ENERGY STAR Certified Homes, Version 3 (Rev. 07)
HVAC System Quality Installation Rater Checklist [1]

Home Address:201 Hubbell Ave. City:Syracuse State: NY____ Zip Code:13207 ____

1. Review of HVAC System Quality Installation Contractor Checklist [2]	**Must Correct**	**Rater Verified**	**N/A**
1.1 HVAC System Quality Installation Contractor Checklist completed in its entirety and collected for records, along with documentation on ventilation system (1.3), full load calculations (2.18), and AHRI certificate (3.13).	☐	☐	☐
1.2 Review the following parameters related to system cooling design, selection, and installation from the HVAC Contractor Checklist (Contractor Checklist Item # indicated in parenthesis): [3]			
1.2.1 Outdoor design temperatures (2.4) are equal to the 1% and 99% ACCA Manual J design temperatures for contractor-designated design location [4]	☐	☐	☐
1.2.2 Home orientation (2.5) matches orientation of rated home	☐	☐	☐
1.2.3 Number of occupants (2.6) equals number of occupants in rated home [5]	☐	☐	☐
1.2.4 Conditioned floor area (2.7) is within ±10% of conditioned floor area of rated home	☐	☐	☐
1.2.5 Window area (2.8) is within ±10% of calculated window area of rated home	☐	☐	☐
1.2.6 Predominant window SHGC (2.9) is within 0.1 of predominant value in rated home [6]	☐	☐	☐
1.2.7 Listed latent cooling capacity (3.8) exceeds design latent heat gain (2.12)	☐	☐	☐
1.2.8 Listed sensible cooling capacity (3.9) exceeds design sensible heat gain (2.13)	☐	☐	☐
1.2.9 Listed total cooling capacity (3.10) is 95-115% (or 95-125% for Heat Pumps in Climate Zones 4-8) of design total heat gain (2.14), or next nominal size [7]	☐	☐	☐
1.2.10 HVAC manufacturer and model numbers on installed equipment, Contractor Checklist (3.1, 3.2, 5.1), and AHRI certificate or OEM catalog data all match [8]	☐	☐	☐
1.2.11 Using reported liquid line (6.3) or suction line (6.5) pressure, corresponding temperature (as determined using pressure / temperature chart for refrigerant type) matches reported condenser (7.1) or evaporator (7.5) saturation temperature (± 3 degrees) [9]	☐	☐	☐
1.2.12 Calculated subcooling (7.1 minus 6.4) value is within ±3 °F of the reported target temperature (7.3) or calculated superheat (6.6 minus 7.5) value is within ±5 °F of the reported target temperature (7.7). [9]	☐	☐	☐
1.3 Rater-verified supply & return duct static pressure ≤ 110% of contractor values (9.3, 9.4)	☐	☐	☐
1.4 Contractor-prepared balancing report indicating the room name and design airflow for each supply and return register collected by Rater for records. In addition, final individual room airflows measured and documented on balancing report through one of the following options:			
1.4.1 Measured and documented by contractor (10.1.1), OR;	☐	☐	☐
1.4.2 Measured by Rater using Section 804.2 of the Mortgage Industry National HERS Standard, documented by Rater, & verified by Rater to be within the greater of ± 20% or 25 CFM of design airflow (10.1.2)	☐	☐	☐
1.5 HVAC contractor holds credentials necessary to complete the HVAC System QI Contractor Checklist [10]	☐	☐	☐
2. Duct Quality Installation - *Applies to All Heating, Cooling, Ventilation, Exhaust, and Pressure Balancing Ducts* [11]			
2.1 Connections and routing of ductwork completed without kinks or sharp bends. [12]	☐	☐	☐
2.2 No excessive coiled or looped flexible ductwork. [13]	☐	☐	☐
2.3 Flexible ducts in unconditioned space not installed in cavities smaller than outer duct diameter; in conditioned space not installed in cavities smaller than inner duct diameter	☐	☐	☐
2.4 Flexible ducts supported at intervals as recommended by mfr. but at a distance ≤ 5 ft.	☐	☐	☐
2.5 Building cavities not used as supply or return ducts unless they meet Items 3.2, 3.3, 4.1, and 4.2 of this Checklist.	☐	☐	☐
2.6 HVAC ducts, cavities used as ducts, and combustion inlets and outlets may pass perpendicularly through exterior walls but shall not be run within exterior walls unless at least R-6 continuous insulation is provided on exterior side of the cavity, along with an interior and exterior air barrier where required by the Thermal Enclosure System Rater Checklist.	☐	☐	☐
2.7 Quantity & location of supply and return duct terminals match contractor balancing report. [11]	☐	☐	☐
2.8 Bedrooms pressure-balanced using any combination of transfer grills, jump ducts, dedicated return ducts, and / or undercut doors to either: a) provide 1 sq. in. of free area opening per 1 CFM of supply air, as reported on the contractor-provided balancing report; or b) achieve a Rater-measured pressure differential ≤ 3 Pa with respect to the main body of the house when all bedroom doors are closed and all air handlers are operating.[11,14]	☐	☐	☐
3. Duct Insulation - *Applies to All Heating, Cooling, Supply Ventilation, and Pressure Balancing Ducts* [15]			
3.1 All connections to trunk ducts in unconditioned space are insulated.	☐	☐	☐
3.2 *Prescriptive Path*: Supply ducts in unconditioned attic have insulation ≥ R-8. *Performance Path*: Supply ducts in unconditioned attic have insulation ≥ R-6.	☐	☐	☐
3.3 All other supply ducts and all return ducts in unconditioned space have insulation ≥ R-6.	☐	☐	☐

