



# QA Program Quality Installation Contractor Checklist



1. ADMINISTRATIVE			N/A
1.1.	Home Address _____		
1.2.	City: _____		
1.3.	State: _____		
1.4.	Zip: _____		
1.5.	Area Served: <input type="checkbox"/> Whole house <input type="checkbox"/> Bonus Room <input type="checkbox"/> Master Suite <input type="checkbox"/> Upstairs <input type="checkbox"/> Downstairs <input type="checkbox"/> Other: _____		
1.6.	Permit number: _____		<input type="checkbox"/>
1.7.	Authority Having Jurisdiction _____		<input type="checkbox"/>
1.8.	Recognition: <input type="checkbox"/> RSI HVAC QI Certificate? <input type="checkbox"/> ENERGY STAR Certified Home?		
1.9.	Certificate Distribution: <input type="checkbox"/> Certificate to Homeowner?		<input type="checkbox"/>
1.10.	Email address: _____		
1.11.	Certificate Distribution: <input type="checkbox"/> Certificate to Homebuilder?		<input type="checkbox"/>
1.12.	Email address: _____		
1.13.	Documentation Confirmation Statement: Documents for this installation, as applicable, are available for review: Manual J heat loss / gain calculations, OEM expanded performance data, OEM Blower Tables, duct leakage measurements, and TAB records. (Signature) _____		
2. DESIGN			
2.1. Heat Loss/Gain			
2.1.1	Conditioned Floor Area Served by Unit: _____	Sq. Ft.	-
2.1.2	Design Total Heat Loss: _____	Btu/h	<input type="checkbox"/>
2.1.3	Design Sensible Heat Gain: _____	Btu/h	<input type="checkbox"/>
2.1.4	Design Latent Heat Gain: _____	Btu/h	<input type="checkbox"/>
2.1.5	Design Total Heat Gain: _____	Btu/h	<input type="checkbox"/>
2.2. System Configuration			
2.2.1	Installed Equipment is: <input type="checkbox"/> Forced Air <input type="checkbox"/> Split System <input type="checkbox"/> Package Unit <input type="checkbox"/> Ductless <input type="checkbox"/> Geothermal <input type="checkbox"/> Hydronic		
2.2.2	Split system: <input type="checkbox"/> Condenser and Coil <input type="checkbox"/> Condenser and Fan Coil Unit		
2.2.3	Ductless: <input type="checkbox"/> One indoor unit <input type="checkbox"/> Two indoor units <input type="checkbox"/> Three or more indoor units		
2.3. Heating Equipment (If applicable)			<input type="checkbox"/>
2.3.1	Primary Heat Source: <input type="checkbox"/> Furnace <input type="checkbox"/> Heat Pump (w/ Coil or Fan Coil Unit) <input type="checkbox"/> Electric Furnace <input type="checkbox"/> Boiler		
2.3.2	Brand: _____		
2.3.3	Model: _____		
2.3.4	Serial: _____		
2.3.5	Output Capacity (Furnace: highest stage, Heat Pump – at design ODT): _____		Btu/h
2.3.6	AHRI Reference Number: _____		
2.3.7	Heating Efficiency: Furnace _____ AFUE Heat Pump _____ HSPF		
2.3.8	Burner Stages: <input type="checkbox"/> Single Stage <input type="checkbox"/> Two Stage <input type="checkbox"/> Multi-Stage		
2.3.9	Fuel: <input type="checkbox"/> Natural Gas <input type="checkbox"/> Liquid Petroleum (LP) <input type="checkbox"/> Oil		
2.3.10	Blower Motor: <input type="checkbox"/> Permanent Split Capacitor (PSC) <input type="checkbox"/> Variable Speed		
2.3.11	Venting Type: <input type="checkbox"/> Sealed Combustion <input type="checkbox"/> Atmospherically Vented <input type="checkbox"/> One-Pipe (fan powered exhaust)		
2.3.12	Secondary Heat Source: <input type="checkbox"/> Furnace <input type="checkbox"/> Supplemental Electric Resistance Heat		
2.3.13	Brand: _____		
2.3.14	Model: _____		
2.3.15	Serial: _____		
2.3.16	Output Capacity (highest stage): _____		Kw / Btu/h
2.3.17	AHRI Reference Number: _____		
2.3.18	Burner Stages: <input type="checkbox"/> Single Stage <input type="checkbox"/> Two Stage <input type="checkbox"/> Multi-Stage		
