

Guidance Notes on Prevention of Heat Stroke at Work



Labour Department



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1. Introduction

- 1.1 The hot and humid summer in Hong Kong poses an increased risk of heat stroke to employees working outdoors (e.g. construction, cleaning, security, landscaping, etc.) or in indoor environments that lack air conditioning systems (e.g. electrical and mechanical staff). In addition, employees who are required to work near heat sources or heat-generating facilities (e.g. boilers) are also at risk of heat stroke.
- 1.2 Under the general duty clauses of the Occupational Safety and Health Ordinance (Cap. 509), employers are required to provide or maintain a working environment and systems of work that are, so far as reasonably practicable, safe and without risk to health. Therefore, employers are required to conduct risk assessments on the heat stress of employees at work, and take appropriate measures based on the assessment results to prevent employees from getting heat stroke at work. If the employer does not have control over the workplace, he must maintain good communication with the occupier of the workplace and ensure that the heat stroke preventive measures are properly implemented. Employees must also abide by the system or work method established by the employer, use any equipment provided by the employer, and comply with relevant prevention and control measures to reduce the risk of heat stroke.
- 1.3 This Guidance Notes outlines various factors that employers have to consider when conducting heat stress risk assessments for employees, including working environment, work nature and personal factors, and introduces preventive and control measures that are applicable to different risk factors. It helps employers implement appropriate preventive and control measures according to the actual work situation, to reduce the risk of heat stroke posed to employees working in hot environments.
- 1.4 In view of the varying nature and demands of different industries and job positions, employers and employees should refer to the criteria and recommendations provided in this Guidance Notes early to establish reasonable and mutually agreed measures for preventing heat stroke during hot weather based on risks and through consultation.

2. Scope of Application and Definitions

- 2.1 This Guidance Notes is applicable to work that needs to be carried out under hot weather or in high-temperature environments, such as:
- Work conducted in outdoor locations without shelters;
 - Work conducted in indoor locations without air-conditioning system installed;
 - Work conducted near heat sources or heat-generating facilities.
- 2.2 This Guidance Notes mainly provides relevant criteria and recommendations to reduce heat stress and risks of heat stroke in employees at work generally. If employers cannot take appropriate heat stroke prevention measures according to this Guidance Notes due to the unique working conditions and operational needs of their employees, they should seek the opinion and assistance of occupational health professionals to conduct risk assessment and establish a safe work system accordingly to ensure the safety and health of employees working in hot weather.
- 2.3 The following definitions are used in this Guidance Notes:
- **“Environmental Factors”** – refer to the environmental temperature, relative humidity, air flow (wind speed) and thermal radiation at any workplace.
 - **“Work Factors”** – refer to the nature of work of employees at any workplace, including factors such as workload, duration of work and the required personal protective equipment.
 - **“Personal Factors”** – refer to the personal health status of employees at any workplace and whether the body has acclimatised to work in a hot environment.
 - **“Heat Stress”** – means the stress caused by heat on the human body. The human body will generate heat during physical work. Hot weather hinders the dissipation of heat from the body, thus increasing the level of heat stress and the risk of heat stroke.
 - **“Heat Acclimatisation”** – means the gradual physiological adaption of the body to enhance the ability to withstand heat stress. For example, for employees who have not been engaged to work under hot weather previously, they should increase their workload to a normal level progressively within a few days, allowing them to gradually adapt to the heat stress at work.

3. Risk Assessment

Employees working in hot weather or high-temperature environments are at risk of heat stroke. To prevent employees from heat stroke at work, employers should conduct appropriate risk assessments for the heat stress of employees at the workplace, and take effective preventive measures according to the assessment results.

In most cases, conducting these risk assessments is not difficult and can be facilitated by using the assessment form provided in this Guidance Notes. Employers may appoint a person who is familiar with the working conditions of the workplace and has basic occupational safety and health knowledge about heat stress to conduct the risk assessment. 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.

3.1 Heat Stress Risk Factors

When situated in a hot working environment, the body will increase blood flow to the skin and perspire to dissipate heat. If the environment and work factors increase the heat stress, and the employee's physiological regulating mechanism fails to control body temperature effectively, it will increase the risk of heat stroke.

Employers should consider various risk factors, including environmental, work and personal factors, while carrying out risk assessment of heat stress in the workplace.

3.1.1 *Environmental Factors*

The environmental factors that increase heat stress of employees in workplaces include:

- (a) High ambient temperature
e.g. hot weather, heat source or heat-generating facilities near the working location
- (b) High relative humidity
e.g. humid weather or working environment
- (c) Exposure to direct sunlight
e.g. work outdoors in an open space
- (d) Poor air movement or ventilation
e.g. enclosed working environment, lack of ventilating facilities, etc.

3.1.2 *Work Factors*

Some factors or requirements in work may also increase heat stress of employees, for example:

- physical exertion; and
- wearing thick / non-breathable work clothes or protective clothing.

3.1.3 Personal Factors

Some personal factors of employees may also increase the risk of heat stroke when working in hot environments, for example:

- employees have never worked in hot environments;
- employees have not worked in hot environments for a period of time (e.g. more than two weeks); and
- employees have underlying health conditions such as heart disease, hypertension, or are taking certain medications.

If employees have doubts about whether their health condition is suitable for working safely in high temperatures, they should consult their doctors, inform their employers of any relevant advice and discuss with them about the appropriate work arrangements.




3.2 Measurement of thermal stress in the work environment

3.2.1 Wet Bulb Globe Temperature (WBGT)

- ◆ The Wet Bulb Globe Temperature (WBGT) is an index integrating air temperature, relative humidity, wind speed and heat radiation for assessing the heat stress on the human body. Generally speaking, the measurement of WBGT requires using regularly calibrated instruments, and data analysis and assessment made by relevant trained professionals, so as to make recommendations on the suitable measures for prevention of heat stroke.
- ◆ If an employer believes that the employees are facing high levels of heat stress while working, such as metal smelting operation, he may seek the assistance of occupational health professionals to measure the WBGT index at the workplace as the basis for assessing the heat stress of employees and formulating necessary preventive measures including risk management, control strategy and provision of personal protective equipment.
- ◆ The method for evaluation of heat stress using WBGT index can be referred to the National Standard of the People's Republic of China (GBZ/T 189.7-2007), the International Organization for Standardization (ISO 7243:2017), American Conference of Governmental Industrial Hygienists (ACGIH) - Documentation of Threshold Limit Values and Biological Exposure Indices.
- ◆ WBGT is more suitable for assessing heat stress in workplaces with steady high temperature environment, such as indoor working locations with fixed heat sources or heat-generating facilities, as the need for making re-measurement and re-assessment due to changes in environmental risk factors can be minimised.

3.2.2 Hong Kong Heat Index (HKHI) and Heat Stress at Work Warning

- ◆ The weather is the most significant environmental factors affecting heat stress of most people who work outdoors or in indoor environments without air conditioning systems. Since the weather varies from time to time, heat stress assessment by WBGT index requires continuous real-time measurements in response to the changes in weather conditions, which is practically difficult. Additionally, employing the WBGT index or other methods for measuring heat stress requires the use of instruments and trained personnel, which can be resource-demanding, particularly for small and medium-sized enterprises.
- ◆ The Hong Kong Heat Index (HKHI)^{1, 2}, is a heat stress index developed through joint research by the Hong Kong Observatory and the Faculty of Medicine of the Chinese University of Hong Kong based on the Wet Bulb Globe Temperature Index. The calculation formula for the HKHI is similar to WBGT, it includes meteorological data such as environmental temperature, humidity, air flow, and solar radiation levels, and has taken the overall hospital admission figures in Hong Kong into consideration. Therefore, the HKHI can appropriately reflect the health risks posed to the entire population in Hong Kong as a result of the heat stress.
- ◆ In order to facilitate employers and employees in understanding the level of heat stress when working outdoors or in indoor environments without air conditioning system, the Labour Department has established a system of Heat Stress at Work Warning based on HKHI and the “Extremely Hot” Special Alert issued by the Hong Kong Observatory. Coded amber, red, and black, Heat Stress at Work Warning indicates the level of heat stress that employees face when working outdoors or in indoor environments without air conditioning system. Employers/responsible persons can refer to the “Heat Stress at Work Warning” issued by the Labour Department to more easily assess the risk of heatstroke faced by employees at work. Please refer to the table below and section 5.1 for details on the issuance of Heat Stress at Work Warning.

Hong Kong Heat Index	Heat Stress at Work Warning	Warning Signs
# 30 to <32	Amber	
	Amber Heat Stress at Work Warning indicates the level of heat stress in certain work environments is high.	
32 to <34	Red	
	Red Heat Stress at Work Warning indicates the level of heat stress in certain work environments is very high.	
≥34	Black	
	Black Heat Stress at Work Warning indicates the level of heat stress in certain work environments is extremely high.	

When the Hong Kong Observatory issues “Extremely Hot” Special Alert, the Labour Department issues “Amber” Heat Stress at Work Warning even if the HKHI has not reached 30.

¹ K.L. Lee, Y.H. Chan, T.C. Lee, William B. Goggins & Emily Y.Y. Chan, The development of the Hong Kong Heat Index for enhancing the heat stress information service of the Hong Kong Observatory, International Journal of Biometeorology, November 2015.

² https://www.hko.gov.hk/en/wxinfo/ts/display_element_hkhi.htm

- ◆ **The main purpose of Heat Stress at Work Warning is to warn about the significant heat stress and health risks posed by the weather in Hong Kong as a whole to employees working outdoors or in indoor environments without air-conditioning systems overall, and to remind employers and employees to take necessary preventive measures to reduce the risk of heat stroke at work.**
- ◆ The establishment of Heat Stress at Work Warning does not obviate the responsibility of employers to assess safety and health risks in the workplace. If employers and employees believe that, due to the special circumstances of the workplace (e.g. geographical location, working environment), the Heat Stress at Work Warning does not fully reflect the real-time risk of heat stroke posed to employees at work by the weather conditions or environment in the workplace, the employers have the responsibility to make assessment accordingly, such as seeking occupational health professionals to measure the WBGT index at the workplace for evaluating the level of heat stress faced by the employees, and taking corresponding preventive measures based on the results to reduce the risk of heat stroke at work.

