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Learners Guide to the Schedule of Inspection

1.0 EXTERNAL CONDITION OF INTAKE EQUIPMENT

- 1.1 **Service cable** e.g. this is the supply authority's cable that comes in either overhead or underground into the bottom of the cut-out.
- 1.2 **Service head** e.g. this is the cut-out enclosure and fuse to which the supply authority's cable enters into the bottom of.
- 1.3 **Earthing arrangement** e.g. this can be checking that the connection to the sheath of the supply authority's cable is secure on a TN-S earthing arrangement.
- 1.4 **Metering tails** e.g. these are the tails that go from the cutout to the meter and from the meter to the consumers unit normally 25 mm² in size in a new domestic property. They are not Double Insulated.
- 1.5 **Metering equipment** e.g. as well as the kWh meter this also includes any separate off-peak metering and radio teleswitch.
- 1.6 **Isolator (where present)** e.g. an isolating switch installed in the tails after the metering equipment and before the consumers unit.

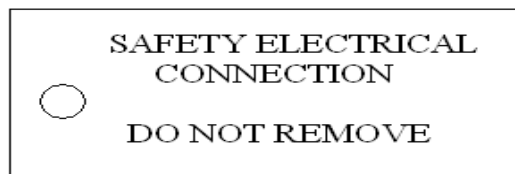
2.0 PARALLEL OR SWITCHED ALTERNATIVE SOURCES OF SUPPLY

- 2.1 Adequate arrangements where a generating set operates as a switched alternative to the public supply** e.g. a standby diesel generator which is turned on in the event of a mains power failure.
- 2.2 Adequate arrangements where a generating set operates in parallel with the public supply** e.g. a generator generates energy in parallel (at the same time as the mains power) on the same load, they must be synchronized properly (voltage, frequency) and load distribution must be balanced properly.

3.0 AUTOMATIC DISCONNECTION OF SUPPLY

- 3.1 Presence and adequacy of earthing and bonding arrangements:**
 - **Distributors earthing arrangement.** E.g. TN-C-S, TN-S or TT etc.
 - **Installation earth electrode (where applicable)** e.g. the earth rod installed on a TT system to make consumers installation connection to earth.
 - **Earthing conductor and connections, including accessibility** e.g. the earthing conductor which will be 16 mm² for a 100A domestic supply on a TN-C-S earthing system.

- **Main protective bonding conductor and connections, including accessibility** e.g. The cable that goes to the copper gas and water pipes, 10 mm² for a domestic installation terminated within 600 mm of the service meter consumer's side or before any branch or at the nearest point of entry.
- **Provision of safety electrical earthing / bonding labels at all appropriate locations** e.g. Presence of a BS 951 label with the words 'Safety Electrical Connection – Do not Remove'. Fitted to the bonding clamp.



- **RCD(s) provided for fault protection** e.g. The Zs of a TT Earthing arrangement is too high to allow disconnection of the overcurrent device in the event of an earth fault. Therefore, a 30mA RCD will provide fault protection in the event of an earth fault.

4.0 BASIC PROTECTION

4.1 Presence and adequacy of measures to provide basic protection (prevention of contact with live parts) within the installation:

- **Insulation of live parts** e.g. conductors completely covered with either brown or blue thermoplastic PVC insulation.
- **Barriers or enclosures** e.g. correct IP ratings.

5.0 ADDITIONAL PROTECTION

5.1 Presence and effectiveness of additional protection methods:

- **RCD(s) not exceeding 30 mA operating current** e.g. 30mA RCD provided for Socket-outlets with a rated current not exceeding 32A and mobile equipment with a rated current not exceeding 32A for use outdoors.
- **Supplementary bonding** e.g Used in a bathroom connecting both exposed and extraneous conductive parts together, ensuring no risk of a Potential Difference between the two. A 4mm² protective conductor will usually connect all parts together.

