents / incidents arising from or in connection with the use of MEWP. Assign worker(s) to receive the same training so that there is always a trained worker available on Site during the operation of the respective type of MEWP to operate the control set at ground or chassis level of the MEWP to lower the platform of MEWP in an emergency. Maintain the training record of the workers using MEWP provided by the supplier of MEWP on Site for inspection by the CM.
- ☐ All operators on a MEWP should attend a training course comparable to the 6-hr "Mobile Elevating Work Platforms Operator Safety Training" provided by the Occupational Safety and Health Council, one-day training course for aerial work platform operators provided by the Hong Kong Construction Association or equivalent. The workers on a MEWP who have not received the training are acceptable up to 31 December 2026 provided that they have made arrangement to attend and complete the relevant training.
- ☐ Supervising staff for MEWP operation should attend a training course comparable to the 7-hr "Mobile Elevating Work Platforms Supervisor Training" provided by the Occupational Safety and Health Council or equivalent. The supervising staff for MEWP operation who have not received the training are acceptable up to 31 December 2026 provided that they have made arrangement to attend and complete the relevant training.

Question 14.4.4.7 **Weighting: 6**

Has an inspection and maintenance system for power-operated elevating work platform been established and is it used?

Audit Criteria

- ☐ Updated inspection records and examination records should be submitted as documentary evidence.
- ☐ A power-operated elevating work platform should be regularly inspected, tested, and

properly maintained in accordance with the manufacturer's instructions in order to ensure that it is in safe working condition at all times.

- ☐ Periodic servicing/inspection should be carried out on certain components or mechanisms according to the manufacturer's operation and maintenance manuals.
- ☐ The power-operated elevating work platform should be thoroughly examined and tested by a competent examiner before use or after undergoing substantial repair. It should be further examined thoroughly by a competent examiner on a regular basis as recommended by the manufacturer but not less than once per year.
- ☐ The maintenance logbooks or records (for the period of use on site) should be readily available for reference and examination.
- ☐ Maintenance within the stack of a scissor lifts should not take place unless scotches or chocks are used to prevent any hazard arising from hydraulic failure.

Question 14.4.4.8 **Weighting: 6**

Have safety checklists been developed and used for monitoring the safe operation of power-operated elevating work platform?

Audit Criteria

- ☐ Safety checklist should cover checking items in order to monitor the safe operation of power-operated elevating work platform.
- ☐ As an alternative to using a safety checklist, a logbook could be kept for each power-operated elevating work platform to cover the items of operation, before use, and after use. The logbook should contain a list of checking items.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection when power-operated elevating work platform is in operation. However, a list of checking items should be prepared and be readily available during inspection.
- ☐ The Contractor shall use the permit-to-work system to conduct checking of implementation of all necessary safety precautionary measures for use of MEWP. Use of MEWP on site shall be permitted only after the issue of a permit-to-work certification by the Contractor. These certificates shall be made available for inspection upon request by CM. The functionality of SGD shall be included as one of the checking items for pre-operation inspection of MEWP.

Part 14.4.5 Material Hoist

Question 14.4.5.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for material hoist been identified?

Audit Criteria

- ☐ Construction Sites (Safety) Regulations
- ☐ A Guide to the Provisions for Safe Use of Hoists under the Construction Sites (Safety) Regulations, Labour Department
- ☐ Safe Use of Material Hoist – Interlocking Device on Hoistway Gate, Labour Department

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Question 14.4.5.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks,

and recommend action to eliminate or control risks of the material hoist?

Audit Criteria

- ☐ The principal dangers are : falling down the hoistway from a landing on the platform, being struck by the platform/skip or other moving parts, and being hit by materials falling down the hoistway.
- ☐ Free fall operation.
- ☐ Falling to ground during erecting and dismantling.
- ☐ Fail to maintain the hoist vertical.

Question 14.4.5.3 **Weighting: 3**

Have standards for safe operation of material hoist been established?

Audit Criteria

- ☐ A substantial enclosure should be erected at ground level around the hoistway to a height of at least 2m.
- ☐ The remainder of the hoistway should be enclosed throughout its height sufficiently to contain falling material within the enclosure.
- ☐ Provide secure gates at all landings and at ground level and ensure that fail-safe interlocking hoistway gates are installed.
- ☐ Implement a material hoist control and landing gate locking system for safely transporting materials up or down the building. Keep the hoist gate closed when loading or unloading is not in progress.
- ☐ Provide an efficient automatic device to prevent the platform or skip of a hoist from over-running the highest point of the travel.
- ☐ Make effective signaling arrangements for a hoist operator.
- ☐ A hoist shall be so constructed that it can be operated only from one position at any one time.
- ☐ Construct the winch of a hoist to prevent free fall.
- ☐ Mark, or affix to the hoist a clear and legible notice stating the prohibition of the carriage of persons and the safe working load.
- ☐ A receptacle used in connection with a hoist, or lifting gear, for raising or lowering stone, bricks, tiles, slates, or other objects, shall be so enclosed, or constructed or designed, as to prevent the accidental fall of any of such objects.
- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply.
    1. Implement wireless communication technologies such as facial recognition or RFID for authenticating authorised operation of material hoist.
    2. Implement a material hoist control and landing gate locking system using wireless communication technologies with automated warning system for safely transporting material up or down the building.
    3. Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.
- ☐ Emergency rescue procedures for accidents / incidents involving material hoist should be

prepared.

Question 14.4.5.4 **Weighting: 6**

Have developed standards for safe operation of material hoist been communicated to all persons engaged in material hoist operations and strictly implemented?

Audit Criteria

- ☐ Auditor should verify if the arrangement for ensuring the developed standards are implemented on site as well as verification with site personnel to ensure that they understand the safe working procedures.
- ☐ All operatives should know the developed standards of safe operation and their own responsibilities.

Question 14.4.5.5 **Weighting: 6**

Are effective Interlocking devices provided for each gate of material hoists?

Audit Criteria

- ☐ The gates of the material hoists at each loading and unloading point shall be fitted with efficient interlocking devices such that the hoists are operable only when all gates are closed.
- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporating the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply.
  1. Implement a material hoist control and landing gate locking system using wireless communication technologies with automated warning system for safely transporting material up or down the building.
  2. Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.

Question 14.4.5.6 **Weighting: 6**

Are all gates of material hoists kept locked when not in use?

Audit Criteria

- ☐ Keep all gates locked when loading or unloading is not in progress.

Question 14.4.5.7 **Weighting: 3**

Are there enhanced safety measures to monitor the operation of material hoist?