3.3 Assessing and Recording Risks of Heat Stress

- 3.3.1 Employers should fully assess the risks of heat stress in the workplace and properly control those risk factors identified. **Appendix 2** of this Guidance Notes provides a template, which includes the Heat Stress at Work Warning as a criterion for "Workplace Heat Stress Risk Assessment". Employers may use this template to assess the risks of employees facing heat stress, usually in their work, and take necessary preventive measures based on the assessment results, as far as reasonably practicable, to safeguard employees' occupational safety and health. Employers should inform employees of the results of risk assessment and the respective control measures early and provide relevant information, instruction, training, and supervision. Additionally, employers should keep written records of the above risk assessment.
- 3.3.2 If employees are engaged in work of varying levels of physical demand in different work environments (see **Appendix 1**), they may face different levels of heat stress. Therefore, employers should use the form in Appendix 2 to conduct different risk assessments for the employees' different job duties. 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.
- 3.3.3 **Appendix 3** provides some reference examples for using the "Workplace Heat Stress Risk Assessment Form".

4. Preventive and Control Measures

In order to prevent employees from suffering heat stroke while working, employers should refer to the recommendations in Chapter 3 of this guidance notes and conduct a heat stress risk assessment for their employees' work. Based on the identified risk factors, employers should, so far as reasonably practicable, take corresponding and effective risk control measures.

This chapter will elaborate on various control measures of heat stress risk for reference and application by employers and employees.

4.1 Supply Cool Drinking Water

- 4.1.1 When working in a hot environment, the body increases perspiration to regulate body temperature. Failure to replenish lost fluids increases the risk of heat stroke for employees. According to Section 16(1) of the Occupational Safety and Health Regulation (Chapter 509A), the person responsible for the workplace must ensure that there is sufficient drinking water available for employees working at that workplace.
- 4.1.2 In general, to relieve heat stress, employers should provide about 250 to 500 millilitres of cool drinking water for an employee to consume each hour. As employees lose more body fluids from sweating with increasing heat stress at work, employers should take such circumstances into consideration and suitably increase the supply of drinking water. The employees should be advised to drink approximately 250 millilitres of cool drinking water every 15 to 20 minutes, which is about 750 to 1,000 millilitres of cool drinking water per hour (but no more than 1,500 millilitres of water per hour to avoid lowering the salt concentration in the blood to subnormal level).
- 4.1.3 Furthermore, employers should arrange for their employees to have access to drinking water at suitable locations within 10 minutes of walking to facilitate their replenishment of water.
- 4.1.4 Employees should actively replenish water themselves. If water is only drunk when feeling thirsty, the risk of heat stroke will increase, as dehydration may have occurred at that time.
- 4.1.5 During perspiration, the body not only loses water but also salt. 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.
- 4.1.6 Additionally, employers should never provide alcoholic beverages as an option for replenishing body fluids to avoid increasing the risk of heat stress for employees while working.

4.2 Reduce Heat Absorption

- 4.2.1 Reducing employees' absorption of heat while working is one of the important methods to prevent heat stroke. Employers need to assess the risk of heat stress on employees brought about by heat sources or direct sunlight exposure at the workplace. They should then develop effective measures to reduce employees' prolonged exposure to high levels of heat in work environments.

Heat Source

- 4.2.2 Common heat sources in the workplace include naked flames from cooking stoves, gas welding, flame cutting, and cooling systems. Employers should assess the potential risk of heat stress experienced by their employees and develop effective measures and/or provide personal protective equipment to reduce heat absorption based on the actual situation. These measures include relocating or isolating devices or equipment that generate heat and hot air, extracting hot air from the workplace, and providing personal protective equipment to employees, etc.
- 4.2.3 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. In addition, the high levels of heat radiation emitted during these processes can damage the skin and eyes of employees. Therefore, employers should provide suitable personal protective equipment for heat protection and insulation (such as protective hoods, goggles, gloves and protective clothing that can reflect heat radiation with shiny surfaces and provide insulation) to minimise the risks to employees during work.

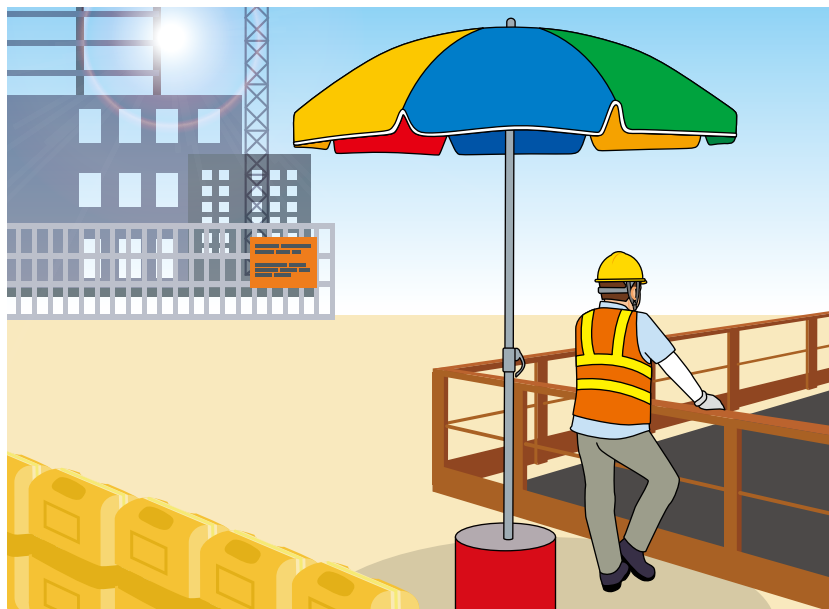
Sunlight

- 4.2.4 Employees who work outdoors need to be particularly mindful of the heat radiation that is absorbed from exposure to direct sunlight. 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.



Set up shade / cover for blocking sunlight

- 4.2.5 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.



Set up sunshade / parasol at temporary working locations

- 4.2.6 Furthermore, 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.

4.3 Increase Heat Dissipation

Air conditioning system or ventilation equipment

- 4.3.1 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 fans³ 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.

Clothing

- 4.3.2 Employees should wear light-coloured, thin, and loose-fitting clothing as far as possible when working in hot environments. This can reduce heat absorption and facilitate the dissipation of body heat. Breathable clothing with good sweat-wicking dry-fit properties can effectively remove moisture from the skin and increase evaporation and heat dissipation. If employers need to provide work clothes for employees, they should strive to meet the above clothing/material specifications. In addition, employers should provide outdoor workers with sun protection sleeves that have good sweat-wicking and dry-fit properties. This will not only block the radiant heat from the sun and help heat dissipation through sweat evaporation locally, but also avoid sunburn on the arms.
- 4.3.3 If an employer is unable to provide the equipment mentioned above, they should also consider providing employees with cooling vest that contains frozen packs or refrigerating devices to reduce the risk of heat stroke among employees.

4.4 Reduce Physical Exertion

- 4.4.1 Increasing the intensity and speed of work activity will lead to more heat generation from the body, thus increasing the heat stress of employees. 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 minimise 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.

³ Using misting fans indoors can increase humidity in the environment, which can affect the heat dissipation effect. Therefore, misting fans are generally more suitable for use in outdoor environments.

4.5 Arrange Working Hours

- 4.5.1 In hot summer days, employers should schedule outdoor and physically demanding work to cooler daytime periods (e.g. before 10 a.m. or after 4 p.m.) as far as reasonably practicable. Alternatively, they can arrange for employees to work alternately in hotter and cooler environments to avoid increasing the risk of heat stroke among employees as a result of extended periods of work in hot and humid environments. This approach can also minimise the impact on work processes and progress.

4.6 Arrange Heat Acclimatisation

- 4.6.1 Employees can experience physiological changes such as an increase in body temperature and heart rate due to heat stress when working in hot environments. The acclimatisation period allows employees to gradually adapt to the hot work environment and their body's responses and make corresponding physiological adjustments.
- 4.6.2 If an employee has not worked in a hot environment for more than a month or has never worked in such environment, the employer should arrange a minimum acclimatisation period of five days to allow the employee to fully adapt to working in a hot environment. On the first day, the employee's work in a hot environment should not last for more than 20% of the normal working time in such environment. The working time can then be increased by 20% of the normal working time in hot environment each day until the employee fully adapts and can work normally in the hot environment.
- 4.6.3 If an employee has not worked in a hot environment for two weeks to one month, the employer should also arrange a minimum acclimatisation period of four days when the employee returns to work to allow them to re-adapt to working in a hot environment. On the first day, the employee's work in a hot environment should not last for more than 50% of the normal working time in such environment. The working time of the employee can then be increased stepwise by 20% of the normal working time in hot environment each day until it returns to the normal working time in hot environment.
- 4.6.4 Previous studies have shown that more than half of the heat stroke fatalities involved workers who were un-acclimatised to working in hot environments, leading to accident occurrence during their first few days of work. Therefore, employers should pay special attention to the heat stress risks of employees at work who have not completed the acclimatisation process and ensure that sufficient control measures have been taken.

4.7 Arrange Rest Time and Place

- 4.7.1 As stated above, physical work generates heat and increases heat stress. To reduce heat stress during work, employers should provide rest breaks for employees to recuperate, drink water and cool down their bodies, whenever reasonably practicable. For instance, employers should let employees performing light to moderate levels of physical work have a minimum of a 10-minute rest break after every 2 hours of work, while employees performing heavy to very heavy levels of physical work should be given at least a 15-minute rest break after every 2 hours of work (If the Heat Stress at Work Warning is in effect, employers should arrange hourly rest time for the employees in need as recommended in section 5.5 of this Guidance Notes). If employees are not acclimatised or need to re-acclimatise to working in hot or high-temperature environments, additional rest breaks should be arranged for these employees. In addition to considering heat stress during work, employers should also arrange suitable rest breaks for employees, taking account of other risk factors (such as physical fatigue, etc.).
- 4.7.2 Employers should adopt a risk-based approach and increase the rest breaks of relevant employees in increasingly hot weather. Depending on the working conditions, employers can divide the required rest breaks into shorter but more frequent periods.
- 4.7.3 Apart from rest breaks, the location of the rest area is equally important in managing heat stress. If employees can rest in a cool place, heat stress can be alleviated more quickly. Employers / responsible persons should set up or arrange shaded areas, e.g. pavilion, parasol, dense tree shade, vehicle cabin, etc., for employees performing outdoor work to sit down and rest. If shaded rest areas are not available, employees may require longer breaks to alleviate heat stress. In remote and off-grid working locations, employers or responsible persons may consider installing mobile cooling stations for relevant employees to use. Rest areas should have good ventilation or, better still, air conditioning, if available.

