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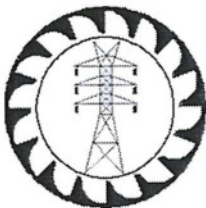
CEB  
SPECIFICATION

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**SPECIFICATIONS FOR PERSONAL PROTECTIVE  
EQUIPMENT**

**HEAD PROTECTION**

**- INDUSTRIAL SAFETY HELMET**



**CEYLON ELECTRICITY BOARD  
SRI LANKA**



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## 1. SCOPE

This specification specifies the requirements of Ceylon Electricity Board for industrial safety helmets primarily intended to protect the upper part of a wearer's head against injury from falling objects.

## 2. SERVICE CONDITION

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

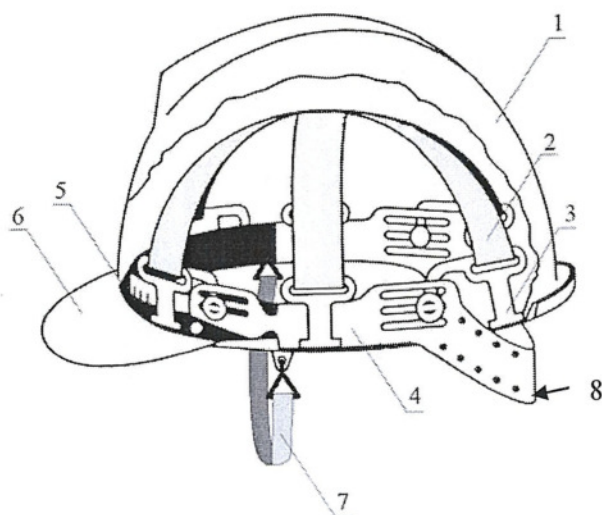
## 3. APPLICABLE STANDARDS

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

(i)	BS EN 397	Industrial Safety Helmets
(ii)	ANSI/ISEA Z89.1	American National Standard for Industrial Head Protection

## 4. BASIC FEATURES & TECHNICAL REQUIREMENT

The helmet shall include at least the following parts.



1	Shell
2	Cradle
3	Harness Fixing
4	Headband
5	Sweatband
6	Peak
7	Chinstrap
8	Nape Strap

Figure 1: Parts of Industrial Safety Helmet

For those parts of the helmet that come into contact with the skin, materials which are known to be likely to cause skin irritation or any adverse effect on health shall not be used. There shall be no sharp edges, roughness or projection on any part of the helmet, its accessories or attachment devices, which are in contact with the wearer when the helmet is worn, such as is likely to cause injury to the wearer.



#### 4.1 Shell

The shell shall be dome-shaped. There shall not be any metallic component passing through the shell. It shall be provided with a brim and a peak. The brim and the peak shall be integral part of the shell and these shall have no sharp edges. The brim shall be continuous around the dome.

Ventilation holes shall be provided such that the central axis of the holes is almost horizontal when the helmet is in normal wearing position. The total aggregate area of holes shall not less than 150 mm<sup>2</sup> and shall not exceed than 450 mm<sup>2</sup>.

#### 4.2 Harness

Complete assembly that provides a means:

- a) of maintaining the helmet in position on the head and/or
- b) of absorbing kinetic energy during an impact

Harness includes the head band, nape strap, cradle and sweat band.

#### 4.3 Head Band

Part of the harness completely or partly surrounding the head above the eyes at approximately the largest horizontal circumference of the head

#### 4.4 Nape strap

The Nape Strap is the adjustable strap that fits behind the head below the plane of the headband. Nape strap shall be adjustable ratchet type, adjustable in increments of no more than 5 mm.

#### 4.5 Cradle

For improved comfort, the cradle shall incorporate textile tapes (non-plastic) and their individual widths shall be not less than 15 mm.

#### 4.6 Comport Band or sweat Band

Sweatband shall cover the inner front surface of the headband for a length of no less than 100mm each side of the centre of the forehead.

#### 4.7 Chin Strap

The helmet shall be provided with the chin strap. It shall be attached to the Shell, permanently fitted with a fastening device to adjust and maintain tension, and conform to the requirements given in relevant standard.

#### 4.8 Mounting Slot for Ear Muff.

Helmet shall be equipped with ear muff mounting slot.





#### 4.9 Type (Only applicable for ANSI/ISEA Standard)

Type I	Helmets are intended to reduce the force of impact resulting from a blow only to the top of the head.
Type II	Helmets are intended to reduce the force of impact resulting from a blow to the top of the head or sides of the head.

**CEB requires Type II helmet.** This requirement is fulfilled in EN standard through **Lateral Deformation (LD)**.

Type II or LD markings shall be moulded or impressed on the helmet according to the relevant standard.