Audit Criteria

- ☐ The following safety measures shall apply.
  - Provide and install a CCTV system composing of a camera and associated equipment fixed at each material hoist and a video recording system.
    1. Post sufficient notices at conspicuous positions on Site to notify the workers and staff about the purpose of the video recording system;
    2. The system shall be automatically started as the material hoist is in operation;

3. The power, control and video cables connecting the camera shall be of the plug and socket type.
4. The camera shall be:

- Fixed onto the material hoist cabin allowing capture of best view;
- Powered by rechargeable battery that can be charged during the normal operation of the material hoist without any disruption to the material hoist operation;
- Video recording system and associated equipment in Contractor's site office.

Question 14.4.5.8 **Weighting: 3**

Are the engaged personnel competent to examine, test and operate the material hoist safely?

Audit Criteria

- ☐ A hoist shall be operated by a workman who is –
  (a) 18 years of age or above; and
  (b) trained and competent to operate it.
- ☐ A hoist may be operated by a workman not so qualified if the operation is supervised by a qualified workman.
- ☐ Only workman of 18 years of age or above shall be employed to give signals to the driver of a hoist.

Question 14.4.5.9 **Weighting: 6**

Has an inspection and maintenance system for material hoist been established and is it used?

Audit Criteria

- ☐ Updated inspection records and examination records should be submitted as documentary evidence.
- ☐ Material hoist should be inspected at least once in each week by a competent person with a report in the approved form (Form 1).
- ☐ Material hoist should be tested and thoroughly examined by a competent examiner after its manufacture/ substantial alteration/ substantial repair with a certificate in the approved form (Form 2).
- ☐ During the preceding six months, material hoist should be tested and thoroughly examined by a competent examiner with a certificate in the approved form (Form 3).
- ☐ Periodic servicing/inspection should be carried out on certain components or mechanisms according to the manufacturer's operation and maintenance manuals.
- ☐ The maintenance logbooks or records (for the period of use on site) should be readily available for reference and examination.

Question 14.4.5.10 **Weighting: 6**

Have safety checklists been developed and used for monitoring the safe operation of material hoist?

Audit Criteria

- ☐ Safety checklist should cover checking items in order to monitor the safe operation of

material hoist.

- ☐ As an alternative to using a safety checklist, a logbook could be kept for each material hoist to cover the items of operation. The logbook should contain a list of checking items.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection when material hoist is in operation. However, a list of checking items should be prepared and be readily available during inspection.

Part 14.4.6 Power-driven Lifting Appliance for Carrying Persons, Builders' Lift and Tower Working Platform

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Question 14.4.6.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for power-driven lifting appliance for carrying persons, builders' lift and tower working platform been identified?

Audit Criteria

- ☐ Factories And Industrial Undertakings (Lifting Appliances And Lifting Gear) Regulations
- ☐ The design, construction, installation, maintenance, test, examination and use of any builders' lift and tower working platform in Hong Kong are governed by the Builders' Lifts and Tower Working Platforms (Safety) Ordinance and to be approved by the Director of Electrical and Mechanical Services.
- ☐ Code of Practice on the Design and Construction of Builders' Lift.

Question 14.4.6.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of the power-driven lifting appliance for carrying persons, builders' lift and tower working platform?

Audit Criteria

- ☐ Persons falling out or being trapped.
- ☐ Accesses to landings required for use have been made safe by provision of handrails and overhead protection where required.
- ☐ No installation of a builders' lift or tower working platform should be carried out unless approved by the Director of Electrical and Mechanical Services.
- ☐ Lift collapsed.

Question 14.4.6.3 **Weighting: 3**

Have standards for safe operation of power-driven lifting appliance for carrying persons, builders' lift and tower working platform been established?

Audit Criteria

- ☐ Where a person is raised, lowered or carried by means of a power- driven lifting appliance other than using a builders' lift or tower working platform to which the Builders' Lifts and Tower Working Platforms (Safety) Ordinance applies or a suspended scaffold, the person shall be carried in a suitable chair, cage, skip or other receptacle at least 900 mm deep.
- ☐ Where a person is carried in a boatswain's chair or other similar plant or equipment less

than 900 mm deep, a suitable safety belt attached to an independent lifeline shall be provided to and worn by the occupant and the lifeline shall be securely suspended.

- ☐ Suitable measures shall be taken to prevent a chair, cage, skip or other receptacle used in raising, lowering or carrying a person from spinning or tipping in a manner dangerous to the occupant.
- ☐ Every hook fitted to a power-driven lifting appliance used in raising, lowering or carrying a person in a chair, cage, skip or other receptacle shall be so designed and maintained as to prevent the accidental displacement of such chair, cage, skip or other receptacle from the hook.
- ☐ No installation of a builders' lift or tower working platform should be carried out unless approved by the Director of Electrical and Mechanical Services.
- ☐ No person should be carried by a builders' lift unless it is provided with
  - Gates that shut to prevent persons from falling out or being trapped between cage and any other part
  - An efficient interlocking device which ensures that gates can only be opened when cage is at the landing place, and that the lift cage cannot be moved until gate is closed
  - An efficient automatic over-run device to ensure the lift cage will come to rest at its lowest point of travel.
- ☐ Cage of builders' lift must carry a notice indicating the safe working load and the maximum number of passengers that can be carried.
- ☐ The hoistways must be protected by a substantial enclosure at ground level, at all access points and wherever persons could be struck by any moving part.
- ☐ Emergency rescue procedures for accidents / incidents involving power-driven lifting appliance for carrying persons, builders' lift and tower working platform should be prepared.

Question 14.4.6.4 **Weighting: 6**

Have developed standards for safe operation of power-driven lifting appliance for carrying persons, builders' lift and tower working platform been communicated to all persons engaged in operations and strictly implemented?

Audit Criteria

- ☐ Auditor should verify if the arrangement for ensuring the developed standards are implemented on site as well as verification with site personnel to ensure that they understand the safe working procedures.
- ☐ All operatives should know the developed standards of safe operation and their own responsibilities.

Question 14.4.6.5 **Weighting: 3**

Are the engaged personnel competent to examine, test and operate the power-driven lifting appliance for carrying persons, builders' lift or tower working platform safely?

Audit Criteria

- ☐ The owner should, at all times, retain the services of a registered contractor and must ensure that no lift work is carried out except under the supervision of a registered contractor or a registered examiner.
- ☐ 'Lift work' means any kind of work connected with the installation, commissioning, testing,

maintenance, repair, alteration or demolition of a builders' lift or tower working platform.

