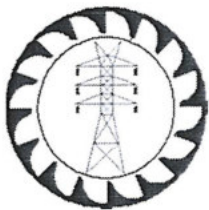


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CEB  
SPECIFICATION

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## SAFETY FOOTWEAR – GUM BOOTS



CEYLON ELECTRICITY BOARD  
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## 1. SCOPE

This specification specifies the requirements of Ceylon Electricity Board for safety footwear for general purpose. The term "safety footwear" refers to "safety gum boot" in this specification.

## 2. SERVICE CONDITIONS

(i)	Annual average ambient temperature	30 °C
(ii)	Maximum ambient temperature	40 °C
(iii)	Maximum relative humidity	90%
(iv)	Environmental conditions	Humid tropical climate

## 3. APPLICABLE STANDARDS

The equipment and components supplied shall be in accordance with the latest edition of the standards specified below and amendments thereof.

(i)	BS EN 20345	Personal Protective Equipment - Safety Footwear
(ii)	BS EN 20344	Personal Protective Equipment – Test Methods for Footwear

## 4. BASIC FEATURES AND TECHNICAL REQUIREMENTS

### 4.1 General

Safety footwear is an item of personal protective equipment that incorporates protective features to protect the wearer from injuries that could arise through accidents.

The construction and properties of safety footwear shall meet the general requirements applicable to the footwear.

The footwear should have been manufactured no more than 1 (one) year before its supply. The year and the quarter of footwear manufacture should be marked on the tongue or impressed on any other visible place of the footwear.

Safety footwear shall not adversely affect the health or hygiene of the user.

### 4.2 Design

Basic designs of the safety footwear are given in Annex B.

Unless otherwise specified in the Guaranteed Technical Particulars schedule, the design of the footwear shall be knee height.



#### 4.3 Sizes of footwear

Sizes of the footwear shall be in accordance with UK or EU standards. If the sizes are different to the UK or EU standards, size conversion chart shall be furnished.

#### 4.4 Classification of footwear

Footwear is classified as given below. As per CEB requirements, safety footwear shall be class II.

Classification	Description
Class I	Footwear made from leather and other materials, excluding all rubber or all polymeric footwear
Class II	All rubber (i.e. entirely vulcanized) or all polymeric (i.e. entirely moulded) footwear e.g. Gum Boots

#### 4.5 Category of footwear

Category of the safety footwear shall be "S5" and the basic requirements are as follows;

Category	Class (I / II)	Additional requirements
SB	I or II	
S1	I	Closed sheet region Antistatic properties Energy absorption of seat region Resistance to fuel oil
S2	I	As S1 , plus: Water penetration and absorption
S3	I	As S2 , plus: Penetration resistance Cleated outsole
S4	II (For gum boots)	Closed sheet region Antistatic properties Energy absorption of seat region Resistance to fuel oil
S5	II (For gum boots)	As S4, plus: Penetration resistance Cleated outsole

**NOTE** For ease of marking, this table categorizes safety footwear with the most widely used combinations of basic and additional requirements.

#### 4.6 Slip resistance

The safety footwear shall be slip resistant and the applicable marking code shall be SRA or superior (i.e. SRB or SRC).





SRA : Slip resistance on ceramic tile floor with sodium lauryl sulphate (NaLS) solution

SRB : Slip resistance on a steel floor with glycerine

SRC : Slip resistance on both a ceramic tile floor and a steel floor as above

#### 4.7 Toe Protection

Toecap shall be metallic or non-metallic and shall be incorporated in the footwear in such a manner that they cannot be removed without damaging the footwear.

At an impact energy of 200 J, the clearance under the toe cap at the moment of impact shall satisfy the requirements in BS EN 20345:2011 standard.

At a compression load of 15 kN, the clearance under the toe cap shall satisfy the requirements in BS EN 20345:2011 standard.

#### 4.8 Out Sole

Out sole shall be cleated and at least the shaded areas as shown in figure1 shall have cleats that are open to the side.

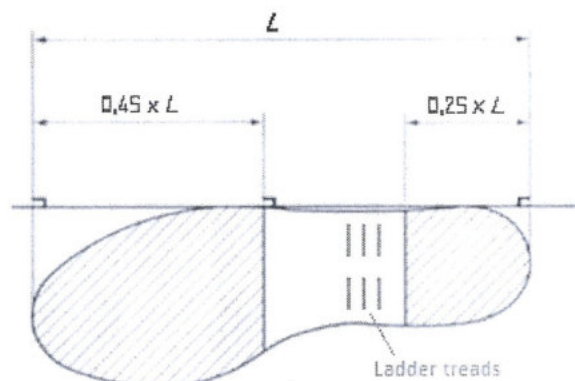


Figure 1 – Cleated area

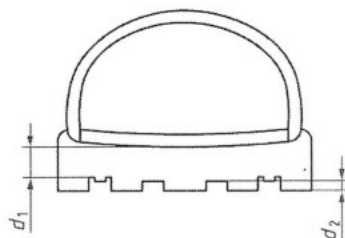


Figure 2 – Cross section of the footwear

The minimum thickness of out sole  $d_1$  shall be 4mm and the minimum cleat height  $d_2$  shall be 2.5mm.



#### 4.9 Penetration Resistance

The penetration resistance insert shall be metallic or non-metallic and shall not be removable. The force required to penetrate the sole unit shall not be less than 1,100N.

