

HVAC Spec Checklist for Builders

What to require from your HVAC contractor before, during, and after installation — so systems pass inspection, perform to spec, and never generate warranty callbacks.

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1. Before You Sign — Design & Engineering

#	Item	Why It Matters
1.1	Room-by-room Manual J load calculation (not square-footage rules of thumb)	Oversized equipment short-cycles, undersized never reaches setpoint. This is the single most common source of comfort complaints.
1.2	Manual S equipment selection report matching equipment capacity to the calculated load	Proves the selected unit actually fits the load at your design temperatures — not just the nominal tonnage.
1.3	Manual D duct design with sized trunks, branches, and registers	Ductwork that is guessed produces rooms that are too hot, too cold, or too loud.
1.4	Equipment schedule with model numbers, AHRI reference numbers, and efficiency ratings	Required for stretch-code compliance and rebate applications; prevents mid-project substitutions.
1.5	Ventilation plan (ERV/HRV sizing, bath/dryer/kitchen exhaust routing and terminations)	Modern air-sealed buildings fail air-quality and code requirements without engineered ventilation.
1.6	Condenser/equipment placement drawing with clearances and service access	Prevents failed inspections and units that cannot be serviced after siding and decks go in.

2. Contract & Documentation

#	Item	Why It Matters
2.1	Scope letter listing exactly what is included: equipment, controls, ventilation, venting, startup	Eliminates the “we assumed the electrician was doing that” gaps between trades.
2.2	Contractor license number and proof of insurance	Required for permits; protects you from liability.
2.3	EPA 608 certification for anyone handling refrigerant	Federal requirement — non-certified refrigerant work voids equipment warranties.
2.4	Permit responsibility clearly assigned (who pulls, who schedules inspections)	Unassigned permits are the most common cause of closing delays.
2.5	Manufacturer warranty terms + labor warranty in writing	Registered equipment often doubles the parts warranty (5 → 10 years).

3. During Rough-In — What to Verify on Site

#	Item	Why It Matters
3.1	Duct runs match the Manual D drawings (sizes, routing, register locations)	Field improvisation destroys engineered airflow.
3.2	Duct sealing (mastic or approved tape) on every joint — before insulation covers it	Leaky ducts lose 20–30% of conditioned air and fail duct-blast tests.
3.3	Refrigerant linesets: correct diameter, length within manufacturer limits, protected and insulated	Wrong linesets kill compressor efficiency and void warranties.
3.4	Condensate drains with proper slope, trap, and overflow protection	The #1 source of ceiling damage callbacks in the first year.
3.5	Exhaust terminations (bath, dryer, kitchen) go outdoors — never into soffits or attics	Code violation and a mold problem waiting to happen.
3.6	Equipment clearances maintained after other trades rough in	A furnace you cannot open is a furnace that never gets maintained.

4. At Commissioning — Require Proof, Not Promises

#	Item	Why It Matters
4.1	Measured airflow (CFM) per register vs. design targets	The only way to know the system delivers what was engineered.
4.2	Static pressure reading vs. equipment rating	High static = noise, low airflow, early blower failure.
4.3	Refrigerant charge verified (subcooling/superheat documented)	Incorrect charge silently costs 10–25% efficiency.
4.4	Thermostat/controls programmed and zoning dampers tested	Zoning that was never tested fails in the first season.
4.5	ERV/HRV airflow balanced (supply vs. exhaust)	Unbalanced ventilation pressurizes or depressurizes the envelope.
4.6	Combustion analysis on gas equipment	Safety verification and proof of clean, efficient burn.

5. At Handover — The Closeout Package

#	Item	Why It Matters
5.1	Complete documentation set: Manual J/D/S, commissioning report, permits signed off	Required at closing; protects you in any performance dispute.
5.2	Warranty registrations completed with manufacturer	Unregistered equipment often defaults to half the warranty term.
5.3	Homeowner orientation sheet: filter sizes, maintenance schedule, thermostat guide	Reduces “how do I...” calls to your office after closing.
5.4	As-built notes for any field changes from the original design	Whoever services the system in year 5 needs to know what was actually built.

The Bottom Line

An HVAC contractor who can hand you items 1.1 through 1.6 **before the contract is signed** will almost never cause problems on site. One who cannot is guessing — with your schedule and your warranty exposure.

AirPrime HVAC Design provides every item on this checklist as standard practice on every project.

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