



**Skill India**

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India **skills**



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National  
Skill Development  
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Transforming the skill landscape

# Sample Test Project

**Regional Skill Competitions**

**Skill - Electrical Installation**

*Category: Construction and Building Technology*

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# Section - A

## A. Preface

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### **Skill Explained:**

An electrician works on commercial, residential, agricultural, and industrial projects. There is a direct relationship between the nature and quality of the product required and the payment made by the customer. Therefore, the electrician has a continuing responsibility to work professionally in order to meet the requirements of the customer and thus maintain and grow the business. Electrical installation is closely associated with other parts of the construction industry and with the many products that support it, normally for commercial purposes.

The electrician works internally, including the homes of customers and on small and major projects. He or she will plan and design, select and install, commission, test, report, maintain, fault find, and repair systems to a high standard. Work organization and self-management, communication, and interpersonal skills, problem solving, flexibility and a deep body of knowledge are the universal attributes of the outstanding electrician.

Whether the electrician is working alone or in a team the individual takes on a high level of personal responsibility and autonomy. From working to provide a safe and reliable electrical installation and maintenance service, in accordance with relevant standards, through to diagnosing malfunctions, programming, and commissioning home and building automation systems, concentration, precision, accuracy, and attention to detail every step in the process matters and mistakes are largely irreversible, costly, and potentially life threatening.

With the international mobility of people, the electrician faces rapidly expanding opportunities and challenges. For the talented electrician there are many commercial and international opportunities; however, these carry with them the need to understand and work with diverse cultures and trends.

The diversity of skills associated with electrical installations is therefore likely to expand.

### **Eligibility Criteria (for IndiaSkills 2018 and WorldSkills 2019):**

Competitors born on or after 01 Jan 1997 are only eligible to attend the Competition.

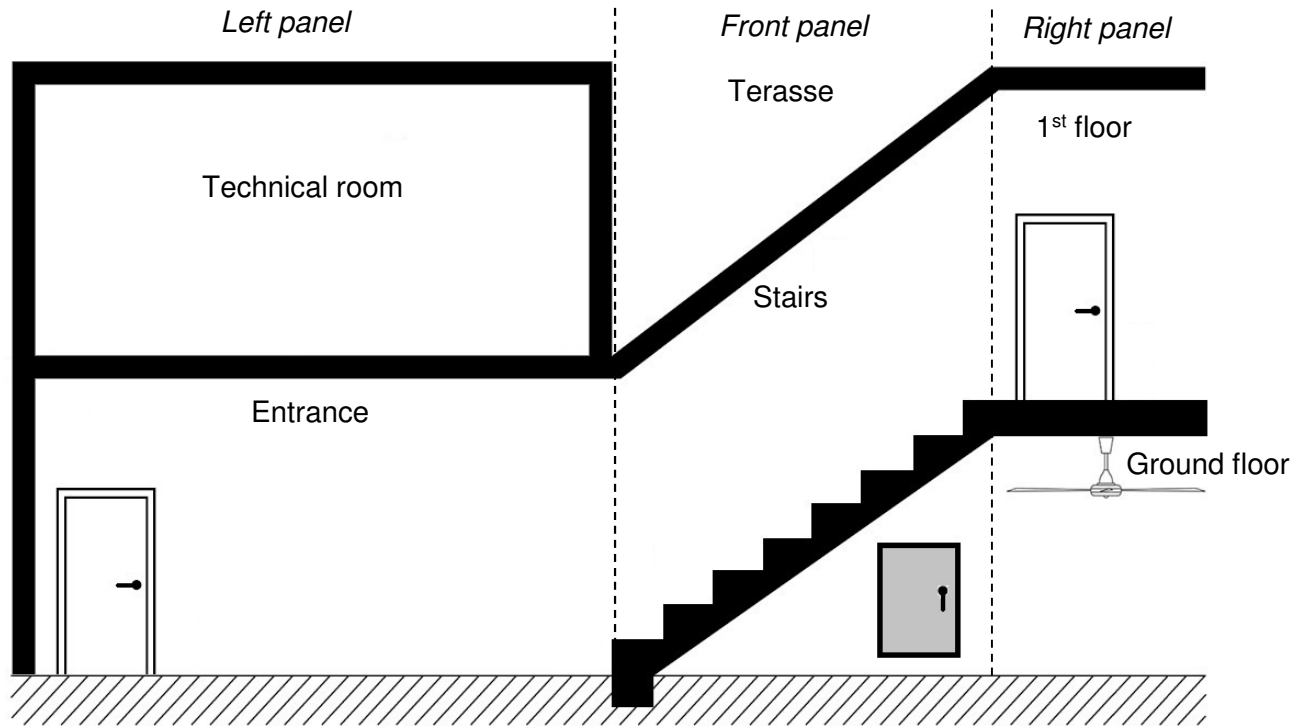
### **Total Duration: 2 Days, each of 4 to 5 hours duration**

