MINISTRY OF LABOUR AND INDUSTRIAL RELATIONS

GUIDELINES ON WORK ON OR NEAR FRAGILE SURFACES

National Occupational Safety and Health Department - 2026

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1.0 INTRODUCTION

Falls, particularly those through fragile surfaces, are a major cause of death and serious injury at workplaces. The risk of fall and serious injury from a fall depends mainly on:

(i) whether any fall control measures are implemented,
(ii) the height at which the work is being done, and
(iii) the surface directly below the work at height area.

Examples of fragile material are:

- polycarbonate sheets or plastic commonly used in skylights,
- built-up sheeted roofs,
- glass, and
- rusted corrugated iron sheeting and unreinforced insulating slabs.

Some roof coverings give a false sense of security and the impression of a surface which is solid enough to bear the weight of a person.

Sometimes the entire roof surface is fragile. Sometimes part of the roof is fragile, e.g. when fragile roof lights are contained in an otherwise non-fragile roof. Sometimes the fragility of a roof can be disguised, for instance when old roofs have been painted over. The fragility, or otherwise, of a roof should be confirmed before work starts. If there is any doubt, the roof should be treated as fragile unless, or until, confirmed that it is not. It is positively dangerous to assume that a roof is non-fragile without checking this out beforehand.

2.0 DEFINITION

According to the Occupational Safety and Health (Work at Height) Regulations 2013, "fragile surface" means a surface which would be liable to fail if any reasonably foreseeable loading were to be applied to it.

3.0 EXTENT OF THE PROBLEM

Many accidents related to fragile surfaces occur during maintenance and cleaning. Often little attention is paid to this short-term, low-value work. It is often done by people with no experience in work at height and on older roofs, where additional control measures may be needed to make sure the risk of accident is minimised.

In accidents related to fragile surfaces, workers may fall from a height, resulting in serious injury or death. Victims and their families are not the only ones who suffer. Employers, contractors and the community will also have to pay a high price arising from criminal liability, employees' compensation, civil claims, delays in works and the negative impact on staff morale and corporate image.

According to the Health and Safety Executive (United Kingdom), on average 7 people are killed each year after falling through a fragile roof or fragile roof light. Many others suffer permanent disabling injury. These accidents usually occur on roofs of factories, warehouses and buildings (HSE, 2012).

The table below shows the trend of fatal accidents that have occurred at workplaces in Mauritius which are related to fragile surfaces from 2020 to 2024.

Year	No. of fatal accidents	No. of fatal accidents involving fragile roof	%
2020	13	0	-
2021	9	0	-
2022	7	0	-
2023	14	4	28.6
2024	21	1	4.8

Table 1 - Number of occupational accidents (fatal)

4.0 LEGAL PROVISIONS

4.1 Occupational Safety and Health Act 2005

- ***Section 5(2)(d)***
  Under this section, an employer has to provide, so far as is reasonably practicable, information, instruction, training and supervision as is necessary to ensure the safety and health at work of his employees.

- ***Section 10***
  This section requires every employer to make a suitable and sufficient assessment of any safety risk and health risk to which any employee is exposed whilst he is at work and to review the assessment within a period not later than 24 months after any previous assessment. A review must also be undertaken when the employer is informed by the Permanent Secretary that the assessment is no longer valid or when there has been a significant change in the matters to which it relates.

- *Section 82(1)*

  "Where any process carried out at a place of work is likely to cause bodily injury and such bodily injury cannot be prevented by other means, every person employed in that process and liable to such bodily injury, shall be provided with such suitable and appropriate personal protective equipment and clothing as will protect him from risk of injury."

4.2 Occupational Safety and Health (Work at Height) Regulations 2013

- ***Regulations 9(1) and 9(2)***

  Under this Regulation, the employer has to ensure that no employee involved in work at height passes across or near, or works on, from or near, a fragile surface. If this is not reasonably practicable, then he has to provide suitable and sufficient working platforms, coverings, guard rails or similar means of support designed to support any foreseeable loading and ensure that such means of support is used by the employee.

- ***Regulation 9(3)***

  Where an employee is involved in work at height at a place of work and a fragile surface exists, the employer, so far as is reasonably practicable, affix prominent and visible warning notices, at the approach of the fragile surface. If it is not reasonably practicable to affix such warning notices, the employer has to ensure that the employee who may pass across or near, or is working on, from or near that fragile surface, prior to involving in such work, made aware of its location by other appropriate means.

5.0 MANAGEMENT OF RISKS ASSOCIATED WITH WORK ON OR NEAR FRAGILE SURFACES

Risk management plays a crucial role in reducing accidents related to work on fragile surface. The following steps describe the measures to be implemented for the risk management process:

5.1 Risk Assessment

Before carrying out any work on or near fragile surface, a risk assessment should be carried out to identify safe access and whether there are any brittle or fragile roofs, skylights or roof openings within the work area. Persons working on-site should be informed of the existence of such areas and how to identify them in case any were overlooked.

