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| Understanding the Heating and Cooling Upgrades Program audit checklist |
|  Auditors for the HHCU Program use this checklist when they conduct audit inspections of reverse-cycle air conditioner installations and applicable supplementary services.  |

Note:

* This checklist is specific to the installation of reverse-cycle air conditioners under the HHCU Program.
* This checklist comprises the questions for the audit of rebated HHCU installations and as applicable supplementary services nominally performed within up to six months of installation date – focusing on safety and standards.
* The checklist is NOT a checklist for installing a reverse-cycle air conditioner.

## What do auditors look at when they conduct inspections?

Auditors will assess the following components of an installed system and as applicable supplementary services:

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## What do these ratings mean?

Auditors will apply one of these ratings to each question in the checklist:

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| **Unsafe** | This means there is a safety hazard which poses an imminent risk of damage to property or persons and that the system will be shut down. |
| **Needs Rectification** | This means the system does not meet key safety and quality clauses in the standards/guidelines for installation. The installation does not pose an imminent safety risk but may be at risk of becoming unsafe in the future. |
| **Improvements Identified (For Information)** | This means the system does not pose a safety risk but was found to not comply with all standards and guidelines. Improvements identified are provided as information and guidance for retailers and installers. |
| **Adequate** | This means no evidence of material non-compliance with standards or guidance was found and that the system was installed satisfactorily.  |

They will also document other details for information purposes only. No rating is applied to these items. The **bolded** **items** indicate new questions, and the **shaded items** indicate where wording, reference or rating has been updated.

# General

| **Checklist item** | **Question** | **Relevant standards /reference** | **Applicable response**  |
| --- | --- | --- | --- |
| GEN-1 | Were installation photographs and certificates provided? |  | Yes / No |
| GEN-2 | Was a Tier 1 Audit Checklist Completed?  |  |  |

# Reverse-cycle air conditioners: Product and Location

| **Checklist item** | **Question** | **Relevant standards /reference** | **Applicable rating** |
| --- | --- | --- | --- |
| EQUP-1 | Are the installation points free of hazards? Example – trees, services, at height, child safety, and flammable substances/assets |  | Improvements Identified |
| EQUP-2 | If the installation points are not free of hazards, does the installation pose a of risk of becoming unsafe in the future? |  | Needs Rectification |
| EQUP-3 | Are the installation points easily accessible? Example - need to lift unit at height to avoid gates, trees etc. that will pose significant OHS risk for installer.  |  | Improvements Identified |
| EQUP-4 | Has indoor unit been securely attached and installed level? |  | Needs Rectification |
| EQUP-5 | Has external unit been securely attached and installed level? |  | Needs Rectification |
| EQUP-6 | If external unit is installed on a balcony – have appropriate measures been taken to meet the climbing requirements NCC Volume One Performance Requirement - DP3 | AS/NZS 5141:2018, AS 4994  | Unsafe  |
| EQUP-7 | Have appropriate clearances been met for the indoor unit and outdoor unit as per manufacturer’s specification? |  | Needs Rectification |
| EQUP-8 | If the outdoor unit has been installed on the roof, have appropriate bearers and waffle pads been used to support the unit, and has the unit been appropriately braced with brackets and / or stays? |  | Needs Rectification |
| EQUIP-9 | Is the refrigerant used within the installed unit/s, reflective of rebate quote/submission? | AS/NZS ISO 817 & AS/NZS 5149 | Needs Rectification |