4.8 Implement Preventive and Control Measures Based on Risk Assessment

- 4.8.1 The template form on "Workplace Heat Stress Risk Assessment" in **Appendix 2** of this Guidance Notes has, based on the aforementioned, listed out some corresponding preventive and control measures for various potential heat stress risk factors at work. Employers should, in accordance with the risk assessment results and so far as reasonably practicable, adopt those measures that are applicable to their workplace and employees to reduce the risks of heat stress.
- 4.8.2 **Appendix 3** provides some reference examples on setting out necessary risk control measures using the risk assessment template.

5. Work / Rest Arrangements in Times of Heat Stress at Work Warning

This chapter outlines how employers should develop and implement suitable heat stress preventive measures, including work/rest arrangements, for employees working outdoors or at indoor locations without air-conditioning to reduce the risk of heat stroke posed to them when the Heat Stress at Work Warning is in force.

As indoor work environments equipped with air conditioning systems are generally not affected by outdoor heat waves, the hourly work and rest schedules recommended below in response to the Heat Stress at Work Warning do not apply to indoor work environments with an operating air conditioning system. However, employers still have to assess whether employees are exposed to other heat stress risk factors, such as heat sources or heat-generating facilities near the work location, and take appropriate control measures based on the risk assessment results.

In addition, the rest schedules in times of Heat Stress at Work Warning are not applicable to work which needs to be performed urgently or continuously for production and operation process, personal and property safety or public interest, such as firefighting, emergency rescue, or urgent repair work.

5.1 Issue of Heat Stress at Work Warning

- 5.1.1 The Heat Stress at Work Warning is developed and issued by the Labour Department, with the assistance of Hong Kong Observatory in producing and transmitting the message. The issuance, update or cancellation of the warning is automatically generated through a computer system based on the HKHI data and the issuance of “Extremely Hot” Special Alert, without manual intervention under normal circumstances. The entire process usually takes about 10 to 20 minutes. When different levels of Heat Stress at Work Warning are in force, the Hong Kong Observatory will display relevant information on the homepage of its official website and the “My Observatory” mobile application. Employers and employees can also receive details of the Heat Stress at Work Warning by allowing push notifications from the “My Observatory” or “GovHK Notifications” mobile applications (please refer to the example in **Appendix 6**). In addition, the Labour Department will issue prompt messages to the public regarding the coming effect of Heat Stress at Work Warning through press releases and various electronic media.
- 5.1.2 After the issuance of a Heat Stress at Work Warning, updates will be provided every hour. If the conditions for issuing a higher level of Heat Stress at Work Warning are met in the meantime, an earlier update will be made.

5.2 Hourly Work / Rest Arrangements

- 5.2.1 When the Heat Stress at Work Warning is in effect, it indicates that employees who work outdoors or in indoor environments without air conditioning will face high levels of heat stress due to hot weather. Employers should, so far as reasonably practicable, adopt effective heat stroke prevention measures to reduce the heat stress of employees. Depending on the level of Heat Stress at Work

Warning, physical workload and other risk factors that increase heat stress, and the measures taken to reduce heat stress, employers may need to arrange hourly rest periods for affected employees to allow their body to cool down and reduce the risk of heat stroke.

- 5.2.2 **Appendix 4** lists out the recommended hourly rest periods for employees **working outdoors** at different levels of physical workload (**without taking into account other heat stress risk factors and heat stroke preventive measures taken**) under different Heat Stress at Work Warning levels. Working in an **indoor environment without air conditioning** can also be affected by hot weather. However, as heat stress arising from direct sunlight can be avoided, the recommended rest time per hour can be **reduced by 15 minutes** (see **Appendix 4(a)**) as compared to outdoor work with the same physical workload in Appendix 4. Please refer to **Appendix 1** for the **physical workload categories**.
- 5.2.3 If the employer can implement all applicable heat stroke preventive measures against the heat stress risk factors at work, the required rest time per hour can be reduced. For a lighter physical workload, providing rest time in accordance with section 4.7 may already be sufficient, and hourly rest break arrangements may not be necessary. The following paragraphs will explain the considerations for adjusting the rest arrangements listed in Appendix 4 when a Heat Stress at Work Warning is in effect.

5.3 Conditions for Reducing Rest Time

Block Direct Sunlight

Indoor environment⁴

- 5.3.1 As mentioned in paragraph 5.2.2, heat stress caused by direct sunlight is controlled in indoor environments. Therefore, if an employee performing outdoor work can be arranged to work in an indoor location, or an employee is working indoors, the hourly rest time can be **reduced by 15 minutes** compared to those working outdoors with the same physical workload.

Shelter facilities

- 5.3.2 Setting up of a working shelter or sun-blocking cover (including a sunshade that can shade most part of the body) can also reduce heat stress caused by direct sunlight. Hence, the hourly rest time can similarly be reduced by 15 minutes compared to those working outdoors with the same physical workload.

⁴ means indoor environments **without air conditioning systems installed**. If employees can be arranged to work in an air-conditioned indoor environment, or the employees is already working in an air-conditioned indoor environment, *there is no need to make special rest arrangements in times of Heat Stress at Work Warning*.

Increase air flow / dissipation of heat

5.3.3 If employers or responsible persons increase ventilation at employees' working locations or provide heat dissipation devices such as blowers, misting fans, or portable fans that enhance air flow, the heat stress experienced by employees can be effectively reduced. As a result, the recommended hourly rest time for employees can also be reduced by 15 minutes. If providing such equipment is not feasible, providing employees with a cooling vest containing frozen packs or refrigerating devices can also reduce hourly rest time by 15 minutes.

Reduce Physical Demand

5.3.4 If the employer / responsible person can reduce the physical workload of employees in times of Heat Stress at Work Warning, the rest arrangements can be reduced accordingly. For example, in the same working environment with the same heat stroke preventive measures, if the employee's physical workload can be lowered by one level from "Heavy" to "Moderate", the rest time per hour for the same Heat Stress at Work Warning can be reduced by 15 minutes.

Adopt Multiple Heat Stroke Preventive Measures simultaneously

5.3.5 If employers or responsible persons simultaneously provide the above-mentioned shelters and heat dissipation devices (or cooling vest) to employees to reduce heat stress, the hourly rest time for employees with the same physical workload can be reduced by a total of 30 minutes during Heat Stress at Work Warning. If the physical workload of employees can be reduced to a lower level as described in paragraph 5.3.4 at the same time, the rest time per hour can be further reduced, and so on.

5.4 Conditions for Increasing Rest Time

Environment or Work Factors

Heat sources or heat-generating facilities

5.4.1 When there are obvious heat sources or heat-generating facilities near the working location, and facilities are lacking at the workplace to remove hot air/humidity or isolate heat effectively, such as in the following situations, the hourly rest time for employees should be increased by 15 minutes:

- No effective devices installed in the kitchen to remove the hot air and humidity generated by cooking process;
- No exhaust device used to remove the hot air generated during gas welding or flame cutting processes; or
- No heat shield installed for heat-generating facilities near the working location, which results in higher temperatures at the working location.

Poor ventilation

5.4.2 Some working locations lack proper natural ventilation, such as enclosed rooms or enclosed renovation sites with poor natural ventilation. If no effective ventilating facilities are installed, the recommended hourly rest time for employees should be increased by 15 minutes.

Protective clothing

5.4.3 If employees need to wear non-breathable protective clothing during work, it can hinder the body's heat dissipation and increase heat stress. Therefore, employers should make arrangements, as reasonably practicable, to minimise the need for employees to perform tasks requiring non-breathable protective clothing during the effective period of the Heat Stress at Work Warning. If this cannot be implemented, the hourly rest time should be increased by 15 minutes.



Non-breathable protective clothing

Personal Factor

Unacclimatised to heat

5.4.4 If the employees are unacclimatised or need to re-acclimate to hot work environment, such as not having worked in a hot environment in the past or for more than two weeks, in addition to following the arrangements regarding the acclimation period as described in section 4.6, employers should increase the hourly rest time for such employees by 15 minutes when Heat Stress at Work Warning is in effect.

Multiple risk factors

- 5.4.5 If two scenarios as described in paragraphs 5.4.1 to 5.4.4 are present, the hourly rest time should be increased by a total of 30 minutes. If three scenarios are present simultaneously, the hourly rest time should be increased by a total of 45 minutes. If all four scenarios are present, the hourly rest time should be increased to 60 minutes (i.e. relevant work must be suspended for that hour).
- 5.4.6 When appropriate preventive measures are taken to control the aforementioned heat stress risk factors, the need for increasing hourly rest time can be avoided.

5.5 Overall Adjustment of Rest Time

- 5.5.1 The hourly rest time required can be reduced if the employer has adopted various effective control measures to reduce the heat stress of employees caused by hot weather and has effectively avoided or controlled other heat stress risk factors at work. Employers should record the various factors that can decrease or increase the recommended rest time per hour based on the risk assessment result and then calculate the adjustment of the recommended hourly rest time accordingly.

Conditions for reducing rest time	Adjustment of hourly rest time
<input type="checkbox"/> Work in indoor environment or set up shading facilities (such as shelter or sun-blocking cover)	<input type="checkbox"/> -15 mins
<input type="checkbox"/> Provided devices to facilitate heat dissipation (blowers/ misting fans/ portable fan/cooling vest containing frozen packs or refrigerating devices)	<input type="checkbox"/> -15 mins
Conditions for increasing rest time [†]	
<input type="checkbox"/> Existing heat source/ heat-generating facilities near the working location without effective heat shielding or exhaust ventilation for hot air/ moisture	<input type="checkbox"/> +15 mins
<input type="checkbox"/> Poor natural ventilation at the workplace and without effective ventilation equipment	<input type="checkbox"/> +15 mins
<input type="checkbox"/> Need to wear non-breathable protective clothing	<input type="checkbox"/> +15 mins
Adjustment of rest time	Increase / Decrease* _____ min

[†] The need for increasing hourly rest periods can be avoided if appropriate preventive measures are taken against the relevant heat stress risk factors as described in paragraph 5.4.6.

* Please delete if inappropriate

5.5.2 Employers can calculate the actual hourly rest time for employees under different levels of Heat Stress at Work Warning based on the recommended rest time per hour in **Appendix 4** and the necessary adjustments derived from the overall consideration of various factors mentioned above.

Rest time corresponding to the physical workload of employees under different Heat Stress at Work Warnings			
Employee position: _____			
Job nature: _____			
Physical workload categories (Appendix 1)	Warning levels	Hourly rest time before adjustment (Appendix 4)	Hourly rest time after adjustment [‡]
<input type="checkbox"/> Very heavy	Amber Heat Stress at Work Warning	_____ min	_____ min
<input type="checkbox"/> Heavy	Red Heat Stress at Work Warning	_____ min	_____ min
<input type="checkbox"/> Moderate	Black Heat Stress at Work Warning	_____ min	_____ min
<input type="checkbox"/> Light			
Are the employees unacclimatised / required to re-acclimatise to work in hot environments?		<input type="checkbox"/> Yes: Additional 15-minute rest time per hour to be given to relevant employees (based on the adjusted hourly rest time above)	
		<input type="checkbox"/> No	

[‡] If the adjusted hourly rest time is zero or negative, the employer should still arrange for the employees to rest for 10 to 15 minutes every two hours of work in accordance with paragraph 4.7.1.