## Section - B

### B. Test Project

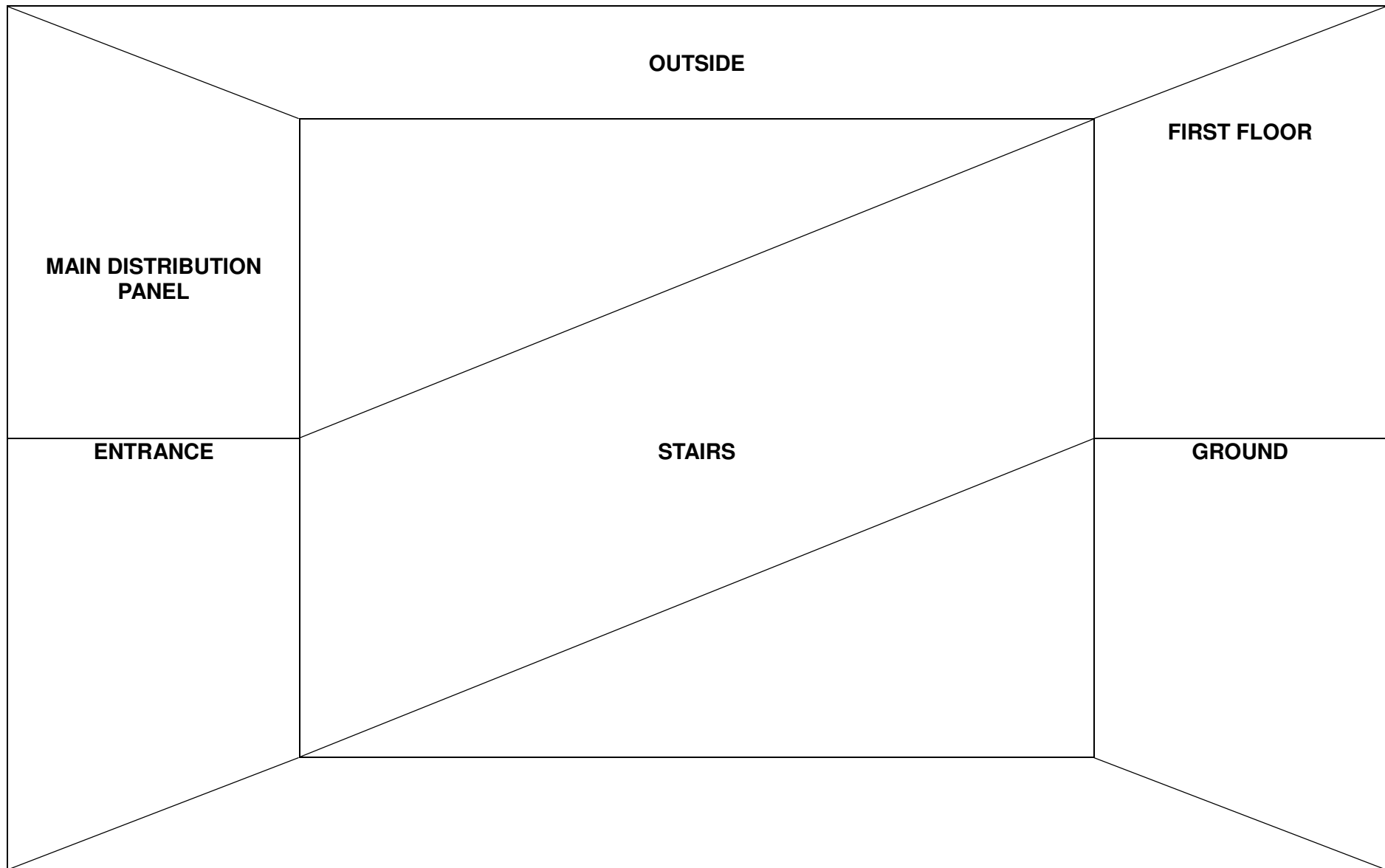
Competitors are required to design, construct, install, configure, test and demonstrate the electrical installation on the guidelines of the declared test project.