# Reverse-cycle air conditioners: Electrical

| **Checklist item** | **Question** | **Relevant standards/reference** | **Applicable rating** |
| --- | --- | --- | --- |
| ELEC - 1 | Has the SSAC electrical components been installed to manufacturer’s instructions?  | AS/NZS 3000: 2018 Wiring Rules Clause 4.1.2(e) and Clause 3.1.2(g) | Needs Rectification |
| ELEC - 2 | Is the SSAC final sub-circuit adequately mechanically protected and supported if it is likely to be disturbed? | AS/NZS 3000:2018 Wiring Rules Clause 3.9.3.3.2 | Needs Rectification |
| ELEC - 3 | Has an over current protection device been installed at the origin of SSAC final sub-circuit to protect it from over current? | AS/NZS 3000:2018 Wiring Rules Clause 2.5.1.3. | Needs Rectification |
| ELEC - 4 | Is the SSAC final sub-circuit protected by a residual current device rated at no more than 30mA? | AS/NZS 3000: 2018 Wiring Rules Clause 2.6.3.2.2 | Needs Rectification |
| ELEC – 5  | Do all switched poles of the RCD protecting the SSAC final sub-circuit operate to disconnect the final sub-circuit? | AS/NZS 3000:2018 Wiring Rules Clause 8.3.10 | Needs Rectification |
| ELEC - 6  | Are all circuits correctly connected to the corresponding terminals of the electrical equipment? | AS/NZS 3000:2018 Wiring Rules Clause 8.3.7.2 Defect code 212938 | Unsafe |
| ELEC - 7 | Has the SSAC final sub-circuit neutral conductor been marked or arranged to identify its corresponding active conductor? | AS/NZS 3000:2018 Wiring Rules Clause 2.10.5.4 | Needs Rectification |
| ELEC - 8 | Has the SSAC final sub-circuit neutral conductor been provided with a separate terminal at the switchboard? | AS/NZS 3000:2018 Wiring Rules Clause 2.10.4.3 (d) (ii) | Needs Rectification |
| ELEC - 9 | If required, has a current limiting device of the correct current rating been installed at the Main Switchboard to protect the consumer mains from overload?  | AS/NZS 3000: 2018 Wiring Rules Clause 2.5.1.2 (b) Note 5 and 2.5.3.1 | Needs Rectification |
| ELEC - 10 | Is the SSAC final sub-circuit entering the switchboard suitably installed? | AS/NZS 3000:2018 Wiring Rules Clause 3.10.3.5 - 3.10.3.6 | Needs Rectification |
| ELEC - 11 | Has the switchboard been sealed to prevent the spread of fire where the SSAC final sub-circuit enters the switchboard? | AS/NZS 3000:2018 Wiring Rules Clause 2.10.7 | Needs Rectification |
| ELEC - 12 | Has the double insulation of the SSAC final sub-circuit been maintained where it enters the switchboard if not installed in a wiring enclosure? | AS/NZS 3000:2018 Wiring Rules Clause 3.10.1.2 | Needs Rectification |
| ELEC – 13 | Is the SSAC protective device marked on, or adjacent to, the switchboard to identify the final sub-circuit it protects? | AS/NZS 3000:2018 Wiring Rules Clause 2.10.5.2 | Needs Rectification |
| **ELEC - 14** | **Is the resistance of SSAC sub-circuit protective earthing conductor low enough to permit the passage of current necessary to operate the overcurrent protective earth conductor?** | **AS/NZS 3000:2018 Wiring Rules Clause 8.3.5.2 Table 8.2** | **Needs Rectification** |
| **ELEC - 15** | **Has a lockable isolating switch been installed adjacent to, but not the SSAC itself?** | **AS/NZS 3000: 2018 AMDT 2 Clause 4.19** | **Needs Rectification** |
| **ELEC - 16** | **Does all electrical equipment installed have the characteristics appropriate to the conditions to which it is installed?** | **AS/NZS 3000:2018 Wiring Rules Clause 4.1.3** | **Needs Rectification** |
| **ELEC - 17** | **Has basic protection been provided from access to live parts of the SSAC installation?** | **Section 43(1) of the ESA 1998 Defect code 112002** | **Unsafe** |
| **ELEC - 18** | **Has basic protection been provided from access to live parts of the existing switchboard?** | **AS/NZS 3000:2018 Wiring Rules Clause 2.10.3.1 Defect code 212186** | **Unsafe** |
| **ELEC - 19** | **Have all decommissioned direct wired heating units been disconnected in a compliant manner?** | **AS/NZS 3000:2018 Wiring Rules Clause 3.1.2 ( a)** | **Needs Rectification** |
| **ELEC - 20** | **Confirm that the electrical installation for the SSAC as presented is consistent with the details in the Certificate of Electrical Safety (COES).** | **Section 44(3) of the ESA 1998 Defect code 111009** | **Improvements Identified** |
| **ELEC - 21** | **If the electrical work does not match the details of the COES, does this pose an imminent risk?** | **Section 44(3) of the ESA 1998 Defect code 111009** | **Needs Rectification** |
| **ELEC - 22** | **Have all conductors been installed in a manner that provides reliability and electrical continuity of connections, joints and terminations?** | **ASNZS 3000:2018 Wiring rules Clause 3.7.1** | **Needs Rectification** |
| **ELEC - 23** | **Have all electrical works not covered elsewhere in this checklist been installed in line with applicable Australian standards?** | **AS/NZS 3000:2018 clause 1.7.1** | **Needs Rectification** |