6.0 OTHER METHODS OF PROTECTION

6.1 Presence and effectiveness of methods which can give both basic and fault protection:

- **SELV systems, including the source and associated circuits.** SELV Stands for separated extra low voltage its 50 volts a.c. and below with no connection to earth on the outgoing side of the transformer e.g. these systems are used only in certain locations such as swimming pools and certain medical locations.
- **PELV systems, including the source and associated circuits** PELV stands for protected extra low voltage its 50 volts a.c. and below this time with an earthed connection e.g. in certain special locations including medical locations.

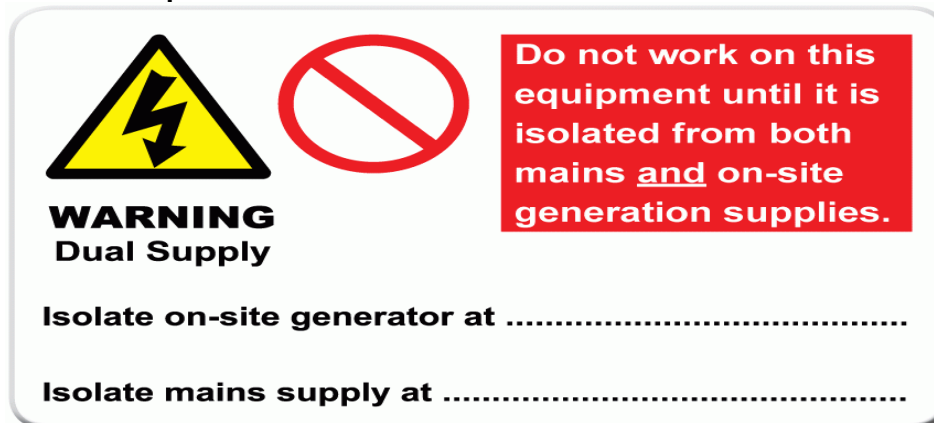
- **Double or reinforced insulation** e.g. This is where a whole installation or circuits consists entirely of equipment with double or reinforced insulation.
- **Electrical separation for one item of equipment** e.g. shaver sockets incoming voltage 230 outgoing 230 but with no earth on the outgoing side and therefore at risk of electric shock to earth. Individual transformers feeding an Electric Vehicle car charging point.

7.0 CONSUMER UNIT(S) / DISTRIBUTION BOARDS(S):

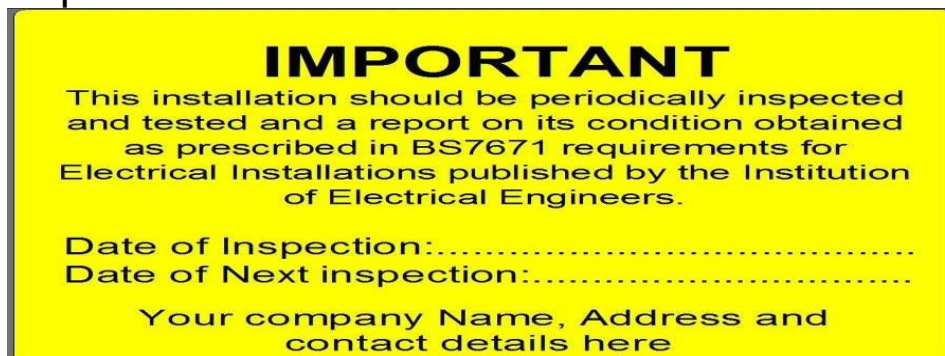
- 7.1 **Adequacy of access and working space for items of electrical equipment including switchgear** e.g. is the room that contains the consumer(s) unit or distribution board easily accessed or is it full of cleaning equipment or other obstructions preventing access.
- 7.2 **Components are suitable according to assembly manufacturer's instructions or literature.**
- 7.3 **Presence of linked main switch(s)** e.g. this term refers to what we call the 'double pole switch' normally located within a consumer unit but can also be triple pole switches.
- 7.4 **Isolator, for every circuit or groups of circuits and all items of equipment** e.g. each circuit from a consumer unit has its own overcurrent protective device that can be removed or switched and secured to achieve safe isolation.

