



Systemic Safety Alert

Fire Safety at Construction Sites

Major systemic safety problems

A fire at a construction site can endanger the safety of workers of the entire site or workers working in the vicinity, resulting in serious injuries and fatalities. The occurrence of related accidents involves the following major systemic safety problems:

- failure to conduct task-specific risk assessments and formulate safe work methods in accordance with the risk assessments;
- failure to implement safe work methods and adopt necessary risk control measures for the works;
- failure to formulate and implement measures to prohibit smoking;
- failure to properly use and store flammable substances;
- failure to ensure protective nets, protective screens, tarpaulins/ plastic sheeting (hereinafter collectively referred to as protective materials) installed on external scaffolding possess appropriate fire retardant properties in compliance with a recognised standard;
- failure to prohibit conducting hot work in an unsafe manner and properly arrange incompatible work processes;
- damaged electrical installation or apparatus, overloaded power cords and short-circuited electrical appliances;
- failure to ensure that all means of escape are maintained in good condition and free from obstruction; and
- failure to provide all workers/ employers with adequate safety information, instruction, training and supervision.

Accident prevention measures

Registered Safety Officers (RSOs) should advise their employers/ clients to:



- (i) appoint a competent person to conduct task-specific risk assessments to identify all potential hazards associated with the work, particularly fire and explosion hazards arising from the use of flammable substances, the application of protective materials on external scaffolding, the execution of hot work (e.g., electric arc welding or flame cutting), and the use of electrical installations and apparatus, having regard to the nature of work, the work environment and the work activities in the vicinity;
- (ii) formulate safe work methods according to the results of risk assessments and adopt necessary control measures;
- (iii) a comprehensive smoking ban should be implemented on construction sites to reduce the fire risk;
- (iv) as far as practicable, use non-flammable substances instead of flammable substances/ materials for the work so as to eliminate fire hazard;
- (v) where the use of flammable substances/ materials is inevitable, strictly prohibit the use of naked flame or any other processes likely to ignite flammable substances;
- (vi) in any case, the use and storage of flammable substances should be kept to a minimum. Excessive flammable substances should not be stored on the site to mitigate the fire hazard. In case of need, the relevant department should be consulted to comprehend the requirements for construction of a dangerous goods store and obtaining license;
- (vii) ensure the protective materials installed on external scaffolding possess appropriate fire retardant properties in compliance with the following recognised standards:
 - GB 5725-2009 - Safety nets;



- BS 5867-2:2008 (Type B performance requirements) - Fabrics for curtains, drapes and window blinds - Part 2: Flammability requirements - Specification;
 - NFPA 701:2023 (Test Method 2) - Standard methods of fire tests for flame propagation of textiles and films; and
 - equivalent standards.
- (viii) prohibit any hot work conducted in the vicinity of flammable/ combustible materials, and ensure that the works are well-planned and coordinated to prevent incompatible activities being performed at the same time;
- (ix) where hot work is to be carried out on the site, formulate proper and adequate fire precautionary measures before carrying out the work, including but not limited to:
- keeping the work area clean and tidy, and ensuring that the workplace is free from any flammable or combustible materials, such as oil, grease, paint, polystyrene foam, dirt or other residue before the commencement of hot work;
 - moving all flammable/ combustible materials to a safe place away from the area with hot work. If removal is not possible, take appropriate measures, such as covering them with fire resistant materials;
 - ensuring that the adjacent areas or compartments, which may be affected by the heat generated by the operation, are free from flammable/ combustible materials and fire hazards; and
 - providing and properly maintaining fire-fighting equipment, such as fire extinguishers and buckets of sand, near the work area.
- (x) adopt effective engineering control measures through the use of suitable and adequate fuses/ circuit breakers, residual current device for earth leakage protection and double-insulated or properly earthed portable electrical apparatus;



- (xi) conduct proactive inspection and take prompt rectification to ensure that the electrical apparatus and the associated plugs, sockets and wiring are in conformity with relevant safety standards and free from damage and faults;
- (xii) avoid overloading of electric circuits to prevent fire;
- (xiii) ensure that all means of escape are maintained in a safe condition and kept free from obstruction, leading to safe places at all times;
- (xiv) provide and properly maintain sufficient fire service installations and equipment (e.g. fire detection equipment, fire alarm systems, fire pumps and fire extinguishers);
- (xv) adopt appropriate Smart Site Safety System, such as smart smoke detection system and temperature monitoring system, to enhance monitoring of fire risks;
- (xvi) devise and implement an emergency response plan, and regularly conduct fire drills so that workers could safely evacuate from the workplace in case of fire;
- (xvii) provide all personnel involved with necessary safety information, instruction and training to ensure that they are familiar with method statements, safety measures and have fully understood their roles and responsibilities; and
- (xviii) exercise adequate monitoring and effective supervision to ensure that the above safety measures are strictly implemented, followed and maintained.

Registered Safety Auditors (RSAs) should take into account these systemic safety problems and accident prevention measures in executing safety audit functions.



DISCLAIMER

This Systemic Safety Alert (“the Alert”) is issued to draw the attention of interested parties to the relevant systemic safety problems and accident prevention measures necessary to protect people engaging in similar works activities. The material contained in the Alert constitutes general guidance only. It does not reduce, limit, or replace, any legal obligations upon any person to comply with any statutory duties under relevant legislation. Users such as Managers and Supervisors should make their own evaluation of the information contained in the Alert to determine if it can be applied to their own situations and practices. The Labour Department does NOT accept any responsibilities for any loss or damage resulting from the use of or failure to use the information contained herein.