5.5.3 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. Employers have the flexibility to arrange hourly rest periods for their employees based on the specific circumstances and needs of the work. For instance, employees can take breaks at different periods within the hour or be provided with intermittent rest periods rather than continuous ones every hour, as long as the total rest period is not less than the required rest period per hour. This will not only reduce the risk of heat stroke among employees but also minimise the impact on the overall work flow and progress.

5.5.4 If the adjusted hourly rest time for employees becomes zero minutes after implementation of all heat preventive measures, the employers should still follow the recommendation in paragraph 4.7.1 to arrange at least 10 minutes of rest for every 2 hours of work for employees performing light to moderate level of physical work, and at least 15 minutes of rest for every 2 hours of work for employees performing heavy to very heavy level of physical work to let them recuperate, drink water and cool down their body.

5.5.5 Employers should also ensure that employees adhere to the relevant rest arrangements, in addition to establishing suitable work-rest schedules for them. Employees should follow the instructions to take rest as scheduled and avoid skipping rest periods to finish work early. Employers and employees need to collaborate and work together to effectively prevent heat stroke at work.

6. Recognition and Treatment of Heat-Related Illness

Heat-related illnesses (including heat cramps, heat syncope, heat exhaustion, and heat stroke) are health damage and symptoms that arise when the body's physiological mechanism in temperature regulation is overwhelmed in hot weather or high-temperature environments. Employers and employees should take appropriate precautions to prevent the occurrence of heat-related illnesses when working in hot environments.

6.1 Early Recognition of Heat-Related Illness

Heat stroke can occur rapidly and is life-threatening. Therefore, employers should provide employees with information and training on heat-related illness and arrange regular drills so that employees can identify related symptoms early and take appropriate responses immediately.

Signs and symptoms that indicate possible occurrence of heat-related illness in employees include:

- Fatigue
- Dizziness, headache
- Thirst
- Nausea, vomiting
- Increase in body temperature
- Rapid breathing, breathing difficulty
- Palpitation, rapid and weakening pulse
- Localised muscle cramps (especially in feet and abdomen), convulsion may occur in severe case
- * Clammy skin, excessive sweating, and paleness (common in heat exhaustion)
- * Dry, flushed and hot skin and lack of sweat (common in heat stroke)
- Confusion or even unconsciousness

* Signs and symptoms of heat-related illness may vary in different individuals. The absence or presence of sweating should not be solely used as a hint of heat stroke and criterion for first aid treatment. Generally speaking, employees are at risk of heat stroke if they work for a long time or engage in heavy physical work in hot environments. If the mentioned signs and symptoms appear, seek help as soon as possible, cool down the affected worker, and provide appropriate first aid treatment according to the affected worker's condition.

6.2 First Aid Treatment for Heat-Related Illness

Heat stroke can develop and worsen quickly. Therefore, initial first aid treatment must be provided to the affected worker, with a priority on cooling down the affected worker until his/her condition improves or the ambulance arrives.

Management

- Immediately notify the supervisor, act according to the organisation's established emergency response plan, and seek help from colleagues and medical personnel
- Move the ill worker to a shaded, cool and well-ventilated place to sit or lie down as soon as possible
- Assess the consciousness of the ill worker for appropriate first aid treatment

Note: After the initial assessment, it is important to maintain close monitoring of the ill worker for any deterioration.

Check Alertness

Alert

- Fully awake with spontaneous eye opening
- Speech is organised and capable of answering questions clearly such as orientation to person, place and time

Not Alert

- Eyes are opened by sound stimulation or no response; or
- Disorganised speech or unable to answer one's own name, location or time; or
- Does not respond to any stimuli

First Aid Management

Fully Conscious

- Cool down the ill worker as quickly as possible:
 - ⊙ Place the ill worker in a cool or air-conditioned place
 - ⊙ Loosen or remove clothing as appropriate from the ill worker
 - ⊙ Sprinkle water on the ill worker, and then use a fan or electric fan to help evaporate water and lower the body temperature
 - ⊙ Continuously wipe the body with a sponge/towel dampened with cold water to cool down
 - ⊙ Place a sponge/towel soaked with cold water on both armpits and groin to help cool down
 - ⊙ Give cool drinking water or an electrolyte beverage
- Continuously monitor the ill worker's responses to cooling, and if tremors occur, stop immediately and cover his/her body to keep warm
- Cool down the ill worker until condition improves or the ambulance arrives

Not Fully Conscious

- Check and ensure "airway patency", maintain "breathing", "blood circulation" and at the same time cool down the ill worker as quickly as possible:
 - ⊙ Place the ill worker in a cool or air-conditioned place
 - ⊙ Loosen or remove clothing as appropriate from the ill worker
 - ⊙ Sprinkle water on the ill worker, and then use a fan or electric fan to help evaporate water and lower the body temperature
 - ⊙ Continuously wipe the body with a sponge/towel dampened with cold water to cool down
 - ⊙ Place a sponge/towel soaked with cold water on both armpits and groin to help cool down
 - ⊙ **DO NOT give drinks**
- If the ill worker is unconscious, he/she should be placed in recovery position (Figure 1), and continue to check his/her breathing and pulse and cool him/her down until the ambulance arrives
- Continuously monitor the ill worker's responses to cooling, and if tremors occur, stop immediately and cover his/her body to keep warm
- If the ill worker has cardiac arrest, perform cardiopulmonary resuscitation (CPR) immediately
- Send the ill worker to the hospital as soon as possible

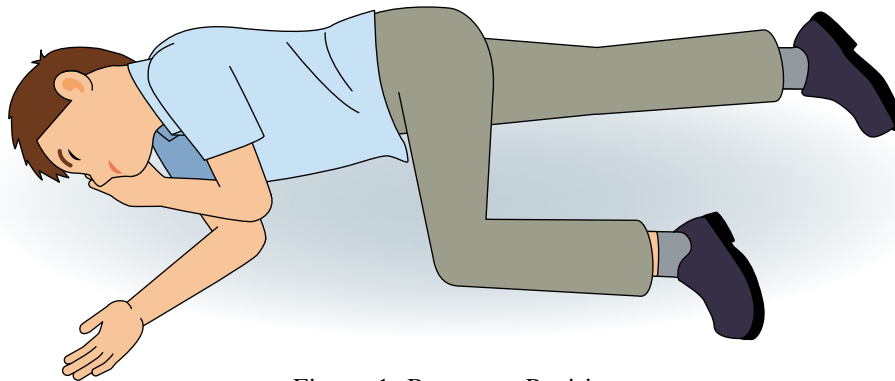


Figure 1: Recovery Position

If the ill worker is breathing but unconscious and the spine is not injured, he/she should be placed in the recovery position to prevent the tongue from falling back and blocking the airway. At the same time, it facilitates the flow of secretion or vomit out of the mouth and reduces the risk of airway obstruction or aspiration pneumonia.

Employees should be familiar with first aid and emergency responses at the workplace and conduct regular drills to enhance their ability to provide initial first aid to colleagues suffering from heat-related illnesses, thereby reducing the risk of injury or death.

First Aid Training

Relevant information can be obtained from organisations that provide first aid certificate course training, such as:

Hong Kong St. John Ambulance: www.stjohn.org.hk

Hong Kong Red Cross: www.redcross.org.hk

The Auxiliary Medical Service: www.ams.gov.hk

Occupational Safety & Health Council: www.oshc.org.hk

6.3 Notification of Accidents

The Employees' Compensation Ordinance (ECO) stipulates that if any accident results in the injury or death of an employee, the employer must notify the Commissioner for Labour within the prescribed time limits after the accident (See **Appendix 5**). Heat stroke is the health damage that occurs when the body temperature control mechanism is overwhelmed under hot weather or in a hot environment. Therefore, if an employee suffers from heat stroke by accident while working in a hot environment, it will be considered and handled as a work injury.

7. Information, Instruction, Training and Supervision

According to Section 6 of the Occupational Safety and Health Ordinance (Cap. 509), employers must, so far as reasonably practicable, ensure the safety and health at work of all employer's employees, including providing the necessary information, instruction, training and supervision.

7.1 Provision of Information, Instruction and Training

7.1.1 Prevention is the most important method to avoid heat-related illness among employees. Employers should provide employees with information, instruction and training on the prevention of heat-related illness, which should include the following:

- Recognising the potential risks of working in a hot environment;
- The hazards of heat stress and related preventive measures, including heat stress risk assessment results and corresponding preventive measures relevant to the employees' work;
- Methods for timely replenishing fluids;
- Identifying risk factors, symptoms and signs of heat-related illness; and
- Procedures for seeking help when feeling unwell, etc.

7.1.2 Employers should also provide relevant training to the safety personnel of the workplace (such as work supervisors, site managers, factory managers, or safety managers) to ensure they have an adequate understanding of the prevention of heat-related illness in employees, which should include the following:

- Relevant laws and responsibilities;
- Methods for assessing the risk of heat stress;
- Methods for monitoring hot working environments;
- Physical workload and the risk of heat-related illness;
- Individual factors and the risk of heat-related illness;
- Emergency response measures; and
- First aid procedures for heat-related illness.

7.2 Supervision and Safety Management System

- 7.2.1 As the heat level in work environments may change fast, suitable adjustment of the heat stress control measures by workplace management is of the utmost importance. Management are responsible for monitoring the hot working environment throughout the day, including the status of "Heat Stress at Work Warning" issued, and implementing preventive and control measures that the employer has developed in accordance with prior risk assessments.
- 7.2.2 In an ideal scenario, the personnel responsible for implementing preventative and control measures should be present at the employee's work site. However, in industries with widely distributed workforces, such as postal or courier services, on-site monitoring may not be feasible or reasonable. Therefore, on-site employees should undergo comprehensive training to understand the correct channels for contacting and receiving instructions from responsible personnel and report any adverse conditions for increased heat stress or any symptoms of heat-related illness to their supervisors in a timely manner.
- 7.2.3 Please note that the work/rest arrangements recommended in Chapter 5 are not applicable to work that needs to be performed urgently or continuously for production and operation process, personal and property safety or public interest (such as firefighting, emergency rescue, or urgent repair work). Relevant employers/ responsible persons should develop necessary control measures in advance for employees engaged in such work to prevent heat stroke while performing relevant duties.
- 7.2.4 Since the working environments and needs of different job positions in different industries are not the same, and the heat stress employees facing is also different, employers and employees should collaborate in formulating reasonable and feasible preventive measures and plans. Generally speaking, the safety committee under the safety management system of an organisation is an appropriate platform for employers and employees to jointly discuss, make recommendations and optimise heat stress preventive and control measures.

