# TECHNICAL STANDARD AND INFRASTRUCTURE REQUIREMENTS

## PART 5

## OCCUPATIONAL SAFETY AND HEALTH WORK PRACTICES GUIDELINES

## MTSFB 007 : 2005

# CONTENTS

Attachments

## Committee Representation

The Occupational Safety and Health Work Practices (OSHWP) Sub Work Group operates under the wing of the main Cabling & Infrastructure Work Group which is supervised by the Malaysian Technical Standards Forum Bhd (MTSFB) authorized by Malaysian Communications and Multimedia Commission (MCMC). The TSIR- Occupational Safety and Health Work Practices document was developed by various members whom are representatives from the following Telecommunications and Broadcast companies:

Astro All Asia Network plc
Celcom (Malaysia) Berhad
Maxis Communications Berhad
Telekom Malaysia Berhad
Time dotCom Berhad

# FOREWORD

This Technical Standard was developed by the Cabling and Infrastructure Work Group on the minimum requirements for occupational safety & health work practices. The development of this guideline was carried out by this working group under the supervision of the Malaysian Technical Standards Forum Bhd (MTSFB) which is authorized by Malaysian Communications and Multimedia Commission (MCMC).

This Technical Standard and Infrastructure Requirements (TSIR) is a minimum guideline for service providers, contractors and other responsible parties for planning and maintaining a safe & healthy work environment.

TSIR consists of 5 main parts as follows:

Part 1: Fixed Network Infrastructure

Part 2: Broadcast Network Infrastructure

Part 3: Radio Communication Infrastructure

Part 4: Wireless Network

Part 5: Occupational, Safety and Health Work Practices (OSHWP)

Compliance with a Technical Standard does not of itself confer immunity from legal obligations.

**Working Group Objectives**

(a) To recommend and provide guidelines for occupational safety and health work practices applicable in Malaysia.

(b) To provide the guidelines necessary for planning and maintaining a safe and healthy work environment.

**Working Group Scope**

(a) Applies to work relevant to construction, installation, maintenance and operations.

(b) Where applicable, reference laws, regulations, code of practice, standard and guidelines from relevant Regulatory Bodies that has jurisdiction.

# TECHNICAL STANDARD AND INFRASTRUCTURE REQUIREMENTS PART 5: OCCUPATIONAL SAFETY AND HEALTH WORK PRACTICES GUIDELINES

## 1. Executive Summary

The Occupational Safety & Health Work Practices forms a part of the Technical Standards and Infrastructure Requirements (TSIR) document which serves as a minimum guideline in support of existing laws, regulations, code of practices and guidelines. This document was prepared with the common understanding and agreement among the Telecommunications and Broadcasters representatives in Malaysia. This sub-working group committee called **Occupational Safety and Health Work Practices (OSHWP)** is formed under the **Cabling & Infrastructure Work Group** set up under the *Malaysian Technical Standards Forum Bhd. (MTSFB).*

The TSIR addresses the minimum requirement on general and specific field occupational safety & health work practices relevant to telecommunications and broadcast work. The guideline is important in order for service providers, contractors and other responsible parties to promote and maintain a safe and healthy work environment and accident prevention programme.

### 1.1 Document Objective

To provide the minimum guidelines and reference in order to promote and maintain a safe and healthy work environment for persons at work, responsible parties and other related parties affected by the work. This is in order to protect persons at work and at place of work against risks to safety or health arising out of the activities.

### 1.2 Document Scope

The Occupational Safety & Health Work Practices covers the following areas of focus:

a) General occupational safety and health practices which are applicable to work related to construction, installation, maintenance and operations.

b) Specific field occupational safety and health work practices applicable to telecommunication and broadcast work related to construction, installation, maintenance and operations.

c) Where applicable, reference to relevant laws, regulations, code of practice, standards and guidelines from relevant Regulatory Bodies for detail information and guide.

### 1.3 Representation

The representatives in the Occupational Safety and Health Work Practices sub-workgroup who documented this TSIR are from the Telecommunications and Broadcasters namely Maxis, Time, Celcom, TM and Astro.

# 2. Occupational Safety and Health Work Practices

## 2.1 General Occupational Safety and Health Practices

### 2.1.1 Fire Protection and Prevention

Adequate means of detecting and/or extinguishing fires should be provided and maintained at the place of work as specified by the relevant authorities and the Uniform Building By laws 1984 (UBBL).

Where persons are working, appropriate means of escape in case of fire should be identified, provided and maintained. The means of escape or any emergency exit should be distinctively and conspicuously marked with a sign “KELUAR” indicating it is an escape or emergency exit.

Appropriate fire rated fire stop material should be utilized to prevent or retard the passage of flame as required and specified by the UBBL.

No fire, flame, naked light, smoking or other agent likely to ignite volatile flammable substances or the fumes there from should be allowed inside any room, cabinet or area which such substances are utilized or stored.

Tank or vessel which contains or has contained any volatile inflammable substance should not be subjected to any operation which involves the application of heat until all the appropriate measures have been implemented to remove the substance and any fumes arising there from or to render them non-flammable. If any tank or vessel has been subjected to any such operation as aforesaid, no volatile inflammable substance should be placed in such tank or vessel until the metal has cooled sufficiently to prevent any risk of igniting the substance.

Volatile inflammable substance should be applied or stored in a room or cabinet specially constructed for the purpose and of suitable fire-resistant material, or in the open air in a suitable place, isolated at an adequate distance.

At every place of work, there should be a minimum of one person who has the knowledge of basic fire fighting and at the minimum the usage of a portable fire extinguisher.

### 2.1.2 Housekeeping

Every place of work should be clear and routine maintenance provided. Refuse, rubbish and waste discarded appropriately. Grass cut, drains cleaned and trees and/or bush trimmed.

### 2.1.3 Illumination

Every place of work should be adequately illuminated by natural or artificial means whenever work is conducted. Lighting should always be provided in areas inadequate of natural light. Artificial lighting should be placed to avoid formation of shadows and mounting of these lights should be as high as practicable, above the line of normal vision, to avoid glare. Temporary lighting should be adequately installed in a safe manner.

Every place of work should be provided with emergency lighting and maintained in all important stairways, passageways and exits. Provisions should be made for the automatic lighting of the emergency lighting system upon failure of the general lighting system.

### 2.1.4 Sanitary Convenience

Every place of work should be provided with sufficient and suitable sanitary convenience for both sexes where both sexes are working. These sanitary conveniences are in respect of water closets, urinals and washing facilities.

Adequate and effective lighting and ventilation provisions should be made for these sanitary conveniences.

### 2.1.5 Personal Protective Equipment (PPE)

Every person at the place of work exposed to the related hazards and in accordance to the specific place of work requirements and process should be provided personal protective equipment (PPE) or devices and clothing.

#### 2.1.5.1 Clothing

Working clothes should be of good fit and suitable to the working condition. Every person exposed to corrosive or other harmful substances should be provided with liquid proof protective suits, hoods, aprons, legging, gloves and other protective wear according to the nature of the substance and the risks involved.

