

Topic Skills Practice Cover Sheet

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

Skill Practice Number:	9.2.2
Skill Practice Name:	Install and Terminate Cables and Conductors

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 9. Cable Installations

Skills Practice 9.2.2: Install and Terminate Cables and Conductors

Task:

To lay and secure cables using various supports, draw cables into enclosures, and to terminate wiring systems and conductors in accordance with AS/NZS 3000:2018 requirements.

Objectives:

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

- Install and terminate insulated unsheathed cables.
- Install and terminate insulated and sheathed cables.
- Install and terminate armoured cables.
- Secure unenclosed cables to cable trays.
- Secure unenclosed cables directly to building surfaces.
- Draw cables into conduits.
- Terminate circular TPS cables using nylon cable glands.
- Terminate circular armoured cables using steel armour cable glands.
- Terminate conductors into various types of terminals.
- Test installed cables to verify compliance with AS/NZS 3000:2018.

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1. Planning the Skills Practice

1.1 Equipment

- Metallic switchboard enclosures
- PVC conduit
- Cable tray
- TPI cable
- Circular TPS cable
- SWA cable
- 3 x electrical appliances
- Appliance controls

1.2 Suggested Materials

- Cable ties
- Cable saddles
- Conduit saddles
- Functional control switches
- Isolation Device
- Multimeter
- Insulation Resistance (IR) tester

1.3 Miscellaneous Items


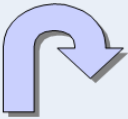

- PPE
- Hand tools
- Pens/pencils
- AS/NZS 3000:2018
- AS/NZS 3017:2007

1.4 Risk Assessment

Risk assessment procedure:

- Identify any hazards that may exist with this skills practice below
- List the supervision level you will be working under - Direct (D), General (G) or Broad (B)
- List the risk classification – High Risk (H), Medium Risk (M) or Low Risk (L)
- List the control measures required for each identified hazard that you need to implement.

Hazard/s Identified	Supervision Level (D, G or B)	Risk Classification (H, M or L)	Control Measure/s

	 Feedback	Have your teacher/trainer check your risk assessment	Teacher/Trainer Initials and Date <div style="border: 1px solid black; height: 20px; width: 100%;"></div>	
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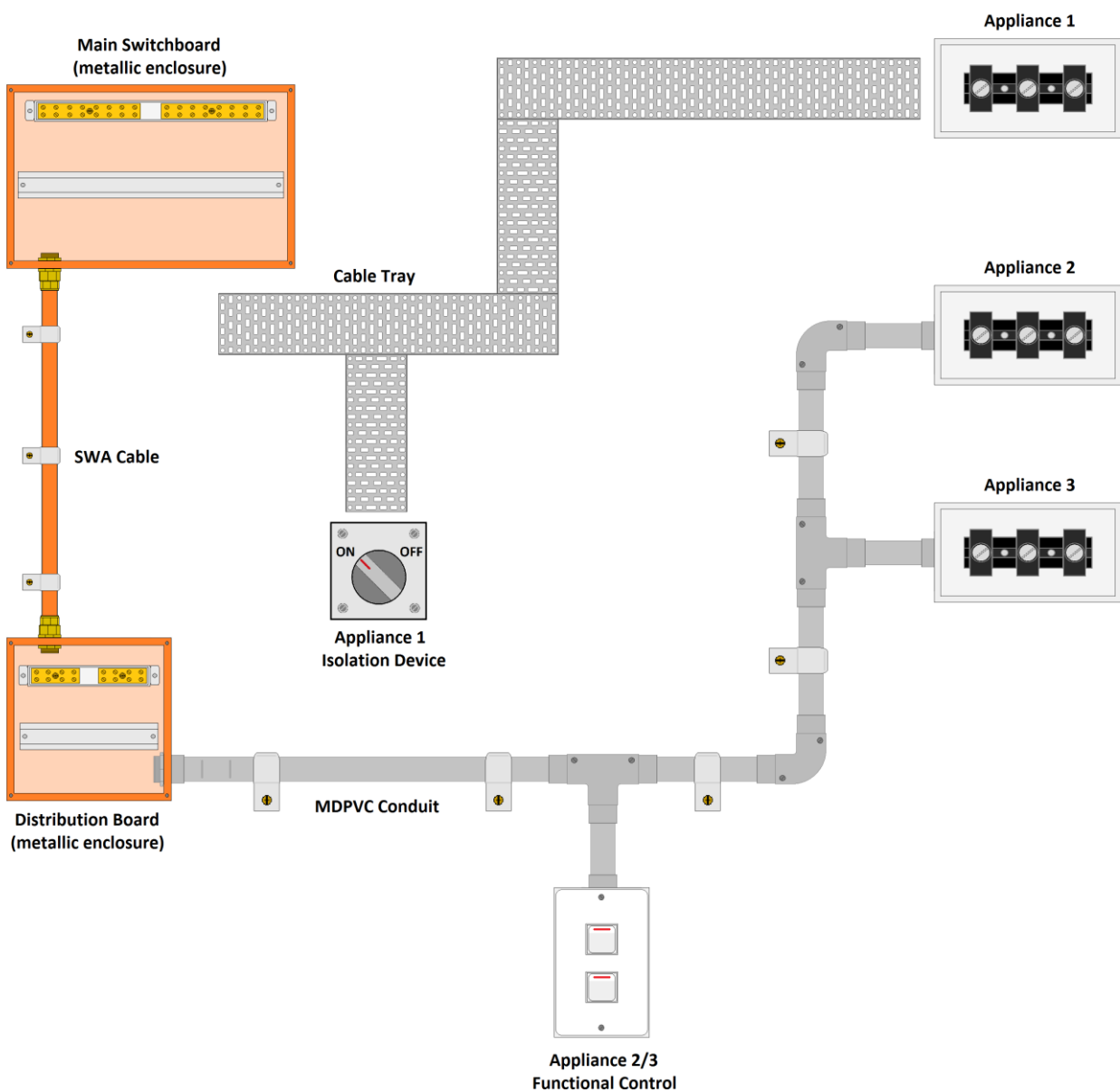
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2. Carrying Out the Skills Practice

