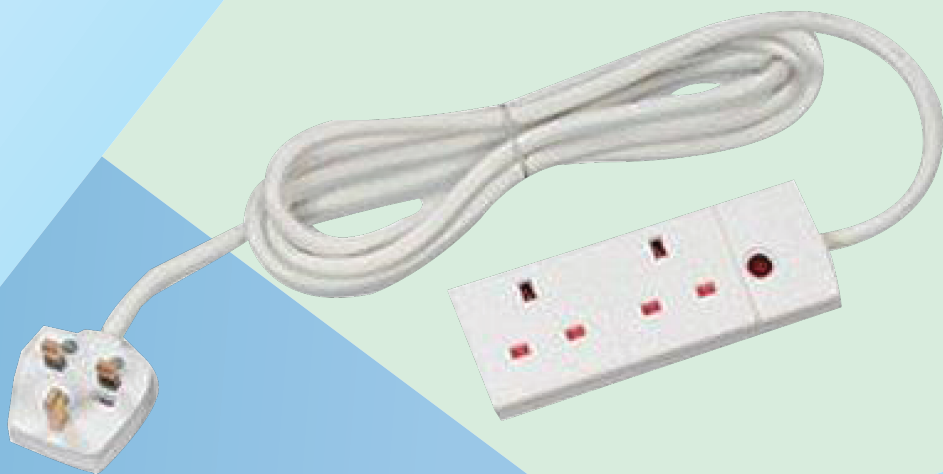




Ministry of Labour and Industrial Relations

GUIDELINES ON SAFE USE OF EXTENSION CORDS



National Occupational Safety and Health Department

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1.0 INTRODUCTION

Extension cords are widely used at workplaces. Working with extension cords can be dangerous and can cause accidents if all necessary precautionary measures are not observed. During the last five years, two fatal accidents related to the use of extension cords have been reported to the Ministry of Labour and Industrial Relations.

The purpose of this document is to give practical guidance on the safety measures to be observed by employers, host employers, self-employed persons and employees so as to protect persons from the risks associated with the use of extension cords. Examples of different types of extension cords are given in annex I, annex II and annex III.

These guidelines should be read in conjunction with the ‘Guidelines on Electrical Safety at Workplaces’ which is available on the website of this Ministry. ([*Guidelines on Electrical Safety at Workplaces*](#))

It is to be noted that extension cords can be used on a temporary basis only but under no circumstances should be used as a permanent source of electrical energy.

2.0 DEFINITION

‘extension cord’ also known as ‘cord extension set’ means an insulated, flexible electric wire fitted with a plug at one end and one or more outlets on the other, allowing one to plug in devices whose cords are not long enough to reach a wall outlet.

‘flexible cable’ means a cable whose structure and materials make it suitable to be flexed while in service.

‘non-rewirable cord extension set’ means a cord extension set so constructed that it forms a complete unit with the flexible cable, the plug and the socket-outlet after connection and assembly by the manufacturer, the disassembly of which makes it permanently unfit for any further use.

‘plug’ means a device, provided with contact pins, which is intended to be attached to a flexible cable, and which can be engaged with a socket-outlet or with a connector.

‘rewirable cord extension set’ means a cord extension set so constructed that any

of the accessories or the flexible cable can be replaced with the aid of a general purpose tool

‘socket-outlet’ means a device, provided with female contacts, which is intended to be installed with the fixed wiring, and intended to receive a plug.

3.0 LEGAL PROVISIONS

These guidelines have been prepared based on the legal provisions of the Occupational Safety and Health Act 2005 (OSHA 2005) and the Occupational Safety and Health (Electricity at Work) Regulations 2009.