# Reverse-cycle air conditioners: Plumbing

| **Checklist item** | **Question** | **Relevant standards/reference** | **Applicable rating** |
| --- | --- | --- | --- |
| PLUM - 1 | Has the SSAC plumbing components been installed to manufacturer’s instructions?  | AS/ NZS 5141:2018 CL 4.2.2 Testing operationAS 5149, AS 1677 | Needs Rectification |
| PLUM - 2 | If the SSAC plumbing components have not been installed to the manufacturer’s instructions, do they represent a safety hazard which poses an imminent risk?  |  | Unsafe |
| PLUM - 3 | Are both vapour and liquid pipes properly insulated? |  | Improvements Identified |
| PLUM - 4 | If either the vapour or liquid pipes are not properly insulated, do they pose a risk of becoming unsafe in the future? |  | Needs Rectification  |
| PLUM – 5 | Does all piping comply with AS/NZS 1571:1995 – Copper Seamless tube for AC and refrigeration? | AS/NZS 1571:1995 – Copper Seamless tube for AC and refrigeration | Needs Rectification  |
| PLUM - 6 | Have appropriate Torque wrench settings been applied for pipe connections as per manufacturer’s specification? |  | Needs Rectification  |
| PLUM – 7 | Has leak test been carried out for pipe connections? |  | Needs Rectification |
| PLUM – 8 | Have condensate drains terminated and correct material used for discharge pipe? |  | Needs Rectification  |
| PLUM – 9 | Are all roofing / Building penetrations finished and weathered correctly, including flashing? |  | Needs Rectification  |
| PLUM – 10 | Does the pipework installation comply? |  | Needs Rectification  |
| PLUM – 11 | If the pipework installation does not comply, does it represent a safety hazard which poses an imminent risk? |  | Unsafe |
| PLUM – 12 | Is the pipework insulated with approved material? |  | Needs Rectification  |
| PLUM – 13 | Is the pipework installed to protect against vibration transmission?  |  | Needs Rectification |
| PLUM – 14 | Are the air filters of an approved type? |  | Needs Rectification  |
| PLUM – 15 | Are there any visible oil leaks? |  | Needs Rectification |
| PLUM - 16 | If there are visible leaks, do they represent a safety hazard which poses an immediate risk? |  | Unsafe |
| PLUM – 17 | Do the control valves have protective caps? |  | Needs Rectification  |
| PLUM – 18 | Are the unit and control valves located to facilitate access for servicing? |  | Improvements Identified |
| PLUM – 19 | Is the workmanship on the installation acceptable? |  | Improvements Identified |
| PLUM – 20 | Is the insulation protected from weathering? |  | Improvements Identified |
| PLUM – 21 | Has the class of plumbing been indicated on the compliance certificate? |  | Needs Rectification |

# Reverse-cycle air conditioners: Functionality

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| **Checklist item** | **Question** | **Relevant standards/reference** | **Applicable rating** |
| FUNC – 1 | Have all other SSAC components (non-Electrical and Plumbing) been installed according to the manufacturer’s instructions? |  | Improvements Identified  |
| FUNC - 2 | If the SSAC components have not been installed according to the manufacturer’s instructions, do they pose a risk of becoming unsafe in the future? |  | Needs Rectification |
| FUNC - 3 | If the SSAC components have not been installed according to the manufacturer’s instructions, do they pose an imminent risk? |  | Unsafe |
| FUNC – 4 | Does the SSAC correctly operate in heating and refrigerated cooling modes? |  | Needs Rectification  |