2.3.19	Fuel: <input type="checkbox"/> Natural Gas <input type="checkbox"/> Liquid Petroleum (LP) <input type="checkbox"/> Oil		
2.3.20	Blower Motor: <input type="checkbox"/> Permanent Split Capacitor (PSC) <input type="checkbox"/> Variable Speed (ECM,		
2.3.21	Venting Type: <input type="checkbox"/> Sealed Combustion <input type="checkbox"/> Atmospherically Vented <input type="checkbox"/> One-Pipe (fan powered exhaust)		
2.3.22	Output of Replaced Unit: _____		
2.3.23	Selected heating equipment meets Manual S sizing tolerance: _____		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
2.4. Cooling Equipment (If applicable)			<input type="checkbox"/>
2.4.1	Cooling System: <input type="checkbox"/> Air Conditioner <input type="checkbox"/> Heat Pump		
2.4.2	AHRI Reference Number: _____		
2.4.3	Cooling Efficiency: _____ SEER _____		EER
2.4.4	Nominal Capacity: _____		Tons

2.4.5	OEM Expanded Capacity (with matched indoor unit / at design airflow): _____ Btu/h	
2.4.6	Cooling Stages: <input type="checkbox"/> Single Stage <input type="checkbox"/> Two Stage <input type="checkbox"/> Variable Speed	
2.4.7	Brand: _____	
2.4.8	Model: _____	
2.4.9	Serial: _____	
2.4.10	Brand: <input type="checkbox"/> Evaporator Coil <input type="checkbox"/> Fan Coil Unit	
2.4.11	Brand: _____	
2.4.12	Model: _____	
2.4.13	Serial: _____	
2.4.14	Blower Motor: <input type="checkbox"/> Permanent Split Capacitor (PSC) <input type="checkbox"/> Variable Speed	
2.4.15	Metering Device: <input type="checkbox"/> TXV <input type="checkbox"/> TEV <input type="checkbox"/> Fixed bore (piston)	
2.4.16	Nominal Tonnage of <b>Replaced Unit</b> : _____	
2.4.17	Selected cooling equipment meets Manual S sizing tolerance: _____ <input type="checkbox"/> Pass <input type="checkbox"/> Fail	
<b>2.5. Accessories</b> (If applicable)		<input type="checkbox"/>
2.5.1	Accessory: <input type="checkbox"/> Pump (Hydronics/Geothermal)	
2.5.2	Brand: _____	
2.5.3	Model: _____	
2.5.4	Serial: _____	
2.5.5	Capacity: _____ GPH	
2.5.6	Accessory: <input type="checkbox"/> Filter <input type="checkbox"/> Humidifier <input type="checkbox"/> De-humidifier <input type="checkbox"/> UV light <input type="checkbox"/> Other: _____	
2.5.7	Brand: _____	
2.5.8	Model: _____	
2.5.9	Accessory: <input type="checkbox"/> Filter <input type="checkbox"/> Humidifier <input type="checkbox"/> De-humidifier <input type="checkbox"/> UV light <input type="checkbox"/> Other: _____	
2.5.10	Brand: _____	
2.5.11	Model: _____	
2.5.12	Accessory: <input type="checkbox"/> Filter <input type="checkbox"/> Humidifier <input type="checkbox"/> De-humidifier <input type="checkbox"/> UV light <input type="checkbox"/> Other: _____	
2.5.13	Brand: _____	
2.5.14	Model: _____	
2.5.15	Accessory: <input type="checkbox"/> Filter <input type="checkbox"/> Humidifier <input type="checkbox"/> De-humidifier <input type="checkbox"/> UV light <input type="checkbox"/> Other: _____	
2.5.16	Brand: _____	
2.5.17	Model: _____	
2.5.18	Accessory: <input type="checkbox"/> Filter <input type="checkbox"/> Humidifier <input type="checkbox"/> De-humidifier <input type="checkbox"/> UV light <input type="checkbox"/> Other: _____	
2.5.19	Brand: _____	
2.5.20	Model: _____	
<b>2.6. Airflow</b> (If applicable)		<input type="checkbox"/>
2.6.1	Duct distribution system will be modified: _____ <input type="checkbox"/> Yes <input type="checkbox"/> No	
2.6.2	Design ESP: _____ ESP	<input type="checkbox"/>
2.6.3	Design Airflow: _____ Cfm	
2.6.4	Design Fan Speed (Heating): _____	
2.6.5	Design Fan Speed (Cooling): _____	
2.6.6	Design Variable Speed Fan Setting(s) (Speed tap or dip switch settings): _____	<input type="checkbox"/>