- 7.5 **Suitability of enclosure(s) for IP and fire ratings** e.g. has the top surface of an electrical enclosure got an IP rating of IP4X or greater and has the rest of the enclosure got a rating of IP2X or greater. Has equipment selected for bathrooms or outside got the required IP rating to take account of the environment.
- 7.6 **Protection against mechanical damage where cables enter equipment** e.g. the use of gromets to protect PVC cables as they enter metal consumer units and metal accessories.
- 7.7 **Confirmation that ALL conductor connections are correctly located in terminals and are tight and secure**
- 7.8 **Avoidance of heating effects where cables enter ferromagnetic enclosures like steel**
e.g.
Ensuring all live conductors and Protective conductors are contained in the same metal enclosure and all pass through the same entrance hole.
- 7.9 **Selection of correct type and rating of circuit devices for overcurrent and fault protection** e.g. correctly size overcurrent protective devices (fuse) or RCBO in circuit.
 - **Provision of circuit charts/schedules or equivalent forms of information** e.g. installation distribution board chart positioned at the mains indicating things such as circuit protective devices and cables sizes.

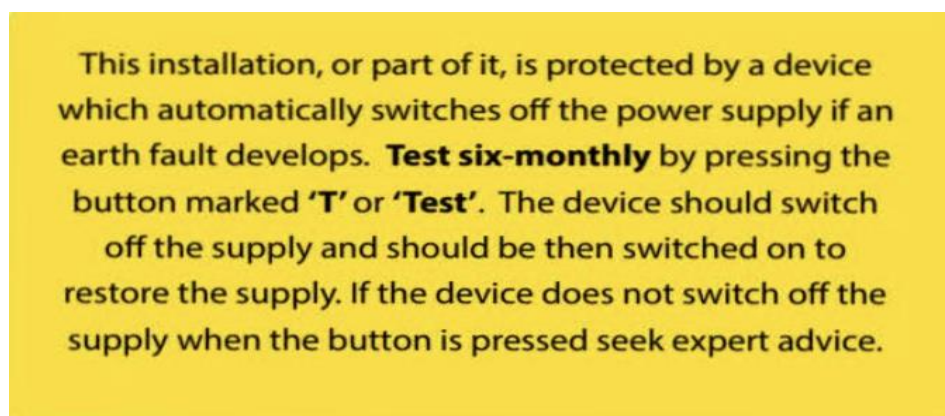
- **Warning notice of method of isolation where live parts not capable of being isolated by a single device** e.g. if an installation has things such as PV solar photovoltaic and or micro wind generation then the following types of label require fitting at the mains position of an installation



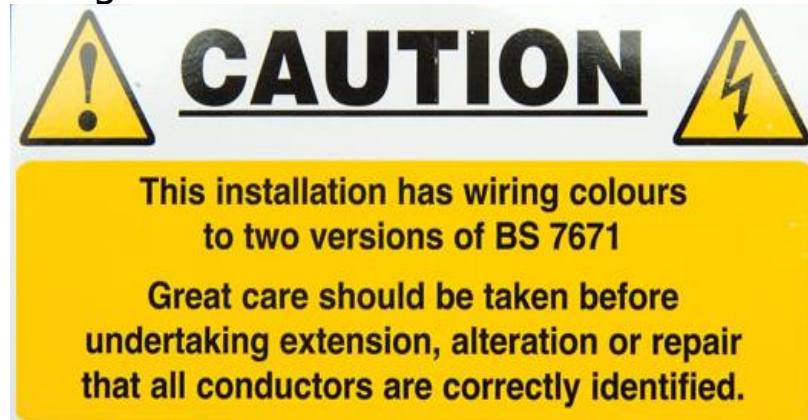
- **Periodic inspection and testing notice** e.g. the following notice must be fitted at the mains end of an installation indicating the date of the last inspection and the date of the next one.



- **RCD six-monthly test notice; where required** e.g. the following notice must be fitted where RCD's/RCBO's are installed within an installation



- **AFDD six-monthly test notice, where required**
- **Warning notice of non-standard (mixed) colours of conductors present** e.g. the following notice must be fitted where two versions of cable conductor colours are installed within an installation. Old single phase colours being red and black and new being brown and blue.



