

NEW ZEALAND ELECTRICAL INSPECTORS ASSOCIATION.



Check sheet for consumer mains, main earth and MEN point, References are to AS/NZS3000



	Reference	Explanatory note
	General	
01	1.5.4.4 8.2.2 (a)(i)	Primary insulation shouldn't be accessible without the use of a tool. Basic protection, (protection against direct contact with live parts), e.g. insulation and enclosure.
02	1.7.1.(b), 8.2.2.(a)(iii)	Protection against hazardous parts, e.g. enclosure, guarding or screening of flammable materials, hot surfaces and parts that may cause injury.
03	1.5.12, 8.2.2.(a)(iv)	Protection against spread of fire, e.g. penetration of fire barriers.
	Mains Cable	
04	2.5.1.1, 8.2.2.(b)(i)	Current carrying capacity and supply fuse are correctly rated.
05	8.2.2.(b)(ii)	Voltage drop. The Electrician may be required to produce volt drop calculations for the mains cable. There may also be a request to conduct a resistance check to verify the loop impedance of the network distribution and mains circuit up to the main switch. The formula for volt drop is: $VD = mV \times A \times M/1000$. (The value of mV is obtained from AS/NZS 3008.1.2 Tables 40-51.)
06	3.11, 8.2.2.(b)(iii)	Enclosure, depth of burial, mechanical protection. Is the cable at minimum 500mm depth, embedded in friable soil or ducted. Is warning tape present?
07	3.12, 8.2.2.(b)(iv) ECP34	Type of conductor, conductor arrangements, clearances, supports, joints and connections. Is cable high enough, attachment strong enough, mains entry box?
08	3.7.1, 8.2.2.(b)(v)	Provide electrical continuity, an appropriate level of insulation and adequate mechanical strength, ensuring no less than that of the conductor. Are all connections tight. No undue pressure on cable after connections are made.
09	3.11.4.6.(b)(vi)	Protection against external influences. Is the cable suitably protected through penetrations, and is there an accessible record of the underground cable route?
10	3.11.4.6.(a)(b)	Permanent cable marker sign shall be provided to indicate where the cable enters or leaves a structure. The plan locating the consumer mains shall be kept at the main switchboard of the installation.
	Meter Board Switchboard	
11	5.3.5, 5.3.5.2, 8.2.2.(f)(i)	The MEN connection shall be a conductor complying with clause 5.3.5.2. Are the connections tight?
12		Type of meter neutral connection.
13	4.18.2, 4.18.3	Electrical equipment shall not be installed within the hazardous area as per figure 4.10 and 4.11
14	5.3.6.4	The location of the main earth shall be identified at the main switchboard
15	2.9.7, 8.2.2	Wiring associated with the switchboards shall be installed in such a manner that, in the event of a fire originating at the switchboard, the spread of fire will be kept to a minimum.
16	5.4.1.1, 8.2.2.(f)(iv)	The exposed conductive parts of electrical equipment shall be earthed.
	Main Earth System	
17	5.3.6.2, 5.3.6.4, 8.2.2.(f)(ii)	Earth electrodes shall be of a type and shall be installed in accordance with Table 5.2. The earth electrode shall be installed in a suitable location.
18	5.3.3.2, 8.2.2.(f)(iii)	Where the conductor connects to the earth electrode, the conductor size shall be determined from table 5.1.
19	5.5.1.2, 8.2.2.(f)(v)	The connection of the earthing conductor to the earth electrode shall be accessible for visual inspection and testing. It shall be connected by means of a suitable device in accordance with manufacturers specification and provide protection against mechanical damage likely to occur in the conductor or connection point. It shall be suitably protected against corrosion.
20	5.5.5.1, 8.2.2.(f)(vi)	Earthing conductors shall be installed in a manner that provides adequate protection against mechanical damage, inadvertent interference and chemical corrosion.
21	5.5.1.3	The main earthing conductor shall have a permanent label attached at the connection point to the earth electrode with a legible warning against disconnection.
	Test Results	
22	5.5.1.4, 8.3.5	The resistance of the main earth lead measured between the earth bar and the electrode shall not be more than 0.5 ohm
23	8.3.5	Protective earthing lead resistance shall be low enough to allow protective devices to operate.
24	8.3.6, 8.3.6.2	Insulation resistance between conductors of consumer mains and between mains and earthed parts of an installation shall not be less than $1M\Omega$.
25	8.3.3, 8.3.7	Polarity testing shall be carried out to ensure that no shock hazard exists from the incorrect connection of active, neutral and earthing conductors.