The electrical installation is given below :

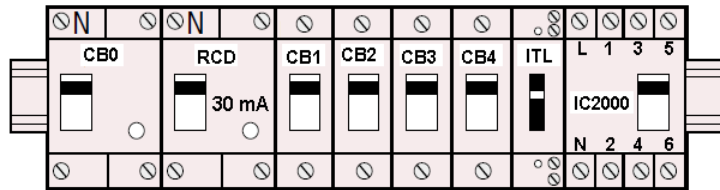


#### Description of operation :

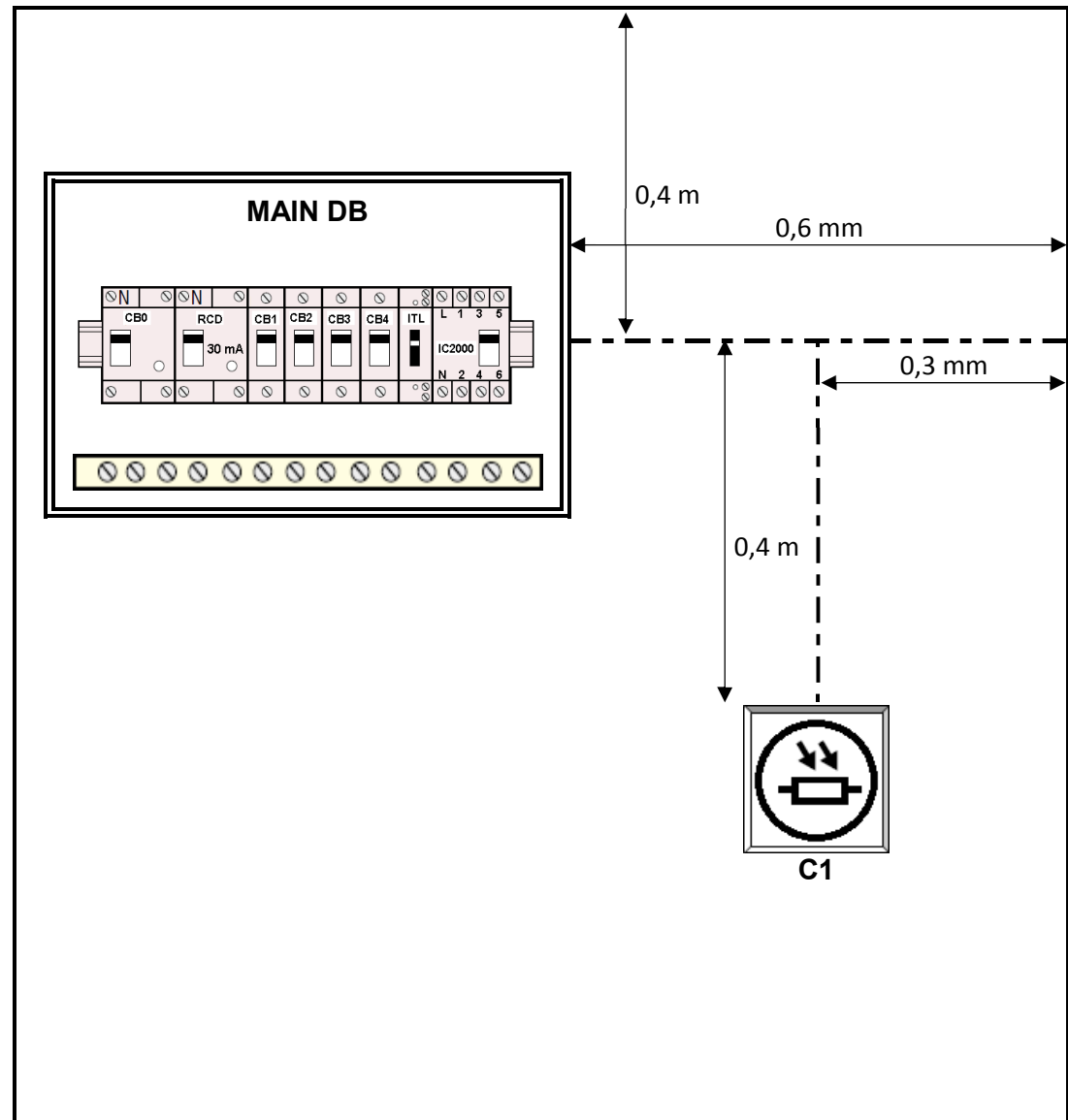
- All of control devices and circuit-breakers have to be implemented in the enclosure you will consider as **"Main DB"** ;
- The main 230V AC supply should be connected to MCB distribution panel with provided cable. Consider **CB0** as main MCB for whole circuit.
- A Residual-Current Device **"RCD"** has to be implemented to protect people.
- There are two light bulbs which can be turned ON or OFF by either of three pushbuttons all managed by an impulse relay **"ITL"**. This circuit has to be protected as well by the same MCB **"CB1"** ;
- Electric plugs are all single-phase 6-16A and have to be protected as well by the same MCB **"CB2"** ;
- The twilight switch **IC2000** and his cell **C1** has to be protected as well by MCB **"CB3"** ;
- The ceiling fan **E1** has to be protected as well by MCB **"CB4"** ;
- Wiring should be done with proper size of cable for power circuit & light circuit. Color coding of the wire has to be maintained as per the Indian electricity rule by the competitor.