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4. Duct Leakage - *Applies to All Heating, Cooling, and Balanced Ventilation Ducts*	**Must Correct**	**Rater Verified**	**N/A**
4.1 Total Rater-measured duct leakage meets one of the following two options: [16]			
4.1.1 Rough-in: ≤ 4 CFM25 per 100 sq. ft. of CFA with air handler and all ductwork, building cavities used as ductwork, & duct boots installed. In addition, all duct boots sealed to finished surface, Rater-verified at final. [17]	☐	☐	☐
4.1.2 Final: ≤ 8 CFM25 per 100 sq. ft. of CFA with the air handler and all ductwork, building cavities used as ductwork, duct boots, & register grilles atop the finished surface (e.g., drywall, flooring) installed. [18]	☐	☐	☐
4.2 Rater-measured duct leakage to outdoors ≤ 4 CFM25 per 100 sq. ft. of conditioned floor area. [16,19]	☐	☐	☐
5. Whole-Building Delivered Ventilation			
5.1 Rater-measured ventilation rate is within 100-120% of HVAC contractor design value (2.11). [20]	☐	☐	☐
6. Controls			
6.1 Air flow is produced when central HVAC fan is energized (set thermostat to "fan").	☐	☐	☐
6.2 Cool air flow is produced when the cooling cycle is energized (set thermostat to "cool"). [21,22]	☐	☐	☐
6.3 Heated air flow is produced when the heating cycle is energized (set thermostat to "heat"). [21]	☐	☐	☐
6.4 Continuously-operating ventilation & exhaust fans include readily accessible override controls.	☐	☐	☐
6.5 Function of ventilation controls is obvious (e.g., bathroom exhaust fan) or, if not, controls have been labeled.	☐	☐	☐
7. Ventilation Air Inlets & Ventilation Source			
7.1 All ventilation air inlets located ≥10 ft. of stretched-string distance from known contamination sources such as stack, vent, exhaust hood, or vehicle exhaust. Exception: ventilation air inlets in the wall ≥ 3 ft. from dryer exhausts and contamination sources exiting through the roof. [23]	☐	☐	☐
7.2 Ventilation air inlets ≥ 2 ft. above grade or roof deck in Climate Zones 1-3 or ≥ 4 ft. above grade or roof deck in Climate Zones 4-8 and not obstructed by snow, plantings, condensing units or other material at time of inspection.[24]	☐	☐	☐
7.3 Ventilation air inlets provided with rodent / insect screen with ≤ 0.5 inch mesh. [25]	☐	☐	☐
7.4 Ventilation air comes directly from outdoors, not from adjacent dwelling units, garages, crawlspaces, or attics.	☐	☐	☐
8. Local Mechanical Exhaust			
In each kitchen and bathroom, a system shall be installed that exhausts directly to the outdoors and meets one of the following Rater-measured airflow standards: [20,26,27]			