#### 2.1.5.2 Eye Protection

Suitable eye protection equipment such as safety spectacles, goggles, effective screens should be provided when persons are engaged in welding or cutting operations, chipping, cutting or grinding any material from which the particle may fly. Other work process involving turning (external or internal) of non-ferrous metals or of cast iron or of articles of such metals or such irons where the work is done dry or turning by means of hand tools. Working with corrosive or other harmful substances or chemicals and while engaged in any other operation which may endanger the eyes are also included.

#### 2.1.5.3 Foot Protection

Suitable protective footwear such as safety shoes or boots should be provided when persons are exposed to the hazards such as falling objects, protruding objects and crushing.

#### 2.1.5.4 Head Protection

Suitable head protection should be provided such as industrial safety helmet and riggers safety helmet for personnel exposed to falling or flying objects and impact to the head.

#### 2.1.5.5 Hearing Protection

Suitable hearing protection devices such as earplugs or earmuffs should be provided where person are working in an intensive prolonged noise environment.

#### 2.1.5.6 Hand Protection

Suitable hand protective devices such as gloves, mittens or gauntlets should be provided when persons are exposed to work involving handling of sharp edges, abrasive objects, corrosive harmful substances, hot metals or other toxic irritating or infectious substances.

#### 2.1.5.7 Respiratory Protection

Suitable respiratory protective equipment should be provided where persons are exposed to vapours, injurious gases, dusty, toxic or hazardous atmospheres or atmospheres deficient in oxygen. In determining the suitability of such equipment consideration is to be given to:-

a) The process and conditions creating the exposure.

b) The chemical and physical toxic or other hazards of the substance from which protection is required.

c) The nature of the duties to be performed by the persons required to wear the equipment.

d) The encumbrance or restriction of movement in the working area.

e) The facilities available for the maintenance, upkeep and supervision in the use of such equipment.

The respiratory protective equipment includes but is not limited to mask, filter respirators, supplied air respirators and self contained breathing apparatus.

#### 2.1.5.8 Fall Protection

Suitable fall protection equipment such as full body harness, lanyards, and lifelines should be provided where persons are required to work inclusive of access and/or egress and are liable to fall a distance of more than three (3) meters.

Safety belts are for restraining purposes only and selected specified jobs such as pole work for fixed line telephony.

#### 2.1.5.9 Maintenance

PPE and fall protection equipment should be periodically inspected and maintained. Defective equipment should be replaced accordingly.

#### 2.1.5.10 Training

Every person provided with PPE should be appropriately trained on the use and maintenance of the PPE.

#### 2.1.5.11 Standards

All PPE should conform to safety standards specified and acceptable by the relevant authority.

### 2.1.6 Manual Handling and Storage

#### 2.1.6.1 Manual Handling

Manual handling includes but is not limited to activities such as carrying, stacking, pushing, pulling, rolling, sliding, lifting or lowering loads or material. In manual handling, persons may be exposed to risk of injuries to fingers, hand, wrist and back. In order to reduce the risk, the following should be considered:

a) Remove or reduce the requirement for manual handling.

b) If manual handling cannot be avoided, identify the task involved and access the risk of injury.

c) Plan the movement of material and work involved. The plan should involve methods to reduce the risk of injury and should consider the method of work, travel path and distance, load or material height, weight, width and length. The usage of mechanical lifting devices, reduction of load/material weight, clear and unobstructed travel path and travel distance should also be considered.

d) Material and load should be inspected to identify sharp edges, slippery surface, proper holding areas or handles. This is to reduce the risk of injury to hands and fingers once work is performed.

e) Proper lifting techniques, proper body posture, team lifting and manual handling training for relevant persons should be implemented.

#### 2.1.6.2 Material Storage

Material should be stored on firm ground and not overload the floor or structure on which it is stored. Material should not be stored on scaffolds or runways in excess of supplies needed for immediate operations.

Material stored in tiers should be stacked, blocked, interlocked and limited in height so that it should be stable and otherwise safe against sliding or collapse.

Structural steel poles, pipes, bar stock and other cylindrical materials should be attached and blocked in order to prevent spreading or tilting.

Material stored in public areas should be located and protected in order to minimize the hazard to public and interference with the traffic. Only relevant persons should be allowed in, on or around the material and storage area.

Aisles and passageway should be kept clear of material and in good condition in order to provide a free and safe movement for material handling equipment, workers and access/ egress.

The provision for storing or stacking material on roof should be made to ensure that material does not overload the area. The materials should be secured against movement by wind and sliding down from sloping roofs.

### 2.1.7 Hoisting and Lifting Equipment

Various types of hoisting and lifting equipment are utilized such as goods hoist, passenger hoist, mobile hoist, mobile elevated work platforms, cranes, skylifts and appliances utilized for manual hoisting.

Hoist and lifting equipment and related appliances such as but is not limited to ropes, shackles, bolts, slings, chains, hooks and pulleys should be of good construction, suitable and sound material, adequate strength and suitable for the purpose for which it is used. The equipment and appliances should also be on firm base or structure, adequately supported and secured. These equipment and appliances should be erected, extended and dismantled by trained persons in accordance to the established safe work procedures and utilizing suitable protective and fall arrest equipment.

Majority of hoist and lifting equipment such as cranes, skylifts and mobile elevated work platforms are fitted with outriggers to maintain stability. The outriggers should be fully extended. Adequate footings and packing should be utilized especially where the ground is soft or backfilled.

Hoist and lifting equipment operators should be adequately trained and experienced. All crane operators should be competent and posses competency certificate.

The safe working load of hoist, lifting equipment and appliances should be clearly marked and identified. The weight of material or equipment to be lifted should also be identified. Lifting loads greater than the safe working load of the hoist, lifting equipment or appliances should not be permitted.

Hoisting and lifting operations should comply with the following:

a) Slewing radius of the boom or jib should be clear from obstacles or areas such as overhead power lines, buildings, structures and public access.

b) Adequate work area protection should be provided. No part of the equipment should extend beyond the protected working area.

c) No loads should be lifted or moved over persons at work or persons at place of work.

d) Inspection of the hoist, lifting equipment and appliances should be performed periodically and prior to operations. This is to ensure the safe operations.

e) Good and clear communication by walkie-talkie, hand signal or other effective means should be maintained between the hoisting and lifting equipment operators and assisting person such as signalers and persons at work.

Maintenance and repair on hoisting, lifting equipment and appliances should be performed by trained persons and in compliance with the manufacturer's requirements.

### 2.1.8 Hand and Portable Power Tools

Hand and portable power tools should be maintained in a safe condition. When tools are designed to accommodate guards, they should be equipped with such guards when in use. Belts, gears, shafts, pulleys, sprockets, spindles, drum, fly wheels, chains or other reciprocating rotating or moving parts of the equipment should be guarded if such parts are exposed to contact by persons at work or otherwise create any other hazards.