# MAIN DISTRIBUTUON PANEL



- DB** : Distribution box 10 ways
- CB0** : MCB, SPN, 32 A (for main circuit breaker)
- RCD** : Residual-current device 30 mA
- CB1** : MCB, SP, 16A (for impulse relay circuit)
- CB2** : MCB, SP, 16A (for switch and sockets)
- CB3** : MCB, SP, 6A (for twilight switch circuit)
- CB4** : MCB, SP, 6A (for ceiling fan)
- ITL** : Impulse relay, 16A, 230V, 1 NO contact
- IC2000** : twilight switch, 1 NO/NC contact
- C1** : cell



# ENTRANCE

## DESCRIPTION OF EQUIPMENTS

**S1** : PUSHBUTTON FOR LIGHTS L1 & L2

**L1** : LED LIGHT, 8W

**H1** : SOCKET 3 PINS 16/6 A

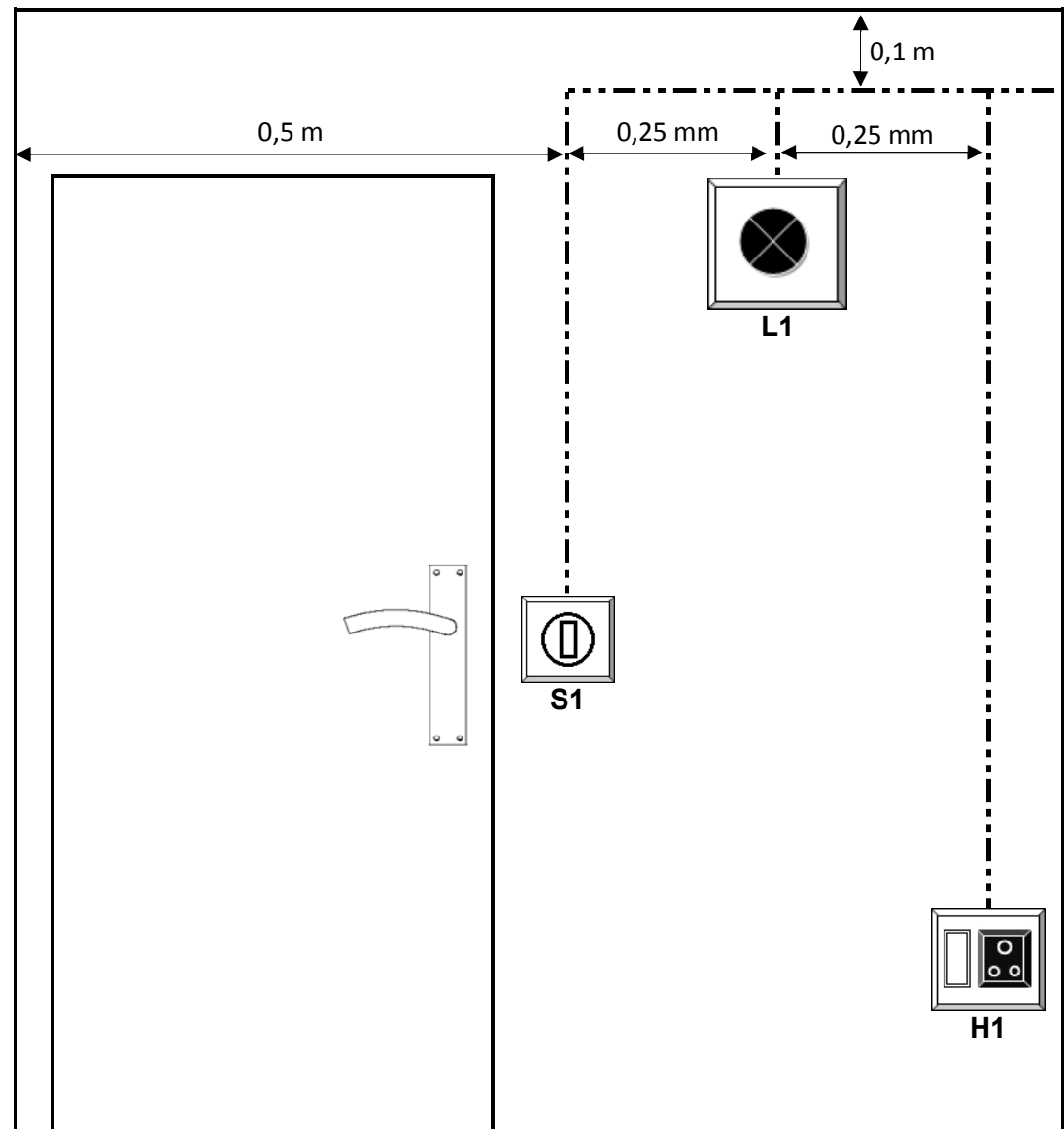
## SIGNIFICATION OF SYMBOLS

- - - - - : PVC tray

- Horizontally tray → Main tray → Large width
- Vertically trays → Auxiliary tray → Middle width