- ☐ All 'contractors' and 'examiners' involved in lift works must be registered with the Director of Electrical and Mechanical Services.
- ☐ No person should carry out lift work other than -
  (a) a registered examiner;
  (b) an individual who is -
    i. a registered contractor and is a competent worker; or
    ii. a member of a partnership that is a registered contractor, and is a competent worker;
  (c) a competent worker employed by a registered contractor; or
  (d) a worker directly supervised, at the site where the lift work is being carried out, by a person referred to in (a), (b) or (c).
- ☐ The owner should ensure that the builders' lift or tower working platform is operated by competent operators.
- ☐ Competent operators on Builders' Lifts stipulated under the Builders' Lifts and Tower Working Platform (Safety) Ordinance by the Electrical and Mechanical Services Department should attend the Construction Industry Council 2-day Certification Course for Operator of Builder's Lift.

Question 14.4.6.6 **Weighting: 6**

Has an inspection and maintenance system for power-driven lifting appliance for carrying persons, builders' lift or tower working platform been established and is it used?

Audit Criteria

- ☐ Updated inspection records and examination records should be submitted as documentary evidence.
- ☐ A registered contractor shall, at intervals not exceeding 7 days, inspect, clean, oil and adjust all machinery and equipment to ensure that the builder's lift or tower working platform is in safe working order.
- ☐ A registered contractor whose services have been retained by the owner of a builder's lift or tower working platform shall employ a registered examiner to carry out a test and examination of such builder's lift or tower working platform, as the case may be, at intervals not exceeding 6 months.
- ☐ Where a registered contractor carries out lift work that alters the height of travel of a lift cage or platform, he shall, before allowing it to be used, employ a registered examiner to carry out a test and examination of the builder's lift or tower working platform.
- ☐ A registered contractor should retain a log book recording any repairs, overhaul and routine maintenance that have been carried out.

Question 14.4.6.7 **Weighting: 6**

Have safety checklists been developed and used for monitoring the safe operation of power-driven lifting appliance for carrying persons, builders' lift or tower working platform?

Audit Criteria

- ☐ Safety checklist should cover checking items in order to monitor the safe operation of power-driven lifting appliance for carrying persons, builders' lift or tower working platform.

- ☐ As an alternative to using a safety checklist, a logbook could be kept for each power driven lifting appliance for carrying persons, builders' lift or tower working platform to cover the items of operation. The logbook should contain a list of checking items.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection when power driven lifting appliance for carry person, builders' lift or tower working platform is in operation. However, a list of checking items should be prepared and be readily available during inspection.

14.5 Management of Mechanical Plant and Equipment

14.5.1 Loadshifting Machineries and Site Vehicles

Question 14.5.1.1 **Weighting: 3**

Have all the requirements in regulations, codes of practice and safety information for loadshifting machineries and site vehicles been identified?

Audit Criteria

- ☐ When a vehicle is constantly moving on or around a site, the factors which create hazards and cause accident may be more difficult to anticipate and eliminated. Therefore, restricting the movement of site traffic to fixed routes and access points will be a good practice for applying rules and procedures in plant operation.
- ☐ The Factories and Industrial Undertakings (Loadshifting Machinery) Regulation applies to fork-lift trucks used in industrial undertakings and bulldozers, loaders, excavators, trucks and lorries used on construction sites, compactors, dumpers, graders, locomotives and scrapers used on construction sites.
- ☐ Road Traffic (Traffic Control) Regulation (Cap. 374 sub. leg.)
- ☐ Code of Practice on Safe use of Excavators, Labour Department
- ☐ Guidance Notes on Safe Use of Loadshifting Machines for Earth Moving Operations on Construction sites, Labour Department
- ☐ Guidance Notes for Safe Use of Fork-lift Trucks, Labour Department
- ☐ Guidelines on Safety of Site Vehicles, Construction Industry Council

Question 14.5.1.2 **Weighting: 3**

Have risk assessments been conducted to identify any foreseeable hazards, assess their risks, and recommend action to eliminate or control risks of loadshifting machineries and site vehicles?

Audit Criteria

- ☐ People being struck by or run over by a vehicle.
- ☐ People being struck by something falling from a vehicle.
- ☐ People falling from vehicles.
- ☐ Vehicles overturning
- ☐ Vehicles are particularly dangerous when they are reversing, because it can be difficult for drivers to see what is going on behind them.

Question 14.5.1.3 **Weighting: 3**

Have all drivers of loadshifting machineries and site vehicles been licensed?

Audit Criteria

- ☐ Operator of a loadshifting machinery has attained the age of 18 years; and holds a valid certificate applicable to the type of loadshifting machine to which that machine belongs.
- ☐ Vehicles used off-site must comply with current vehicle licensing regulations.
- ☐ A valid driving licence issued under the Road Traffic Ordinance (Cap 374) of the class to which the truck or lorry belongs.
- ☐ Licensing systems can be a useful way of controlling the work activities of contractors and subcontractors. Licences to operate on site are issued for certain periods, and are only renewed if contractors have behaved satisfactorily.

Question 14.5.1.4 **Weighting: 3**

Have standards for loadshifting machineries and site vehicles safety been established?

Audit Criteria

- ☐ Give the contractor appropriate health and safety information on the work to be carried out, so that the work can be done safely. For example, the information should be about:
  - the arranged transport and use of fuel and other flammable materials;
  - the routes to be used;
  - the vehicles and equipment on site;
  - specific hazards; and
  - other people on site, including other contractors, visiting drivers.
- ☐ Print site rules, directions, maps and approach information (for example, narrow routes, weak bridges and so on) on the back of order forms and invoices, allowing visiting drivers to know what to expect before arriving on site.
- ☐ Site rules may include:
  - restrictions on the type or size of vehicle the site can handle safely;
  - restrictions on the times when goods should be delivered or collected;
  - safe approach routes to the site, especially if nearby one-way systems, low or weak bridges, narrow roads, awkward access and other features could cause problems for visiting vehicles;
  - a site plan or sketch showing parking, reception location, the route to take through the site, and where loading or unloading areas are;
  - where visiting vehicles should park on arrival, where drivers should report to and any other instructions for the driver;
  - procedures that visiting drivers need to follow – for example, wearing high-visibility vests, limits on using mobile phones, restrictions on reversing or conditions for reversing such as using a banksman;
  - what to do if a load appears to have shifted dangerously in transit;
  - the point at which the visiting driver will give permission for their vehicle to be unloaded, and how everyone will clearly understand this handover (before this time, site staff should keep clear of the vehicle, and during unloading the driver should keep clear of the vehicle);
  - information about general loading and unloading procedures, including who will have overall responsibility, the types of vehicle and machinery available, the weights or

volumes equipment can lift and storage areas;