The person using the tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dusts, fumes, mists, vapours or gases should be provided with the necessary personal protective equipment to protect them from the hazards.

All switches or other safety features should not be removed or modified. The equipment should be periodically inspected and maintained. Defective equipment should be replaced accordingly.
All handles of tools should be kept free of splitters or cracks and should be kept tight in the tool. Electrical power-operated tools should be insulated in accordance with the related Regulatory Body regulations and requirements. The use of electrical cords for hoisting & lowering of tools is prohibited.

### 2.1.9 Welding and Cutting

The welding process such as gas welding and electric arc welding produces heat, radiation, fumes, gases, noise and other physical hazards which present a risk of injury to persons at work or persons place of work. Provision should be made for adequate protective measures and procedures in order to reduce the risk.

Persons involved in the welding and cutting process should be trained in handling the equipment and provided with the required personal protective equipment (PPE). The PPE are such as respiratory protection against the fumes, eye protection and shields against the ultraviolet, infrared radiation and flying objects and if required, hearing protection against noise exposure.

Welding and cutting operations, if possible, should be performed in areas of natural ventilation such as in the open air in order to protect the persons at work or welder from the welding fumes. During indoor welding, local or forced ventilation should be provided.

High temperature and heat from the welding operation may also cause burns, fires and explosions. As protection against these hazards, all combustible material should be removed from the welding

area. The area should be free from any flammable substances or vapours and equipped with adequate portable fire extinguishers. Gas cylinders should be placed in the upright position, labeled and stored separately in ventilated areas and if possible away from buildings and public area.

Welding and cutting equipment, gas cylinders, piping, cables, hoses and related parts should be maintained and inspected prior to use and periodically to ensure in good working condition.

### 2.1.10 Excavation

To prevent injury and damage to property during excavation work, provision should be made for adequate protective measures as following:

a) Check soil condition for weaknesses, ensure soil and excavation area is stable against slides and cave–in. This should be conducted by a competent person and periodical inspection conducted.

b) All public walkways, sidewalks and the thoroughfares bordering on or running through any excavation area should be provided with guardrails or board fences and warning signs. In addition, temporary foot-walks beyond the kerb should be substantially constructed and provided with protection on both sides. Excavations on or in close proximity to a highway or public vehicular traffic, suitable protection should be placed to direct traffic away from it, such as, but not limited to barricades, warning signs and warning lights. If required, a traffic controller or flagman should be assigned.

c) During work at night or darkness, all public sidewalks or areas should be adequately illuminated and warning lights or flares should be placed to ensure safety of public, pedestrian and vehicular traffic.

d) All loose rocks and materials at the excavation banks which may slide, roll or fall upon persons below should be removed. Open sides of excavations where person may fall more than three (3) metres should be guarded by adequate barricades and warning signs placed at conspicuous positions.

e) Excavated materials, superimposed loads or equipment should not be stored or moved near the edge of an open excavation or trench. This is to prevent materials from falling into the excavation or by the increase load which may cause the banks to slip or collapse. For vehicle movement, adequate stop blocks or barricades may be placed on the surface, at a sufficient distance from the edge of the excavation in order to prevent vehicles from endangering the excavation or being driven into it.

f) Safe means of access to and egress from should be provided for the excavation area of more than 1.2 metres in depth such as but not limited to ladders, ramps and stairways.

g) No person should be permitted to work in or be in vicinity of the excavation area where there is a risk of being struck or endangered by an excavating machine or by material dislodged by it or falling from it. No machinery should be positioned or operated in a manner that may endanger the machinery operator or other persons in the vicinity of the excavation area.

h) The excavation should not undermine the stability of adjacent or adjoining structures or buildings. If the stability may be affected, precautions should be taken to support such structures in order to prevent any collapse and protect workers.

l) In excavation, there is a risk of striking or effecting underground or buried facilities, tanks or pipes such as electric, gas, telecommunication, water and sewerage. The location of these facilities should be determined and marked prior to excavation.

### 2.1.11 Handling Accidents and Emergency Response

The nearest Department of Occupational Safety and Health (DOSH) office should be notified of any incident such as accidents, dangerous occurrence, occupational poisoning or occupational disease which has occurred or is likely to occur at the place of work. These incidents at the place of work should be reported and recorded as required by the law in accordance to the **Occupational Safety and Health (Notification of Accident, Dangerous Occurrence, Occupational Poisoning and Occupational Disease) Regulations 2004**.

When an accident occurs at the place of work the following accident and emergency response is recommended:

a) Inform emergency or medical services, trained first aider or doctor and management.

b) Separate cause of incident from the victim if safe to do so prior to assisting victim such as switch off electrical power or turn off powered or mobile plant.

c) If trained, provide emergency first aid to treat or contain the injury. Only move the victim to prevent further injury.

d) At the scene of the incident, the evidence or any other item should not be removed from or interfered with or disturbed, unless authorized to do so. The authorization to do so may be applied to the extent necessary to save the life of, prevent injury to, or relieve the suffering of any person, maintain the access of the general public to an essential service or utility, prevent further damage to or serious loss of property or environment.

e) Protect the scene of the incident by placing barricades, signs and if required personnel to guard the area.

At every place of work there should be available means of communications, transportation and emergency contact details such as the general emergency number and number of the nearest emergency and rescue services, hospital and person-in-charge.

### 2.1.12 Training and Awareness

Training requirements

The employer should provide training and awareness programmes so that all employees directly affected must acquire the understanding, knowledge and skills necessary for the safe and healthy performance of the duties and responsibilities assigned.

The training and awareness programme should be provided to all related persons and should cover at a minimum:

a) Regulations, standards, code of practices and requirements that govern the specific activity in which the person will be working.

b) The work related and risks related to the particular job.

c) Safe systems of work associated with the work.

d) Any other issues and problems related to the work.

The training and awareness programme should be conducted by competent persons as defined by the employer or relevant Regulatory Bodies.

## 2.2 Specific Field Occupational Safety and Health Practices

### 2.2.1 First aid

An injured person should at all times receive first-aid treatment and such further medical attention as may be necessary.

Every first-aid box should be equipped in accordance with ***Attachment 1*** and clearly marked. The first-aid box should be available at the place of work and placed at locations accessible by all persons.

The first-aid box should be placed under the charge of a responsible person or first-aider, which should be trained in basic first-aid treatment. The name of such responsible person or first-aider should be made known to all persons at the place of work.

### 2.2.2 Heat Stress

Where the operation gives rise to undue heat, suitable provision should be made to reduce the effect thereof on any person employed to the extent as may be considered reasonable and practicable.

Where the temperature at the place of work is unduly high, adequate means should be provided to cool the air or to create adequate air movement, or both, in order to reduce the body temperature of any person at work.

Any building constructed wholly or partly of materials having a high coefficient of heat transmission which are subject to the heat of the sun should be lined with suitable insulating material or coated with white paint, white-wash or other heat reflecting material or so lined and so coated.