<b>2.7. On Rate Combustion</b>		<input type="checkbox"/>
2.7.1	Venting is in compliance with: <input type="checkbox"/> NFPA 54 <input type="checkbox"/> NFPA 31 (oil) <input type="checkbox"/> IFGC <input type="checkbox"/> Authority Having Jurisdiction (AHJ)	
2.7.2	If venting is per AHJ, provide name of jurisdiction: _____	
2.7.3	System Has Dedicated Combustion Air From Outside _____ <input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>2.8. Controls</b>		
2.8.1	Type of thermostat selected: <input type="checkbox"/> Two stage heat / Single stage cool <input type="checkbox"/> Single stage heat / Single stage cool <input type="checkbox"/> Single stage heat / Two stage cool <input type="checkbox"/> Multi-stage heat / multi-stage cool	
<b>3. INSTALLATION</b>		
<b>3.1. Airflow</b>		<input type="checkbox"/>
3.1.1	Airflow tested in which mode? <input type="checkbox"/> Heating <input type="checkbox"/> Cooling	
3.1.2	Fan Speed: <input type="checkbox"/> Hi <input type="checkbox"/> Med- Hi <input type="checkbox"/> Med <input type="checkbox"/> Med-Lo <input type="checkbox"/> Lo <input type="checkbox"/> Variable Speed	
3.1.3	Return / Entering Air Static Pressure: _____ IWC	
3.1.4	Return / Entering Air test port location: <input type="checkbox"/> Return air plenum (pre-filter) <input type="checkbox"/> Equipment cabinet (post-filter) <input type="checkbox"/> Return air (filter) grille <input type="checkbox"/> Before the coil (furnace-coil transition)	
3.1.5	Supply / Leaving Static Pressure: _____ IWC	
3.1.6	Supply / Leaving Air test port location: <input type="checkbox"/> Furnace limit switch sensor port <input type="checkbox"/> Supply air plenum <input type="checkbox"/> After the furnace (furnace – coil transition)	
3.1.7	External Static Pressure (or pressure difference): _____ IWC	
3.1.8	Airflow (based on ESP): _____ CFM	
3.1.9	OEM Maximum Allowable Total External Static Pressure: _____ IWC	
3.1.10	Return and Supply Test Hole Locations marked and sealed. _____ <input type="checkbox"/> Yes <input type="checkbox"/> No	

<b>3.2. Refrigerant Charge</b> – Run system for 10 minutes before testing DO NOT TEST BELOW 60°F			<input type="checkbox"/>
3.2.1 Sub-Cooling: Test Thermal Expansion Valve (TXV) Systems only			<input type="checkbox"/>
3.2.1.a	Liquid Line Temperature	_____ °F DB	
3.2.1.b	Liquid Line Pressure:	_____ psig	
3.2.1.c	Liquid Line Temperature for Pressure 3.2.1.b:	_____ °F DB	
3.2.1.d	Measured sub-cooling (3.2.1.b – 3.2.1.c):	_____ °F DB	
3.2.1.e	OEM sub-cooling target:	_____ °F DB	
3.2.1.f	Sub-cooling deviation (3.2.1.e – 3.2.1.d):	_____ °F DB	
3.2.2 Super-Heat Test: Fixed Orifice, Cap Tube, Piston Metering Systems only:			<input type="checkbox"/>
3.2.2.a	DB Temperature (at condenser):	_____ °F DB	
3.2.2.b	WB Temperature (at Air Handler return):	_____ °F WB	
3.2.2.c	Suction Line (SL) Temperature (at condenser):	_____ °F DB	
3.2.2.d	Suction Line pressure (at condenser):	_____ psig	
3.2.2.e	Suction Line Temperature for Pressure 3.2.2.d:	_____ °F DB	
3.2.2.f	Measured super-heat (3.2.2.c – 3.2.2.e):	_____ °F DB	
3.2.2.g	OEM super-heat target:	_____ °F DB	
3.2.2.h	Super-heat deviation:(3.2.2.g – 3.2.2.h):	_____ °F DB	
3.2.2.i	Value 3.2.1.f is $\geq 3^\circ\text{F}$ OR Value 3.2.2.h is $\geq 5^\circ\text{F}$	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	
3.2.2.j	If OEM test procedure has been used: documentation has been filed that defines this procedure, documents the refrigerant measurements not recorded above, and all is available upon request.		<input type="checkbox"/> Pass <input type="checkbox"/> Fail
