**Network Supply Condition:**  On / Available Not yet Genset Installed

**House Address**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Customer Details**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Contact: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Premises: Owner Occupied Tenanted/Leased Vacant/Unknown

**Electrical Inspection Details**

Electrical Contractor \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Cont Lic \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Electrical Workers performing test

Completion Date: \_ \_ / \_ \_ / \_ \_ \_ Start\_\_\_\_\_\_\_\_ End\_\_\_\_\_\_\_\_ Duration ( Hrs ) \_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **STEP 1: Preparation/Assessment.**  **Preferably before site visit if possible** | To alert of any electrical problems that may have arisen following the fire damage | |
| **Consult the person in charge:**   * **Inform the owner to report any fallen ‘power lines’ on the property immediately to the supply authority.** * **Inform the owner not to perform any actions on electrical wiring or enter the switchboard.** * Discuss if the customer has insurance to cover an electrical inspection and possible rectification costs. * Discuss payment options before commencing work and to provide payment upon completion or other arrangements. | Comments/Concerns:  *In some cases, the grid supply will have been disconnected, but this cannot be assumed.* | Check when complete |
| *Customers may have the perception that this work is free of charge, or paid for by the Government* |  |
| **STEP 2: Risk Management** | To ensure that hazards specific to the installation are controlled | |
| **Risk Assessment Factors:**   * Create a site specific risk assessment (if possible with consultation from the owner) * Electric shock hazard from alternative sources.(solar) * Hot surfaces in and around testing areas. * Non electrical persons/pets occupying the installation/displace or injured wildlife   Warning: Due to the continuing dangerous conditions, it is imperative that all persons be aware of changing weather conditions and that fire may return. Wind/movement creates dust conditions that are a health risk | Comments/Concerns | Check when complete |
| *Be aware of the danger of alternative voltages being present. Although a solar system may be disconnected from the mains, there may be the possibility of L.V. D.C. present in the roof space and at inverter electronics. Depending on the installation, it may be prudent to lock out the D.C isolator at the panels or inverter.*  ***Older buildings could contain asbestos dust***  *Structures and trees may be unstable due to fire damage* |  |
| **STEP 2: Risk Management** *(cont)* | To ensure that hazards specific to the installation are controlled | |
| Prepare and use Personal Protective Equipment (PPE) that would assist in avoiding slips and falls and dust inhalation:   * Waterproof / water resistant insulated footwear. * Stable ground around the work area. * Eye protection * Dust masks * Gloves | *Be aware of the possibility of hot embers on the ground. Broken building materials could release asbestos into the ground or air. Cleaning of footwear and clothing should be done with care before leaving site.* |  |

**NOTE: Please be aware during the testing of bushfire affected installations, although there may be a sense of urgency, a correct and timely test will ensure the safety of yourself and others. DO NOT TAKE ANY SHORT CUTS.**

