

ENERGY STAR HVAC Commissioning Checklist: 2. Refrigerant Charge

When certifying a home to [ENERGY STAR Certified Homes, Version 3.0/3.1 \(Rev. 08\)](#) [1], the HVAC Installer completes the [HVAC Commissioning Checklist](#) [1] to document information about the contractor and house, refrigerant charge, HVAC fan air flow, and air balancing. One HVAC Commissioning Checklist is completed for each system installed. The HVAC installation contractor must make copies of the HVAC Commissioning Checklist available to the builder, the rater responsible for certifying the home, and the HVAC oversight organization, upon request.

This page shows the checklist requirement for Section 2. Refrigerant Charge and applicable footnotes.

For information on installing HVAC equipment, see installation guides linked to the HVAC section of the [Rater Field Checklist](#) [1].

For information on evaluating refrigerant charge, see the [Air Conditioning Contractors of America's ANSI/ACCA 5 QI - 2015 HVAC Quality Installation Specification](#) [2].



HVAC Commissioning Checklist ^{1, 2} ENERGY STAR Certified Homes, Version 3 / 3.1 (Rev. 08)

HVAC Commissioning Contractor Responsibilities:

- The commissioning contractor must be credentialed by an HVAC oversight organization to complete this checklist. One checklist must be completed and signed by the commissioning contractor for each HVAC system that is commissioned.
- The completed checklist for each commissioned system, along with the corresponding HVAC Design Report, shall be retained by the contractor for quality assurance purposes. Furthermore, the contractor shall provide the completed checklist to the builder, the Home Energy Rater responsible for certifying the home, and the HVAC oversight organization upon request.
- Visit www.energystar.gov/newhomeshvac for information about the credential requirement and this checklist.

2. Refrigerant Charge - Run system for 15 minutes before testing. If outdoor ambient temperature at the condenser is $\leq 55^{\circ}\text{F}$ or, if known, below the manufacturer-recommended minimum operating temperature for the cooling cycle, then the system shall include a TXV, the outdoor temperature shall be recorded in Item 2.1, and the contractor shall check "N/A" in this Section. ³		Contractor Verified	N/A
2.1 Outdoor ambient temperature at condenser:	_____ $^{\circ}\text{F}$ DB	-	-
2.2 Return-side air temperature inside duct near evaporator, during cooling mode:	_____ $^{\circ}\text{F}$ WB	-	<input type="checkbox"/>
2.3 Liquid line pressure:	_____ psig	-	<input type="checkbox"/>
2.4 Liquid line temperature:	_____ $^{\circ}\text{F}$ DB	-	<input type="checkbox"/>
2.5 Suction line pressure:	_____ psig	-	<input type="checkbox"/>
2.6 Suction line temperature:	_____ $^{\circ}\text{F}$ DB	-	<input type="checkbox"/>
For System with Thermal Expansion Valve (TXV):			
2.7 Condenser saturation temperature:	_____ $^{\circ}\text{F}$ DB (Using Item 2.3)	-	<input type="checkbox"/>
2.8 Subcooling value:	_____ $^{\circ}\text{F}$ DB (Item 2.7 - Item 2.4)	-	<input type="checkbox"/>
2.9 OEM subcooling goal:	_____ $^{\circ}\text{F}$ DB	-	<input type="checkbox"/>
2.10 Subcooling deviation:	_____ $^{\circ}\text{F}$ DB (Item 2.8 – Item 2.9)	-	<input type="checkbox"/>
For System with Fixed Orifice:			
2.11 Evaporator saturation temperature:	_____ $^{\circ}\text{F}$ DB (Using Item 2.5)	-	<input type="checkbox"/>
2.12 Superheat value:	_____ $^{\circ}\text{F}$ DB (Item 2.6 – Item 2.11)	-	<input type="checkbox"/>
2.13 OEM superheat goal:	_____ $^{\circ}\text{F}$ DB (Using superheat tables and Items 2.1 & 2.2)	-	<input type="checkbox"/>
2.14 Superheat deviation:	_____ $^{\circ}\text{F}$ DB (Item 2.12 – Item 2.13)	-	<input type="checkbox"/>
2.15 Item 2.10 is $\pm 3^{\circ}\text{F}$ or Item 2.14 is $\pm 5^{\circ}\text{F}$		<input type="checkbox"/>	<input type="checkbox"/>
2.16 An OEM test procedure (e.g., as defined for a ground-source heat pump) has been used in place of the sub-cooling or super-heat process and documentation has been attached that defines this procedure		<input type="checkbox"/>	<input type="checkbox"/>

Checklist revised 09/15/2015. Required for homes permitted starting 07/01/2016.⁵

Footnotes:

1. This Checklist is designed to align with the requirements of [ANSI / ACCA's 5 QI-2015](#) [2] protocol, thereby improving the performance of HVAC equipment in new homes when compared to homes built to minimum code. However, these features alone cannot prevent all ventilation, indoor air quality, and HVAC problems (e.g., those caused by a lack of maintenance by occupants). Therefore, this Checklist is not a guarantee of proper ventilation, indoor air quality, or HVAC performance. This Checklist applies to split air conditioners, unitary air conditioners, air-source heat pumps, and water-source (i.e., geothermal) heat pumps up to 65 kBtu/h with forced-air distribution systems (i.e., ducts) and to furnaces up to 225 kBtu/h with forced-air distribution systems (i.e., ducts). All other permutations of equipment (e.g., boilers, mini-split / multi-split systems) and distribution systems are exempt.

2. For a home certified in the State of ID, MT, OR, or WA, the following alternatives and exemptions apply:

- a. a. For a home with an air-source heat pump up to 65 kBtuh with a forced-air distribution system (i.e., ducts), the contractor is permitted to complete the 2011 PTCS® Commissioned Heat Pump Certificate and Startup Form in lieu of this Checklist.
- b. For a home with a split air conditioner or unitary air conditioner up to 65 kBtuh with a forced-air distribution system (i.e., ducts), the contractor is permitted to complete the Northwest Central AC Commissioning & Startup Form in lieu of this Checklist.
- c. For a home in a location with < 600 CDD, the completion of this Checklist is recommended, but not required.

3. Either factory-installed or field-installed TXV's may be used. For field-installed TXV's, ensure that sensing bulbs are insulated and tightly clamped to the vapor line with good linear thermal contact at the recommended orientation, usually 4 or 8 o'clock.

5. This Revision of the HVAC Commissioning Checklist is required to certify all homes permitted after 07/01/2016, but is allowed to be used for any home permitted or completed prior to this date. The Home Energy Rater certifying the home may define the 'permit date' as either the date that the permit was issued or the date of the contract on the home. In cases where permit or contract dates are not available, Providers have discretion to estimate permit dates based on other construction schedule factors.

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More Info.

Access to some references may require purchase from the publisher. While we continually update our database, links may have changed since posting. Please contact our [webmaster](#) if you find broken links.

None Available

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