Protection measures from heat stress may include but are not limited to drinking a lot of water throughout the day, rest breaks, working in shade, wearing light coloured clothing, conducting the heaviest work in the coolest time of the day and taking turns or shift to work.

### 2.2.3 Occupational Noise Exposure

No person should be exposed to a noise level as follows:

a) Exceeding equivalent continuous sound level of 90 dB(A) or exceeding the limits specified in ***Attachment 2*** or exceeding the daily noise dose in unity.

b) Exceeding 115 dB(A) at any time.

c) Impulsive noise exceeding a peak sound pressure level of 140dB.

When persons are subjected to noise level exceeding the limits prescribed in 2.2.3 (a) and (b), feasible engineering or administrative controls or both should be utilized. Whenever it is not feasible to implement controls or when such controls are not feasible to reduce the noise levels below the limits prescribed in 2.2.3 (a) and (b), hearing protection devices should be provided. The hearing protection device provided should attenuate the person's exposure to the noise level below the limits prescribed in 2.2.3 (a), (b) and (c).

If hearing protection devices are provided, proper initial fitting, training in the use and care of the hearing protection device should be provided to the users for their work.

Warning signs should be posted at place of work in which persons may be exposed to or above the limits prescribed in 2.2.3 (a),(b) and (c).The warning sign should clearly indicate that the area is a high noise area and that hearing protection devices should be worn.

Further regulations, requirements, programmes, permissible exposure limits and reference are as per **Factories and Machinery (Noise Exposure) Regulations 1989 [P.U. (A) 1/89].**

### 2.2.4 Chemical Safety

Every person at the place of work should not be exposed to any chemical hazardous to health which exceeds its permissible exposure limit. Chemicals hazardous to health may be very toxic, toxic, corrosive, harmful, irritant, explosive, oxidizing, extremely or highly flammable and flammable. These chemicals may be present in substances such as adhesives, cleaning agents, floor treatments, cement, sealants, solvents, acids and heavy metal such as lead. The important and common entry routes for these chemicals are through inhalation or breathing, ingestion or swallowing, and absorbing through the skin.

Adequate control measures should be implemented to eliminate or reduce the actual or potential exposure of a person to these chemicals.

The control measures should include the following:

a) elimination of chemical hazardous to health from the place of work;

b) substitution of less hazardous chemicals for chemicals hazardous to health;

c) total enclosure of the process and handling system;

d) isolation of the work to control the emission of chemical hazardous to health;

e) modification of the process parameters;

f) application of engineering control equipment;

g) adoption of safe work systems and practices that eliminate or minimize the risk to health; and

h) provision of approved personal protective equipment (PPE).

The approved PPE such as suitable chemical protective clothing, gloves, eye or face protection should be used where control measures specified in (a) to (g) would be impracticable or do not adequately control a person’s exposure to the chemicals hazardous to health. The PPE may also be used as an interim measure while other preferred control measures are being designed and installed. Chemical contact with eyes and skin should be avoided but if it does occur, wash the affected area with water and seek medical attention.

All chemicals hazardous to health should be identified and recorded in a register, labeled and relabeled, current chemical safety data sheet provided and kept in a conspicuous place close to the chemical usage locations, washing stations and warning signs posted where required.

Information, instruction, training and supervision shall be provided to employees who are exposed or likely to be exposed to chemicals hazardous to health. This should include the risk to health created by such exposure and the precaution which should be taken.

Further regulations, standards, requirements and practices are as per:

a) identification of chemicals hazardous to health and records, ceiling limits and permissible exposure limit, assessment of risk to health, action to control the exposure and control measures, labeling requirements, information, instruction, training and supervision, chemical safety data sheet, monitoring of exposure and health surveillance, medical removal protection, warning signs and records keeping – **Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000 [P.U. (A) 131];** and

b) packaging and labeling requirements, classification and danger symbols, chemical safety data sheet – **Occupational Safety and Health (Classification, Packaging and Labeling of Hazardous Chemicals) Regulations 1997 [P.U. (A) 143].**

### 2.2.5 Electrical Safety

Prior to commencement of work, the employer should identify by inquiry or direct observation, or by instruments, where any part of an electric power circuit, exposed or concealed, is so located that the performance of the work may bring any person, tool or machine into physical or electrical contact with it. Proper warning signs should be displayed and maintained in the national language and English where such a circuit exists.

The employer should advise his employees on the location of such lines, the hazards involved and the protective measures to be taken and should, if practicable, de-energized the electric power circuit.

Every person who is working on or in such proximity to any part of an electric power circuit which exposes the person to contact with the same in the course of work should be protected against electric shock by de-energizing the circuit and earthing it or by guarding it by effective insulation. Suitable personal protective equipment should also be provided such as but not limited to, insulated protective gloves, shoes and clothing.

Electrical wiring should be supported on proper insulators and not looped over nails or brackets. Electrical wiring should not be left on the ground or the floor of a place of work. Where it is unavoidable and necessary to lay the electric wiring on the ground or the floor of a place of work, such wiring should be provided with adequate mechanical protection to withstand the wear and tear to which it may be subjected and it should be maintained in good and safe working condition.

No bare electrical wires or other unprotected conductors should be located within four (4) metres of any surface where persons may work or pass, unless completely guarded by a fence or other barrier.

Where electrical appliances and current-carrying equipment have provisions made for earthing, they should be properly earthed. To prevent persons from injury by electrocution, all appliances and equipment should be tested for electrical current prior to commencement of work on or in proximity to these said appliances and equipment.

All temporary electrical installations at the place of work should be provided with earth leakage circuit breakers.

Elevated power lines should have a sufficient vertical clearance where they cross highways, access roads or areas traveled by trucks, cranes, shovels or other similar equipment and should not be lower than 5.2 metres from the ground surface.

All electrical installations at the place of work should comply with the requirements of the appropriate Regulatory Body or authority.

### 2.2.6 Work Area Protection

#### 2.2.6.1 General

Permanent or temporary measures for protection are required to ensure the safety of persons at work, the public and property. The measures, type and extent of protection should be determined during the planning, design and risk assessment stage. The protection should not or cause only minimum interference to traffic, pedestrians and place of work access or egress or both. The protection should also consider the environment of the area such as the visibility, public exposure, traffic, storage area and any other persons involved. In principle, all work area and machinery operation especially in the vicinity of public should be protected. The protection should include but is not limited to warning signs, warning lights, warning tapes, barricades, hoarding, overhead protective covers, covered walkways, catch platforms, safety nets, guardrails, toe-boards and edge protection devices.

Protection against falling material and objects may be achieved by good housekeeping in order to prevent material that could fall from accumulating, prevention of material being thrown from a roof or height and the usage of enclosed rubbish chutes or lower material to ground using rope, winch or hoist. Prevent access to the areas underneath or adjacent to work being performed on roof or heights. If this is not possible, then minimize access and usage of safety nets, covered walkways or similar safe guards to stop falling material should be considered. Particular attention should be provided for public access areas and if possible work should be performed during the period when public is not present.