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| **STEP 3: Site Entry - Visual** |  | |
| **Prior to Entry on Site**  Perform Look up / Look Down / Look around procedure to ensure no Supply Authority Supply cables or consumers mains are detached and in a position of danger.  Before entering the property check the installation for residents and pets/livestock | *Extreme care should be taken when driving to site, taking account of the general area supply reticulation.*  *This will assist to identify supply issues and allow a better estimate on when electricity supply will be available to the consumer.*  ***Identify a safe location for your vehicle*** | |
| ***Follow risk assessment and adhere to all control measures before testing*** | | |
| **STEP 4: Test Procedure** |  | |
| **Before any visual or electrical work is performed**  **Ensure no earthed metal of the installation is energised**  Test switchboard surrounds and any metallic water pipes (if available). If there is a voltage present keep all persons clear and conduct further confirmation tests.  Preferred test method using an in-test voltmeter and independent earth. Contact supply authority if required. | Comments/Concerns  Never assume de-energisation until testing for dead is completed.  **TEST BEFORE YOU TOUCH**  **Use appropriate isolation procedure**  (use a lock out/tag out procedure) | Check when complete |
| **Reference to AS/NZS 3017 should be used when testing the installation.**  **REFER to AS/NZS 3000:2018 clause 8.3.6.3. Notes 1-4**  **Expect greater than 1 meg ohm insulation test results**  **Further visual investigation of cable condition and installation methods may need to be done before energisation.** | | |
| **Conduct Visual Inspection in accordance with section 8.2:**   * Be on the lookout for any fire damaged cables * External walls of buildings that received heat from fires with cabling below the surface * Exteriors of properties will have received the most damage | *Look for imperfections on cable sheaths, anything that appears melted, discoloured or charred*  *Heat may have transferred and damaged insulation, note these for further investigation*  *Inspect closely items like Mains connection boxes, OH lines, and exterior electrical equipment* |  |
| **Be aware that each installation will need to be assessed on its own merits. You will need to critically analyse the situation and available information, to determine if electrical components can be salvaged, reused or repaired. If in doubt, replace the equipment or place out of service tags until further testing can be completed.** | | |
| **Conduct Insulation Resistance Tests**   * All sub circuits and consumer mains if possible * Ensure all appliances or permanently connect loads are disconnected. Ensure all lamps are removed from light fittings & light switches are on. Light Dimmers may prove problematic. LED non replaceable lamps may require disconnection. * Isolate non-essential electrical equipment e.g. solar system | *All < 1.0 M ohm circuits should be disconnected and safely terminated.*  *Be aware that outdoor lights, S.S.O.& hard-wired equipment may have heat damage.*  *Disconnection of non-essential equipment may be the best outcome to provide a cost-effective safe installation.*  *NOTE: Specific state legislation may require higher insulation resistance values.* |  |
| **Main Earth Continuity and Resistance**   * Disconnect the main earth conductor from the MEN point or Earth bar, using a calibrated meter and trailing lead, ensure the resistance is less than 0.5 ohm. | *To ensure the main earthing circuit is intact and functioning.*  *As earth electrodes are located outside, specially focus on any heat damage* |  |
| **RE-INSTALL MEN LINK / Reconnect Main Earth** | |  |
| **Completion of Test**   * All non-compliant circuits should be terminated, labelled and enclosed in insulation (AS/NZS 3000:2018 Clause 1.5.11.4) * **Test MEN link** | ***IMPORTANT*** *Document any circuit disconnection on the test sheet* |  |

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| **STEP 5: Repairs** |  | |
| **No Such Thing As Temporary Work** | | |
| **All work including repairs that are of a short-term nature must be completed to all requirements of AS/NZS 3000 and state legislation.** | Comments/Concerns | Check when complete |
| * Perform any relevant repairs the customer authorises, to ensure the property is ready for re-energisation * Disconnect any circuit that are not yet ready for re-energisation * At the completion of repair work, test work in accordance with Section 8 and note results on the Electrical Test Record | ***IMPORTANT*** *There is no such thing as dispensation on temporary work due to a civil emergency.*  *All electrical work is not allowed to be completed at a lower standard, even if it is only for a short time.* |  |
| **STEP 6: Completion of Documentation** | Record results of inspection/test and observations | |
| **Document all tests**: | Comments/Concerns | Check when complete |
| * Document all circuit readings on the Electrical Test Record * Ensure all non-compliant sub-circuits are documented * Complete the relevant test certificate and give to the customer and state regulator as legislated   *e.g. CCEW COES COC* | *This information is critical to monitor the condition of non-compliant circuits*  ***IMPORTANT*** *Crucial wording on the Safety Certificate to clearly identify that you are performing safety testing only for reconnection after fire affected property* |  |
| **Observations on electrical installation**   * General condition. * Any immediately dangerous aspects encountered that should require the installation to be disconnected/rectified. * Depending on the conditions of the network supply, when completed, return the main switch to the ‘OFF’ position and confirm earthed meter enclosure/earthed metal work is free of voltage and all electrical equipment is turned off or unplugged. * If the installation is powered by a generator or solar battery system / UPS, re-energise and complete the appropriate AS/NZS section 8 mandatory tests. | *If installation appears dangerous to use rectify, disconnect or otherwise make safe.*  ***This must be done with the owner’s express permission***  *Refer to the requirement to report unsafe electrical hazards to the regulator if you are unable to make an installation comply due to restrictions placed on you by the owner.* |  |