Physical Workload Categories and Examples⁵

Physical workload can be assessed according to the general duties of an employee, different work activities can be grouped for assessing the major workload. If employees perform activities of different workloads with similar durations, the higher workload level should be used for determining and formulating preventive measures.

Categories	Examples
Rest	<ul style="list-style-type: none"> Resting, sitting at ease
Light	<ul style="list-style-type: none"> Light arm and leg work while sitting or standing, such as <ul style="list-style-type: none"> writing, typing, drawing, sewing driving normal vehicle, operating foot pedal inspection, sorting or assembly of light materials operating low-powered tools or machines for drilling or sawing work, etc Performing light tasks while walking (~2 km/h) on a level, even path <p>Industry examples: Security guard (including traffic control), property management officer, driver, warehouse/ logistic clerk, bell boy, tour guide, waiter, promoter, survey interviewer, telecommunications technician, electronics craftsman, inspector of works, etc.</p>
Moderate	<ul style="list-style-type: none"> Sustained hand and arm work or working with hand and arm, leg or trunk, such as <ul style="list-style-type: none"> manipulating hand tool for cutting, hammering nails, filing and polishing working with pneumatic breaker, plastering or brick laying work off-road operation of lorries, tractors or construction equipment weeding, hoeing, picking fruits or vegetables loading or unloading goods, pushing or pulling lightweight carts Walking (~2 to 5 km/h) on a level, even path or walking (~2.5 to 3 km/h) on levelled but irregular ground, or walking (<2.5 km/h) on stable ground uphill with inclination ≤5% <p>Industry examples: Chef, cleaning worker, pest control worker, gardener, recycling worker, container operator, delivery worker, postal and courier staff, warehouse/store keeper, lift/ escalator technician, vehicle mechanic, painter, aircraft mechanic, construction plant technician, electrical engineering technician, building service mechanics, surveying technician, renovation worker, rigger, welder/ flame cutting worker, plumber, asphalt worker, crane operator, excavator operator, etc.</p>
Heavy	<ul style="list-style-type: none"> Intense arm and trunk work with hand tools or machines or carrying heavy object, such as <ul style="list-style-type: none"> shovelling or chiselling work mixing, pouring, and compacting concrete using a concrete vibrator pushing or pulling heavily loaded hand carts or wheelbarrows Walking (~5.5 to 7 km/h) on a level, even path or walking (~3.5 to 5 km/h) on levelled but irregular or unstable ground Walking (~2.5 to 3 km/h) uphill with inclination ≤5% (Carrying with load not more than 10 kg) <p>Industry examples: Metal formwork erector, porter, carpenter, concrete worker, grouter, demolition worker, etc.</p>
Very Heavy	<ul style="list-style-type: none"> Intense activity at rapid pace <ul style="list-style-type: none"> shovelling or digging at a fast pace continuously heavy manual handling work or rebar-fixing work Walking (~> 7 km/h) on a level, even path or walking (~> 5 km/h) on a levelled but irregular or unstable ground Walking (~> 3 km/h) uphill with inclination ≥5% or walking up stairs Running (~> 6 km/h) <p>Industry examples: Bar-fixing worker, scaffolder, employee undergoing physical training, etc.</p>

Note: The above examples of industries are based on general working conditions of individual occupations and are for reference only. Employers should make reasonable judgments based on the actual job nature of their employees in the risk assessment.

⁵ BS EN ISO 8996:2021 Ergonomics of the thermal environment – Determination of metabolic rate, GBZ 2.2 – 2007 Occupational exposure limits for hazardous agents in the workplace Part 2: Physical agents

Appendix 2

Workplace Heat Stress Risk Assessment Form (Template)

(Please put a "✓" in the appropriate box.)

Name of organisation/ department: _____

Location of work: _____

Description of work: _____

Number of employees involved: _____

Part A: Assessment Section:

Assessment items	Yes	No	Available control measures
Environmental factors			
1. Do the employees need to work in hot weather or high-temperature environments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Employees performing light to moderate levels of physical work should be given at least a 10-minute rest break after every 2 hours of work; employees performing heavy to very heavy levels of physical work should be given at least a 15-minute rest break after every 2 hours of work (except for those who have been provided with additional rest time as recommended in Part B of this form, if a Heat Stress at Work Warning is in effect); <input type="checkbox"/> Reschedule outdoor and/or high physically demanding work to cooler periods and/or cooler locations; <input type="checkbox"/> Arrange for employees to work alternately in hotter and cooler environments; <input type="checkbox"/> Others: _____ _____
2. Do the employees need to work outdoor and under direct sunlight?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Set up shelters or sun-blocking covers (such as sunshade / parasol) over the work positions; <input type="checkbox"/> Provide employees with sun protection equipment, such as wide-brimmed hats / safety helmets with neck shades and sun protection sleeves; <input type="checkbox"/> Others: _____ _____
3. Are there any heat sources / heat-generating facilities near the working location?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Set up suitable shield or isolate the heat-generating facilities at the working location; <input type="checkbox"/> Provide employees with personal protective equipment for heat protection and insulation (such as radiant heat protection hood); <input type="checkbox"/> Others: _____ _____
4. Is there no effective ventilation equipment in the working location with poor natural ventilation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Use effective ventilation system to increase air flow; <input type="checkbox"/> Use effective exhaust ventilation to remove hot or humid air from the work location; <input type="checkbox"/> Others: _____ _____
5. Does employees' working location/ work situation require increased air flow or other methods to enhance heat dissipation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide employees with blowers, misting fans or portable fans to enhance heat dissipation; <input type="checkbox"/> Provide cooling vests that contain frozen packs or refrigerating devices; <input type="checkbox"/> Others: _____ _____

Work factors			
6. Is the workload of the employees physically demanding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide mechanical aids or measures such as team lifting to minimise employees' physical exertion and workload (The reduced physical workload to be recorded in Part B of this form); <input type="checkbox"/> Others: _____ _____
7. Do the employees perform heavy physical work for long periods or at a rapid pace?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Optimise work schedules or arrange job rotations to reduce the workload and work pace for employees (The reduced physical workload to be recorded in Part B of this form); <input type="checkbox"/> Others: _____ _____
8. Do the employees wear non-breathable clothing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Wear thin and breathable clothing; <input type="checkbox"/> Schedule tasks requiring the wearing of non-breathable clothing to cooler periods of the day; <input type="checkbox"/> Provide employees who wear non-breathable protective clothing with cooling vests that contain frozen packs or refrigerating devices to reduce their heat stress; <input type="checkbox"/> Others: _____ _____
Personal factors			
9. Do employees face any of the above heat stress risk factors arising from the environment or work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Inform employees of the relevant risk assessment results and necessary preventive measures; <input type="checkbox"/> Provide employees with information, instruction, training, and supervision on heat-related illnesses; <input type="checkbox"/> Provide employees with sufficient drinking water and arrange for them to have access to it within 10 minutes of walking; <input type="checkbox"/> Others: _____ _____
10. Are any employees yet to acclimatise/ re-acclimatise to work in hot weather or high-temperature environments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Arrange suitable work schedules for relevant employees for heat acclimatisation; <input type="checkbox"/> Arrange extra resting time for relevant employees; <input type="checkbox"/> Others: _____ _____
Others			
Risk factors:		Control measures:	
_____		_____	
_____		_____	
_____		_____	

Part B: Assess the hourly rest time required for employees in times of Heat Stress at Work Warnings:

Employers should refer to the work and rest schedules in **Appendix 4** and record the various factors that can increase or decrease the recommended rest time per hour based on the results in Part A, and then calculate the adjustment of the recommended hourly rest time when Heat Stress at Work Warnings in effect.

Conditions for reducing rest time	Adjustment of hourly rest time
<input type="checkbox"/> Work in indoor environment or set up shading facilities (such as shelter or sun-blocking cover)	<input type="checkbox"/> -15 mins
<input type="checkbox"/> Provided devices to facilitate heat dissipation (blowers/ misting fans/ portable fan/ cooling vest containing frozen packs or refrigerating devices)	<input type="checkbox"/> -15 mins
Conditions for increasing rest time	
<input type="checkbox"/> Existing heat source/ heat-generating facilities near the working location without effective heat shielding or exhaust ventilation for hot air/moisture	<input type="checkbox"/> +15 mins
<input type="checkbox"/> Poor natural ventilation at the workplace and without effective ventilation equipment	<input type="checkbox"/> +15 mins
<input type="checkbox"/> Need to wear non-breathable protective clothing	<input type="checkbox"/> +15 mins
Adjustment of rest time	Increase/Decrease* _____ min

* Please delete if inappropriate

Rest time corresponding to the physical workload of employees under different Heat Stress at Work Warnings			
Employee position: _____			
Job nature: _____			
Physical workload categories # (Appendix 1)	Warning levels	Hourly rest time before adjustment (Appendix 4)	Hourly rest time after adjustment ‡
<input type="checkbox"/> Very heavy <input type="checkbox"/> Heavy <input type="checkbox"/> Moderate <input type="checkbox"/> Light	Amber Heat Stress at Work Warning	_____ min	_____ min
	Red Heat Stress at Work Warning	_____ min	_____ min
	Black Heat Stress at Work Warning	_____ min	_____ min
Are the employees unacclimatised / required to re-acclimatise to work in hot environments?		<input type="checkbox"/> Yes: Additional 15-minute rest time per hour to be given to relevant employees (based on the adjusted hourly rest time above) <input type="checkbox"/> No	

The physical workload after implementation of measures such as using mechanical aids or adjusting work schedule and work arrangements to reduce physical demand.

‡ If the adjusted hourly rest time is zero or negative, the employer should still arrange for the employees to rest for 10 to 15 minutes every two hours of work in accordance with paragraph 4.7.1.

Part C: Follow-up Items:

Follow-up actions of possible control measures that identified in the risk assessment but not yet implemented/completed are as follows:

Assessment item / Number	Corresponding control measures	Expected date of completion

Note: If the implementation of above corresponding control measures changes the adjusted rest time for employees, their employer should update this risk assessment form.

