



# ENERGY STAR Qualified Homes HVAC Quality Installation Contractor Checklist <sup>1,2</sup>

Home Address: _____		City: _____		State: _____	
<b>Equipment Specification, Design, and Documentation</b>					
1. Equipment	1.1 Condenser mfr., model, & serial #:				
	1.2 Evaporator mfr., model, & serial #:				
	1.3 ARI reference number:				
2. Design	2.1 Heat gain calculation method compliant with Manual J or equivalent, using the following assumptions? <sup>1</sup>				Yes / No
	2.1.1 Outdoor Design Temperature: a) 99.0% design as published in ASHRAE Handbook of Fundamentals, <u>OR</u> b) Based on prevailing local practice reflecting documented weather data				Yes / No Yes / No
	2.1.2 Indoor setpoint set at 75° F				Yes / No
	2.1.3 Infiltration rate set at 'Tight'				Yes / No
	2.2 Duct design method compliant with Manual D or equivalent? <sup>3</sup>				Yes / No
	2.3 Equipment specification method compliant with Manual S or equivalent? <sup>3</sup>				Yes / No
	2.4 Terminal design method compliant with Manual T or equivalent? <sup>3</sup>				Yes / No
	2.5 In Warm, Humid counties in Climate Zones 1-3, equipment's sensible heat ratio ≤ 0.70 or stand-alone ENERGY STAR qualified humidifier installed? <sup>4</sup>				Yes / No / N/A
3. Documentation	3.1 ARI certificate attached?				Yes / No
	<b>Field Verification</b>				<b>Design Value</b>
4. Equipment Capacity	4.1 Latent heat gain (BTUH): <sup>6</sup>				
	4.2 Sensible heat gain (BTUH): <sup>6</sup>				
	4.3 Total heat gain (BTUH): <sup>6</sup>				
5. Air Flow	5.1 Airflow at evaporator (CFM): <sup>6,7</sup>				
	5.2 Duct static pressure – supply (WC): <sup>6</sup>				
	5.3 Duct static pressure – return (WC): <sup>6</sup>				
	5.4 Fan motor type (fixed speed, variable speed):				N/A
	5.5 Fan speed setting (CFM): <sup>6</sup>				
6. Refrigerant Charge <sup>8</sup>	6.1 Refrigerant type (R-22, R-410a):				N/A
	6.2 Metering device (TXV, fixed orifice):				N/A
	6.3 Return air temp. (°F dry bulb / °F wet bulb): <sup>9</sup>				N/A
	6.4 Supply air temp. (°F dry bulb / °F wet bulb): <sup>9</sup>				N/A
	6.5 Outdoor ambient air temp. at condenser (°F dry bulb):				N/A
	6.6 Liquid line temperature & pressure (°F / psi):				N/A
	6.7 Suction line temperature & pressure (°F / psi):				N/A
	6.8 Condensing temperature (°F): <sup>10</sup>				N/A
	6.9 Evaporating temperature (°F): <sup>11</sup>				N/A
	6.10 For non-Lennox TXV devices: Subcooling temp. (condensing temp – liquid line temp.) <sup>12</sup>				
	6.11 For Lennox TXV devices: Approach temp. (liquid line temp.–outdoor ambient temp.) <sup>13</sup>				
	6.12 For fixed orifice devices: Superheat temp. (suction line temp. – evaporating temp.) <sup>14</sup>				
Technician name: _____		Equipment Installation Date: _____			
Technician Signature: _____		Company Name: _____			



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1. This checklist applies to split air conditioners, unitary air conditioners, and air-source/water-source heat pumps up to 65,000 BTU/H. All other equipment is exempt.
2. This checklist shall be provided by the EPA-approved verifier to the HVAC contractor who shall complete one checklist for each system. Upon completion, the HVAC contractor shall return the checklist(s) to the EPA-approved verifier for review.
3. Cooling loads shall be calculated, equipment capacity shall be selected, and duct systems shall be sized according to the latest editions of ACCA Manuals J, S, D, & T, respectively, ASHRAE 2001 Handbook of Fundamentals, or an equivalent procedure. Maximum oversizing limit for air conditioners and air-source and ground-source heat pumps is 15% with the exceptions that single-speed air-source and ground-source heat pumps in buildings with heating loads that exceed cooling loads have a limit of 25%; and multi-stage heat pumps do not have a strict limit, but should be sized to allow adequate humidity control in the cooling mode. The following operating conditions must be used in the sizing calculations and verified by the rater:

**Outdoor temperatures** must be the 99.0% design temperatures as published in the ASHRAE Handbook of Fundamentals for the home's location or most representative city for which design temperature data are available. Note that a higher outdoor air design temperature may be used if it represents prevailing local practice by the HVAC industry and reflects extreme climate conditions that can be documented with recorded weather data;

**Indoor temperatures** must be 75°F for cooling, and;

**Infiltration rate** must be selected as "tight", or the equivalent term.

In specifying equipment, the next available size may be used. In addition, indoor and outdoor coils must be matched in accordance with ARI standards.

4. Equipment shall have a sensible heat ratio  $\leq 0.70$  or an ENERGY STAR qualified stand-alone dehumidifier must be installed in home. This requirement applies only to homes that are located in both Climate Zones 1, 2 or 3 and in Warm, Humid counties as identified by Tables N1101.2 and N1101.2.1 of the 2004 Supplement to the IRC, respectively.
5. Corrosion-resistant materials include stainless steel and plastic. Drain pan shall drain condensate line to drainage system, rather than just depositing underneath foundation.
6. Measured field value shall be within 5% of design value.
7. Measured air volume shall be determined using a "true flow" anemometer or pressure matching (i.e., duct blaster).
8. Climate conditions, such as cold weather, may make it impossible to verify proper refrigerant charge. In such cases, a TXV must be installed.
9. Air temperatures shall be measured in ducts near evaporator and not in conditioned building space.
10. Calculated using liquid line pressure measured value.
11. Calculated using suction line pressure measured value.
12. Field value must be within 3°F of design value.
13. Field value must be within 1°F of design value.



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14. Field value must be within 5°F of design value.