Site Specific Risk Assessment

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| --- | --- | --- | --- | --- | --- |
| **Task –** Accessing site by vehicle | 🞏 | **Hazard –** Surface conditions visually uncertain | 🞏 | **Procedure –** Consult with occupier / Foot traffic site to determine safe route before vehicle entry | 🞏 |
| **Task –** Establish work site | 🞏 | **Hazard –** U.V./Ash/wind, hot embers, debris, falling trees, unstable buildings, displaced wildlife | 🞏 | **Procedure –** Select least affected area, establish safe exit paths, consult with occupier | 🞏 |
| **Task –** Visually inspect electricity supply & installation mains and sub mains | 🞏 | Asbestos waste / dust  Recovery-demolition works in progress | 🞏 | **Procedure –** Foot traffic area, wear P.P.E. **SWMS** Asbestos | 🞏 |
| **Task –** Verify electricity supply conditions | 🞏 | **Hazard –** Working on or near Exposed Energized Electrical Equipment | 🞏 | **Procedure ­– Testing for supply Use SWMS** Working on or near Exposed Energized Electrical Equipment | 🞏 |
| **Task –** Identify electrical works | 🞏 | **Hazard –** Ladder access, ceiling access, roof top access, proximately to fire damaged buildings and vegetation | 🞏 | **Procedure –** CCICR (Ceiling, Crawling & Conductive Roofs), **SWMS** Working at Heights | 🞏 |
| **Task –** Perform electrical works | 🞏 | **Hazard –** Use safe systems of work | 🞏 | **Procedure –** Follow risk assessed work practices, inform occupier | 🞏 |
| **Task –** Works completed, electrical testing | 🞏 | **Hazard –** Live testing | 🞏 | **Procedure – SWMS** Working on or near Exposed Energized Electrical Equipment | 🞏 |

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| **Task** | **Hazards & Risk** | **Initial Risk** | **Controls** | **Residual**  **Risk** |
|  |  | |  |  |  | | --- | --- | --- | | L | C | R | |  |  |  | |  | |  |  |  | | --- | --- | --- | | L | C | R | |  |  |  | |
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| **Employee Name** | **Signature** |
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Worker in Charge: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

All persons in the work party must participate in the risk assessment and sign this form.

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|  | | **CONSEQUENCE** | | | | |
|  | | **Insignificant [1]** | **Minor [2]** | **Moderate [3]** | **Major [4]** | **Catastrophic [5]** |
| **LIKELIHOOD** | **Almost Certain [5]** | Moderate (5) | High (10) | High (15) | Catastrophic (20) | Catastrophic (25) |
| **Likely [4]** | Moderate (4) | Moderate (8) | High (12) | Catastrophic (16) | Catastrophic (20) |
| **Possible [3]** | Low (3) | Moderate (6) | Moderate (9) | High (12) | High (15) |
| **Unlikely [2]** | Low (2) | Moderate (4) | Moderate (6) | Moderate (8) | High (10) |
| **Rare [1]** | Low (1) | Low (2) | Low (3) | Moderate (4) | Moderate (5) |

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| If the residual risk | = | Catastrophic (16+) | then | Work unable to proceed seek other methods **(Significant)** |
| = | High (10 – 15) | then | Permission from **high level management** for work to proceed **(Significant)** |
| = | Moderate (4 – 9) | then | Permission from **worker in charge** for work to proceed **(Insignificant)** |
| = | Low (1 – 3) | then | Work able to proceed **(Insignificant)** |

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| **1. Eliminate** | **2. Substitute** | **3. *Isolate*** | **4. Redesign** | **5. Administrative** | **6. PPE Last Resort** |
| *Eliminate the hazard* | *Substitute with a less hazardous material, process or equipment* | *Isolate the hazard* | *Redesign equipment or work process* | *Introduce administrative controls* | *Use appropriate Personal Protective Equipment* |