7.11 Presence of labels to indicate the purpose of switchgear and protective devices e.g.

Switchgear at the mains position of an installation used to isolate supplies feeding local distribution circuits. Each overcurrent protective device within a consumer unit must have a label to indicate the circuit such as Downstairs Sockets or Upstairs Lights.

8.0 CIRCUITS

- 8.1 **Adequacy of conductors for current-carrying capacity with regard to type and nature of the installation** e.g. 2 x 2.5 mm² cables used to feed an A1 ring final circuit protected at 30/32amps for floor area no greater than 100 m².
- 8.2 **Cable installation methods suitable for the location(s) and external influences** e.g. PVC conduit for use in damp environments as it will not corrode. Has galvanised steel conduit been installed in areas such as factories because of its strong mechanical protection offered. Thermoplastic cables installed within the fabric of a building in a domestic dwelling.
- 8.3 **Segregation/separation of Band I (ELV) and Band II (LV) circuits, and electrical and non-electrical services** separation of band I extra-low voltage for voltages 0 to 50 volts a.c. from band II low voltage 51 volts to 1000 volts a.c e.g. separations of thermoplastic PVC cables for circuits such as power and lighting from telecommunications and data systems.

- 8.4 **Cables correctly erected and supported throughout, with protection against abrasion** e.g. the correct size and type of wiring system installed with correct spaces between supports such as cable clips, cleats and PVC cable ties. The means of support should be enough to prevent premature collapse of the cabling and subsequent obstruction of the escape route. This can be achieved by supporting the wiring system with a non-combustible support such as metallic clips, metallic cable ties or metallic saddles.
- 8.5 **Provision of fire barriers, sealing arrangements where necessary** e.g. fire barriers in trunking to prevent the spread of fire and heat rising as well as restoring walls and floors with either the same material removed or with fire retardant foam where trunking passes through them.
- 8.6 **Non-sheathed cables enclosed throughout in conduit, ducting or trunking** e.g. all single insulated current carrying conductors must be installed within a wiring enclosure to provide them with mechanical protection such as conduits and trunking.
- 8.7 **Cables concealed under floors, above ceiling or in walls/partitions, adequately protected against damage** e.g. cables installed within the prescribed zones as stated in the On-Site Guide on page _____ or under floors as stated on page _____.

- 8.8 **Conductors correctly identified by colour, lettering or numbering** e.g. the use of brown, blue, green and yellow to identifying line, neutral and cpc conductors. Brown sheathing on switched line conductors, interfacing of old and new 3 phase cables label (L1, L2, L3 and N) and each leg of ring final circuits identified for ease of ring continuity testing.
- 8.9 **Presence, adequacy and correct termination of protective conductor's** e.g. correct size cpc, earthing conductor, protective bonding conductor and as required supplementary bonding conductor. These conductors should be correctly terminated with the use of such things as crimped lug or screwed connections to provide the best possible electrical connections.
- 8.10 **Cables and conductors correctly connected, enclosed and with no undue mechanical strain** e.g. where connections have two screws to support the termination of conductors both of them must be used. The use of cord grips, cable clamps and glands to reduce strain on conductor terminations.
- 8.11 **No basic insulation of a conductor visible outside enclosure** e.g. confirms all cables have fully entered an electrical enclosure before the outside mechanical protection is removed for termination.
- 8.12 **Single-pole devices for switching or protection in line conductors only** e.g. the polarity test proves that we switch and install protective devices (fuse) in the line conductor and not the neutral.