## POSITION OF EQUIPMENTS

- All electric plugs are 150 mm from the floor
- All pushbuttons or switches are 600 mm from the floor
- All lights points or ceiling fan points are 900 mm from the floor



# STAIRS

## DESCRIPTION OF EQUIPMENTS

**S2** : PUSHBUTTON FOR LIGHTS L1 & L2

**L2** : LED LIGHT, 8W

**H2** : SOCKET 3 PINS 16/6 A

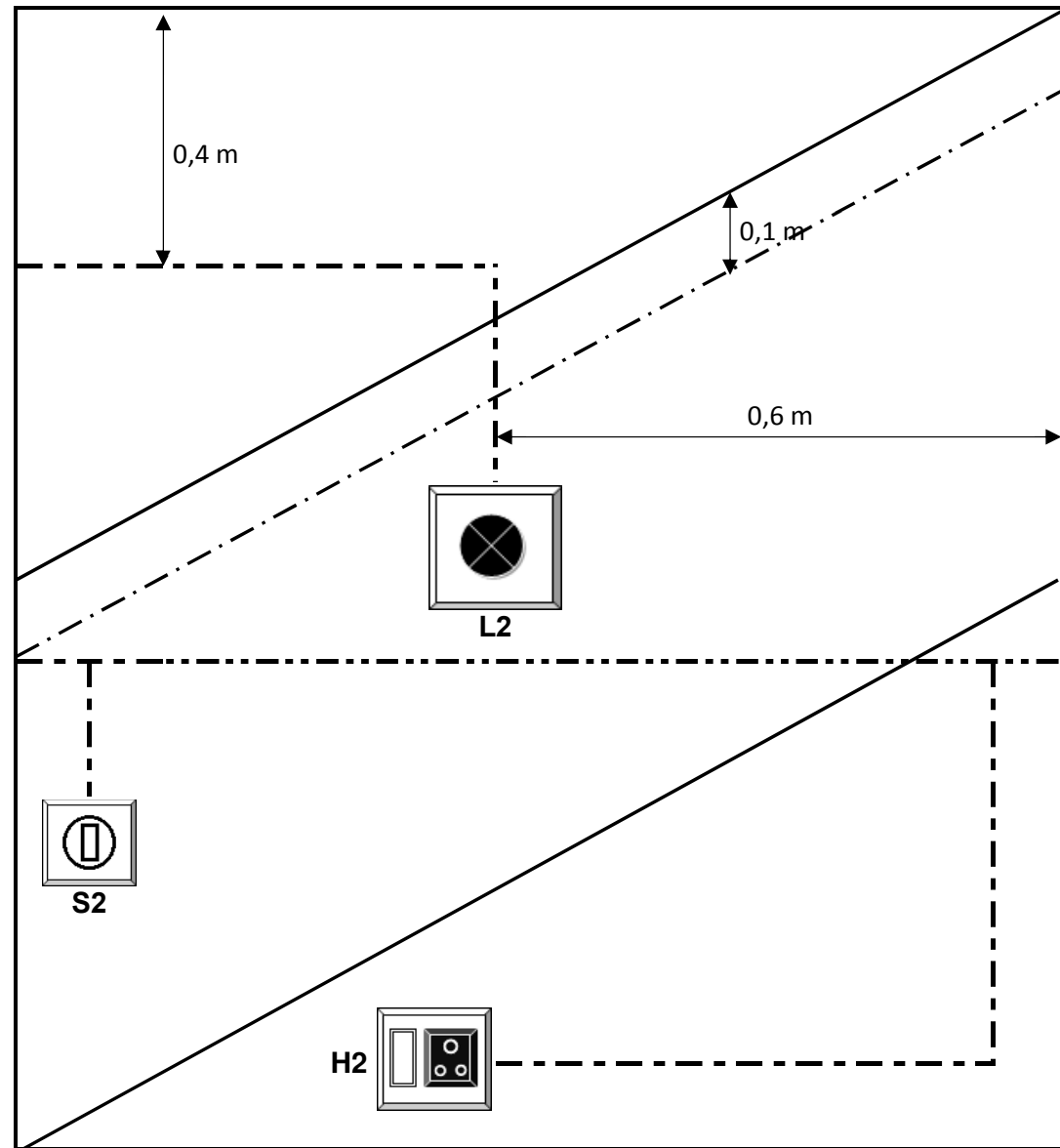
## SIGNIFICATION OF SYMBOLS

- - - - - : PVC tray

- Horizontally and oblique trays → Main tray → Large width
- Vertically trays → Auxiliary tray → Middle width