- loading and unloading safety procedures, such as where drivers should wait during delivery, times or places at which deliveries have been banned, safety and personal protective equipment that must be used;
- what visiting drivers or site staff should do if they are not satisfied with safety arrangements for the delivery or collection (for example, who to report concerns to);
- contact details for the other people involved in case there are problems;
- When an excavator is working near any fixed structure, the proprietor/contractor should maintain an unobstructed passageway of not less than 600 millimetres wide between the excavator and the structure, or take reasonable measures to prevent persons from having access to that place, such as by fencing off the place;
- Unsafe Practices to Avoid : -

(a) leaving the excavator unattended with its engine running;
(b) leaving the excavator unattended with its attachment raised up;
(c) applying a lateral load to the bucket and arm of the excavator during work;
(d) driving the excavator with the bucket thrust into the ground;
(e) excavating with the excavator on unstable surface;
(f) positioning the excavator too close to the edge of a slope or trench;
(g) undercutting the area beneath the excavator;
(h) using the bucket as a support for moving the excavator across excavated trench or obstacle;
(i) jacking up the excavator with the boom as a way to rescue the machine from instability;
(j) using the bucket of the excavator to hammer sheet pile into the ground and /or to extract sheet pile from the ground;
(k) slewing the boom of the excavator while traveling on a slope;
(l) hitting the bucket of the excavator hard against the work surface;
(m) using the bucket of the excavator for a working platform or passenger carrier, and
(n) using the bucket of the excavator to carry or transport materials and objects that cannot be securely held on the bucket, such as pipes, timber boards and battens

☐ The following safety measures shall apply.

1. Forklift trucks should be installed with operator presence sensing system so that powered travel shall be possible only if the operator is in the normal operating position. It should be able to cease forklift truck operations to function when the operator is not sitting on the seat for more than 2 seconds.

☐ Contractors shall suspend all outdoor work in exposed areas immediately and take shelter in a safe place if they are endangered by adverse weather or “extreme conditions”.

☐ For the operation of the loadshifting machineries, under wet or rainy conditions when the ground became too slippery for the machine, stop the earth moving operation.

☐ When warning of thunderstorm or lightning is issued by the Hong Kong Observatory, no one should stay on an excavator. The contractor should suspend operation of the excavator and the operator should retreat to a safe place. The contractor should also suspend use of an excavator under inclement weather if working condition becomes potentially hazardous due to the weather.

☐ There should be a procedure for inspecting and examining relevant plant and equipment after adverse weather conditions. Site supervisory staff should be well aware of this procedure.

Question 14.5.1.5 **Weighting: 6**

Have developed standards for safe operation of loadshifting machineries and site vehicles been communicated to all persons engaged in operations and strictly implemented?

Audit Criteria

- ☐ Auditor should verify if the arrangement for ensuring the developed standards are implemented on site as well as verification with site personnel to ensure that they understand the safe working procedures.
- ☐ All operatives should know the developed standards of safe operation and their own responsibilities.
- ☐ For new contracts, ongoing contracts with related contract provisions or with CM's instruction, mobile plants are required to be provided with a system using wireless communication technologies incorporated with artificial intelligence, RFID, infrared, internet of things or equivalent, for authenticating authorized operation of the plants. For other ongoing contracts, mobile plants (including forklift trucks, bobcats and excavators) which are used on sites for at least six months are required to be provided with a system using wireless communication technologies incorporated with artificial intelligence, RFID, infrared, internet of things or equivalent, for authenticating authorized operation of the plants.

Question 14.5.1.6 **Weighting: 6**

Has excavator used on site been provided with adequate safety features in accordance with the risk assessment?

Audit Criteria

- ☐ Proper and safe means of access and egress.
- ☐ Sufficient aids of visibility such as mirrors, ultrasonic devices, CCTV devices etc. to eliminate blind spots around excavators.
- ☐ Fitted with illumination lights.
- ☐ Fitted with an operator's protective structure, such as a falling object protective structure (FOPS), a roll-over protective structure (ROPS), or a tip-over protective structure (TOPS) according to the risks of an application.
- ☐ Excavator fitted with RPOS and TOPS should provide operator restraint system and an emergency exit – door opens in another direction.
- ☐ Warning signs affixed on machine to alert users of potential hazards at different locations of the machine.

Question 14.5.1.7 **Weighting: 3**

Have safe operation procedures been established when using an excavator for lifting operations?

Audit Criteria

- ☐ Designated lifting point should be available from the original manufacturer on its bucket, arm or boom for attaching of lifting gear.

- ☐ Testing, thorough examination and inspection of the excavator and lifting gear
- ☐ Excavator should be positioned on solid and level ground. Excavator with outriggers should be extended.
- ☐ Excavator with safe working load of more than 1 tonne should be fitted with an automatic safe load indicator; hydraulic excavator should be fitted with check valves in the hydraulic lifting cylinder or other suitable device, to prevent a gravity fall of the load.

Question 14.5.1.8 **Weighting: 3**

Is the Smart Site Safety System (SSSS) component provided for alerting against unsafe acts or conditions in mobile plant danger zone?

Audit Criteria

- ☐ Applicable for newly awarded contracts or ongoing contracts already incorporated the related contract provisions or issued with Contract Manager's instruction and the following safety measures shall apply. Auditor should consider relevant clauses in the contract specification.
- ☐ Implement an automated warning system on mobile plant (including but not limited to forklift trucks, bobcats and loadshifting machines covering bulldozer, loader, excavator, truck, lorry, compactor, dumper, grader, locomotive and scraper) to alert the mobile plant operator and any personnel who enters mobile plant danger zone to the risk of being hit by the plant moving components. The automated warning system shall include an adequate number of sensors installed on the mobile plant chassis and moving components to ensure full 360^{o} coverage around the mobile plant danger zone. The danger zones of the mobile plant operation shall be determined by the Safety Officer according to risk assessment but in no case shall the extent of the danger zone be less than 2m from any part of the mobile plant.
- ☐ When any one of the sensors detect a person encroaching upon the mobile plant danger zone, a warning light signal shall flash on the plant operating dashboard and an automated warning message shall be delivered via speaker or headphone to the plant operator to stop all plant operation. At the same time, siren speaker attached to the top of the mobile plant shall automatically turn on with flashing red light and continuous alarm at a minimum of 100 dB to warn away any encroachment of the mobile plant danger zone. All warning signal shall be automatically turned off when the encroaching person has left the danger zone, the plant operator stopped the plant operation and the workers or Site Personnel concerned addressed the warning signals / alerts. An alert message shall be generated to the Site Agent, General Foreman, Safety Officer and Safety Supervisor by means of SMS or in-app pop-up notification and be recorded at the CMP for follow-up actions. The alert message shall include the date and time of the person encroached upon the danger zone of the plant and the video clip capturing the person 15 seconds before the encroachment of the danger zone until 10 seconds after the encroaching person has left the plant danger zone.
- ☐ Ensure that each time when the automated warning system activates, a signal shall be automatically transmitted to a Centralised Management Platform for record, review and data analysis.