- 8.13 **Accessories not damaged, securely fixed, correctly connected, suitable for external influences** e.g. have all wiring systems, accessories and equipment been selected and installed in accordance with the Regulations and are fixings for equipment adequate for the environment e.g. correct IP rating for equipment outside, has MI cable been used in a boiler room have boxes been fixed securely to the surface.
- 8.14 **Provision of additional protection by RCD not exceeding 30mA:**
- **Socket-outlets rated at 32 A or less, unless exempt** e.g. all socket-outlets rated at 32 A or less (remember domestic 3 pin socket-outlets are rated at 13 amps) require additional protection by an RCD rated at 30mA or less. Exceptions: where other than a dwelling (domestic property) a documented risk assessment determines that RCD protection is not necessary.
 - **Mobile equipment with a current rating not exceeding 32 A for use outdoors** e.g. industrial cleaning equipment used for jet washing large vehicles or stonework.
 - **Cables concealed in walls at a depth of less than 50 mm** e.g. in domestic properties if the wiring system is not installed at a depth of 50 mm or greater or not installed in earth metal work it is required to be protected by an RCD of 30 mA or less.

- **Cables concealed in walls / partitions containing metal parts regardless of depth**
cables in these areas must be installed and either be protected by an RCD rated 30mA or less or installed/wired in earth metal work such as metal conduit, metal trunking, SWA or MICC type cables. If the wiring system cannot be installed at a depth of 50mm or greater it must be installed within the prescribed zones and protected by an RCD of 30mA or less.
- **Final circuits supplying luminaires within a domestic (household) premises.** E.g. all lighting, both internal and external require RCD protection. This has been made simple with dual RCD boards and RCBO's.

8.15 **Presence of appropriate devices for isolation and switching correctly located including**

- **Means of switching off for mechanical maintenance**
a marked manually operated switch inserted in the mains supply capable of switching off the full load current and then can be secured in the off position e.g. linked main switch inserted in the tails before the consumers unit, a circuit breaker or rotary isolator after in invert on a PV or micro wind system.

- **Emergency switching** a switch capable of cutting off the full load current disconnecting all live conductors of a single phase supply or all line conductors of a 3 phase supply on a TN-S or TN-C-S supply e.g. the red mushroom headed button located on or adjacent to a motor starter.
- **Functional switches, for control of parts of the installation and current-using equipment** e.g. light switches in the line conductor controlling one or more lighting points and the switch on the front of a socket-outlet.
- **Firefighter's switches** must be provided to disconnect the supply to any exterior electrical installation operating at a voltage exceeding low voltage (above 1000 volts a.c.) e.g. neon signs. A double pole isolator (BS 60947-3) complies with a fire fighter switch and is coloured red within a distribution board

9.0 CURRENT-USING EQUIPMENT (PERMANENTLY CONNECTED)

- 9.1 **Equipment not damaged, securely fixed and suitable for external influences** all electrical equipment is screwed/fixed to the fabric of the building and free from damage. Correct IP rated equipment for use in bathroom, outside or in high humidity. Has the wiring system been installed to allow for things such as external heat sources, solar radiation, impact vibration and foreign bodies? E.g. steel conduit being installed because the need for mechanical protection and flexible conduit used to connect rotating machinery.

- 9.2 **Provision of overload and/or undervoltage protection** required for rotating machines when a motor is running and there is a power cut, the motor will stop and requires to be re-energised by pressing the start button, when the supply is restored this is the use of undervoltage protection.
- 9.3 **Installed to minimize the build-up of heat and restrict the spread of fire** when an installation contains recessed luminaires it should be confirmed that the lamps are the correct type and rating for the fitting to prevent the build-up of heat about the fitting e.g. a 20W down light must not been fitted with a 50W lamp. Cable holes made in the fabric of the building where necessary must be sealed to restrict the spread of fire with fire barriers/seals.
- 9.4 **Adequacy of working space. Accessibility to equipment.** Safe means of access and working space to every piece of electrical equipment and switchgear to allow for operation, inspection, testing, fault finding, maintenance and repair e.g. is the room that contains the consumer(s) unit or distribution equipment, is it easily accessed or is it full of cleaning equipment or other obstructions preventing access.

10.0 LOCATION(S) CONTAINING A BATH OR SHOWER

- 10.1 30 mA RCD protection for all LV circuits, equipment suitable for the zones, supplementary bonding (where required) etc.** Locations containing a bath or shower where there is an increased risk of electric shock. These circuits are additionally protected by an RCD rated at 30mA. Supplementary bonding also required to ensure accessible metalwork is effectively connected. A domestic bathroom will not require Supplementary bonding if the circuits are protected by an RCD rated at 30mA and all extraneous conductive parts (copper gas and water pipe) have Mains protective bonding in place.