# Reverse-cycle air conditioners: Switchboard

| **Checklist item** | **Question** | **Relevant standards/reference** | **Applicable rating** |
| --- | --- | --- | --- |
| SWIT - 1 | Confirm that the Switchboard as presented is consistent with the details in the Certificate of Electrical Safety (COES). | Section 44(3) of the ESA 1998 Defect code 111009 | Improvements identified |
| SWIT – 2 | If the Switchboard does not match the details of the COES does this pose an imminent risk? | Section 44(3) of the ESA 1998 Defect code 111009 | Needs Rectification |
| SWIT - 3 | Has the switchboard been sealed to prevent the spread of fire? | AS/NZS 3000:2018 Wiring Rules Clause 2.10.7 | Needs Rectification |
| SWIT - 4 | Has basic protection been provided from access to live parts of the switchboard? | AS/NZS 3000:2018 Wiring Rules Clause 2.10.3.1 Defect code 212186 | Unsafe |
| SWIT - 5 | Have all conductors entering the switchboard been suitably installed? | AS/NZS 3000:2018 Wiring Rules Clause 3.10.3.5 - 3.10.3.6 | Needs Rectification |
| SWIT - 6 | Has double insulation been maintained on the final sub-circuits entering the switchboard? | AS/NZS 3000:2018 Wiring Rules Clause 3.10.1.1 | Needs Rectification |
| SWIT – 7 | Have all neutral conductors been provided with a separate terminal at the neutral bar of the switchboard? | AS/NZS 3000:2018 Wiring Rules Clause 2.10.4.3 (d)(i)(ii) | Needs Rectification |
| SWIT - 8 | Are all final sub-circuits protected by an RCD rated at no more than 30Ma? | AS/NZS 3000:2018 Wiring Rules Clause 2.6.3.2.2 | Needs Rectification |
| SWIT – 9 | Has a minimum of two RCD’s been installed where there is more than on final sub-circuit at the switchboard? | AS/NZS 3000:2018 Wiring Rules Clause 2.6.2.4(b)(ii) | Needs Rectification |
| SWIT - 10 | If the number of RCD’s installed at the switchboard exceeds one, have all lighting circuits been distributed between RCD’s? | AS/NZS 3000:2018 Wiring Rules 2.6.2.4(a) (i)(ii) | Needs Rectification |
| SWIT - 11 | Are there more than three final sub-circuits installed per RCD? | AS/NZS 3000:2018 Wiring Rules 2.6.2.4(b)(i) | Needs Rectification |
| **SWIT - 12** | **If required, has a current limiting device of the correct current rating been installed at the Main Switchboard to protect the consumer mains from overload?**  | **AS/NZS 3000: 2018 Wiring Rules Clause 2.5.1.2 ( b) Note 5 and 2.5.3.1** | **Needs Rectification** |
| **SWIT - 13** | **Is the location of the main earth electrode identified at the main switchboard?** | **AS/NZS 3000:2018 Wiring Rules Clause 5.3.6.4** | **Needs Rectification** |
| **SWIT - 14** | **Has all equipment been identified on the switchboard?** | **AS/NZS 3000:2018 Wiring Rules Clause 2.10.5.1** | **Needs Rectification** |
| **SWIT - 15** | **Are all protective earthing conductors connected directly to the main earthing conductor?** | **AS 3000:2018 Wiring rules Clause 5.5.2.1** | **Needs Rectification** |
| **SWIT - 16** | **If required, have all existing live conductors with yellow insulation been sleeved with white sleeving?** | **AS/NZS 3000:2018 Wiring rules 3.8.2.3 Alterations and repairs carried out resulting in new terminations** | **Needs Rectification** |
| **SWIT - 17** | **If required, are all earthing conductors sleeved with yellow/green sleeving?** | **AS/NZS 3000:2018 Wiring rules clause 3.8.2.2 Alterations and repairs resulting in terminations** | **Needs Rectification** |
| **SWIT - 18** | **Is there an M.E.N connection at the main switchboard?** | **AS/NZS 3000:2018 Wiring Rules Clause 5.3.5.1** | **Needs Rectification** |
| **SWIT - 19** | **Has a connection to the main earthing system been established at the main earth electrode or equipotential bonding conductive water pipe?** | **AS/NZS 3000:2018 Wiring rules 8.3.5.2** | **Needs Rectification** |
| **SWIT - 20** | **Have all conductors been installed in a manner that provides reliability and electrical continuity of connections, joints and terminations?** | **ASNZS 3000:2018 Wiring rules Clause 3.7.1** | **Needs Rectification** |
| **SWIT - 21** | **Have all electrical works not covered elsewhere in this checklist been installed in line with applicable Australian standards?** | **AS/NZS 3000:2018 clause 1.7.1** | **Needs Rectification** |

# Gas de-commissioning (if applicable): Gas capping

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| **Checklist Item** | **Question** | **Relevant standards/reference** | **Applicable response**  |
| GASC – 1 | Was the previous gas heater physically isolated? |  | Needs rectification |
| GASC – 2 | If the nominated gas heater was not physically isolated, does it pose an immediate risk? |  | Unsafe |
| GASC – 3 | Is the gas capping evident and satisfactory? |  | Needs Rectification |
| GASC – 4 | If the gas capping is not evident, does it pose an immediate risk? |  | Unsafe |
| GASC – 5 | Has a gas leak check been undertaken showing no gas leakage? |  | Unsafe |

Solar Victoria periodically reviews this checklist. If you would like us to consider your feedback on an audit item, please email us: quality.assurance@team.solar.vic.gov.au

# Useful links

For more information about the audit process: [heatingupgrades.vic.gov.au/audit-installations](https://www.heatingupgrades.vic.gov.au/audit-installations)

Australian Competition and Consumer Commission: [accc.gov.au](https://www.accc.gov.au/)

Australian and New Zealand Standards: [standards.org.au](https://www.standards.org.au/)

Clean Energy Council: [cleanenergycouncil.org.au](https://www.cleanenergycouncil.org.au/)

Electrical Regulator Authorities Council: [erac.gov.au](https://www.erac.gov.au/)

Electrical Equipment Safety System: [eess.gov.au](https://www.eess.gov.au/)

Energy Safe Victoria: [esv.vic.gov.au](https://esv.vic.gov.au/)

Product recall list: [productsafety.gov.au/recalls](https://www.productsafety.gov.au/recalls)

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