Where openings have been identified, measures must be taken to prevent persons walking into them – e.g. by barricading, using a restraint system, posting of notices. When workers need to be near these features and it is impracticable to physically prevent access to them, a fall arrest system incorporating a safety harness and effective anchorage point should be used.

The ultimate effectiveness of any risk assessment is dependent on the quality of the information available. Therefore, it is important that persons carrying out risk assessments have the necessary information, knowledge and experience of that work environment and work process.

In carrying out a risk assessment, it is helpful to break down each activity or process into a series of parts or smaller tasks and assess each one separately.

The factors to be taken into account when assessing the risk include:

(i) any repairs carried out in the past, especially if fragile sheets have been used for 'patching' an otherwise non-fragile material. Such practices are highly dangerous;

(ii) metal sheets that may have deteriorated with time and become fragile;

(iii) safety systems that have been installed have been inspected and are ready for use; and

(iv) most roofing structures that are designed to be non-fragile will become fragile with time. Corrosion of fixings, sealants, washers sheet laps and the understructure will lead to general decay and become fragile.

5.1.1 Planning And Hazard Identification

Before work commences, all physical locations and tasks that may present the risk of a fall need to be identified. This includes access to the areas where tasks are to be performed. Each task needs to be examined to determine whether there is a risk of falling and how that risk can be eliminated or minimised. In particular, tasks that need particular attention are those carried out:

(i) on any structure or plant being constructed or installed, demolished or dismantled, inspected, tested, maintained, repaired or cleaned;

(ii) on a fragile surface (for example rusty metal roofs, fibreglass sheeting roofs and skylights); and

(iii) on a potentially unstable surface (for example areas where there is potential for collapse).

These fragile areas are to be first identified and the stability of the structure and soundness of the surface are assessed as part of the risk management process before starting work. The employer/contractor should:

(i) check details with competent persons familiar with relevant building plans related to the roof construction (more applicable for new construction projects);

(ii) check with owners/clients/occupiers of existing buildings for skylight features on roof; and

(iii) conduct a visual check without stepping on the roof where possible. If access onto roof is inevitable, provisions for fall protection measures including safety harness with adequate anchorage along route of access should be provided.

5.1.2 Evaluation of Risks

If a task involving a fall hazard has been identified, the risk of a fall should be assessed by determining:

(i) the likelihood of a fall and risk of harm to a person occurring, and

(ii) the extent of harm or injury that a person could receive in the event of a fall.

This assessment is a useful way of determining where the greatest risk is, and therefore which hazards need to be eliminated or controlled first.

5.1.3 Control Measures

If the risk assessment has identified that there is a likelihood that a fall may occur, measures need to be put in place to eliminate or control the risk. The primary duty is to eliminate the risk or working on the ground or from a solid construction. If this is not reasonably practicable, the risk must then be reduced to the minimum level possible, so far as is reasonably practicable. The following control measures (which are non-exhaustive) can be considered by an employer in connection with work on or near fragile surfaces.

The control measures include work positioning system e.g. travel restraint systems, industrial rope access systems and fall injury minimization system e.g. catch platforms, fall-arrest systems. The following measures can be considered:

(1) Access to the fragile surface should be planned and the work should be carried out from a safe place. This could be from an adjacent structure, from mobile access equipment or from a secured tower scaffold or ladder. Some investigations can be carried out from below if the roof structure is exposed;

(2) providing a safe working platform on or near the fragile surface and safe access to the working position when people are working on or near fragile roofs;

(3) ensuring that platforms or coverings spanning the purlins are provided and used to support the weight of anyone on the fragile material;

(4) making sure that guard rails or coverings are used so as to prevent someone who is passing or working near fragile material from falling through;

(5) securing the platforms or covering adequately against slippage;

(6) establishing boundaries (which should be a continuous physical barrier) on roofs with fragile materials, identifying 'safe' areas containing the workplace and safe routes to and from it. Access to the roof should be as close to the workplace as reasonably practicable, reducing the need to create demarcated access routes;

(7) using mobile towers or scaffold;

(8) making use of safety nets (as long as there is adequate clearance below) or soft landing systems;

(9) using at least two crawling boards or roof ladders, so that one is available to stand on while the other one is being moved;

(10) displaying prominent warning notices at the approaches to fragile roofs;

(11) ensuring that ladders do not rest against any fragile surface;

(12) establishing work procedures to ensure the safe use of temporary work platforms;

(13) limiting the time workers are exposed to a fall hazard;

(14) decreasing the number of workers involved in the task;

(15) over-roofing or re-roofing with a non-fragile assembly, instead of multiple repairs that may fail in the short term;

(16) replacing roof lights from below, where applicable;

(17) always making sure that the workers carrying out the tasks on the fragile surface or near fragile roof materials have the relevant skills, knowledge and experience. In addition, they must be adequately supervised; understand and follow the method statement to which they will be working; and have a thorough knowledge of the materials, equipment and tools they will be using;