#### 4.10 Electrical Classes (Only applicable for ANSI/ISEA Standard)

Class C	Helmets are not intended to provide protection against contact with electrical hazards.
Class G	Helmets are <b>intended to reduce</b> the danger of contact with higher voltage conductors. Tested at 2,200 V, 60Hz, for 1 minute (leakage current less than 3mA).
Class E	Helmets are <b>intended to reduce</b> the danger of contact with higher voltage conductors. Tested at 20,000 V, 60Hz, for 3 minutes (leakage current less than 9mA).

**CEB requires Class C Helmets.**

#### 4.11 MARKING

##### 4.11.1 Helmets conforming to EN standard

Each helmet shall carry moulded or impressed marking giving the following information:

- Manufacturer's name or trademark
- Size or size range
- Reference Standard
- Year & Quarter of Manufacture
- Type of Helmet (Manufacturer's designation)
- Abbreviation for the material of the shell (e.g. ABS, HDPE, PC)

Following requirement shall be marked on the helmet as follows.

Requirement	Marking/Label
Lateral Deformation	LD

##### 4.11.2 Helmets conforming to ANSI standard

Each helmet shall carry moulded or impressed marking giving the following information:

- Manufacturer's name or trademark
- Size or size range
- Reference Standard
- Year & Quarter of Manufacture
- Applicable Type & Class



## 4.12 Helmet Colour

Helmet colour shall be as follows:

Engineers	Superintendents (EL Grade)	Technical Assistants (EL Grade)	Field Staff (EN Grade 2 and higher)	Field Staff (EN Other Grades)	Trainees	Fire Fighters	CRO	Out- Sourced Workers	Visitors
White (9010)	White (9010)	White (9010)	Blue (5005)	Yellow (1003)	Yellow (1003)	Red (3002)	Yellow (1003)	Yellow (1003)	Grey (7000)

\*Colour code definitions are based on the RAL colour codes. Colour codes similar to above are also acceptable.

## 5. TESTING

The Helmets 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 5.3.

### 5.1 Helmets conforming to EN standard

- I. Measurement of Clearance
- II. Shock Absorption Resistance
- III. Lateral Deformation
- IV. Penetration Resistance
- V. Chin Strap Anchorage

### 5.2 Helmets conforming to ANSI/ISEA standard

- I. Force Transmission
- II. Apex Penetration
- III. Impact Energy Attenuation
- IV. Chin Strap Retention (Only Applicable for Type II)
- V. Off Centre Penetration

### 5.3 Test Reports

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 ISO 9001:2015 or latest Quality Assurance certifications for the plant where the manufacturer of helmet 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 helmet shall be packaged in an individual container or package of sufficient strength to properly protect the product from damage. The outside of the container or package shall be marked as specified in relevant standard.

The type of packaging suitable for transport shall be defined by the manufacturer.

At the request of the customer or according to government specifications any additional or amended instructions shall be included in the package.

## 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, cleaning, 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 of the offered equipment including accessories if any, shall accompany the bid to facilitate analysis and evaluation. Any additional sample may be requested by the purchaser if such deemed necessary.

## 10. ANNEX

Annex A - Schedule of Guaranteed technical Particulars





## Annex A

**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)

<b>Industrial Safety Helmets</b>			
<b>Sr No</b>	<b>Item</b>	<b>CEB Requirement</b>	<b>Offered</b>
1	Brand	specify	
2	Model	specify	
3	Country of Manufacture	specify	
4	Applicable Standard	BS EN 397 or ANSI/ISEA Z89.1	
5	Construction	Hemet shall include Shell, Harness, Nape Strap & Chin Strap	
6	Adjustable Head Band/Nape strap	Adjustable wheel type only	
7	Material of Shell	specify	
8	Material of Cradle	Textile tapes (Non-Plastic)	
9	Comfort Band / Sweatband	Required	
10	Chin Strap	Required	
11	Ventilation	Ventilation holes required	
12	Size Range	Specify	
13	Mounting slot for ear muff	Required	
14	Class (Only applicable for ANSI/ISEA standard)	Class C (Shall be marked as C on the helmet)	
15	Type (Only applicable for ANSI/ISEA standard)	Type II	
16	Protection against Lateral Deformation (Only applicable for EN Standard)	Required (Shall be marked as LD on the helmet)	
17	Year and Month/Quarter of Manufacture	Manufactured within two years before the bid closing date.	
18	Marking on the equipment	Please refer clause 4.11	
19	Test Reports/ Summary Sheet submitted	Please refer clause 5	
20	Quality Assurance for Manufacturer	Please refer clause 6	
21	Samples	Please refer clause 9	
22	Packing details submitted	Please refer clause 7	
23	Product catalogues, technical literature submitted	Please refer clause 8	
24	Information on the following should be submitted Instructions for use, information on storage, shelf life, fitting and adjustment, handling, cleaning, disposal, periodic inspection, periodic testing and useful service life	Please refer clause 8	

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

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

.....  
Date