#### 4.10 Marking

Each item of safety footwear shall be clearly and permanently marked, e.g. by embossing or branding, with the following

- a. Size
- b. Manufacturer's identification mark
- c. Manufacturer's type designation
- d. Category mark: 'S5'
- e. Reference to the international standard. *e.g.: BS EN 20345*
- f. Year and quarter/month of manufacture

### 5. TESTING

The safety footwear shall be subjected to the following tests according to the relevant standard. A summary sheet of tests carried out *or* test reports shall be submitted as specified in 5.1.

- i. Design
  - a. Height of upper
  - b. Seat region
- ii. Whole footwear
  - a. Internal toecap length
  - b. Impact resistance (Clearance under the toecap after testing)
  - c. Compression resistance (Clearance under the toecap after testing)
  - d. Penetration resistance
  - e. Energy absorption
  - f. Leakproofness
  - g. Electrical resistance (antistatic)
- iii. Upper
  - a. Tear strength
- iv. Outsole
  - a. Thickness
  - b. Cleat height and area
  - c. Abrasion resistance
  - d. Flexing resistance
  - e. Tear strength
  - f. Resistance to fuel oil
- v. Insole & insock
  - a. Thickness



#### 4.11 Test Certificates

A *summary sheet* of the tests carried out shall be submitted where the summary sheet clearly shows the equipment concerned, the manufacturer's identity, the tests carried out, test results and the standard's requirements against the test results to determine passing or failing of the test.

The summary sheet shall be from the accredited independent testing laboratory where the testing was carried out and this testing laboratory shall be acceptable to the purchaser. Proof of accreditation of the testing laboratory by a national/international authority shall be forwarded if requested by the purchaser.

Submission of individual test reports is not necessary if duly authenticated summary sheet is submitted as described above.

### 6. QUALITY ASSURANCE

The manufacturer shall possess valid ISO 9001:2008 or latest Quality Assurance certifications for the plant where the manufacture of equipment is done.

Bidders shall furnish a copy of the ISO certificate certified as true copy of the original by the manufacturer, along with the offer.

### 7. ADDITIONAL REQUIREMENTS

#### Packaging and Delivery

Each pair of shoes shall be packaged in an individual hardboard box of sufficient strength to properly protect the product from damage and the size shall be clearly marked on the box.

### 8. INFORMATION TO BE SUPPLIED WITH THE OFFER

The bid shall be accompanied with the following;

- a) English version of catalogues describing the equipment and indicating the type/model number.
- b) Technical literature in English describing the constructional and operational features, relevant drawings etc. of the equipment.
- c) Information on the following:  
Instructions for use, information on storage, fitting and adjustment, handling, disposal, periodic inspection, periodic testing and useful service life
- d) Packing details.
- e) Completed schedule of particulars as per Annex A.
- f) Test reports or summary sheet conforming to clause 5:

### 9. SAMPLE STUDY

One sample gum boot (non-returnable) of the offered safety footwear shall accompany the bid to facilitate analysis and evaluation. Any additional sample may be requested by the



purchaser if such deemed necessary.

While analysing sample, the purchaser reserves the right to cut the sample to inspect, check dimensions, inspect workmanship, and perform tests as prescribed in relevant Standards.

## 10. ANNEX

Annex A - Schedule of Guaranteed Technical Particulars

Annex B – Basic Design of the footwear





**SCHEDULE OF GURANTEED TECHHNICAL PARTICULARS**

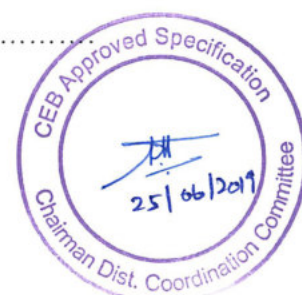
(CEB Requirements shall be filled by the procurement entity and information of the offer shall be filled by the manufacturer/supplier)

Sr No	Item	CEB Requirement	Offered
1.	a) Brand	specify	
2.	b) Country of Manufacture	specify	
3.	Model Number	specify	
4.	Applicable Standard	BS EN 20345	
5.	Class of the Footwear	Class II	
6.	Category of the Footwear	S5	
7.	Slip Resistance	SRA or superior (i.e. SRB or SRC).	
8.	Design	Knee-height	
9.	Applicable Standard for the Size of the Footwear (UK/EU, etc.)	specify	
10.	Impact Resistance (Impact Energy)	Minimum 200 J	
11.	Compression Resistance (Compression Load)	Minimum 15 kN	
12.	Material of the Upper	specify	
13.	Material of the Toe Cap	specify	
14.	Electrical Resistance (Antistatic)	100kΩ < Resistance ≤ 1000 MΩ	
15.	Whether the force required to penetrate the sole unit is greater than 1,100N?	Yes	
16.	Whether the Out Sole is Resistance to Oil?	Yes	
17.	Whether the Outsole is cleated as per Clause 4.8?	Yes	
18.	Year and Month/Quarter of Manufacture	Manufactured within one year before the bid closing date.	
19.	Whether the Marking of the Footwear Fully Conforms to CEB Specification Clause 4.10?	Yes	
20.	Whether Type Test Certificates in Accordance with Clause 5.0 furnished with the offer?	Yes	
21.	Whether Certified Copy of ISO 9001 in Accordance with Clause 6.0 furnished with the offer?	Yes	
22.	Samples submitted as per Clause 9	Yes	
23.	Warranty	Specify	
24.	Whether the Information as per Clause 8.0 supplied with the offer?	Yes	

I/We certify that the above data are true and correct

.....  
Signature of the Bidder/Manufacture and Seal

.....  
Date



Basic Design of Safety Footwear



A

A – Low Shoe (Low Cut)



B

B – Ankle Boot (Mid Cut)



D

D – Knee-height Boot