Part D: Emergency Response Plan:

Employers /responsible persons should take the following emergency response measures to ensure that employees working in hot environments receive timely support and/or assistance:

Emergency response measures	Remarks

Part E: Assessment Record-keeping:

Employers should keep a record of this assessment, explain the assessment results to employees and provide appropriate instructions to ensure that employees take appropriate rest breaks per hour according to the assessment results when the Heat Stress at Work Warning is in effect and minimise heat stress at work.

Assessor's signature: _____

Assessor's name: _____

Assessor's position: _____

Assessment date: _____

Appendix 3

Workplace Heat Stress Risk Assessment Form (example 1)

(Please put a "✓" in the appropriate box.)

Name of organisation/ department: XXX Cleaning Company Limited
 Location of work: Street of Central and Western District
 Description of work: Street cleaning (street sweeping and picking up litter)
 Number of employees involved: 20

Part A: Assessment Section:

Assessment items	Yes	No	Available control measures
Environmental factors			
1. Do the employees need to work in hot weather or high-temperature environments?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Employees performing light to moderate levels of physical work should be given at least a 10-minute rest break after every 2 hours of work; employees performing heavy to very heavy levels of physical work should be given at least a 15-minute rest break after every 2 hours of work (except for those who have been provided with additional rest time as recommended in Part B of this form, if a Heat Stress at Work Warning is in effect); <input type="checkbox"/> Reschedule outdoor and/or high physically demanding work to cooler periods and/or cooler locations; <input type="checkbox"/> Arrange for employees to work alternately in hotter and cooler environments; <input checked="" type="checkbox"/> Others: <u>Arrange cleaning work on slopes and staircases in early morning</u>
2. Do the employees need to work outdoor and under direct sunlight?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Set up shelters or sun-blocking covers (such as sunshade / parasol) over the work positions; <input checked="" type="checkbox"/> Provide employees with sun protection equipment, such as wide-brimmed hats / safety helmets with neck shades and sun protection sleeves; <input type="checkbox"/> Others: _____
3. Are there any heat sources / heat-generating facilities near the working location?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Set up suitable shield or isolate the heat-generating facilities at the working location; <input type="checkbox"/> Provide employees with personal protective equipment for heat protection and insulation (such as radiant heat protection hood); <input type="checkbox"/> Others: _____
4. Is there no effective ventilation equipment in the working location with poor natural ventilation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Use effective ventilation system to increase air flow; <input type="checkbox"/> Use effective exhaust ventilation to remove hot or humid air from the work location; <input type="checkbox"/> Others: _____
5. Does employees' working location/ work situation require increased air flow or other methods to enhance heat dissipation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Provide employees with blowers, misting fans or portable fans to enhance heat dissipation; <input type="checkbox"/> Provide cooling vests that contain frozen packs or refrigerating devices; <input type="checkbox"/> Others: _____

Work factors			
6. Is the workload of the employees physically demanding?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide mechanical aids or measures such as team lifting to minimise employees' physical exertion and workload (The reduced physical workload to be recorded in Part B of this form); <input checked="" type="checkbox"/> Others: <u>Provide hand truck to reduce physical exertion required.</u> _____
7. Do the employees perform heavy physical work for long periods or at a rapid pace?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Optimise work schedules or arrange job rotations to reduce the workload and work pace for employees (The reduced physical workload to be recorded in Part B of this form); <input type="checkbox"/> Others: _____ _____
8. Do the employees wear non-breathable clothing?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Wear thin and breathable clothing; <input type="checkbox"/> Schedule tasks requiring the wearing of non-breathable clothing to cooler periods of the day; <input type="checkbox"/> Provide employees who wear non-breathable protective clothing with cooling vests that contain frozen packs or refrigerating devices to reduce their heat stress; <input type="checkbox"/> Others: _____ _____
Personal factors			
9. Do employees face any of the above heat stress risk factors arising from the environment or work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Inform employees the risk assessment results and relevant necessary preventive measures; <input checked="" type="checkbox"/> Provide employees with information, instruction, training, and supervision on heat-related illnesses; <input type="checkbox"/> Provide employees with sufficient drinking water and arrange for them to have access to it within 10 minutes of walking; <input checked="" type="checkbox"/> Others: <u>Instruct employees to fill up water bottles inside the station before work commences and seek assistance from the supervisor if needed.</u> _____
10. Are any employees yet to acclimatise/ re-acclimatise to work in hot weather or high-temperature environments?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Arrange suitable work schedules for relevant employees for heat acclimatisation; <input type="checkbox"/> Arrange extra resting time for relevant employees; <input type="checkbox"/> Others: _____ _____
Others			
Risk factors:		Control measures:	
_____		_____	
_____		_____	
_____		_____	

Part B: Assess the hourly rest time required for employees in times of Heat Stress at Work Warnings:

Employers should refer to the work and rest schedules in **Appendix 4** and record the various factors that can increase or decrease the recommended rest time per hour based on the results in Part A, and then calculate the adjustment of the recommended hourly rest time when Heat Stress at Work Warnings in effect.

Conditions for reducing rest time	Adjustment of hourly rest time
<input type="checkbox"/> Work in indoor environment or set up shading facilities (such as shelter or sun-blocking cover)	<input type="checkbox"/> -15 mins
<input checked="" type="checkbox"/> Provided devices to facilitate heat dissipation (blowers/ misting fans/ portable fan/ cooling vest containing frozen packs or refrigerating devices)	<input checked="" type="checkbox"/> -15 mins
Conditions for increasing rest time	
<input type="checkbox"/> Existing heat source/ heat-generating facilities near the working location without effective heat shielding or exhaust ventilation for hot air/moisture	<input type="checkbox"/> +15 mins
<input type="checkbox"/> Poor natural ventilation at the workplace and without effective ventilation equipment	<input type="checkbox"/> +15 mins
<input type="checkbox"/> Need to wear non-breathable protective clothing	<input type="checkbox"/> +15 mins
Adjustment of rest time	Increase/Decrease* <u> 15 </u> min

* Please delete if inappropriate

Rest time corresponding to the physical workload of employees under different Heat Stress at Work Warnings			
Employee position: <u>Cleaning Worker</u>			
Job nature: <u>Street cleaning (street sweeping and picking up litter)</u>			
Physical workload categories # (Appendix 1)	Warning levels	Hourly rest time before adjustment (Appendix 4)	Hourly rest time after adjustment ‡
<input type="checkbox"/> Very heavy	Amber Heat Stress at Work Warning	<u> 15 </u> min	<u> 0 </u> min
<input type="checkbox"/> Heavy	Red Heat Stress at Work Warning	<u> 30 </u> min	<u> 15 </u> min
<input checked="" type="checkbox"/> Moderate	Black Heat Stress at Work Warning	<u> 45 </u> min	<u> 30 </u> min
<input type="checkbox"/> Light			
Are the employees unacclimatised / required to re-acclimatise to work in hot environments?		<input type="checkbox"/> Yes: Additional 15-minute rest time per hour to be given to relevant employees (based on the adjusted hourly rest time above)	
		<input checked="" type="checkbox"/> No	

The physical workload after implementation of measures such as using mechanical aids or adjusting work schedule and work arrangements to reduce physical demand.

‡ If the adjusted hourly rest time is zero or negative, the employer should still arrange for the employees to rest for 10 to 15 minutes every two hours of work in accordance with paragraph 4.7.1.

Part C: Follow-up Items:

Follow-up actions of possible control measures that identified in the risk assessment but not yet implemented/completed are as follows:

Assessment item / Number	Corresponding control measures	Expected date of completion
1	- Arrange cleaning work on slopes and staircases in early morning	Implemented
2	- Provide employees with wide brim hats	Implemented
5	- Provide employees with portable fans	Implemented
6	- Provide hand truck	Implemented
9	- Inform employees of the relevant risk assessment results and necessary preventive measures - Provide employees with information, instruction, training, and supervision on heat-related illnesses - Instruct employees to fill up water bottles inside the station before work commences and seek assistance from the supervisor if needed	2 April, 2023

Note: If the implementation of above corresponding control measures changes the adjusted rest time for employees, their employer should update this risk assessment form.

Part D: Emergency Response Plan:

Employers /responsible persons should take the following emergency response measures to ensure that employees working in hot environments receive timely support and/or assistance:

Emergency response measures	Remarks
An employee is experiencing dizziness or similar symptoms	Contact ambulance depot
Employees express the need for more drinking water in hot weather	Deliver water to the working location

Part E: Assessment Record-keeping:

Employers should keep a record of this assessment, explain the assessment results to employees and provide appropriate instructions to ensure that employees take appropriate rest breaks per hour according to the assessment results when the Heat Stress at Work Warning is in effect and minimise heat stress at work.

Assessor's signature: XXX

Assessor's name: CHAN Tai-man

Assessor's position: Project Manager

Assessment date: 1 April, 2023

Workplace Heat Stress Risk Assessment Form (example 2)

(Please put a "✓" in the appropriate box.)

Name of organisation/ department: XXX Cleaning Company Limited

Location of work: AA Court (Block 1 to 12, 30 floors each)

Description of work: Using a 660L bin to collect and transport garbage twice a day (am & pm)

Number of employees involved: 12

Part A: Assessment Section:

Assessment items	Yes	No	Available control measures
Environmental factors			
1. Do the employees need to work in hot weather or high-temperature environments?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Employees performing light to moderate levels of physical work should be given at least a 10-minute rest break after every 2 hours of work; employees performing heavy to very heavy levels of physical work should be given at least a 15-minute rest break after every 2 hours of work (except for those who have been provided with additional rest time as recommended in Part B of this form, if a Heat Stress at Work Warning is in effect); <input checked="" type="checkbox"/> Reschedule outdoor and/or high physically demanding work to cooler periods and/or cooler locations; <input type="checkbox"/> Arrange for employees to work alternately in hotter and cooler environments; <input type="checkbox"/> Others: _____ _____
2. Do the employees need to work outdoor and under direct sunlight?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Set up shelters or sun-blocking covers (such as sunshade / parasol) over the work positions; <input type="checkbox"/> Provide employees with sun protection equipment, such as wide-brimmed hats / safety helmets with neck shades and sun protection sleeves; <input type="checkbox"/> Others: _____ _____
3. Are there any heat sources / heat-generating facilities near the working location?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Set up suitable shield or isolate the heat-generating facilities at the working location; <input type="checkbox"/> Provide employees with personal protective equipment for heat protection and insulation (such as radiant heat protection hood); <input type="checkbox"/> Others: _____ _____
4. Is there no effective ventilation equipment in the working location with poor natural ventilation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Use effective ventilation system to increase air flow; <input type="checkbox"/> Use effective exhaust ventilation to remove hot or humid air from the work location; <input type="checkbox"/> Others: _____ _____
5. Does employees' working location/ work situation require increased air flow or other methods to enhance heat dissipation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Provide employees with blowers, misting fans or portable fans to enhance heat dissipation; <input type="checkbox"/> Provide cooling vests that contain frozen packs or refrigerating devices; <input type="checkbox"/> Others: _____ _____