#### 2.2.6.2 Working on Roads

Work being performed over, on or in close proximity to a road, highway or any other place where public vehicular traffic may cause a hazard to persons at work, the working area should be barricaded and suitable warning signs or light and cones should be placed to direct traffic away from the work area. When necessary, the traffic should be controlled by a designated traffic controller or flagman.

Adequate traffic control is also required to safely guide and protect motorist, pedestrians and persons at work and is implemented in the traffic control zone. The traffic control zone is the distance between the first advance warning sign and the point beyond the work zone where traffic is no longer affected. In general, the traffic control zone may be divided into specific parts such as the Advance Warning Area, Transition Area, Buffer space, Work Area and Termination Area. The transition area will not be used if no lane or shoulder closure is involved.

Further standards, design and application requirements for temporary signs and devices, Traffic control zone requirements and guidelines are as per the **Jabatan Kerja Raya, Arahan Teknik (Jalan) 2C/85 – Manual on traffic Control Devices, Temporary Signs and Work Zone Control**.

### 2.2.7 Working at Height

Working at height can be dangerous and falls from height are a major contributor to serious injury and fatality. Where any person is required to work at a place from which the person will be liable to fall a distance of more than three (3) metres, protection means should be provided to ensure that the person is safe. Such means should where practicable, include but is not limited to, the provision of protection such as edge protection and platforms, the use of fall arrest equipment such as full body harness, lanyards, ropes, safety belts, lifeline systems, arrestor devices and safety nets.

Anchorage points for the fall arrest equipment or any other devices should be suitable, adequately positioned, sufficient in number, size and strength to effectively arrest the fall and resultant load.

A person required to work at height should have appropriate knowledge, skills, experience and should be able to identify the risks, understand the hazard control measures, safe systems of works and procedures.

In planning the work, especially with regards to roof, tower and other similar structures, alternative methods of access and work should also be considered such as work being performed from ground level, the usage of mobile access equipment or mobile elevating work platforms. These equipments provide both edge protection and work platform and are particularly suitable for short duration work.

A risk assessment should be performed in order to evaluate the risks involved from the work and to identify the preventive and protective measures if working at height is to be performed. Such measures should include safe systems of work and procedures, equipment required, competency and supervision requirements, protection for persons working at height, work area protection requirements for the persons at place of work and public.

The main areas from which falls could occur during at working at height are from flat or sloping roofs, fragile roofs or roof lights, through opening and holes, from ladders and scaffolds.

#### 2.2.7.1 Working with Ladder

Ladders and step ladders should be of good construction, sound material and adequate strength for the purpose for which it is used. Usage of the ladder only enables one person to climb or descend at any one time. Safe climbing techniques' using both hands has to be utilized making it difficult to carry tools or material and risk of dropping them. Movement is also restricted and has a limitation of height.

Ladders and step ladders should be placed on firm and level footing and should not stand on loose bricks or other loose packing. The ladder should also be placed at a safe angle to provide maximum stability. It should also extend at least one (1) metre above the place of landing or the highest rung to be reached by the feet of any person working on the ladder unless there is adequate handhold to provide support. The ladder should so far as practicable, be securely fixed so that it is not able to move from its top or bottom points of rest. If this is not possible, securely fix the ladder at the base and if this is also not possible or practicable then a person should be stationed at the base of the ladder to prevent slipping.

Ladders should also be secured so as to prevent undue swaying, equally and properly supported on each upright and so used as not to cause undue sagging.

Ladders should be inspected periodically and prior to use. Ladders should not be used with defects identified such as missing, broken or defective rungs, broken or split side-rails, faulty or defective construction or with any of the rungs depending for its support solely on nails, spikes or other similar fixing. The defective ladders should be marked, removed from service and stored separately.

#### 2.2.7.2 Working with Scaffold

Scaffold is a temporary structure with supporting platforms which is used mainly for work, access, egress or storage of materials during the work. Every scaffold and every part thereoff should be of good construction, of suitable and sound material and of adequate strength for the purpose for which it is used. The scaffold should also be constructed using sufficient and suitable quality material, in good condition and free from defects or corrosion that would affect the strength materially. The scaffold should also be properly maintained.

Scaffolds should be designed, erected, maintained or be substantially altered or be dismantled by trained persons under the supervision of a competent person. Scaffold should also be periodically inspected by a competent person.

Scaffolds should be securely supported or suspended and where necessary sufficiently and properly strutted or braced to ensure stability. If the scaffold is not properly designed and constructed as an independent scaffold, it should be rigidly connected with the building.

All structures and appliances used as support for scaffolds, working platforms, gangways or runs should be of sound construction, have a firm footing or be firmly supported and should where required be adequately strutted or brace to ensure stability.

Safe and secured means of access to and egress from the work area should be provided by using ladders, gangways or runs. Working platform should be closely boarded, planked, plated, secured and evenly supported to prevent displacement or tipping. Every area of the working platform from which a person is liable to fall from a distance of more than three (3) metres, should be provided with a suitable guard-rail or guard rails of adequate strength to a height of at least one (1) metre above the platform. Toe-boards up to a sufficient height are to be installed also, so placed as to prevent fall of persons, material or tools. Every platform should be free from unnecessary obstruction, material or rubbish, projecting nails and to avoid it from becoming slippery.

Every person should only work on a scaffold that is certified safe to use and not work underneath another person who is working on the same scaffold. They should use fall arrest equipment such as full body harness and lanyards with proper anchorage points.

Further regulations, standards, construction and design requirements are as per the **Factories and Machinery (Building Operations and Works of Engineering Construction) (Safety) Regulations 1986, Part X - scaffolds**

#### 2.2.7.3 Tree Trimming

Work involving tree trimming is usually performed from ground level or from elevated locations or platforms. The normal hazards from the work are falling from height, electrocution from working in proximity or coming in contact with power cables or lines and being hit by public vehicular traffic. Risk assessment should be implemented to identify the risk and control measures required to mitigate the hazard.

Stability of persons performing the work should be maintained whether working on a ladder, using elevated platform, skylift or climbing a tree. Where person are deemed to be working at height, all required fall prevention requirements and protection should be implemented. All cutting and trimming tools should be maintained in good condition. Work area should be protected in order to ensure safety of public or vehicle and when required adequate traffic control should be implemented.

#### 2.2.7.4 Working on Roof

Working on roof requires knowledge, experience, skills and in certain conditions, depending on the type, pitch and nature of work, special equipment and fall arrest equipment is required. Falls normally occur from the edge of the roof, through gaps or hole in the roof, through fragile roof materials and roof lights. Access to and egress from the roof may also be a hazard. Safe and secure means of access and egress is required such as but is not limited to ladders, walk platforms, scaffolds and mobile access equipment or mobile elevating work platforms.