11.0 List all other special installations or locations present, if any (Record separately the results of particular inspections applied)

- 11.1 List all other special installations or locations present, if any (Record separately the results of particular inspections applied)** has the installation got areas such as a swimming pool, saunas, agricultural and horticultural.

Schedule of Inspection (for new installation work only)

| Item No | DESCRIPTION | Outcome See Note 2 |
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| 1.0 | EXTERNAL CONDITION OF INTAKE EQUIPMENT (VISUAL INSPECTION ONLY) | |
| 1.1 | Service cables | |
| 1.2 | Service head | |
| 1.3 | Earthing arrangement | |
| 1.4 | Meter tails | |
| 1.5 | Metering equipment | |
| 1.6 | Isolator (where present) | |

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| 2.0 | PARALLEL OR SWITCHED ALTERNATIVE SOURCES OF SUPPLY | |
| 2.1 | Adequate arrangements where a generating set operates as a switched alternative to the public supply | |
| 2.2 | Adequate arrangements where a generating set operates in parallel with the public supply | |

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| 3.0 | AUTOMATIC DISCONNECTION OF SUPPLY | |
| 3.1 | Presence and adequacy of earthing and bonding arrangements: | |
| | <ul style="list-style-type: none"> Distributor's earthing arrangement | |
| | <ul style="list-style-type: none"> Installation earth electrode (where applicable) | |
| | <ul style="list-style-type: none"> Earthing conductor and connections, including accessibility | |
| | <ul style="list-style-type: none"> Main protective bonding conductor and connections, including accessibility | |
| | <ul style="list-style-type: none"> Provision of safety electrical earthing / bonding labels at all appropriate locations | |
| | <ul style="list-style-type: none"> RCD(s) provided for fault protection | |

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| 4.0 | BASIC PROTECTION | |
| 4.1 | Presence and adequacy of measures to provide basic protection (prevention of contact with live parts) within the installation: | |
| | <ul style="list-style-type: none"> Insulation of live parts e.g. conductors completely covered with durable insulating material | |
| | <ul style="list-style-type: none"> Barriers or enclosures e.g. correct IP rating | |

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| 5.0 | ADDITIONAL PROTECTION | |
| 5.1 | Presence and effectiveness of additional protection methods: | |
| | <ul style="list-style-type: none"> RCD(s) not exceeding 30 mA operating current | |
| | <ul style="list-style-type: none"> Supplementary bonding | |

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| 6.0 | OTHER METHODS OF PROTECTION | |
| 6.1 | Presence and effectiveness of methods which can give both basic and fault protection: | |
| | <ul style="list-style-type: none"> • SELV systems, including the source and associated circuits | |
| | <ul style="list-style-type: none"> • PELV systems, including the source and associated circuits | |
| | <ul style="list-style-type: none"> • Double or reinforced insulation i.e. Class II or equivalent equipment and associated circuits | |
| | <ul style="list-style-type: none"> • Electrical separation for one item of equipment i.e. shaver supply unit | |

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| 7.0 | CONSUMER UNIT(S) / DISTRIBUTION BOARDS(S): | |
| 7.1 | Adequacy of access and working space for items of electrical equipment including switchgear | |
| 7.2 | Components are suitable according to assembly manufacturers instructions or literature | |
| 7.3 | Presence of linked main switch(s) | |
| 7.4 | Isolator, for every circuit or groups of circuits and all items of equipment | |
| 7.5 | Suitability of enclosure(s) for IP and fire ratings | |
| 7.6 | Protection against mechanical damage where cables enter equipment | |
| 7.7 | Confirmation that ALL conductor connections are correctly located in terminals and are tight and secure | |
| 7.8 | Avoidance of heating effects where cables enter ferromagnetic enclosures e.g. steel | |
| 7.9 | Selection of correct type and rating of circuit devices for overcurrent and fault protection | |
| 7.10 | Presence of appropriate circuit charts, warning and other notices: | |
| | <ul style="list-style-type: none"> • Provision of circuit charts/schedules or equivalent forms of information | |
| | <ul style="list-style-type: none"> • Warning notice of method of isolation where live parts not capable of being isolated by a single device | |
| | <ul style="list-style-type: none"> • Periodic inspection and testing notice | |
| | <ul style="list-style-type: none"> • RCD six-monthly test notice; where required | |
| | <ul style="list-style-type: none"> • AFDD six-monthly test notice; where required | |
| | <ul style="list-style-type: none"> • Warning notice of non-standard (mixed) colours of conductors present | |
| 7.11 | Presence of labels to indicate the purpose of switchgear and protective devices | |