Question 14.5.1.9 **Weighting: 6**

Has an inspection and maintenance system for loadshifting machineries and site vehicles been established and is it used?

Audit Criteria

- ☐ Updated inspection records and examination records should be submitted as documentary evidence.
- ☐ All vehicles are properly maintained and safe to operate;
- ☐ Undertake regular maintenance and vehicle checks in accordance with the manufacturer's recommendations;
- ☐ Operate an effective system for reporting, and taking any required action on, any defects that occur.

Question 14.5.1.10 **Weighting: 6**

Have safety checklists been developed and used for monitoring the safe operation of loadshifting machineries and site vehicles?

Audit Criteria

- ☐ Safety checklist should cover situations of bad driving or ignorance during work with special hazards such as near excavations or power lines, carrying unauthorized passengers, poor maintenance of vehicles, overloading or improper stacking or securing of loads.
- ☐ Pre-use safety checklist should be prepared and used.
- ☐ SOSS Form 3A could alternatively be used as a record of field inspection when loadshifting machineries and site vehicles are in operation. However, a list of checking items should be prepared and be readily available during inspection.

Annex A

Scoring Table for HASAS Version 1.8

Part A

Section	Element	No. of Questions	Score	% of total score
1	Safety policy	10	30	5.3
2	Safety organisation	8	30	5.3
3	Safety training	11	57	10.1
4	In-house safety rules and regulations	9	42	7.4
5	Safety committee	7	39	6.9
6	Programme for inspection of hazardous conditions	11	51	9.0
7	Job hazard analysis	12	84	14.9
8	Personal Protection Programme	7	36	6.4
9	Accident/incident investigation	7	36	6.4
10	Emergency preparedness	7	33	5.9
11	Safety promotion	9	39	6.9
12	Health Assurance Programme	16	48	8.5
13	Evaluation, selection and control of sub-contractors	10	39	6.9
PART A Total		**124**	**564**	**100%**

Part B

Section/Sub-section/Part	Sub-element	No. of Questions	Score	% of total score
14	***Process Control Programme***			
14.1	***Management of Place of Work***			
14.1.1	Fire Risks	9	45	2.3
14.1.2	Work in Confined Spaces	10	42	2.1
14.1.3	Working at Height	15	126	6.4
14.1.4	Housekeeping	9	75	3.8
14.1.5	Protection against Falling Objects	10	78	4.0
14.1.6	Overhead and Underground Services	8	36	1.8
14.1.7	Flammable Substances, Gases and Vehicle Fuels	7	33	1.7
14.1.8	Substances Hazardous to Health	5	24	1.2
14.1.9	Occupational Safety and Health in Offices	5	24	1.2

14.2	***Management of Tasks and Operations***			
14.2.1	Demolition	10	39	2.0
14.2.2	Excavations	10	48	2.4
14.2.3	Lifting Operations	11	75	3.8
14.2.4	Roadworks	8	39	2.0
14.2.5	Falsework	7	27	1.4
14.2.6	Structural Steel Erection / Dismantling	8	39	2.0
14.2.7	Welding / Cutting Operations and Installations	11	57	2.9
14.2.8	Site Traffic	9	45	2.3
14.2.9	Works over Water or Adjacent to Water	8	36	1.8
14.2.10	Piling and Foundations	11	48	2.4
14.2.11	Glazing	5	21	1.1
14.2.12	Grit Blasting	6	27	1.4
14.2.13	Asbestos	9	39	2.0
14.2.14	Machinery Guarding	7	27	1.4
14.2.15	Ground Investigation	6	24	1.2
14.2.16	Work on Slopes	8	39	2.0
14.2.17	Prestressing	5	21	1.1
14.2.18	Modular Integrated Construction	18	84	4.3
14.2.19	Temporary Works	8	33	1.7
14.3	***Management of Powered Plant and Equipment***			
14.3.1	Compressed Air Tools	7	33	1.7
14.3.2	Electrical Supply System	13	102	5.2
14.3.3	Electrical Works and Portable Electric Tools	10	54	2.7
14.3.4	Hand Tools	5	21	1.1
14.3.5	Woodworking Machines	9	45	2.3
14.3.6	Abrasive Wheels	12	60	3.0
14.3.7	Hand-held Power Tools	7	30	1.5
14.4	***Management of Plant and Equipment for Lifting of Material and Persons***			
14.4.1	Tower Crane	15	102	5.2
14.4.2	Mobile Crane	11	81	4.1
14.4.3	Gondola (Suspended Working Platform)	9	42	2.1
14.4.4	Power-operated Elevating Work Platform	8	36	1.8
14.4.5	Material Hoist	10	45	2.3
14.4.6	Power-driven lifting appliance for Carrying Persons, Builders' Lift and Tower Working Platform	7	30	1.5
14.5	***Management of Mechanical Plant and Equipment***			
14.5.1	Loadshifting Machineries and Site Vehicles	10	42	2.1
PART B Total		**376**	**1974**	**100%**

Part	Section	No. of Questions	Score
A	1 to 13	124	564
B	14.1 to 14.5	376	1974
Total of PART A and PART B		500	2538

Annex B

	HASAS Version 1.7	HASAS Version 1.8
Score of the system	Part A: 543 Part B: 1,899 Total: 2,442	Part A: 564 Part B: 1,974 Total: 2,538
Numbers of questions	Part A: 119 Part B: 360 Total: 479	Part A: 124 Part B: 376 Total: 500
Sections updated in Part A		Section 1 Q1.1.1 - refine criteria that the safety policy should be project specific. Q1.1.4 - refine criteria that commitment to continuously improving OSH standards by implementing follow-up actions is required. Q1.2.1 – refine question and criteria to specify the safety policy should be signed by the most senior management in site level. Section 2 Q2.1.3 - refine question and criteria to specify the top management at site level should be overall management and accountable for leading OSH. Q2.1.7 - refine criteria that appointment letters and training certificates of the safety representative should be submitted as documentary evidence Q2.1.8 - refine question and criteria to assess the register/summary of competent persons and competent examiners. Section 3 Q3.1.1 - refine criteria that training need analysis and training plan should include training to site personnel involved in the use of SSSS components and construction general workers. Q3.1.2 - refine criteria that summary of mandatory basic safety training record should be submitted as documentary evidence. Q3.1.3 - refine criteria re training to site personnel involved in the use of SSSS components and construction general workers should be provided. Q3.1.4 - refine criteria re tool-box training should be provided once per week. Summary of tool-box trainings should be maintained Q3.1.5 - refine question and criteria for adopting virtual reality for safety training.