Work factors			
6. Is the workload of the employees physically demanding?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide mechanical aids or measures such as team lifting to minimise employees' physical exertion and workload (The reduced physical workload to be recorded in Part B of this form); <input checked="" type="checkbox"/> Others: <u>Regular inspections and maintenance of the 660L bins to ensure the smooth operation of the wheels.</u>
7. Do the employees perform heavy physical work for long periods or at a rapid pace?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Optimise work schedules or arrange job rotations to reduce the workload and work pace for employees (The reduced physical workload to be recorded in Part B of this form); <input type="checkbox"/> Others: _____ _____
8. Do the employees wear non-breathable clothing?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Wear thin and breathable clothing; <input type="checkbox"/> Schedule tasks requiring the wearing of non-breathable clothing to cooler periods of the day; <input type="checkbox"/> Provide employees who wear non-breathable protective clothing with cooling vests that contain frozen packs or refrigerating devices to reduce their heat stress; <input type="checkbox"/> Others: _____ _____
Personal factors			
9. Do employees face any of the above heat stress risk factors arising from the environment or work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Inform employees the risk assessment results and relevant necessary preventive measures; <input checked="" type="checkbox"/> Provide employees with information, instruction, training, and supervision on heat-related illnesses; <input checked="" type="checkbox"/> Provide employees with sufficient drinking water and arrange for them to have access to it within 10 minutes of walking; <input type="checkbox"/> Others: _____ _____ _____
10. Are any employees yet to acclimatise/ re-acclimatise to work in hot weather or high-temperature environments?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Arrange suitable work schedules for relevant employees for heat acclimatisation; <input type="checkbox"/> Arrange extra resting time for relevant employees; <input type="checkbox"/> Others: _____ _____
Others			
Risk factors:		Control measures:	
_____		_____	
_____		_____	
_____		_____	

Part B: Assess the hourly rest time required for employees in times of Heat Stress at Work Warnings:

Employers should refer to the work and rest schedules in **Appendix 4** and record the various factors that can increase or decrease the recommended rest time per hour based on the results in Part A, and then calculate the adjustment of the recommended hourly rest time when Heat Stress at Work Warnings in effect.

Conditions for reducing rest time	Adjustment of hourly rest time
<input checked="" type="checkbox"/> Work in indoor environment or set up shading facilities (such as shelter or sun-blocking cover)	<input checked="" type="checkbox"/> -15 mins
<input checked="" type="checkbox"/> Provided devices to facilitate heat dissipation (blowers/ misting fans/ portable fan/ cooling vest containing frozen packs or refrigerating devices)	<input checked="" type="checkbox"/> -15 mins
Conditions for increasing rest time	
<input type="checkbox"/> Existing heat source/ heat-generating facilities near the working location without effective heat shielding or exhaust ventilation for hot air/moisture	<input type="checkbox"/> +15 mins
<input checked="" type="checkbox"/> Poor natural ventilation at the workplace and without effective ventilation equipment	<input checked="" type="checkbox"/> +15 mins
<input type="checkbox"/> Need to wear non-breathable protective clothing	<input type="checkbox"/> +15 mins
Adjustment of rest time	Increase/Decrease* <u> 15 </u> min

* Please delete if inappropriate

Rest time corresponding to the physical workload of employees under different Heat Stress at Work Warnings			
Employee position: <u>Cleaning Worker</u>			
Job nature: <u>Collection of garbage in the estate</u>			
Physical workload categories # (Appendix 1)	Warning levels	Hourly rest time before adjustment (Appendix 4)	Hourly rest time after adjustment ‡
<input type="checkbox"/> Very heavy	Amber Heat Stress at Work Warning	<u> 15 </u> min	<u> 0 </u> min
<input type="checkbox"/> Heavy	Red Heat Stress at Work Warning	<u> 30 </u> min	<u> 15 </u> min
<input checked="" type="checkbox"/> Moderate	Black Heat Stress at Work Warning	<u> 45 </u> min	<u> 30 </u> min
<input type="checkbox"/> Light			
Are the employees unacclimatised / required to re-acclimatise to work in hot environments?		<input type="checkbox"/> Yes: Additional 15-minute rest time per hour to be given to relevant employees (based on the adjusted hourly rest time above)	
		<input checked="" type="checkbox"/> No	

The physical workload after implementation of measures such as using mechanical aids or adjusting work schedule and work arrangements to reduce physical demand.

‡ If the adjusted hourly rest time is zero or negative, the employer should still arrange for the employees to rest for 10 to 15 minutes every two hours of work in accordance with paragraph 4.7.1.

Part C: Follow-up Items:

Follow-up actions of possible control measures that identified in the risk assessment but not yet implemented/completed are as follows:

Assessment item / Number	Corresponding control measures	Expected date of completion
5	- Provide employees with portable fans	Implemented
6	- Regular inspections and maintenance of the 660L bin to ensure the smooth operation of the wheels	15 April, 2023
9	- Inform employees of the relevant risk assessment results and necessary preventive measures - Provide employees with information, instruction, training, and supervision on heat-related illnesses - Advise employees to take sufficient drinking water at the depot and bring along for outdoor work; also advise them to inform supervisor when needed	15 April, 2023

Note: If the implementation of above corresponding control measures changes the adjusted rest time for employees, their employer should update this risk assessment form.

Part D: Emergency Response Plan:

Employers /responsible persons should take the following emergency response measures to ensure that employees working in hot environments receive timely support and/or assistance:

Emergency response measures	Remarks
An employee is experiencing dizziness, headache, nausea or similar symptoms	Contact ambulance depot

Part E: Assessment Record-keeping:

Employers should keep a record of this assessment, explain the assessment results to employees and provide appropriate instructions to ensure that employees take appropriate rest breaks per hour according to the assessment results when the Heat Stress at Work Warning is in effect and minimise heat stress at work.

Assessor's signature: XXX

Assessor's name: CHAN Tai-man

Assessor's position: Project Manager

Assessment date: 1 April, 2023

Workplace Heat Stress Risk Assessment Form (example 3)

(Please put a "✓" in the appropriate box.)

Name of organisation/ department: ABC Construction Company Limited

Location of work: Public housing development construction site at Lot 1104

Description of work: Rebar fixing of bar bender at roof slab

Number of employees involved: 20

Part A: Assessment Section:

Assessment items	Yes	No	Available control measures
Environmental factors			
1. Do the employees need to work in hot weather or high-temperature environments?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Employees performing light to moderate levels of physical work should be given at least a 10-minute rest break after every 2 hours of work; employees performing heavy to very heavy levels of physical work should be given at least a 15-minute rest break after every 2 hours of work (except for those who have been provided with additional rest time as recommended in Part B of this form, if a Heat Stress at Work Warning is in effect); <input type="checkbox"/> Reschedule outdoor and/or high physically demanding work to cooler periods and/or cooler locations; <input type="checkbox"/> Arrange for employees to work alternately in hotter and cooler environments; <input type="checkbox"/> Others: _____ _____
2. Do the employees need to work outdoor and under direct sunlight?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Set up shelters or sun-blocking covers (such as sunshade / parasol) over the work positions; <input checked="" type="checkbox"/> Provide employees with sun protection equipment, such as wide-brimmed hats / safety helmets with neck shades and sun protection sleeves; <input type="checkbox"/> Others: _____ _____
3. Are there any heat sources / heat-generating facilities near the working location?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Set up suitable shield or isolate the heat-generating facilities at the working location; <input type="checkbox"/> Provide employees with personal protective equipment for heat protection and insulation (such as radiant heat protection hood); <input type="checkbox"/> Others: _____ _____
4. Is there no effective ventilation equipment in the working location with poor natural ventilation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Use effective ventilation system to increase air flow; <input type="checkbox"/> Use effective exhaust ventilation to remove hot or humid air from the work location; <input type="checkbox"/> Others: _____ _____
5. Does employees' working location/ work situation require increased air flow or other methods to enhance heat dissipation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Provide employees with blowers, misting fans or portable fans to enhance heat dissipation; <input type="checkbox"/> Provide cooling vests that contain frozen packs or refrigerating devices; <input type="checkbox"/> Others: _____ _____

Work factors			
6. Is the workload of the employees physically demanding?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> Provide mechanical aids or measures such as team lifting to minimise employees' physical exertion and workload (The reduced physical workload to be recorded in Part B of this form); <input type="checkbox"/> Others: _____ _____
7. Do the employees perform heavy physical work for long periods or at a rapid pace?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Optimise work schedules or arrange job rotations to reduce the workload and work pace for employees (The reduced physical workload to be recorded in Part B of this form); <input type="checkbox"/> Others: _____ _____
8. Do the employees wear non-breathable clothing?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Wear thin and breathable clothing; <input type="checkbox"/> Schedule tasks requiring the wearing of non-breathable clothing to cooler periods of the day; <input type="checkbox"/> Provide employees who wear non-breathable protective clothing with cooling vests that contain frozen packs or refrigerating devices to reduce their heat stress; <input type="checkbox"/> Others: _____ _____
Personal factors			
9. Do employees face any of the above heat stress risk factors arising from the environment or work?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Inform employees of the relevant risk assessment results and necessary preventive measures; <input checked="" type="checkbox"/> Provide employees with information, instruction, training, and supervision on heat-related illnesses; <input checked="" type="checkbox"/> Provide employees with sufficient drinking water and arrange for them to have access to it within 10 minutes of walking; <input type="checkbox"/> Others: _____ _____ _____
10. Are any employees yet to acclimatise/ re-acclimatise to work in hot weather or high-temperature environments?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/> Arrange suitable work schedules for relevant employees for heat acclimatisation; <input checked="" type="checkbox"/> Arrange extra resting time for relevant employees; <input type="checkbox"/> Others: _____ _____
Others			
Risk factors:		Control measures:	
_____		_____	
_____		_____	
_____		_____	

Part B: Assess the hourly rest time required for employees in times of Heat Stress at Work Warnings:

Employers should refer to the work and rest schedules in **Appendix 4** and record the various factors that can increase or decrease the recommended rest time per hour based on the results in Part A, and then calculate the adjustment of the recommended hourly rest time when Heat Stress at Work Warnings in effect.