## POSITION OF EQUIPMENTS

- All electric plugs are 150 mm from the floor
- All pushbuttons or switches are 600 mm from the floor
- All lights points or ceiling fan points are 900 mm from the floor





# GROUND

## DESCRIPTION OF EQUIPMENTS

**S4** : ONE WAY FLUSH SWITCH FOR CEILING FAN E1

**E1** : CEILING FAN, 6A

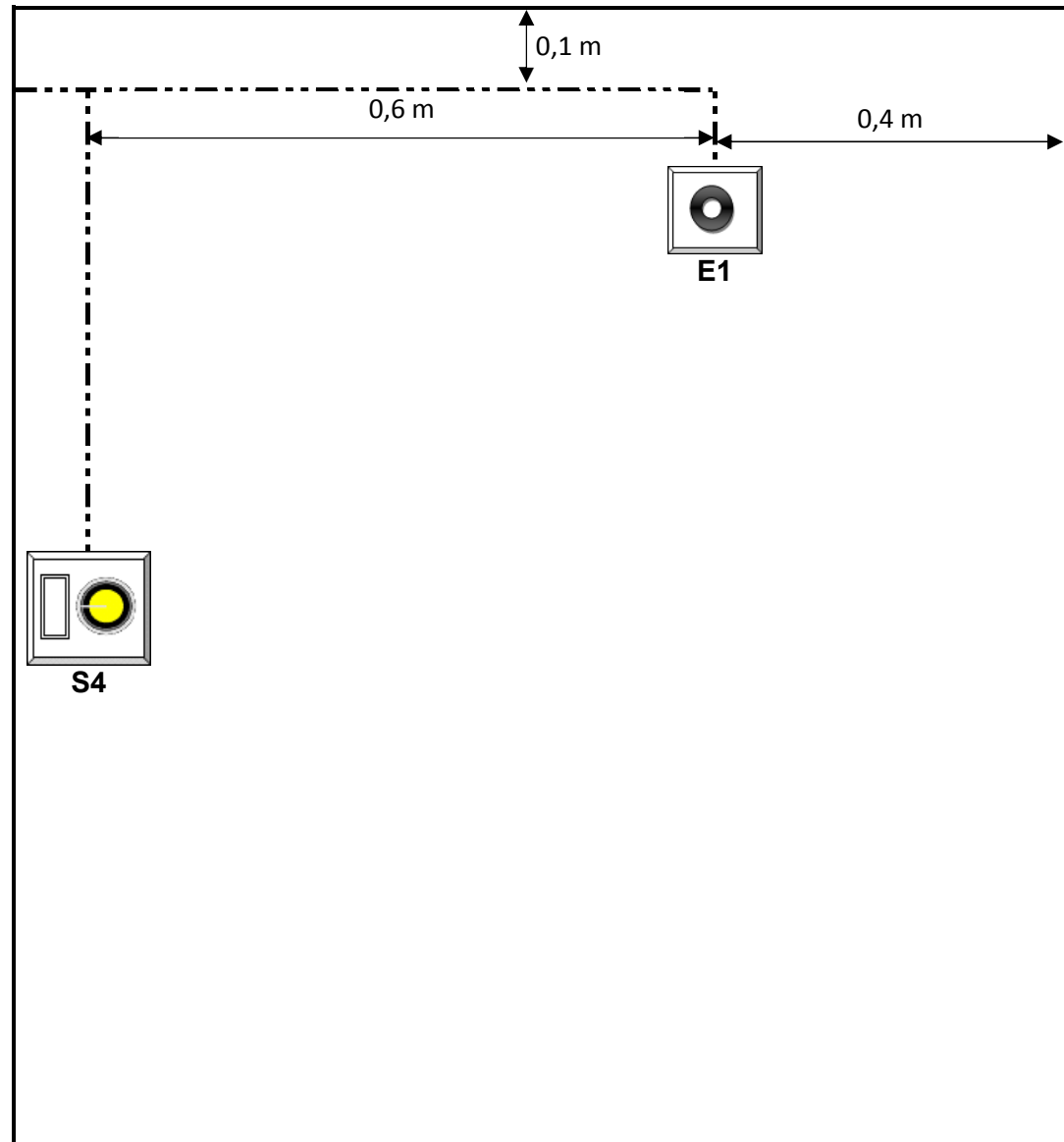
## SIGNIFICATION OF SYMBOLS

- . - . - . - . : PVC tray

- Horizontally tray → Main tray → Large width
- Vertically trays → Auxiliary tray → Middle width