		Q3.1.7 - refine question and criteria to include the safety trainings for all specific work activities. Q3.1.8 - new question re the provision of safety training for all employees engaged in operating machinery. Q3.1.9 - re-weight audit score and refine criteria re the assessment of the effectiveness of safety training. Q.3.1.10 - refine criteria re the recording system for safety training. Section 4 Q4.1.1 - refine criteria to specify in-house safety rules should be project specific and are developed based on risk assessment. Q4.1.2 – Q4.1.4 – minor adjustment of reference and audit criteria. Q4.1.5 - refine question and criteria to include the monitoring of permit-to-work system. Q4.1.6 - new question re digitalised permit-to-work system for controlling high risk activities. Signal shall be automatically transmitted to CMP. Q4.1.7 - refine question and audit criteria re SSSS for authenticating authorized operation of plant or equipment and for controlling access such as inside danger zones. Signal shall be automatically transmitted to CMP. Q4.1.8 - refine criteria re summary records for disciplinary arrangement should be submitted as documentary evidence. Q4.1.9 – refine criteria re the safety rules should be regularly reviewed. Section 5 Q5.1.2 - refine criteria re the requirement of the first site safety committee meeting and the appropriate OSH matters to be discussed in site safety committee meeting. Q5.1.6 - refine criteria re the appropriate follow-up actions. Q5.1.7 - refine criteria re the audit findings and corresponding recommendations should be fully addressed.

		Section 6 Q6.1.1 - refine criteria re the submitted safety inspection checklists should accurately reflect the actual site conditions and cover ongoing site activities Q6.1.4 - refine question and criteria for checking and updating information of personnel, plant and equipment. Signal shall be automatically transmitted to CMP. Q6.1.5 - new question re Artificial Intelligence (AI) system implemented for real-time monitoring of the site conditions. Signal shall be automatically transmitted to CMP. Q6.1.6 - refine criteria re inspection finding(s) in the inspection report should accurately reflect the actual site conditions and cover ongoing site activities Q6.1.7 - refine criteria re repeating of the same non-conformity on site should not be acceptable Q6.1.8 - refine criteria re inspection records and trend analysis report should be submitted Q6.1.9 - new question re implementation plan of Smart Site Safety System (SSSS) Q6.1.10 - new question re Centralized Management Platform (CMP) to support the implementation of an efficient and effective SSSS Section 7 Q7.1.5 - refine criteria re task-specific risk assessments for high-risk activities should be submitted Q7.1.7 - refine criteria that all risk assessments should be reviewed at least annually, depending on the project progress and site situation Section 9 Q9.1.1 - refine criteria to include contract required accident reporting procedure Q9.1.2 - refine criteria to include contract required accident investigation procedure Section 10 Q10.1.2 - refine criteria to include dangerous situation such as trapped in a suspended working platform. Establish and implement a comprehensive emergency procedure in response to all signals and reminder issued by the Hong Kong Observatory

	Section 11 Q11.1.10 – deleted	Section 11 Q11.1.4 - refine criteria re safety posters should be display prominently Section 12 Q12.4.1 - refine criteria re risk assessment on workplace heat stress Q12.4.2 - refine question and criteria re the effective measures based on the results of heat stress Q12.4.3 - new question re Smart Monitoring Devices provided for workers and the Contractor's superintendent (such as smart wristbands or smart helmets). Signal shall be automatically transmitted to CMP.
Sub-sections updated in Part B	

		Q14.1.3.9 - photo or video records to demonstrate the comprehensiveness of the inspection carried out for completion of Form 5 Q14.1.3.10 – new question re necessary precautionary measures to ensure scaffolding work safety before and after adverse weather conditions Q14.1.3.11 - refine criteria according to updated COP Q14.1.3.12 - refine criteria re brightly coloured safety nets should be provided onto the guard-rails and toe-boards for slab edges along building periphery. Q14.1.3.13 refine criteria re automated access control and warning system to prevent unauthorized entry of floor opening and lift shaft opening. Signal shall be automatically transmitted to CMP. Sub-Section 14.1.5 Q14.1.5.3 – refine criteria to specify erection of the protective canopy should be completed no later than the seventh floor slabs have been cast and entire scaffolds should be covered with protective screen Q14.1.5.8 - refine criteria to specify materials must not be placed or stored near the edges Q14.1.5.9 - refine criteria to specify not stacked or stored materials higher than edges of receptacles and tool straps with appropriate international/ national standards such as ANSI/ISEA 121-2018
	Sub-section 14.2.3 Q14.2.3.6 - deleted	Sub-section 14.2.3 Q14.2.3.3 - refine criteria to include safety measures for loading/ unloading of vehicles in lifting plan Q14.2.3.5 - refine criteria to specify not stacked or stored materials higher than edges of receptacles Q14.2.3.8 – refine question and criteria to include lifting supervisor(s) and a list of lorry-mounted crane / operators for handling loading and unloading operations on the site should be maintained. Q14.2.3.11 – modify question and criteria to assess necessary precautionary measures taken to ensure lifting safety before and after adverse weather conditions
	Sub-section 14.2.5 Falsework/Temporary Works rename to Falsework	Sub-section 14.2.5 Q14.2.5.1-Q14.1.5.7 - refine questions and criteria to focus on falsework Sub-section 14.2.7 Q14.2.7.10 – refine question and criteria re the

		measures taken for welding operations such as fire retardant screen to prevent spread of sparks generated from the welding or flame cutting operation Q14.2.7.11 – modify question to assess permit-to-work system in welding operations Sub-section 14.2.8 Q14.2.8.8 – refine question and criteria re a visual and audio alarm system installed at site entrance / exit for alerting unsafe acts or conditions. Signal shall be automatically transmitted to CMP. Sub-section 14.2.18 Q14.2.18. Q14.2.18.15 - refine question and criteria re Master Class training on MiC Project Implementation (Project Managers) and MiC training for Foreman Q14.2.18.16 - new questions re MiC safety trainings for MiC operatives Q14.2.18.17 - new questions re MiC safety trainings for managerial level staff involved in MiC operations Sub-section 14.2.19 New sub-section Temporary Works – 8 new questions Q14.2.19.1-14.2.19.8 Sub-section 14.3.2 Q14.3.2.6 – refine criteria re automated access control and warning system to prevent unauthorized opening of electrical distribution board cabinet by means of electronic lock and key provided with automated warning system. Signal shall be automatically transmitted to CMP. Sub-section 14.3.3 Q14.3.3.9 - refine criteria re centralised charging facilities with at least one 6 kg dry chemical (automatic type) fire extinguisher and at least one fire detector Sub-section 14.3.4 Q14.3.4.5 - refine criteria re suitable tool straps with appropriate international/national standards such as ANSI/ISEA 121-2018.