4.0 COMMON DISCREPANCIES WITH THE USE OF EXTENSION CORDS

- (1) The electric cable of the extension cord is not provided with a plug;
- (2) The electric cable of the extension cord is not flexible;
- (3) The plug of the extension cord is damaged, exposing live conductors;
- (4) The socket-outlet of the extension cord is damaged, exposing live conductors;
- (5) The insulation of the electric cable of the extension cord is damaged exposing live conductors;
- (6) The socket-outlet to which the plug of the extension cord is connected is not protected by a circuit breaker;
- (7) Residual current device having a rated residual operating current of 30 milliamperes or less and an operating time of 40 milliseconds or less at 150 milliamperes is not installed in the circuit supplying power to the socket-outlet to which the plug of the extension cord is connected;
- (8) The earth terminal of the socket-outlet to which the plug of the extension cord is connected is not connected to the general mass of earth.
- (9) The earth core of the electric cable of the extension cord is not connected inside the plug of the extension cord;
- (10) There are joints in the electric cable of the extension cord;
- (11) The plug of the extension cord is not provided with a cable grip.

5.0 DUTIES OF EMPLOYERS

(1) Risk Assessment

With a view to ensuring the safety and health at work of his employees and any person not in his employment, every employer has to ensure that its risk assessment covers the use of extension cords by his employees or employees of host employers at his place of work.

(2) Minimum safety requirements of any extension cord

Every employer has to ensure that any extension cord in use at his place of work meets the following minimum safety requirements:

- (a) its electric cable is flexible;
- (b) its electric cable is always fitted with an appropriate plug;
- (c) its flexible electric cable is sufficient in size and power for the work for which it is used;
- (d) the plug of the extension cord is not broken/ damaged;
- (e) the socket-outlet of the extension cord is not broken/ damaged;
- (f) there is no joint in the electric cable;
- (g) the electric cables are properly connected inside the plug and socket-outlet.

(3) Safe working environment

Every employer has to ascertain that the working environment in which an extension cord is used is safe by, inter-alia, ensuring that:

- (a) its electric cable is connected to the electrical supply through an appropriate plug and socket-outlet;
- (b) its plug is removed from its socket-outlet when not in use;
- (c) its electric cable does not run through water;
- (d) it is appropriate for the environment in which it is used;
- (e) its electric cable is so placed as not to represent a tripping hazard;

- (f) all the conductors of the electric cable of any extension cord are suitably covered with insulating materials.

(4) Earthing

Every employer has to ensure that an extension cord is earthed, that is: ensuring that the plug of any extension cord is provided with a ground pin and that the earth wire of the extension cord is connected to the ground pin inside the plug, the plug is connected to a socket-outlet of the same type and that the earth terminal of the socket-outlet is connected to the general mass of earth.

(5) Installation of the electric cable of any extension cord

Every employer has to ensure that the electric cable of any extension cord is installed so as to prevent danger by, inter-alia, ensuring that its electric cable:

- (a) is not passing near or through sharp edges;
- (b) is not passing through door hinges;
- (c) is kept free from moving equipment;
- (d) does not run through doorways or windows;
- (e) is not fixed on structures using nails;
- (f) is not left trailing where it can represent a tripping hazard.

(6) Protection from excess current

Every employer has to ensure that the circuit supplying power to a socket-outlet to which the plug of any extension cord is connected is protected by a circuit breaker of the appropriate rating.

(7) Protection from risks of electric shock

Every employer has to protect his employees from risks of electric shock when using an extension cord by, inter-alia, ensuring that:

- (a) the socket-outlet supplying power to the extension cord is protected by a residual current device having a rated residual operating current of 30 milliamperes or less and an operating time of 40 milliseconds or less at 150 milliamperes;
- (b) the insulation on its electric cable is not damaged and live conductors are not exposed;

- (c) its plug is not damaged and there are no live conductors exposed;
- (d) the socket-outlet to which the plug of the extension cord is connected is not damaged and there are no live conductors exposed;
- (e) there are no joints in the electric cable of the extension cord.

(8) Safe use of any extension cord

Every employer has to ensure that any extension cord is used safely by, inter-alia, ensuring that:

- (a) its electric cable is of sufficient length and is properly secured so as to avoid any tension on its terminals;
- (b) its electric cable is completely uncoiled when in use;
- (c) its plug is removed from its socket-outlet when not in use by grabbing the plug and not the electric cable;
- (d) it is not used to supply power to another extension cord;
- (e) it is not used as a substitute for permanent wiring;
- (f) its plug is sufficient in size and power for the work for which it is used;
- (g) its plug is connected to a socket-outlet that is sufficient in size and power for the work for which it is used; and
- (h) its socket-outlets are sufficient in size and power for the work for which they are used;
- (i) an extension cord for indoor use is not used outdoor.

