Visual Electrical Safety Inspections

Objective

To, identify the steps to be taken when performing a safety examination of an electrical installation.

Method

The objective of conducting a safety examination for a client is to ensure that the installation is electrically safe and that as far as can be seen the installation complies with the intent of AS/NZS 3000 (Wiring Rules) or basically complies with wiring rules that were probably current when the installation was built. All defects are to be listed on the report.

Where it is considered that any defect could be considered dangerous the following practice is to be followed:

- permission is sought from the client to disconnect and / or temporarily repair the defect to make safe
- where the client does not agree to disconnection or temporary repairs then contact your Trade Manager immediately for further instruction. **Do not** leave the work site until the Trade Manager has responded.
- Record actions on the *Electrical Safety Report Form 3* and give a copy to the client.

Note: An electrical worker does not have the authority to disconnect any part of a client's installation without the approval of the client, even if this includes unsafe situations. Only the BEMS Manager has the authority to disconnect any electrically unsafe condition.

A visual examination could also include a safety check of appliances and leads if requested by the client. A safety examination does not guarantee that appliances and equipment will work correctly.

A visual examination would not normally require the disconnection of power except for testing of switches.

The visual inspection checklist section of the *Electrical Test Report Form 1* will be used for recording results. A written report, Electrical Safety Report Form 3, is to be provided to the client even when no defects have been identified.

In the following practice, clauses are from AS/NZS 3000 unless indicated otherwise.

Practice

- visually check service clearance across driveway and ground to determine whether there is satisfactory clearance (for insulated service:4.6 m over driveways, 3.0 m for areas not normally used by vehicles – as per Table 3.8)
- check that any poles or aerial lines are in good condition – Note: aerial cables must be insulated 2m from connection to building
- check the point of attachment to determine whether any exposed cables appear to have deteriorated from the effects of sunlight
- check the location and arrangement of all switchboards with respect to mechanical damage, hazardous and restricted locations, exposed cables, access to live cables without the use of a tool, etc
- ensure the MEN is intact and in good condition and that the connections are tight and that there is no soldered joints under screws
- inspect any earth electrode and the associated main earth; ensure there is a connection to the earth – if the earth is connected to an underground water pipe, recommended an earth stake be installed and inspect any visible circuit earths and joints
- check accessible areas of roof spaces (refer to P15 entering a ceiling space) and other areas for cables that may be subject to damage (clause3.9.3 and 3.9.4) – an RCD is suitable protection for cables
- assess cables for possible de-rating if they are partially or totally surrounded by thermal insulation or flammable material – (AS/NZS 3008 clause 3.4.3)

- check down lights to ensure there is adequate clearance from thermal insulation and building structural members – (refer Clause 4.5.2.3 and figure 4.7). Check that the required signage has been installed. (Refer figure 4.8)
- check fixing and support of equipment is adequate and that item is suitable for the location e.g. equipment exposed to weather must have a suitable IP rating (AS 1939)
- check every room, separate areas and outbuildings to ensure the following are or appear to be in good condition – some outlets maybe hidden, and every effort should be made to check all outlets. A torch may be necessary for:
    - switches
    - all outlets
    - luminaries
    - ceiling fans and controllers
    - permanently connected appliances and hot water units
    - external equipment subject to the weather has an appropriate IP rating
    - pool and outside equipment
- measure clearance distances from water containers in bathrooms and laundries
- ensure clearances from installed gas cylinders meet AS3000 Clause 4.18.2 fig. 4.10
- test that any upright stove is stable and cannot tilt – it may need anti tilt brackets
- check protection devices at the switchboard are sized to protect the cable and that fuses have the correct size element
- check as to whether RCDs are installed on light and power circuits – if not, recommend on the report that the installation would be safer if they were installed and ensure the trip button on RCDs works properly and within the correct time
- check switchboard markings are adequate
- ensure that a correct method of earthing and MEN is being used where sub-boards are at the installation
- include outbuildings are included in the examination – check that a correct method of earthing is being used when an outbuilding has a distribution board
- examine the suitability of pool equipment within the pool zone – if the supply to the equipment does not comply with clause 6.3 recommend that a safety switch be installed to supply pool equipment
- where solar PV systems are present ensure signage is fitted to main switchboard and any intermediate distribution boards notifying of isolation procedure including circuit breaker number & location of panels.

If it is not possible to obtain entry to room or area or outlets cannot be viewed because of furniture then the details should be recorded on the report form.