		Sub-section 14.3.7 Q14.3.7.2 - refine criteria to highlight metal cutting and curve cutting with ordinary portable circular saw is prohibited Q14.3.7.4 - refine criteria to highlight appropriate auxiliary handle should be equipped Sub-section 14.4.1 Q14.4.1.4 - refine criteria re the pre-delivery checking of critical parts of the derrick crane Q14.4.1.12 - refine question to include lifting supervisor(s) Q14.4.1.15 – new question re (SSSS) component provided for alerting against unsafe acts or conditions in tower crane lifting zone. Signal shall be automatically transmitted to CMP. Sub-section 14.4.2 Q14.4.2.8 – refine question to include lifting supervisor(s) Q14.4.2.11 - new question re (SSSS) component provided for alerting against unsafe acts or conditions in mobile crane danger zone. Signal shall be automatically transmitted to CMP. Sub-section 14.4.3 Q14.4.3.1 - refine criteria to include Guidance Notes on the Inspection, Thorough Examination and Testing of Suspended Working Platforms Q14.4.3.4 – refine criteria re the area underneath a suspended working platform must be fenced off. Protection of climbers against the effect of weather, dust or material Q14.4.3.6 – new question to assess necessary precautionary measures taken to ensure gondola safety before and after adverse weather conditions Q14.4.3.8 – refine criteria re opening up examination of climber should be carried out in accordance with the manufacturers' manual Q14.4.3.9 – refine criteria re safety checklist to include weights attaching to safety ropes Sub-section 14.4.4 Q14.4.4.2 - refine criteria re control measures should include the installation of smart device as secondary guarding device (SGD)

		Q14.4.4.3 - refine criteria re requirement of smart device as secondary guarding device (SGD) for protecting the operator from the risk of entrapment. Establish emergency rescue procedures Q14.4.4.5 – new question re effective Secondary Guarding Device (SGD) provided for the MEWP Q14.4.4.6 – refine question and criteria to include MEWP safety trainings courses for all operators on a MEWP and supervisory staff for MEWP operations Q14.4.4.8 - refine criteria to assess permit-to-work system for MEWP Sub-section 14.4.5 Q14.4.5.3 - refine criteria to implement wireless communication technologies such as facial recognition or RFID for authenticating authorised operation of material hoist. Signal shall be automatically transmitted to CMP. Establish emergency rescue procedures. Q14.4.5.5 – refine criteria to implement a material hoist control and landing gate locking system using wireless communication technologies with automated warning system. Signal shall be automatically transmitted to CMP. Sub-section 14.4.6 Q14.4.6.3 – refine criteria to include emergency rescue procedures for accidents / incidents involving power-driven lifting appliance for carrying persons, builders' lift and tower working platform Sub-section 14.5.1 Q14.5.1.4 - refine criteria to highlight not less than 600 mm wide between the excavator and the structure. Unsafe practices examples to avoid were provided. Necessary measures should be taken for adverse weather or "extreme conditions" Q14.5.1.8 – refine question and criteria re (SSSS) component provided for alerting against unsafe acts or conditions in mobile plant danger zone. Signal shall be automatically transmitted to CMP.

Annex C

Critical pass items

Critical pass in

Part A

(a) Element 7 Job Hazard Analysis

Part B High risk sub-sections

(b) Working at height (14.1.3)
(c) Housekeeping (14.1.4)
(d) Protection against Falling Objects (14.1.5)
(e) Lifting Operations (14.2.3)
(f) Electrical Supply System (14.3.2)
(g) Tower Crane (14.4.1)
(h) Mobile Crane (14.4.2)

For all on-going contracts failure to meet critical pass in any one of the key elements of Part A or high-risk subsections of Part B above contractors on contract basis will trigger alert to the respective Contract Manager and the deficiency will trigger alert to the respective Contractor Review Committee (CRC) for review of the concerned contractor's safety performance.

Annex D

Subletting for specific trades or parts of the works under new works contracts

Sub-contractors must be registered under the respective trades of the Primary Register of the Registered Specialist Trade Contractors.

Type of Contract	Subletting for specific trades or parts of the works is restricted to:	
	No more than ONE tiers of sub-contractors	**No more than TWO tiers of sub-contractors**
1. Building Contract; & Combined Foundation and Building Contract		a) Scaffolding; b) Mechanical handling and lifting (for tower crane only); c) Mechanical plant and equipment (for tower crane only); d) Concreting Formwork (for Large Panel formwork and small panel metal formwork only); e) Concreting (for Large Panel formwork and small panel metal formwork only); f) Painting (outside external wall of building); g) Plumbing and above-ground drainage work; h) Demolition.
2. Demolition Contract	When sub-letting part of the demolition works, engage no more than one tier of sub-contractor who must be on the Housing Authority List of Demolition Contractors and/or the Buildings Department List of Registered Specialist Contractors (Demolition Works)	a) Scaffolding; b) Mechanical handling and lifting (for tower crane only); c) Mechanical plant and equipment for demolition works;

Restriction on subletting for specific trades or parts of the Works under New Works contracts

Annex E

Safety training for site personnel

Safety training requirements:

Site Personnel	Safety Training Requirements
1. Quality Control Manager (QCM) 2. Building Services Engineer 3. Blasting Control Engineer 4. Registered Asbestos Consultant 5. Site Agent 6. Authorized Signatory (AS) 7. Technically Competent Person (TCP) Grade T4 to T5 for SSP 8. Qualified Engineer 9. Supervising Engineer (Tower Crane) 10. Competent Engineer and Environmental Manager (EM)	a. Safety Training Course for Site Management Staff (27 hours) provided by OSHC or CIC or equivalent b. Safety Training Refresher Course for Site Management Staff (7 hours) provided by OSHC or CIC or equivalent (For site personnel having completed (a) for 5 years or above)
11. Architectural Quality Control Coordinator (AQCC) 12. Structural Quality Control Coordinator (SQCC) 13. Asbestos Removal Site Supervisor 14. General Foreman 15. Block Foreman 16. Defect Rectification Co-ordinator 17. Technically Competent Person (TCP) Grade T1 to T3 for SSP 18. Certified Supervisor (CS) for Application of Tile Adhesive	a. Safety and Health Supervisor (Construction) course (42/43 hours) provided by OSHC or CIC or equivalent b. Enhancement Course for Construction Safety Supervisors (12 hours) provided by OSHC or CIC or equivalent (For site personnel who having completed (a) for 4 years or above)

Safety training for site personnel

a) Safety Training Course for Site Management Staff (duration 27 hours) provided by the Construction Industry Council or OSHC or equivalent.

b) Safety and Health Supervisor (Construction) Course (duration 43 hours) provided by the Occupational Safety and Health Council or Construction Industry Council (duration 42/43 hours) or equivalent.

