

<b>25</b>	<b>ELECTRICAL IDENTIFICATIONS .....</b>	<b>2</b>
<b>25.1</b>	<b>GENERAL.....</b>	<b>2</b>
25.1.1	General.....	2
25.1.2	Nameplates and Labels .....	2
25.1.3	Wire and Cable Markers .....	3
25.1.4	Interconnecting Cabling Identification “ICA” .....	3
25.1.5	Under ground Warning Tape .....	4
25.1.6	Installation .....	4
25.1.7	References .....	4

ARAB ENGINEERING BUREAU

## 25 ELECTRICAL IDENTIFICATIONS

### 25.1 GENERAL

#### 25.1.1 General

- 1 Provide identification on all equipment e.g. control panels, FBA, controllers, raceways, boxes and conductors, devices etc in accordance with EN 61346, EN 61666, EN 61175 and EN 60445 standards or latest edition of other applicable standards to the approval of engineer.
- 2 All labels shall be permanent, and be machine generated. NO HANDWRITTEN OR NON-PERMANENT LABELS SHALL BE ALLOWED.
- 3 Prior to making any label or nameplate for the purpose of identification submit a detailed schedule indicating nameplate size, lettering size, color, material and actual nameplate information for Engineer's review and approval.
- 4 All external labels, nameplates, operational and warning signs shall be provided in Arabic and English.
- 5 Material used in making the engraved labels shall be of highest quality suitable for the environmental and climatic conditions as specified in the relevant section.
- 6 Critical devices such as disconnect switches; service feeders and branch circuit protective feeders shall be legibly labeled to indicate its purpose and point of origin. The legibility distance shall not be less than 2.0 meters.
- 7 Identification nameplates shall be provided in addition to the manufacturer's equipment nameplates as required by NEMA, BS, IEC or UL.
- 8 Warning signs and instruction labels wherever needed shall be provided in accordance with local regulations of QGEWC (KAHRAMAA), Civil Defence etc.
- 9 Contractor shall clearly show locations and fixing arrangements of nameplates and labels on layout drawings.

#### 25.1.2 Nameplates and Labels

- 1 Nameplates:
  - (a) Provide equipment identification labels for all electrical equipment including, but not limited to Switchgear, control panels, switchboards, transfer switches, disconnect switches, transformers, generators, power factor capacitors, fixed equipment, motor starters, FBA etc.
  - (b) Provided sub classification label for all emergency power system, junction boxes and pull boxes.
  - (c) External labels: Clear Perspex, back engraved in black letters on white background, in Arabic and English with chamfered edges fixed with stainless steel screws with nuts and flat and lock washers.

- (d) Internal labels: Multi-layered plastic to an approved design engraved in Arabic and English, and fixed with stainless steel screws. Alternatively special purpose made DIN rail may be used for fixing labels as approved by the engineer.
- (e) Adhesive labels shall not be permitted.
- (f) Internal components labels shall have circuit designations correlated with the drawings.
- (g) Labels shall not be attached to trunking covers or other readily removable items.
- (h) Electrical equipment enclosures, vaults, doors and fences shall be provided with "DANGER KEEP OUT" warning sign, showing proper voltage.
- (i) Disconnect switches and emergency devices shall have "CAUTION" warning signs as directed by the engineer.

2 Locations:

- (a) Provide Title Label for electrical distribution and all other control equipment, panels etc.
- (b) Provide Function Label for door mounted component.
- (c) Every internal component - Identification Label.
- (d) Provide Identification Label for Protective device - (e.g. fuse/mcb type, rating).
- (e) Provide Title Label for Communication equipments.
- (f) Compartments with doors and covers not electrically interlocked to an isolator, external label - "DANGER, LIVE TERMINALS" with flash and voltage in red letters on white background in Arabic and English.
- (g) Provide Function description Label for group of terminal blocks.

3 Letter Size is to be approved with Engineer.

#### **25.1.3 Wire and Cable Markers**

1 Description: Interlocking ferrules of white insulating material engraved in black. Letters and symbols to IEC 446 shall be used for control wiring and Flameproof Cable tags for appropriate cable group.

2 Locations:

- (a) Conductor at pull boxes outlet, junction boxes and each load connection.
- (b) Cable laid in trenches, duct, raceways etc.

3 Legend:

- (a) Power and Lighting Circuits: Branch circuit or feeder number indicated on drawings.
- (b) Control Circuits: Control wire number indicated on schematic and interconnection diagrams on drawings.

#### **25.1.4 Interconnecting Cabling Identification "ICA"**

1 Each horizontal cable from instruments, transmitter, controller etc. termination blocks or patch panel if any to an outlet box shall be labelled at both ends.

- 2 Tags shall be consecutively numbered so that no two (2) cables have the same identification number.
- 3 In addition the cable tag shall indicate the reference of location where the associated outlet is located and the device is installed.

#### **25.1.5 Under ground Warning Tape**

- 1 Description: 100 mm wide plastic tape, detectable type, coloured yellow with suitable warning legend describing buried electrical lines e.g. 0.6/1KV, 11KV etc.

#### **25.1.6 Installation**

- 1 Degrease and clean surfaces to receive nameplates and labels.
- 2 Install nameplate and label parallel to equipment lines.
- 3 Secure nameplate to equipment front as specified.
- 4 Secure nameplate to inside surface of door on panelboard that is recessed in finished locations.
- 5 Identify underground conduits using underground warning tape. Install one tape per trench at 150 mm below finished grade.

#### **25.1.7 References**

- 1 The following standards are referred to in this Part:
  - EN 60445 ..... Basic and safety principles for man-machine interface, marking and identification. Identification of equipment terminals, conductor terminations and conductors; (IEC 60445 Basic and safety principles for man-machine interface, marking and identification. Identification of equipment terminals, conductor terminations and conductors)
  - EN 61175 ..... Industrial systems, installation and equipment and industrial products. Designation of signals; (EN 61175-1 Industrial systems, installations and equipment and industrial products. Designation of signals - Basic rules; IEC 61175-1 Industrial systems, installations and equipment and industrial products - Designation of signals - Part 1: Basic rules)
  - EN 61346-1 .. Industrial systems, installations and equipment and industrial products. Structuring principles and reference designations - Basic rules; (IEC 81346-1 Industrial systems, installations and equipment and industrial products. Structuring principles and reference designations - Basic rules)
  - EN 61346-2 .. Industrial systems, installations and equipment and industrial products. Structuring principles and reference designations - Classification of objects and codes for classes; (IEC 81346-2 Industrial systems, installations and equipment and industrial products. Structuring principles and reference designations - Classification of objects and codes for classes)
  - EN 61666 ..... Industrial systems, installations and equipment and industrial products. Identification of terminals within a system

END OF PART