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| 8.0 | CIRCUITS | |
| 8.1 | Adequacy of conductors for current-carrying capacity with regard to type and nature of the installation | |
| 8.2 | Cable installation methods suitable for the location(s) and external influences | |
| 8.3 | Segregation/separation of Band I (ELV) and Band II (LV) circuits, and electrical and non-electrical services | |
| 8.4 | Cables correctly erected and supported throughout including escape routes, with protection against abrasion | |
| 8.5 | Provision of fire barriers, sealing arrangements where necessary | |
| 8.6 | Non-sheathed cables enclosed throughout in conduit, ducting or trunking | |
| 8.7 | Cables concealed under floors, above ceiling or in walls/partitions, adequately protected against damage | |
| 8.8 | Conductors correctly identified by colour, lettering or numbering | |
| 8.9 | Presence, adequacy and correct termination of protective conductors | |
| 8.10 | Cables and conductors correctly connected, enclosed and with no undue mechanical strain | |
| 8.11 | No basic insulation of a conductor visible outside enclosure | |
| 8.12 | Single-pole devices for switching or protection in line conductors only | |
| 8.13 | Accessories not damaged, securely fixed, correctly connected, suitable for external influences | |
| 8.14 | Provision of additional protection by RCD not exceeding 30mA: | |
| | <ul style="list-style-type: none"> • Socket-outlets rated at 32 A or less, unless exempt | |
| | <ul style="list-style-type: none"> • Mobile equipment with a current rating not exceeding 32 A for use outdoors | |
| | <ul style="list-style-type: none"> • Cables concealed in walls at a depth of less than 50 mm | |
| | <ul style="list-style-type: none"> • Cables concealed in walls / partitions containing metal parts regardless of depth | |
| | <ul style="list-style-type: none"> • Final circuits supplying luminaires within domestic (household) premises | |
| 8.15 | Presence of appropriate devices for isolation and switching correctly located including | |
| | <ul style="list-style-type: none"> • Means of switching off for mechanical maintenance | |
| | <ul style="list-style-type: none"> • Emergency switches | |
| | <ul style="list-style-type: none"> • Functional switches, for control of parts of the installation and current-using equipment | |
| | <ul style="list-style-type: none"> • Firefighter's switches | |
| 9.0 | CURRENT-USING EQUIPMENT (PERMANENTLY CONNECTED) | |
| 9.1 | Equipment not damaged, securely fixed and suitable for external influences | |
| 9.2 | Provision of overload and/or undervoltage protection e.g. for rotating machines, if required | |

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| 9.3 | Installed to minimize the build-up of heat and restrict the spread of fire | |
| 9.4 | Adequacy of working space. Accessibility to equipment | |

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| 10.0 | LOCATION(S) CONTAINING A BATH OR SHOWER | |
| 10.1 | 30 mA RCD protection for all LV circuits, equipment suitable for the zones, supplementary bonding (where required) etc. | |

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| 11.0 | OTHER PART 7 SPECIAL INSTALLATIONS OR LOCATIONS | |
| 11.1 | List all other special installations or locations present, if any (Record separately the results of particular inspections applied) | |

Inspected by:

Name (Capitals) Signature Date

This guide is for learners and will not cover every scenario... apologies for any errors please edit as required.