Flat roofs are normally roofs with a pitch of up to ten (10) degrees and slope roofs are normally with a pitch of more the ten (10) degrees. For these types of roofs, all the edges, openings, holes or breaks where a person is liable to fall from or through for a distance of more the three (3) metres, should be adequately protected by guardrails and toe-boards. As an alternative to the

edge protection, the existing roof parapet walls or similar barriers and for openings, a secure, adequate strength and masked cover may be used.

Where work is being performed on slope roofs and the situation is slippery or stability is compromised, protection against sliding should also be provided. The protection should consist of roofing brackets, crawling boards or crawling ladders which should be properly supported and securely fixed to the roof. Full body harness and lifelines should also be used with proper anchorage points as additional fall protection.

A fragile roof is roof material that does not safely support the weight of a person and any load carried such as asbestos, glass, plastic, cement sheets, corrugated plastic sheeting for roof lights and other brittle surfaces. Other than the material, other factors to be considered are the thickness of the material, the span between supports, sheet profile, the type, number, position and quality of fittings, the design of the supporting structure and the age of the material.

When work is performed on or access across fragile roof material, walk platforms, crawling boards or crawling ladders should be used. These devices should be long enough to provide adequate support across roof members. Full body harness and lifelines should also be used for additional fall protection.

No work should be performed on the roof during adverse weather conditions such as rain, thunderstorm, lightning or strong wind. All warning, danger signs and restricted area or zones should be adhered to.

#### 2.2.7.5 Working on Tower and Other Structures

Working on tower and other similar structures such as minimast, monopole and guidemast requires knowledge, experience, skills and special equipment such as fall arrest equipment. Falls may occur during climbing or working on these structures. In order to reduce the risk of falling, the following should be considered:

(a) The work should be properly planned, appropriately supervised and performed in a safe manner. The plan should include emergency procedures.

(b) Every person working on tower or other structures should be trained. The programme should include at least the minimum with regards to hazard identification and control measures, safe work and climbing procedures, fall arrest system and equipment and emergency procedures.

(c) Safe climbing and movement techniques should be practiced inclusive of movement or work at the operating antenna area where persons should be behind the antenna. A minimum of two (2) persons at work should also be practiced.

(d) Appropriate protective equipment such as safety or rigging helmets, safe climbing shoes, gloves and fall arrest equipment should be utilized. The fall arrest equipment such as full body harness, lanyards, lifelines and arrester devices should be attached to proper anchorage points.

(e) Tools and equipment should be raised and lowered using proper hoisting methods or the usage of tool bags. Tools should not be thrown or dropped to another person at work or to the ground.

(f) No work should be performed on the tower or other similar structures during adverse weather condition such as rain, thunderstorm, lightning or strong winds. All warning, danger signs and restricted area or zones should be adhered to.

### 2.2.8 Working Over or Near Water

Working over or near water presents a risk of persons falling into the water and may drown or be swept away by the current. Provisions should be made to prevent this and if occurs, rescue operations should be conducted as soon as possible.

Personal protective equipment such as safety helmets, safety shoes and buoyancy aids or lifejackets should be used at all times. Adequate platform with guardrails and toe-boards should be available and if not possible, access and working areas should be equipped with lifelines for the usage of full body harness and lanyards. Life buoys with rescue lines and grab lines should also be provided at intervals. Safety nets should also be considered depending on work location and situation.

Where there is current in the water, suitable rescue devices should be provided such as a secure line extended across the water and fitted with buoys or similar objects to keep a person afloat. Where there is fast flowing waters, a power driven rescue boat should be provided. The boat should be manned and properly equipped with first aid equipment, lifebuoy with buoyant rope and searchlights.

### 2.2.9 Working in a Confined Space

Working in a confined space such as manhole, chambers, tanks, vats, pits, shafts, tunnels, sewer and boilers presents a risk of injury or death to persons from exposure to toxic gases, vapours or fumes, flammable or hazardous atmospheres or atmospheres deficient of oxygen. Every confined space should be identified and all related persons informed of its existence and location by posting danger signs or by any other equally effective means.

Confined space work and entry requires an overall programme for controlling, protecting persons at work and at place of work from the confined space hazards, regulating employee entry into confined space, training and competency requirements for persons who have active duties in entry operations such as the authorized entrants, stand-by persons, entry supervisor and the authorized gas tester (AGT).

The confined space programme should include at least to the minimum elements such as hazard identifications, hazard control, stand-by person, monitoring of multiple confine spaces, permit system, sign-posting, employee training, equipment, means of communication, external hazard protection, identification of the duties, informing the contractors, co-ordination of entry operations and conclusion of entry. Emergency and rescue procedures should also be included.

Further regulations, requirements and practices with regards to confined space entry and programme are as per the **Factories and Machinery (Safety, Health and Welfare) Regulations 1970 [Revised 1983] and the Code of Practice for Safe Working in a Confined Space, 2001.**

## 3. Definitions

For the purposes of this TSIR, the followings definitions apply.

| | | |
|---|---|---|
| Authorized Entrant | : | Means an employee who is authorized by the employer to enter a confined space |
| Authorized Gas Tester (AGT) | : | Means a competent person authorized in writing by an employer or occupier to carry out atmosphere test |
| Ceiling limit | : | The airborne concentration that should not be exceeded during any part of the working day |
| Chemicals | : | Chemical elements or compounds or mixtures thereof, whether natural or synthetic, but does not include micro-organisms |
| Chemical classification based on physicochemical properties - Explosive, Oxidising, Extremely flammable, Highly flammable, Flammable | : | All the terms should have the same meaning as assign to it in the **Occupational Safety and Health (Classification, Packaging and Labelling of Hazardous Chemicals) Regulations 1997 [P.U. (A) 143]** |
| Chemical classification based on health effect – Very toxic, Toxic, Harmful, Corrosive, Irritant. | : | All the terms should have the same meaning as assign to it in the **Occupational Safety and Health (Classification, Packaging and Labelling of Hazardous Chemicals) Regulations 1997 [P.U. (A) 143]** |
| Chemicals Hazardous To Health | : | Any chemical elements or preparation which<br>(a) is listed in Schedule I or II of the **Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000 [P.U. (A) 131/2000]**<br>(b) possesses any of the properties categorized in Part B Schedule I of the **Occupational Safety & Health (Classification, Packaging and Labeling of Hazardous Chemicals) Regulations 1997 [P.U. (A) 143/97]** ;<br>(c) comes within the definition of "pesticide" under the **Pesticide Act 1974 [Act 149]** ; or<br>(d) is listed in the First Schedule of the **Environmental Quality (Schedule Wastes) Regulations 1989 [P.U. (A) 139/89]** ; |
| Chemical Safety Data Sheet | : | A document which contains relevant information on a chemical and is furnished in pursuance of the **Occupational Safety and health (Classification, Packaging and Labeling of Hazardous Chemicals) Regulations 1997 [P.U. (A) 143/97]** |
| Competent Person | : | A person determined by the employer to have suitable training and sufficient knowledge, experience and skill, for the performance of the specific work |
| Confined Place Programme | : | Means the employer's overall programme for controlling and, where appropriate, for protecting his employees from confined |