Annex F

Inspection and certification of overhaul of major construction plant on site

Major construction plant	Overhaul ages (years)			Ages beyond which the plant is not allowed to be on Site (years)
	1st Overhaul	2nd Overhaul	3rd Overhaul	
1. Tower cranes (rented)	10	17	22	25
2. Tower cranes (self-owned)	14	23	30	35
3. Derrick cranes (used for installing and dismantling tower cranes)	10	17	22	25
4. Gondolas	7	12	15	17
5. Material hoists	10	17	22	25
6. Mobile cranes (excluding crawler cranes)	12	20	26	30
7. Truck-mounted cranes	10	20	26	30
8. Crawler cranes (rented)	15	25	30	35
9. Crawler cranes (self-owned)	20	30	35	40
10. Pile drivers (rented)	15	25	30	35
11. Pile drivers (self-owned)	20	30	35	40
12. Hydraulic hammers (rented)	15	25	30	35
13. Hydraulic hammers (self-owned)	20	30	35	40
14. Oscillators (rented)	15	25	30	35
15. Oscillators (self-owned)	20	30	35	40
16. Rotators (rented)	15	25	30	35
17. Rotators (self-owned)	20	30	35	40

1. Any overhaul, regular maintenance, etc. required by the manufacturers should also be met **in addition to** any overhaul requirements above
2. "Overhaul age" means the age at or beyond which overhaul maintenance is required at least in accordance with the specified overhaul procedures including the Checklists of Critical Parts for Overhaul Maintenance of the respective types of major construction plant.

3. "Overhaul maintenance" means an overall inspection, examination, repair, renewal and maintenance on critical parts and main components of a plant to be carried out in a depot with good engineering practice throughout by maintenance technicians and plant engineers to ensure that the critical parts and main components of the plant conform to the manufacturers' specifications and reinstate in a fully serviceable condition.
4. "Serviceable condition" means the state of a plant that is fit for use with due regard to the manufacturers' specifications and the relevant national or international standards.

Annex G

Temporary Works

Case 2 and Case 3 Temporary Works are classified into five importance levels with the corresponding level of control as shown below:

Temporary Works Importance Level	***Sub-clause***	***Case 2 and Case 3 Temporary Works Control***			***Dismantling Video***	***Independent Checking Consultant (ICC)***	***Annual Safety Certificate***
		Design	*Method Statement*	*Completion*			
I (Lowest)	*NA*	*Controlled by Safety Officer, SQCC, QCM, Site Agent*			*Nil*	*Nil*	*Nil*
II	*Sub-clause 6*	*QE*	*Controlled by Safety Officer, QCM, Site Agent*				
III	*Sub-clause 7*	*QE*	*QE*	*QE*			
IV	*Sub-clause 8*	*RSE*	*RSE*	*RSE*	*Required*		
V (Highest)	*Sub-clause 9*	*RSE*	*RSE*	*RSE*	*Required*	*Design & Completion*	*RSE*

Level II items

a. Details of the designated storage yard and storage device of accessories for large panel formwork;

b. Supporting frames for site video recording system;

c. Weighbridge;

d. Temporary refuse chutes;

e. Falsework and scaffolding that do not have effect on the permanent structure;

f. Temporary supporting device for strut removal;

g. Site accommodation for contractors, subcontractors, CM, land survey team, storage shed;

h. Mounting posts for remote site monitoring system;

i. Large panel formwork and small panel metal formwork for domestic block;

j. Temporary support for façade and precast units. For temporary support requiring ICU submission and the design, drawing and installation procedures for the erection method of precast concrete component, RSE's certification shall be required;

k. Any other temporary works of which the design should be certified by QE (or equivalent as approved by the CM) as required under the Drawings, the Specification and / or directed by the CM.

Level III items

a. Anchorage in lift wells;
b. Rebar lifting frames;
c. Movable noise barrier;
d. Lifting appliances;
e. Falsework and scaffolding that may have effect on the permanent structure;
f. Temporary protection net and associated structures above steel bending yard;
g. Steel lifting frames. For steel lifting frame design requiring ICU submission, RSE's certification on the design shall be required;
h. Falsework / formwork for vehicular ramp, cantilevers exceeding 1.5m, beam with span exceeding 12m, deep beams with depth exceeding 3m, elevated water tank, space frame, prestressed structure, columns and walls with height exceeding 6m, and retaining wall higher than 4m;
i. Method statement of lifting operation of plant and machinery;
j. Temporary working platform for the operation of plant and machinery;
k. All Case 3 Temporary Works other than that in level IV and level V under case 3;
l. Any other temporary works of which the design, method statement and completion certificate should be certified by QE (or equivalent as approved by the CM) as required under the Drawings, the Specification and / or directed by the CM.

Level IV items

a. Derrick crane including the siting of the crane, the assessment of maximum loads, the foundations, supporting structures, all connections between the derrick crane and permanent structure;
b. Protective canopy;
c. Temporary works for bridge and transfer structure construction;
d. Patent wallform systems;
e. Metal scaffolding in lift well for lift installation and lift shaft platforms;
f. Temporary works that may affect or be affected by slopes or retaining walls except for temporary slopes formed by the Contractor which should be certified together with the associated temporary works;
g. Any other temporary works of which the design, method statement and completion certificate should be certified by RSE as required under the Drawings, the Specification and / or directed by the CM.

Level V item

a. Tower crane including the siting of the crane, the assessment of, the foundations, supporting structures, all connections between the tower crane and permanent structure, and associated test of materials and workmanship, shall be certified by RSE and independently inspected and certified by ICC. The load test or examination of tower cranes under the Factories and Industrial Undertakings (Lifting Appliances and Lifting Gear) Regulations should not be conducted prior to acknowledgement of Form ESP-F5 by the CM;
b. Temporary passenger lift including the siting of the temporary passenger lift, the assessment of maximum loads, the foundations, supporting structures, all connections between the

temporary passenger lift and permanent structure;

c. Falsework spanning public highways;
d. Temporary steel working platform for the operation of plant and machinery with the required design loading greater than 20kPa;
e. Any other temporary works of which the design, method statement and completion certificate should be certified by RSE and of which the design and completion should be independently certified by ICC as required under the Drawings, the Specification and / or directed by the CM77