## POSITION OF EQUIPMENTS

- All electric plugs are 150 mm from the floor
- All pushbuttons or switches are 600 mm from the floor
- All lights points or ceiling fan points are 900 mm from the floor



# FIRST FLOOR

## DESCRIPTION OF EQUIPMENTS

**S3** : PUSHBUTTON FOR LIGHTS L1 & L2

**H3** : SOCKET 3 PINS 16/6 A

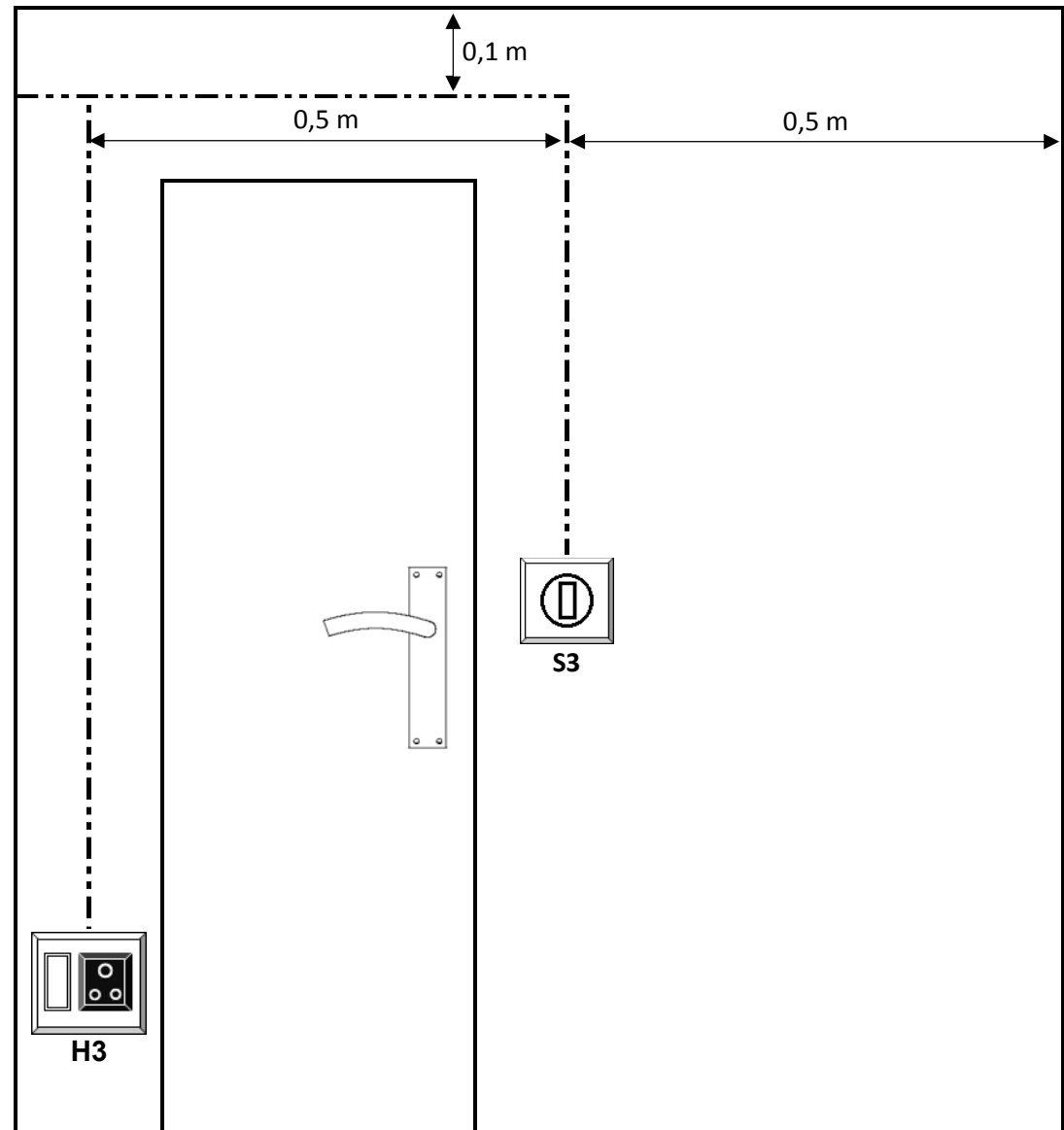
## SIGNIFICATION OF SYMBOLS

- - - - - : PVC tray

- Horizontally tray → Main tray → Large width
- Vertically trays → Auxiliary tray → Middle width