<b>3.3. Electrical Measurements</b>			
3.3.1	Indoor fan motor:	_____ amperage _____ line voltage	<input type="checkbox"/>
3.3.2	Inducer fan motor:	_____ amperage _____ line voltage	<input type="checkbox"/>
3.3.3	Condenser / Heat pump:	_____ amperage _____ line voltage	<input type="checkbox"/>
3.3.4	Outdoor fan motor:	_____ amperage _____ line voltage	<input type="checkbox"/>
3.3.5	Electrical measurements within OEM-specified tolerance of nameplate value		<input type="checkbox"/> Pass <input type="checkbox"/> Fail <input type="checkbox"/>
<b>3.4. On Rate Combustion (When Fossil Fuel Equipment Is Installed)</b>			
3.4.1	Combustion Appliance Startup Testing (All Appliances): Nameplate Temp. Rise Range: _____ °F DB;	Altitude De-rating Factor: _____ Measured Temp. Rise: _____ °F DB	
3.4.2	For Gas Appliances: Manifold Pressure: _____ IWC (gas)	Orifice Size: _____	
3.4.3	For Oil Appliances: Oil Nozzle Size and Spray Angle: _____ ; Pump Pressure: _____ psig;	Oil type: _____ ; Pump Flow: _____ GPH	
3.4.4	Combustion Analyzer: CO (air free): _____ PPM Outdoor Temp: _____ °F Draft Pressure: _____ Pa	Stack Temperature: _____ °F Efficiency: _____ % Explanation why combustion tests not performed: _____	
<b>3.5. Combustion Venting (When Fossil Fuel Equipment Is Installed)</b>			
3.5.1	Vent piping is properly sloped and supported?	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	
3.5.2	Vent piping is free of rust, oxidation, or soot?	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	
3.5.3	Vent piping is free of obstruction (not blocked)?	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	
3.5.4	After 5 minutes of operation (or as specified by the manufacturer), vent is drafting (no spillage or back drafting).	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	
3.5.5	New installation has left an orphaned combustion appliance (water heater, furnace, or boiler).	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	
3.5.6	The orphaned appliance's vent system meets the code requirement.	<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.5.7	If no, provide explanation.		
3.5.8	Fuel line leakage testing performed	<input type="checkbox"/> Pass <input type="checkbox"/> Fail	
<b>4. DISTRIBUTION ASPECTS</b>			
<b>4.1. Duct Leakage Testing</b>			
4.1.1	Duct Leakage Goal (New Home - Under Construction): <input type="checkbox"/> $\leq 10\%$ Total <input type="checkbox"/> $\leq 6\%$ Total <input type="checkbox"/> Per AHJ		
4.1.2	Duct Leakage Goal (Existing Home): <input type="checkbox"/> $\leq 20\%$ Total <input type="checkbox"/> 50% Improvement (Item 4.1.5 <b>required</b> ) <input type="checkbox"/> Per AHJ		
4.1.3	Duct Leakage Test Procedure: <input type="checkbox"/> Duct Blaster (CFM25) <input type="checkbox"/> Airflow Comparison <input type="checkbox"/> SMACNA Air Leakage <input type="checkbox"/> Per AHJ		
4.1.4	Recorded (or confirmed accuracy of) airflow measurements in Section 3.1 after duct sealing was performed? <input type="checkbox"/> Yes <input type="checkbox"/> No		
4.1.5	Total Duct Leakage <b>Pre</b> -Installation:	_____ CFM25/CFM	
4.1.6	Total Duct Leakage <b>Post</b> -Installation:	_____ CFM25/CFM	
4.1.7	Improvement (4.1.5 less 4.1.6, divided by 4.1.6):	_____ % <input type="checkbox"/> Pass <input type="checkbox"/> Fail	
<b>4.2. Test and Balance</b>			
4.2.1	Total Measured Supply Air (from all supply outlets):	_____ Cfm	
4.2.2	Total Measured Return Air (from all return inlets):	_____ Cfm	
Designer Name: _____ Design Date: _____			
Technician Name: _____ Start-up Date: _____			
HVAC Contractor ID#: _____ Date Submitted: _____			