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| **C = Consequence** | **L = Likelihood** |
| **5 = Catastrophic =** Fatality, permanent disability, long term widespread impacts, huge financial loss. | **5 = Almost Certain =** It is almost certain that the risk will occur in most circumstances. |
| **4 = Major =** Permanent disability or extensive injuries, medium to long term widespread impact, major financial loss. | **4 = Likely =** The risk is likely to occur in most circumstances. |
| **3 = Moderate =** Lost time injury, reversible medium term local impact, high financial loss. | **3 = Possible =** There is uncertainty that the risk could occur. |
| **2 = Minor =** Medical treatment, reversible short – medium term impact to local area, medium financial loss. | **2 = Unlikely =** The risk could occur at some time but there is confidence that it will not. |
| **1 = Insignificant =** First aid, limited impact to minimal area, low financial loss. | **1 = Rare =** The impact/risk may occur only in exceptional circumstances. |

Risk Matrix

Test Results

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Circuit or Equipment Description  Switchboard legend I.D. | **Circuit**  **No.** | **Protection size and type**  Example C20 | **Cable Size**  mm2 | **Earth Continuity Test**  1 Ω | **Insulation Resistance**  2 MΩ | **Polarity Test**  3 Actives Neutral Earth | **Correct Circuit Connections**  4 | **Fault Loop Impedance** (If Required)  5 | **Operational Test of RCD**  6 Test button Timed test mSec | **Isolation Test of RCD**  6 |
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**Notes:**

**1. Earth Continuity: Clause 8.3.5**

Under the subsequent tests for earth fault-loop impedance, the maximum allowable resistance of the protective earthing conductor associated with any circuit depends on the type and rating of the protective device and the impedance of the live conductors that comprise the circuit.

Resistance values (*R*e) for earthing conductors are given in Table 8.2 as a function of the rating of the associated overcurrent protective device. These values may be used when testing for earth continuity.

**2. Insulation Resistance: Clause 8.3.6**

For shorter cable runs, the insulation resistance should be significantly greater than 1 MΩ. PVC insulated cables with a route length of 50 m can be expected to have insulation resistances of at least 20 MΩ at a temperature not exceeding 20°C but only 6 MΩ at a temperature of 30°C. If low resistance measurements are of 1-2MΩ, a visual inspection would be required. Damage or subsequent cable failure after installation is highly likely.

NOTE: Victorian State legislation requires higher values of insulation resistance for consumer mains (50meg ohms). Refer Victorian SIR.

**3. Polarity: Clause 8.3.7**

The polarity testing shall show that all active, neutral and protective earthing conductors in the electrical installation are identified as connected to supply voltage and correct phase, the PEN supply and the earthing system respectively.

**4. Correct Circuit Connections: Clause 8.3.8**

The correct circuit connections testing shall show that the active, neutral and protective earthing conductors of each circuit are correctly connected to electrical equipment so that none of the following conditions exists

* Short-circuit between the conductors.
* Transposition of conductors that could result in the earthing system and any exposed conductive parts of the electrical installation becoming energized.
* Interconnection of conductors between different circuits.

**5. Earth Fault Loop Impedance: Clause 8.3.9**

EFLI testing is not specifically required for all supply or final sub circuits. The low resistance fault path will be designed to meet this requirement by cable selection, protective device type and compliance to volts drop requirements.

EFLI testing is not required for RCD-protected socket-outlets, as the maximum operating time of RCDs providing additional protection is less than the 0.4s specified for automatic disconnection of supply.

**6. RCD: Clause 8.3.10**

The function of the RCD shall be verified either by the operation of the integral test device, or by the use of special test equipment. A timed result can be used to confirm operation.

Additionally, isolation of all switched poles shall be verified after the RCD has operated to disconnect the designated circuit.

Isolation of all poles shall be verified by voltage tests or, after removing supply, by continuity checks through each pole.

It is industry best practice to repeat the push button test (x2) to confirm internal circuitry has not been damaged by incorrect polarity energisation.

State & Territory legislation may also have additional requirements to the test procedures.