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| Title | **Test heating, ventilation and air conditioning (HVAC) unit performance** |
| Level | **2** | **Credits** | **10** |

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| Purpose | This Competency Standard focuses on the skills required to check HVAC electrical characteristics, verify gas pressure, water pressure, design CFM, measure temperature, identify condition of combustion chamber, measure relative humidity, check modes of operations, perform motor test, and compressor efficiency test in tests of HVAC units. Your knowledge regarding testing of HVAC units’ performance procedures, criteria, standards, parameters, codes, will be sufficient to provide you the basis for testing HVAC units’ performance work. |

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| Classification ISCED | 0714 Electronics and automation |

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| Available grade | Competent / Not yet competent |

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| Modification history | N/A |

| **Competency Unit** | **Performance Criteria** | **Knowledge and Understanding** |
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| **D-1 Check HVAC equipment electrical characteristics** | ***Trainee must be able to***1. Test earth leakage breaker
2. Test short circuit breaker
3. Check voltage at equipment accordingly
4. Check HVAC equipment current accordingly
 | ***You need to know and understand***1. Understand basic electrical characteristics
2. Understand performance parameters

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| **D-2 Verify gas pressure at equipment**  | ***Trainee must be able to***1. Install pressure gauges accordingly
2. Check performance parameters
 | ***You need to know and understand***1. Understand pressure measurement system
2. Understand working of pressure gauges
3. Understand pressure rating of HVAC equipment
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| **D-3 Verify water supply to equipment** | ***Trainee must be able to***1. Check the water flow switch
2. Install pressure gauges accordingly
3. Check performance parameters
 | ***You need to know and understand***1. Understand pressure measurement system
2. Understand working of pressure gauges
3. Understand pressure rating of hydronic system
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| **D-4 Verify design CFM**  | ***Trainee must be able to***1. Check the CFM at fan outlet
2. Check the CFM at room outlet
3. Compare with rating CFM accordingly
 | ***You need to know and understand***1. Understand use of velocity meter
2. Understand calculation of CFM
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| **D-5 Measure****Temperature**  | ***Trainee must be able to***1. Check water temperature accordingly
2. Check Air temperature
3. Check refrigerant temperature

  | ***You need to know and understand***1. Understand temperature unit system
2. Understand comfort levels
3. Understand rating temperature of HVAC equipment
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| **D-6 Identify condition of combustion chamber**  | ***Trainee must be able to***1. Check the fuel supply
2. Check flame
3. Check temperature of combustion chamber
4. Check condition of flue gases
 | ***You need to know and understand***1. Understand constituent of Air
2. Understand different type of flame
3. Understand calorific values of fuels
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| **D-7 Measure relative humidity**  | ***Trainee must be able to***1. Check humidity with humidistat
 | ***You need to know and understand***1. Understand psychometric properties of Air
2. Understand relative humidity
3. Understand use of humidistat

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| **D-8 Check modes of operation** | ***Trainee must be able to***1. Check heating mode
2. Check cooling mode
3. Check dry mode
 | ***You need to know and understand***1. Understand refrigeration cycle
2. Understand HVAC symbols
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| **D-9 Perform motor** **Test(s)**  | ***Trainee must be able to***1. Check alignment
2. Check noise level with dB meter
3. Check Vibration
 | ***You need to know and understand***1. Understand alignment methods
2. Understand use of dB meter
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| **D-10 Perform Compressor****Efficiency Test**  | ***Trainee must be able to***1. Check suction pressure
2. Check discharge pressure
3. Check noise level by dB meter
4. Check current
 | ***You need to know and understand***1. Understand compressor operation
2. Understand compressor suction and discharge pressure
3. Understand current parameters
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