

Topic Skills Practice Cover Sheet

Unit Name:	NAT10809006 Verify compliance, functionality and aspects critical to the safety of electrical installations.
Topic Title:	Verification of electrical installations

Skill Practice Number:	10.1
Skill Practice Name:	Visually Inspect an Electrical Installation

Student Name:	
Student ID:	
College/Campus:	
Group:	

Results	
Planning:	
Carryout:	
Completion:	
Overall Results:	
Comments:	

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NAT10809006 Verify compliance, functionality and aspects critical to the safety of electrical installations.

KE-10809006 Verification of Australian electrical installations principles

Topic 10. Verification of electrical installations

Skills Practice 10.1: Visually Inspect an Electrical Installation

Task:

To carry out a visual inspection of an electrical installation in accordance with AS/NZS 3000:2018 and document points of compliance and non-compliance.

Objectives:

At the completion of this skills practice, you should be able to:

- Visually inspect electrical installation wiring and equipment.
- Identify points of compliance and non-compliance.
- Document points of compliance and non-compliance.

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2. Carrying Out the Skills Practice

2.1 Visually Inspect Electrical Wiring and Equipment

2.1.1 Use the following checklist to carry out a visual inspection of the electrical installation wiring and equipment.

Electrical Installation Details			
Inspector:		Date:	
Location:			
Type of Installation:			
Types and number of Switchboards		Types and number of Circuits	
<input type="checkbox"/> Main Switchboard	No: _____	<input type="checkbox"/> Socket-Outlets	No: _____
<input type="checkbox"/> Distribution Board	No: _____	<input type="checkbox"/> Lighting	No: _____
<input type="checkbox"/> Control Panel	No: _____	<input type="checkbox"/> HVAC	No: _____
<input type="checkbox"/> Metering Panel	No: _____	<input type="checkbox"/> Motors	No: _____
		<input type="checkbox"/> Auxiliary services	No: _____
		<input type="checkbox"/> Safety services	No: _____
Consumer Mains			
Item	Compliance		Comments/Clauses
1. Consumer's mains have sufficient current carrying capacity and meet voltage drop requirements	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
2. Consumer's mains are adequately supported	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
3. Consumer's mains are provided with adequate mechanical protection and external influences	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
4. Aerial/underground installation complies with the relevant sections of AS/NZS 3000	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
5. Terminations are tight with all strands are retained in contact with the terminal	Yes <input type="checkbox"/>	No <input type="checkbox"/>	

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Switchboards			
Item	Compliance		Comments/Clauses
6. All switchboards are adequately protected against external influences	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
7. All switchboards are located in accordance with AS/NZS 3000 having sufficient: <input type="checkbox"/> Ventilation <input type="checkbox"/> Space and clearances	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
8. Protection against internal arcing is provided where required	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
9. Protection devices are correctly selected to provide protection against overload	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
10. Protection devices are correctly selected to provide protection against short-circuit	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
11. Protection devices provide suitable discrimination and coordination	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
12. Circuit breakers are oriented in accordance with AS/NZS 3000 requirements	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
13. Isolation devices are suitable for their intended use	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
14. Bars and links have adequate current carrying capacity	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
15. Terminations are tight with all strands are retained in contact with the terminal	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
16. Each of the following items is clearly identified in accordance with the relevant sections of AS/NZS 3000: <input type="checkbox"/> Switchboards <input type="checkbox"/> Bars and links <input type="checkbox"/> Main switches <input type="checkbox"/> Terminals <input type="checkbox"/> Protection devices <input type="checkbox"/> Common neutrals	Yes <input type="checkbox"/>	No <input type="checkbox"/>	

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Earthing System			
Item	Compliance		Comments/Clauses
17. The MEN connection is of a suitable colour and cross-sectional area	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
18. MEN terminations are tight with all strands retained in contact with the terminals	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
19. The main earthing conductor is of a suitable colour and cross-sectional area	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
20. Main earthing conductor terminations are tight with all strands retained in contact with the terminals	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
21. The connection between the main earthing conductor and the earth electrode is correctly labelled	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
22. The earth electrode is of an acceptable type as specified in AS/NZS 3000	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
23. The earth electrode is suitably located and installed	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
24. The connection to the earth electrode is adequately protected against: <input type="checkbox"/> Corrosion <input type="checkbox"/> Mechanical damage	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
25. All accessible conductive piping in contact with the general mass of earth is bonded to the earthing system	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
26. All conductive sheaths, armouring and enclosures are bonded to the earthing system	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
27. Equipotential bonding conductors are of a suitable colour and cross-sectional area	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
28. Bonding terminations are tight with all strands retained in contact with the terminals	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
29. All parts of the earthing system are adequately protected against external influences	Yes <input type="checkbox"/>	No <input type="checkbox"/>	

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Submains and Final Subcircuits			
Item	Compliance		Comments/Clauses
30. All cables have sufficient current carrying capacity and meet voltage drop requirements	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
31. Cable cores are identified in accordance with AS/NZS 3000 requirements	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
32. All wiring systems are adequately protected against mechanical damage and external influences	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
33. All wiring systems are suitably segregated from other services	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
34. Terminations are tight with all strands are retained in contact with the terminal	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
35. Protective earthing conductors are of a suitable colour and cross-sectional area	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
36. Protective earthing terminations are tight with all strands retained in contact with the terminals	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
37. Equipment is earthed where required due to the creation of an earthed situation	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
38. Adequate control of electrical appliances and equipment is provided including: <input type="checkbox"/> Isolation <input type="checkbox"/> Emergency switching <input type="checkbox"/> Functional <input type="checkbox"/> Shut-down devices	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
39. Appliances and accessories are adequately fixed/secured in position	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
40. Appliances and accessories are suitably protected against mechanical damage and external influences	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
41. Appliances and accessories are installed in accordance with manufacturer's instructions	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
42. Appliances and accessories are suitably selected and installed in the classified Zones of all damp situations	Yes <input type="checkbox"/>	No <input type="checkbox"/>	

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3. Completing the Skills Practice

3.1 Skills Practice Review Questions

3.1.1 Clean your work area and return all equipment to the correct storage areas as directed by your teacher/trainer.

3.1.2 Ensure that your inspection documentation is completed, and then complete the following review questions.

1. Explain the purpose of visually inspecting electrical installations.

2. List six defects that could **only** be identified by visual inspection.

3. List the main areas within an electrical installation that are required to be visually inspected.

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4. List four external influences against which electrical installation equipment must be protected. Provide applicable AS/NZS 3000:2018 Clauses to support your answers.

5. What is the minimum size for a bonding conductor used to connect the conductive reinforcements forming part of a shower or bathroom to the earthing system? Provide the applicable AS/NZS 3000:2018 Clause to support your answer.

6. Explain the requirements for labelling the point of connection between the main earthing conductor and the earth electrode. Provide the applicable AS/NZS 3000:2018 Clause to support your answer.

7. Describe four factors that should be considered when inspecting the methods used to install electrical appliances and accessories?