Conditions for reducing rest time	Adjustment of hourly rest time
<input checked="" type="checkbox"/> Work in indoor environment or set up shading facilities (such as shelter or sun-blocking cover)	<input checked="" type="checkbox"/> -15 mins
<input checked="" type="checkbox"/> Provided devices to facilitate heat dissipation (blowers/ misting fans/ portable fan/ cooling vest containing frozen packs or refrigerating devices)	<input checked="" type="checkbox"/> -15 mins
Conditions for increasing rest time	
<input type="checkbox"/> Existing heat source/ heat-generating facilities near the working location without effective heat shielding or exhaust ventilation for hot air/moisture	<input type="checkbox"/> +15 mins
<input type="checkbox"/> Poor natural ventilation at the workplace and without effective ventilation equipment	<input type="checkbox"/> +15 mins
<input type="checkbox"/> Need to wear non-breathable protective clothing	<input type="checkbox"/> +15 mins
Adjustment of rest time	Increase/Decrease* <u> 30 </u> min

* Please delete if inappropriate

Rest time corresponding to the physical workload of employees under different Heat Stress at Work Warnings			
Employee position: <u>Bar Bender</u>			
Job nature: <u>Rebar Fixing at roof slab</u>			
Physical workload categories # (Appendix 1)	Warning levels	Hourly rest time before adjustment (Appendix 4)	Hourly rest time after adjustment †
<input checked="" type="checkbox"/> Very heavy	Amber Heat Stress at Work Warning	<u> 45 </u> min	<u> 15 </u> min
<input type="checkbox"/> Heavy	Red Heat Stress at Work Warning	<u> 60 </u> min	<u> 30 </u> min
<input type="checkbox"/> Moderate	Black Heat Stress at Work Warning	<u>60+15##</u> min	<u> 45 </u> min
<input type="checkbox"/> Light			
Are the employees unacclimatised / required to re-acclimatise to work in hot environments?		<input checked="" type="checkbox"/> Yes: Additional 15-minute rest time per hour to be given to relevant employees (based on the adjusted hourly rest time above) <input type="checkbox"/> No	

The physical workload after implementation of measures such as using mechanical aids or adjusting work schedule and work arrangements to reduce physical demand.

The 15 mins rest break adjustment considers the difference of work between a very heavy and heavy workload in times of the Black Heat Stress at Work Warning.

‡ If the adjusted hourly rest time is zero or negative, the employer should still arrange for the employees to rest for 10 to 15 minutes every two hours of work in accordance with paragraph 4.7.1.

Part C: Follow-up Items:

Follow-up actions of possible control measures that identified in the risk assessment but not yet implemented/completed are as follows:

Assessment item / Number	Corresponding control measures	Expected date of completion
2	- Set up shelters / sun-blocking covers over the work positions	Immediate
2	- Provide sun protection equipment	10 April, 2023
5	- Provide air blowers - Provide with every worker a portable fan - Provide spare batteries and charging facilities for the portable fans	Implemented
6	- Provide mechanical aids to reduce the carrying load and distance	Immediate
7	- Rotate work among different employees	Immediate
8	- Provide dry-fit work clothes	Implemented
9	- Inform employees of the relevant risk assessment results and necessary preventive measures - Provide employees with information, instruction and training on heat stroke prevention - Introduce the locations on drinking water facilities in the worksite	Implemented & induction training
9	- Remind heat stroke preventive measures during tool-box meeting	10 April, 2023 & repeat on hot days
9	- Provide employees with potable water and shelter in roof slap for easy replenishment of water - Provide cool drinking water at workers' resting zones	Immediate
9	- Ensure sufficient drinking water in the worksite during working hours of the workers	On-going
10	- Arrange work schedules for relevant employees for heat acclimatisation	Immediate

Note: If the implementation of above corresponding control measures changes the adjusted rest time for employees, their employer should update this risk assessment form.

Part D: Emergency Response Plan:

Employers /responsible persons should take the following emergency response measures to ensure that employees working in hot environments receive timely support and/or assistance:

Emergency response measures	Remarks
All workers are informed of how to notify their supervisor and should be able to seek immediate help if they feel unwell.	
If a worker is experiencing symptoms of heat-related illness, first check the alertness of the affected worker, then move him to a shaded area and help him lowering body temperature	Arrange on-site personnel with first aid knowledge and arrange regular drills
If a worker is not fully conscious, call ambulance and provide necessary assistance to the ambulancemen	

Part E: Assessment Record-keeping:

Employers should keep a record of this assessment, explain the assessment results to employees and provide appropriate instructions to ensure that employees take appropriate rest breaks per hour according to the assessment results when the Heat Stress at Work Warning is in effect and minimise heat stress at work.




Assessor's signature: XXX

Assessor's name: CHAN Tai-man

Assessor's position: Safety Officer

Assessment date: 1 April, 2023

Hourly Rest Arrangements for Outdoor Work in Times of Heat Stress at Work Warning (Assuming no heat stress preventive measures are taken and in the absence of other heat stress risk factors¹)




		Hourly Work / Rest Arrangements				
		Light	Moderate	Heavy	Very Heavy	
Heat Stress at Work Warning	Physical Workload					
				45 mins work 15 mins rest (75% work; 25% rest)	30 mins work 30 mins rest (50% work; 50% rest)	15 mins work 45 mins rest (25% work; 75% rest)
		45 mins work 15 mins rest (75% work; 25% rest)	30 mins work 30 mins rest (50% work; 50% rest)	15 mins work 45 mins rest (25% work; 75% rest)	Suspension of work	
	30 mins work 30 mins rest (50% work; 50% rest)	15 mins work 45 mins rest (25% work; 75% rest)	Suspension of work	Suspension of work		

Note:

1. The hourly rest time required can be reduced if the employer has effectively adopted various preventive measures to reduce the employees' heat stress caused by hot weather and has effectively avoided or controlled other heat stress risk factors at work, or vice versa (see sections 5.3 to 5.5).

Appendix 4(a)

Hourly Rest Arrangements for Indoor Work without air-conditioning¹ in Times of Heat Stress at Work Warning (Assuming no heat stress preventive measures are taken and in the absence of other heat stress risk factors²)

		Hourly Work / Rest Arrangements			
		Light	Moderate	Heavy	Very Heavy
Heat Stress at Work Warning	Physical Workload				
				45 mins work 15 mins rest (75% work; 25% rest)	30 mins work 30 mins rest (50% work; 50% rest)
			45 mins work 15 mins rest (75% work; 25% rest)	30 mins work 30 mins rest (50% work; 50% rest)	15 mins work 45 mins rest (25% work; 75% rest)
	45 mins work 15 mins rest (75% work; 25% rest)	30 mins work 30 mins rest (50% work; 50% rest)	15 mins work 45 mins rest (25% work; 75% rest)	Suspension of work	

Note:

1. **Indoor working environments without air-conditioning systems** will have heat stress risks increased also due to hot weather. Therefore, when Heat Stress at Work Warning is in effect, hourly rest periods should also be arranged for relevant employees under high heat stress risks. However, since direct sunlight exposure can be avoided indoors, the rest time required per hour can be reduced by 15 minutes compared to outdoor work with the same workload (see paragraphs 5.2.2 and 5.3.1).
2. The hourly rest time required can be reduced if the employer has effectively adopted various preventive measures to reduce the employees' heat stress caused by hot weather and has effectively avoided or controlled other heat stress risk factors at work, or vice versa (see sections 5.3 to 5.5).

Guidelines on Notification of Accidents

Work injury

Heat stroke is the health damage that occurs when the body's physiological temperature control mechanism is overwhelmed under hot weather or in a hot environment. Therefore, if an employee suffered from heat stroke while working in a hot environment, it will be considered and handled as work injury.

The Employees' Compensation Ordinance (ECO) stipulates that if an employee sustains an injury or dies as a result of an accident arising out of and in the course of his employment, under normal circumstances, the employer is liable to pay compensation under ECO.

Responsibility of an Employee

An employee should notify the employer when he sustains a work injury as soon as possible. Failure to give prompt notice may jeopardise and delay his claim for employees' compensation. Notice may be given orally or in writing to the employer or to the employee's supervisor. The employer is presumed to have had noticed of an accident if the employee dies on the employer's premises.

Responsibility of an Employer

According to section 15 of ECO, if any accident results in the injury or death of an employee, the employer must notify the Commissioner for Labour within the following time limits after the accident, irrespective of whether the accident gives rise to any liability to pay compensation:

	Resulting in	Notify Period	Form
Work Injury	Incapacity for a period not exceeding 3 days	Within 14 days	Form 2B
	Incapacity for a period exceeding 3 days	Within 14 days	Form 2
	Death	Within 7 days	

If the employer is not aware of the happening of the accident within the respective periods, he must notify the Commissioner for Labour within 7 or 14 days, as the case may be, after the accident came to his knowledge.

If you have queries about ECO, please call 2717 1771 (the hotline is handled by the "1823").

Other publications related to employee's compensation have been uploaded to the Labour Department website (https://www.labour.gov.hk/eng/public/content2_7.htm).

Appendix 6

Heat Stress at Work Warning Messages (Template)

(Issue or update)

A reminder from the Labour Department: Amber/ Red/ Black Heat Stress at Work Warning is in effect today at [hh:mm] am/pm, indicating that the heat stress in some work environments is high/ very high/ extremely high. Please take appropriate heat preventive measures.

(This message was issued at [hh:mm] on [DD/MM/YYYY])

(Cancellation)

A reminder from the Labour Department: The Heat Stress at Work Warning has been cancelled today at [hh:mm] am/pm.

(This message was issued at [hh:mm] on [DD/MM/YYYY])

Enquiries and Complaints

Enquiries

If you wish to enquire about this Guidance Notes or require advice on occupational safety and health matters, please contact the Occupational Safety and Health Branch of the Labour Department through:

Telephone : 2852 4041 or 2559 2297 (auto-recording service available outside service hours.)

Fax : 2581 2049

Email : enquiry@labour.gov.hk

Information on the services offered by LD and on major labour legislation is also available on our website at <https://www.labour.gov.hk>. The latest OSH information can be obtained through the LD's "OSH 2.0" Mobile Application. For details on the services offered by the Occupational Safety and Health Council, please call 2739 9000.



Labour Department's Website



"OSH 2.0" Mobile Application

Complaints

If you have any complaints about unsafe operations or environments at workplaces, please call the Labour Department's Occupational Safety and Health (OSH) complaint hotline at 2542 2172 or fill out and submit an online OSH complaint form on our website. All complaints will be treated in the strictest confidence.



Online OSH Complaint Form