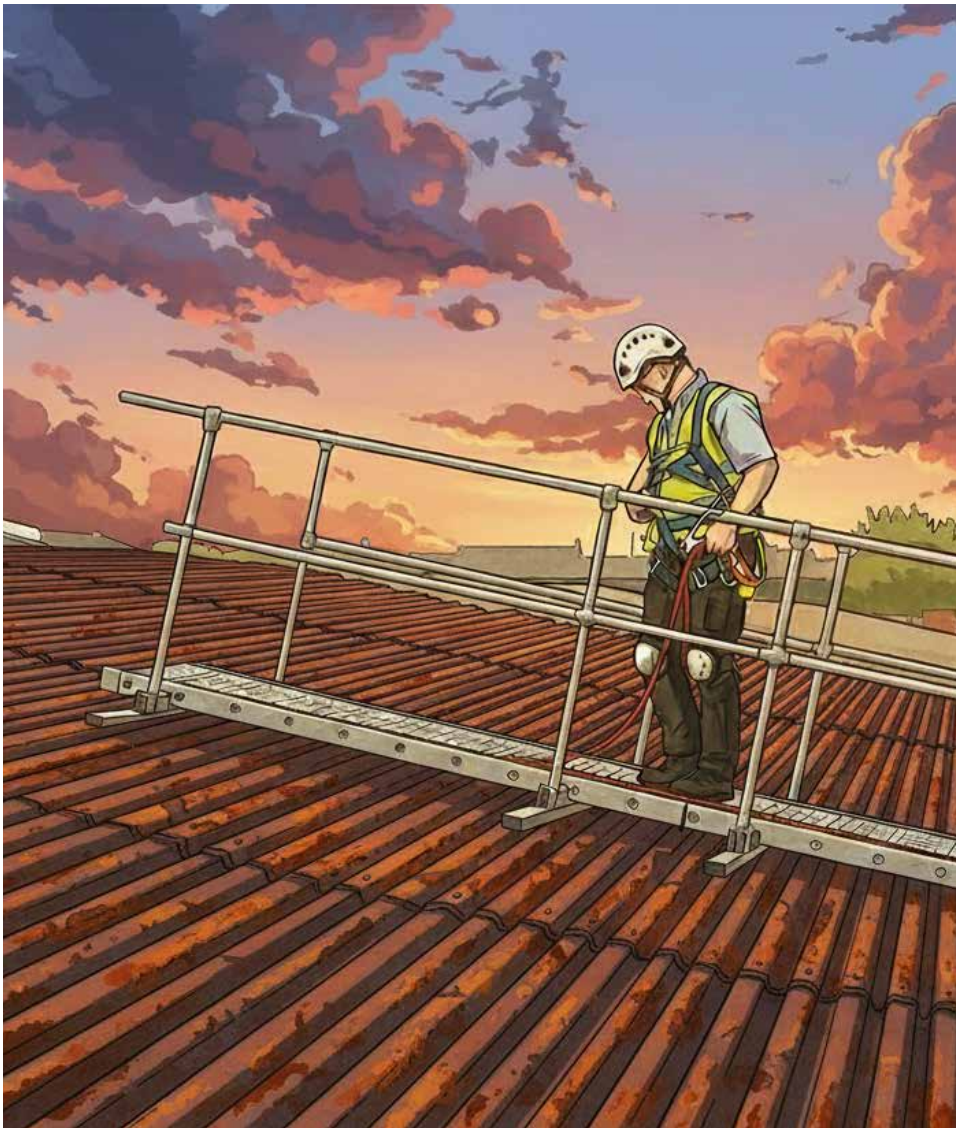
(18) ensuring discipline to make sure that everyone stays within the safe area at all times;

(19) keeping the work area clean and tidy at all times to avoid slips and trips, which may lead to falls;

(20) Suitable and appropriate personal protective equipment and clothing shall be provided to every person employed in a process at a workplace where there is a likelihood of bodily injury that cannot be prevented by other means. Examples of Personal Protective Equipment that can be provided include: helmet, harness, high visibility vest, eye protection, safety footwear, protective gloves; etc.

(21) All employees involved in such work should be provided with necessary information, instruction and training so as to help them understand, the fall hazards to which they are exposed, the risk of injury associated with the task, and the needs for control measures and how to use them properly; and

(22) Adequate supervision should be exercised regarding all works related to fragile surface.



6.0 CONCLUSION

Although working on or near a fragile surface is considered as a hazardous activity, the highest standard of safety and health can be achieved while performing such tasks by following scrupulously all safety measures that are required. By strictly implementing necessary safety measures in relation to work on fragile surfaces, risks of accidents to employees will be greatly reduced.

Disclaimer: These guidelines are meant for guidance only and the employer needs to carry out proper risk assessment to mitigate the risks.

Note: More information about risk assessment can be obtained from the 'Risk Assessment Guidelines' available on: **labour.govmu.org**

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