ECIICESE01 Install electrical cabling and wiring systems

Overview

This standard is about the installation of electrical cabling and wiring systems

You will need to be able to measure and mark out for an installation of cabling and wiring systems into enclosures and equipment whilst adhering to health, safety and environmental legislation, regulations, and safe working practices.

In the context of this standard, your responsibility is to interpret and work within given specifications, selecting approved methods and techniques to achieve the best possible result. In some cases, you may still be expected to refer to others for final authorisation, even though you remain responsible for identifying and implementing decisions.

Who this standard is for:
Electrical installers and others that install electrical systems and equipment

Performance criteria

You must be able to:

1. work safely at all times, complying with health, safety, environmental and other relevant legislation, regulations, guidelines and local rules or procedures
2. ensure that the work environment, material, tools and equipment are suitably prepared for the work activities to be undertaken
3. obtain and interpret the required information and specifications using drawings and other relevant sources
4. identify the correct means of electrical isolation or mechanical isolation of any service/supply/plant/equipment in the work area that poses a hazard to safety and carry out isolation and lock-off
5. prove-dead any isolated supplies
6. measure and mark out for installation of wiring systems and equipment to suit specifications
7. ensure that the planned installation locations are suitable, visually acceptable and are in accordance with standards and specifications
8. install the cabling and wiring systems, containment, enclosures and equipment safely
9. ensure that all relevant electrical equipment and components are free from damage as appropriate and any testing relevant to regulations is completed
10. ensure that the installation is protected from the environment and potential damage
11. check that the installation is complete and to the required specification, then follow the required handover procedures
12. ensure the work area is reinstated
13. deal promptly and effectively with problems within your control and report those that have been and those that cannot be solved

Knowledge and understanding

You need to know and understand:

1. relevant legislative, regulatory and local requirements or procedures and safe working practices including your responsibilities with regards to reporting lines and procedures 2. preparation and reinstatement requirements in respect of the work area, material, and equipment, and the possible consequences of incorrect actions in these areas 3. relevant engineering drawings, related specifications, quality standards and manufacturers' information 4. the importance of correct installation of cable systems and containment and the related consequences of incorrect installation 5. the tools used for positioning and installing electrical equipment, systems, enclosures and components 6. safe isolation, lock-off and prove-dead procedures for reasons of safe working 7. how to check the condition of the installed equipment or system, that it is free from damage and what to do if damage is found 8. the techniques for ingress protection and protection against damage and the environment and the importance of these 9. the techniques used for foreign material exclusion and protection against damage and the environment, and the importance of these 10. how to check that final installation meets requirements and the related handover procedure(s) 11. the correct use of relevant tools and equipment and your individual responsibility for the use, care and security of those you use

Glossary

A **Work environment** could include:

- engineering construction sites
- controlled operations
- offshore installations
- maintenance sites
- nuclear sites

- repair sites

A **Work environment** may be in open or restricted spaces:

- at height

- confined spaces
- control rooms
- controlled operational and offshore installations
- designated work areas
- potentially explosive atmospheres
- existing plants and structures
- fabrication workshops
- in plant rooms
- inside structures, systems and plant
- on access structures
- on open structures
- onshore and offshore installations
- shafts
- shipyards

- tunnels

Work area is reinstated could include:

- returning the work area to a safe condition

- removing barriers
- sweeping up
- correctly and ethically disposing of waste materials
- storing re-usable materials, consumables and equipment in accordance with appropriate procedures

- completing all necessary documentation

**Electrical isolation* could include:

- getting appropriate authorisation including Permit to Work

- identifying the correct isolations and disconnections required
- correct sequence of isolations and disconnections
- proving-dead of the electrical supply and implications of GS38

- safety methods for maintaining isolations and disconnections

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Mechanical isolation could include:

- getting appropriate authorisation including Permit to Work
- identifying the correct isolations and disconnections required
- correct sequence of isolations and disconnections
- closing a valve or fitting blanks for a service or supply
- checking the mechanical item cannot be moved or move itself
- safety methods for maintaining isolations and disconnections

Cabling systems:

A cabling system is a complete system of cabling and associated hardware, which provides a comprehensive system infrastructure which serves a wide range of uses, such as process control and data or power transmission

Cable containment:

Cable containment systems are used to organise and store cables within a system installation and can include conduit, trunking, ladder, tray and basket systems

Cable segregation:

Power supply and instrument/control cables should be run to prevent electro-magnetic interference

Enclosures:

An electrical enclosure is a cabinet for electrical or electronic equipment and provides protection to equipment users and also protects the contents from the environment

Engineering drawings and related specifications:

An engineering drawing is a type of technical drawing that is used to convey information about an item for construction, maintenance or fault-finding purposes
Reporting forms: A reporting form should be based upon those recommended in the current edition of BS7671 and incorporate a schedule of inspections and a schedule of results

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