2.1 Installation Layout

2.1.1 Your task will be to neatly install sheathed, unsheathed and armoured cables to supply various loads, in accordance with the requirements of AS/NZS 3000:2018 as indicated in the suggested layout below.

Suggested Installation Layout



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2.2 Equipment Details

2.2.1 In the spaces provided below, record details of the appliances, cables, and protection selected for the installation.




Equipment Selection						
Equipment	Circuit No.	Voltage Rating	Current Rating	Protection Device	Circuit Wiring	
					Size	Cable Type
Submains						
Appliance 1						
Appliance 2						
Appliance 3						

2.3 Install and Terminate Cables and Conductors

2.3.1 Draw in and secure the circuit wiring for each circuit, in accordance with AS/NZS 3000:2018 using suitable methods to terminate cables into enclosures.

2.3.2 Terminate conductors at the terminals of each appliance and appliance controls in accordance with AS/NZS 3000:2018.

2.3.3 Terminate installation conductors into the main switchboard and distribution board in accordance with AS/NZS 3000:2018.




	 <p>Feedback</p>	<p>Have your teacher/trainer check your work</p>	<p>Teacher/Trainer Initials and Date</p>	

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2.4 Installation Testing

2.4.1 Test all installed wiring to verify continuity of the earthing system, insulation resistance, and correct polarity. Record your test results in the schedule below.

Installation Test Results						
Circuit	Earth Resistance	Insulation Resistance		Correct Polarity		Details of Circuit Defects (if applicable)
		A-E	N-E	Yes	No	
Submains				<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Appliance 1				<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Appliance 2				<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Appliance 3				<input type="checkbox"/> Yes	<input type="checkbox"/> No	

	 <i>Feedback</i>	Have your teacher/trainer check your electrical measurements	Teacher/Trainer Initials and Date	

3. Completing the Skills Practice

3.1 Skills Practice Review Questions

3.1.1 Clean your work area, return all equipment to the correct storage areas as directed by your teacher/trainer, and then complete the following review questions. For each question, provide one or more AS/NZS 3000:2018 clauses to support your answer.

- List four types of wiring systems specified in the Wiring Rules.

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2. Explain the limitations on the installation of insulated unsheathed cables.

3. List four types of cables that are suitable for installation as aerial conductors.

4. Which types of cables are permitted to be installed buried direct in the ground with no further mechanical protection?

5. What are the requirements for cables installed outside on a catenary?

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6. What is the minimum separation required between an underground wiring system and an underground gas service?

7. What is the category of an underground wiring system consisting of a multi-core TPS cable installed in a HDPVC conduit?

8. What is the minimum depth for a Category A underground wiring system installed external to a building with no surface covering?

	 Feedback	Have your teacher/trainer check your answers	Teacher/Trainer Initials and Date	