| | | |
|---|---|---|
| | | apace hazards and for regulating employee entry into confined spaces |
| Continuous Noise | : | Noise which has negligibly small fluctuations of sound level within the period of observation |
| Contractor | : | A person or an organization providing services to an employer at the employer's worksite in accordance with agrees specifications, terms and conditions |
| Crawling Board | : | A single plank or board to which cross strips or cleats are nailed at equal intervals for crawling up and down steep inclines |
| dB | : | Means decibel, a unit of measurement of unweighted sound level using a reference level of 20 micropascals |
| db (A) | : | Means decibel – A- weighted, a unit of measurement of sound level corrected to the A-weighted scale using a reference level of 20 micropascals |
| Emergency Lighting | : | The illumination obtained through either an independent or secondary source of electricity supply such as trickle charged accumulators or separate generators to the normal duplicate lighting |
| Employee | : | The term employee shall have the same meaning as assign to it in the **Occupational Safety and Health Act 1994** |
| Employer | : | The term employer shall have the same meaning as assign to it in the **Occupational Safety and Health Act 1994.** |
| Engineering Control Equipment | : | Any equipment which is used to control exposure of employees to chemicals hazardous to health and includes local exhaust ventilation equipment, water spray or any other airborne chemical removal and containment equipment |
| Entry Supervisor | : | The person appointed by the employer who is responsible for determining if acceptable entry conditions are present at a confined space where entry is planned, for authorized entry and overseeing entry operations, and for terminating entry |
| Excavation | : | The removal of earth, rocks or other material in connection with construction or demolition work |
| Exit Door | : | A door from a storey, flat or room which gives access from such storey, flat or room on to an exit route |
| Fire Stop | : | A barrier or seal which would prevent or retard the passage of smoke or flame within a cavity or around a pipe or duct where it passes through a wall or floor or at a junction between elements of structures |
| Hazard | : | A source or a situation with a potential for harm in terms of human injury or ill health, damage to property, damage to the environment or a combination of these |

| | | |
|---|---|---|
| Hazard Identification | : | The identification of undesired events that lead to the materialization of the hazard and the mechanism by which those undesired events could occur |
| Hazardous Atmosphere | : | Means an atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue (that is, escape unaided from a confined space), injury or acute illness from one or more of the following causes:<br>(a) oxygen is below 19.5% or above 23.5% by volume (at sea level)<br>(b) Accumulation of flammable or explosive gas greater than 10% of its LEL<br>(c) Accumulation of toxic gas equal to or exceeding its permissible exposure limit (PEL) ; or<br>(d) Any other atmospheric condition that is immediately dangerous to life or health |
| Health Surveillance | : | Any examination and investigations which may be necessary to detect exposure levels and early biological effects and responses, and includes biological monitoring, biological effect monitoring, medical surveillance, enquiries about symptoms of occupational poisoning or occupational disease and review of records and occupational history |
| Impulsive Noise | : | A variation in sound level that involve maxima at intervals of greater than one per second |
| Noise Level | : | Means sound level |
| Permissible Exposure Limit | : | A ceiling limit or an eight-hour time-weighted average airborne concentration of the maximum exposure limit |
| Permit System | : | Means the employer's written procedures for preparing and issuing permits for entry and for returning the confined space to service following termination of entry |
| Personal Protective Equipment | : | Any equipment which is intended to be worn or held by a person at work and which protects him against one or more risks to his health or safety and any additional accessory designed to meet that objective |
| Place of Work | : | Premises where persons work or premises used for the storage or plant or substance<br>Premises include :<br>(a) any land, building or part of any building<br>(b) any vehicle, vessel or aircraft<br>(c) any installation on land, offshore installation or other installation whether on the bed of or floating on any water and<br>(d) any tent or movable structure |
| Practicable | : | Means practicable having regard to – |

| | | |
|---|---|---|
| | | (a) the severity of the hazard or risk in question<br>(b) the state of knowledge about the hazard or risk and any way of removing or mitigating the hazard or risk<br>(c) the availability and suitability of ways to remove or mitigate the hazard or risk: and<br>(d) the cost of removing or mitigating the hazard or risk |
| Risk | : | A combination of the likelihood of an occurrence of a hazardous event with specified period or in specified circumstances and the severity of injury or damage to the health of people, property, environment or any combination of these caused by the event |
| Risk Assessment | : | The process of evaluating the risks to safety and health arising from hazards at work |
| Roofing Bracket | : | A bracket used in sloped roof construction and having sharp points or other means for fastening to prevent slipping |
| Scaffold | : | Any temporarily provide structure on or from which person perform work in connection with operations or work to which this Regulation apply, and any temporarily provided structure which enable persons to obtain access to or which enables materials to be taken to any place at which such work is performed, and includes any working platform, gangway, skip, ladder or step-ladder which does not form part of such structure together with any guardrail, toe-board or other safeguards and all fixing, but does not include a lifting appliance or a lifting machine or a structure used merely to support such an appliance or such a machine as to support other plant or equipment |
| Sound level | : | Means ten times the common logarithm of the ratio of the square of the measured A – weighted sound pressure to the square of the standard reference pressure of 20 micropascals |
| Stand-by-Person | : | An individual stationed outside one or more confined spaces who monitors the authorized entrants and who performs all stand-by person's duties assigned in the employer's confined space programme |
| Substance | : | Any natural or artificial substance, whether in solid or liquid form or in the form of a gases or vapour or any combination thereof |
| Toe-board | : | A barrier placed along the edge of a scaffold platform, runway, etc., and secured thereto to guard against the falling of materials |
| Volatile flammable substances | : | Means cellulose solutions (including solutions which contain cellulose acetate, cellulose nitrate or celluloid) absolute alcohol, petroleum and other products of low flash point |
| Worksite | : | A physical area where employees need to be or to go due to their work which is under the control of an employer |
| Working at height | : | Where any person is required to work at a place from which the person will be liable to fall a distance of more than three (3) metres, means shall be provided to ensure his safety and such means shall where practicable include the use of fall arrest |

equipment.

## 4. References


Occupational Safety and Health Act 1994 (Act 514). Kuala Lumpur, PNMB, 1994.