(9) Maintenance of extension cords

Every employer has to ensure that any extension cord is subject to regular inspection and maintenance by a competent person so as to prevent danger by, inter-alia:

- (a) checking for any damage(s) on the insulation of the flexible electric cable;
- (b) checking for any damages(s) on its plug and socket-outlet(s);

- (c) checking for any sign of overheating on its electric cable;
- (d) checking that all the electric cables are secured to their terminals in the plug and socket-outlets.

6.0 DUTIES OF EMPLOYEES

Every employee shall, while at work –

- (1) take reasonable care for the safety and health of himself and of other persons who may be affected by his acts or omissions at work;
- (2) cooperate with his employer in the discharge of any duty or requirement placed upon the employer under the OSHA 2005;
- (3) wear or use any protective equipment or clothing provided by the employer in pursuance of the OSHA 2005 at all times when there is risk of bodily injury against which the equipment or clothing affords protection;
- (4) use correctly safety devices provided under the OSHA 2005;
- (5) report forthwith to the employer or his representative any situation which, he has reason to believe, could present a risk to his safety and health.

7.0 CONCLUSION

It is expected that these guidelines will enable employers as well as employees to take the necessary precautionary measures to prevent any accident while using any extension cord. These guidelines do not necessarily cover all situations, or any particular situation, or provide a complete list of precautionary measures to be observed. It is the duty of the employer, host employer, self-employed person and employees to ensure that they comply with all existing legal provisions with a view to ensuring safety and health at work when using any extension cord.

Non-rewirable extension cord



Photo 1

Rewirable extension cords

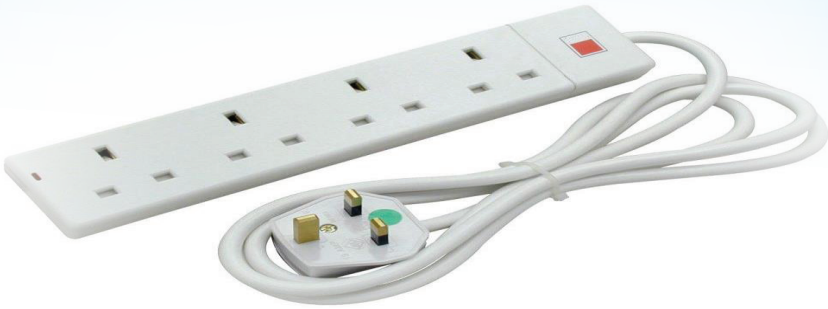


Photo 2



Photo 3

Reeled extension cords



Photo 4



Photo 5

8.0 REFERENCES:

- (1) Government of Mauritius, 2005, Occupational Safety and Health Act, Government Printing.
- (2) Government of Mauritius, 2009, Occupational Safety and Health (Electricity at Work) Regulations 2009, Government Printing.
- (3) Mauritius Standards Bureau, 2007, MS 63: 2007 (BS 7671: 2001) Incorporating Amendments No 1: 2002 and No 2: 2004 Requirements for electrical installations, second edition, Mauritius Standards Bureau.
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- (5) IEC 60884-2-7, 2013, Plugs and socket-outlets for household and similar purposes – Part 2-7: Particular requirements for cord extension sets, IEC Edition 1.1 2013-06, International Electrotechnical Commission [Accessed on 15 March 2024]
- (6) Photo on front page from:
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- (8) Photo 2 from: <https://5.imimg.com/data5/VW/DR/MY-3447894/power-extension-cord.jpg>
- (9) Photo 3 from: https://www.ikea.com/ae/en/images/products/koppla-extension-cord-earthed-white__0585788_pe671856_s5.jpg
- (10) Photo 4 from: <https://www.extradigital.eu/foto/b-PPRA16M25S4Limg.jpg>
- (11) Photo 5 from: <https://image.made-in-china.com/202f0j00PorhVWTsHHIS/Fire-Protection-and-Insulation-OEM-10-15m-Extension-Socket-Cable-Reel.webp>