## POSITION OF EQUIPMENTS

- All electric plugs are 150 mm from the floor
- All pushbuttons or switches are 600 mm from the floor
- All lights points or ceiling fan points are 900 mm from the floor



# OUTSIDE

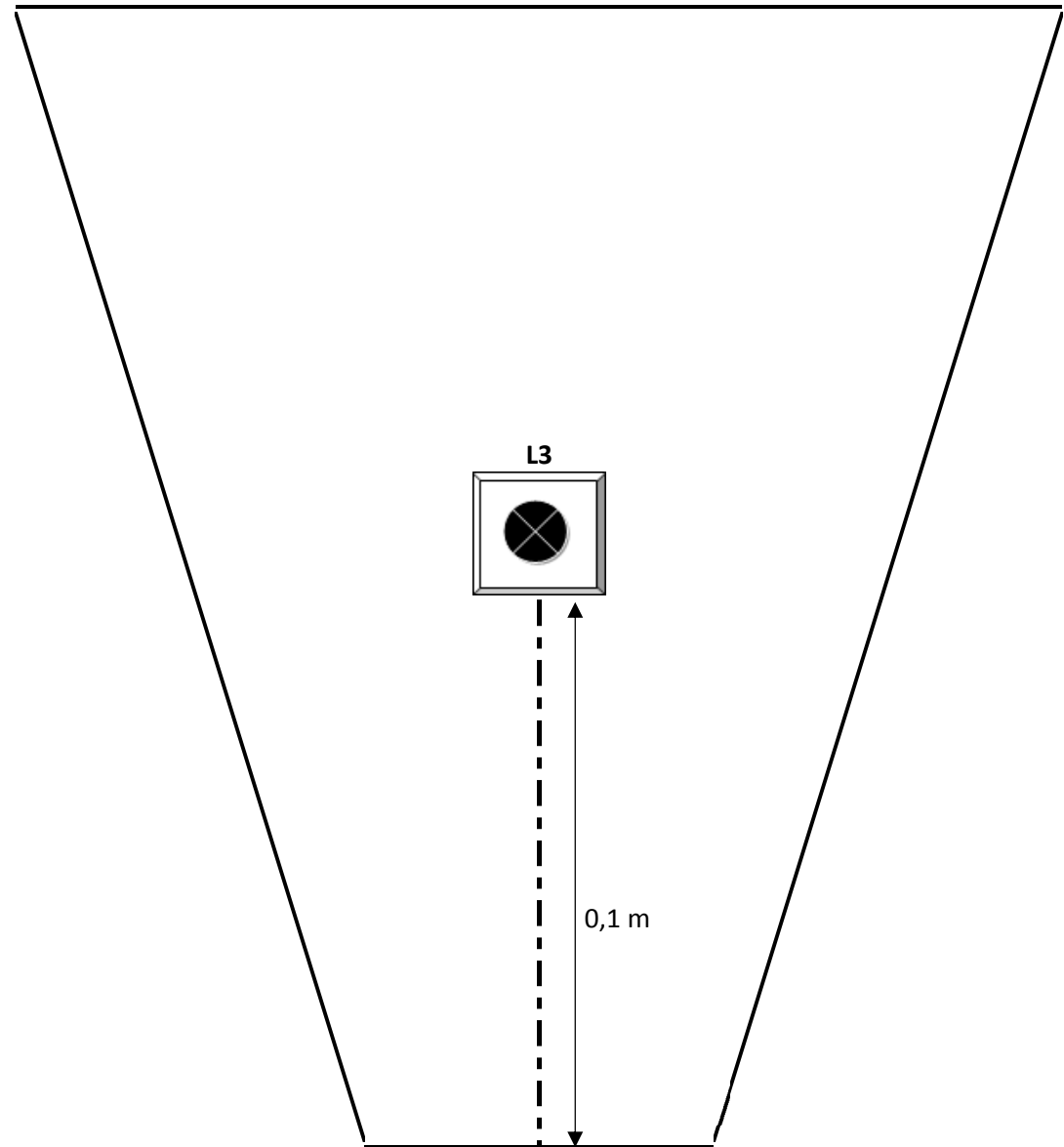
## DESCRIPTION OF EQUIPMENTS

L3 : TERASSE LIGHT, 6A

## SIGNIFICATION OF SYMBOLS

- - - - - : PVC tray

- Horizontally tray → Main tray → Large width
- Vertically tray → Auxiliary tray → Middle width



# DIAGRAM