Location	**Continuous Rate**	**Intermittent Rate** [28]			
8.1 Kitchen	≥ 5 ACH, based on kitchen volume [29,30]	≥ 100 CFM and, if not integrated with range, also ≥ 5 ACH based on kitchen volume [29,30,31]	☐	☐	☐
8.2 Bathroom	≥ 20 CFM	≥ 50 CFM	☐	☐	☐
8.3 If fans share common exhaust duct, back-draft dampers installed.			☐	☐	☐
8.4 Common exhaust duct not shared by fans in separate dwellings. [32]			☐	☐	☐
8.5 Clothes dryers vented directly to outdoors, except for ventless dryers equipped with a condensate drain.			☐	☐	☐

9. Ventilation & Exhaust Fan Ratings (Exemptions for Kitchen, HVAC, and Remote-Mounted Fans) [33]			
9.1 Intermittent supply and exhaust fans rated at ≤ 3 sones by mfr. when producing no less than the minimum airflow rate required by Section 8 of this Checklist, unless rated flow ≥ 400 CFM.	☐	☐	☐
9.2 Continuous supply & exhaust fans rated at ≤ 1 sone by mfr. when producing no less than the minimum airflow required by Section 8 of this Checklist.	☐	☐	☐
9.3 Bathroom fans used as part of a whole-house mechanical ventilation system shall be ENERGY STAR certified; unless rated flow rate ≥ 500 CFM.	☐	☐	☐
10. Combustion Appliances			
10.1 Furnaces, boilers, and water heaters located within the home's pressure boundary are mechanically drafted or direct-vented. As an exception, naturally drafted equipment is allowed in Climate Zones 1-3. For naturally drafted furnaces, boilers, and water heaters, the Rater has followed RESNET or BPI combustion safety test procedures and met the selected standard's limits for depressurization, spillage, draft pressure, and CO concentration in ambient air, as well as a CO concentration in the flue of ≤ 25 ppm. [34,35,36]	☐	☐	☐
10.2 For fireplaces that are not mechanically drafted or direct-vented to outdoors, total net rated exhaust flow of the two largest exhaust fans (excluding summer cooling fans) is ≤ 15 CFM per 100 sq. ft. of occupiable space when at full capacity or the Rater has verified that the pressure differential is ≤ -5 Pa using BPI's or RESNET's worst-case depressurization test procedure. [26,36,37,38]	☐	☐	☐
10.3 If unvented combustion appliances other than cooking ranges or ovens are located inside the home's pressure boundary, the Rater has operated the appliance for at least 10 minutes and verified that the ambient CO level does not exceed 35 ppm. [39]	☐	☐	☐
11. Filtration			
11.1 At least one MERV 6 or higher filter installed in each ducted mechanical system. [40]	☐	☐	☐
11.2 All return air and mechanically supplied outdoor air pass through filter prior to conditioning.	☐	☐	☐
11.3 Filter located and installed so as to facilitate access and regular service by the owner. [41]	☐	☐	☐
11.4 Filter access panel includes gasket or comparable sealing mechanism and fits snugly against the exposed edge of filter when closed to prevent bypass. [42]	☐	☐	☐

Rater Name: _____ Date Checklist Inspected: _____

Rater Signature: _____ Rater Company Name: _____