Uniform Building By-Laws 1984 (Act 133). Kuala Lumpur, MDC Publisher Printers Sdn Bhd. 1997

Factories and Machinery (Safety, Health and Welfare) Regulations 1970. Kuala Lumpur. JPN, 1983. P.U. (A) 114/1983

Factories and Machinery (Building Operations & Works of Engineering Construction (safety) Regulations 1986. Kuala Lumpur. 1986. P.U. (A) 328/1986

Factories and Machinery (Noise Exposure) Regulations 1989. Kuala Lumpur, 1989. P.U. (A) 1/1989

Occupational Safety and Health (Classification, Packaging and Labelling of Hazardous Chemicals) Regulations 1997. Kuala Lumpur, PNMB, 1997. P.U. (A) 143/1997

Occupational Safety and Health (Use and Standards of Exposure of Chemicals Hazardous to Health) Regulations 2000. Kuala Lumpur, PNMB, 2000. P.U. (A) 131/2000

Occupational Safety and Health (Notification of Accident, Dangerous Occurrence, Occupational Poisoning and Occupational Disease) Regulations 2004. Kuala Lumpur, PNMB, 2004. P.U. (A) 128/2004

JABATAN KERJA RAYA. Arahan Teknik (Jalan) 2C/85, Manual on Traffic Control Devices Temporary Signs and Work Zones Control. Kuala Lumpur, J.K.R, 1985.

DEPARTMENT OF STANDARDS MALAYSIA. Malaysian Standard, Occupational Safety and Health Management System – Guidelines, MS1722: 2003. Shah Alam, SSP, Sirim Berhad, 2004.

DEPARTMENT OF OCCUPATIONAL SAFETY AND HEALTH, MALAYSIA. Guidelines for Public Safety and Health at Construction Sites. 1998.

DEPARTMENT OF OCCUPATONAL SAFETY AND HEALTH, MALAYSIA. Guidelines on First-Aid Facilities in The Workplace. Kuala Lumpur, JKKP, 1997. JKKP: GP (I) 2/1996

DEPARTMENT OF OCCUPATIONAL SAFETY AND HEALTH, MALAYSIA. Guideline on Occupational Safety and Health in the Office. Kuala Lumpur, PNMB, 1997. JKKP: GP (I) 1/1996

DEPARTMENT OF OCCUPATIONAL SAFETY AND HEALTH, MALAYSIA. Code of Practice for Safe Working in a Confined Space, 2001, JKKP: COP (I/BM) 02/2001

CONSTRUCTION INDUSTRY TRAINING BOARD. Construction Site Safety : Safety Notes. United Kingdom, CITB, 1996.

NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH, MALAYSIA. Safety And Health Induction For Construction Workers (Trainer's Manual). Bangi, NIOSH, 2000

HEALTH AND SAFETY EXECUTIVE. Working on Roofs. United Kingdom, HSE, 2002. INDG284

## ATTACHMENT 1

## First- Aid Box

| First Aid Kit Box Contents | Box A (for workplaces with up to 10 persons employed at a time | **Box B** (for workplaces with 11-50 persons employed at a time) | **Box C** (for workplaces with more than 50 persons employed at time) |
|---|---|---|---|
| *1. Small individual medicated or un-medicated sterilized dressings, for fingers* | 6 | 12 | 24 |
| *2. Medium-sized individual medicated or un-medicated sterilized dressings, for hands and feet* | 3 | 6 | 12 |
| *3. Large individual medicated or un-medicated sterilized dressings, for other injured parts* | 3 | 6 | 12 |
| *4. Assorted adhesive wound dressings Pressure bandages No. 15* | 5 | 10 | 15 |
| *5. Triangular bandage 90 x 90 x 130cm* | 5 | 10 | 15 |
| *6. (i) Roller bandages, 1 inch*<br>*(ii) Roller bandages, 2 inch* | 6<br>6 | 9<br>9 | 12<br>12 |
| *7. Adhesive plaster* | A sufficient supply | A sufficient supply | A sufficient supply |
| *8. Absorbent sterilized cotton wool, in ½oz packets or cotton wool strip contained in cotton-wool dispenser.* | 6 | 6 | 6 |
| *9. Suitable splints and wool or other material for padding.* | A sufficient supply | A sufficient supply | A sufficient supply |
| *10. Approved eye ware (eye ointment or eye drops)* | A sufficient supply | A sufficient supply | A sufficient supply |
| *11. Individual sterilized eye pads in separate sealed packets* | 2 | 4 | 8 |
| *12. Rubber or pressure bandages* | 1 | 1 | 1 |
| *13. A 2% alcoholic solution of iodine or1% aqueous solution of gentian violet in a stoppered 2oz bottle* | 1 | 1 | 1 |
| *14. A bottle of smelling salt with the dose and mode of administration indicated on the label* | 1 | 1 | 1 |
| *15. Blunt nose surgical scissors* | 1 | 1 | 1 |
| *16. Safety pins* | 12 | 24 | 36 |
| *17 Crepe bandage: (i) 5 cm*<br>*(ii) 7.5cm* | 6<br>6 | 6<br>6 | 6<br>6 |
| *18. Surgical tapes: 3M (Hyposable free size)* | 2 | 2 | 3 |
| *19. Gloves – disposable free size* | 6 | 12 | 24 |

## ATTACHMENT 2

## Permissible Exposure Limit

| Noise Level (dB – slow) | Duration of Exposure Permitted per day (hours – minute) | Noise Level (dB – slow) | Duration of Exposure Permitted per day (hours – minute) |
|---|---|---|---|
| 85 | 16-0 | 101 | 1-44 |
| 86 | 13-56 | 102 | 1-31 |
| 87 | 12-8 | 103 | 1-19 |
| 88 | 10-34 | 104 | 1-9 |
| 89 | 9-11 | 105 | 1-0 |
| 90 | 8-0 | 106 | 0-52 |
| 91 | 6-58 | 107 | 0-46 |
| 92 | 6-4 | 108 | 0-40 |
| 93 | 5-17 | 109 | 0-34 |
| 94 | 4-36 | 110 | 0-30 |
| 95 | 4-0 | 111 | 0-26 |
| 96 | 3-29 | 112 | 0-23 |
| 97 | 3-2 | 113 | 0-20 |
| 98 | 2-50 | 114 | 0-17 |
| 99 | 2-15 | 115 | 0-15 |
| 100 | 2-0 | | |
| 101 | 1-44 | | |


## Acknowledgements

**Listed below are the contributors who were involved directly in the process of developing this Technical Standard and Infrastructure Requirements document:**

| | |
|---|---|
| Encik Bruce De Netto (Chairman) | Maxis Communications Berhad |
| Major (Rtd) Jimi Ng Goot Seong (Vice Chairman) | Time dotCom Berhad |
| Encik Suzamri bin Salleh (Secretary) | Maxis Communications Berhad |

| | |
|---|---|
| Encik Ramakrishnan Narashiman | Astro All Asia Network plc |
| Encik Zainal Abidin Ibrahim | Celcom (Malaysia) Berhad |
| Encik Mohd Faizal Hashim | Telekom Malaysia Berhad |
| Encik Hider Abdul Hamid | Telekom Malaysia Berhad |


*Published by:*

**THE MALAYSIAN TECHNICAL STANDARDS FORUM BHD**

23-1B Jalan Bandar 9
Pusat Bandar Puchong
47100 Puchong
Selangor Darul Ehsan
Malaysia

Tel: (+603) 5882 2485
Fax: (+603) 5882 2475

Website: www.mtsfb.org.my