

Hi-Velocity Installation Tips



NOTE: All references below are to Pavilion Design & Install Manual unless otherwise noted.

• DESIGN & LAYOUT

- * Read Pavilion Design & Installation Manual & review all local codes. Ask for training.
- * A room-by-room load calculation must be done for each zone including all insulation factors. The Pavilion Hi-Velocity load calculation is preferred.
- * All rooms and areas open to the zone must be included in the load calculation.
- * Never undersize a load calculation. Having additional cooling capacity in the equipment of 1/2 to 1 full ton beyond the calculated load is acceptable.
- * All cooling systems should be designed for 10 vents per ton to ensure quiet operation, but a minimum of 8 vents per ton is required.
- * Ductwork installed in an attic or other area exposed to extreme temperatures requires R8 insulation and must be kept down away from roof-line.
- * Fancoils installed in such areas should also be protected from excessive temperature and humidity. Hot water coils must be protected from freezing.
- * Add supplemental heating for any unusually large thermal mass, such as excessive amounts of tile or multiple concrete walls. Additional vents and/or hydronic heat, such as radiant tubing or baseboard may be required.

COMMERCIAL APPLICATIONS

- * Accurate load sizing and meeting all code requirements are required.
- * Make up air must be calculated into the design and heat load.
- * Additional load gain must be calculated for lights, equipment, people and any other significant factors.

• REFRIGERATION & PIPING

- * All fittings provided with RCM evaporator coils must be installed at the coil, including gauge ports, site glass, freeze stat and TXV with sensing bulb and equalizer as shown in Figure 2 on page 22.
- * Always wrap the TXV and site glass with a wet rag or other heat shield during installation to protect them from excessive heat.
- * Make sure the sensing bulb and freeze stat are secured and insulated on suction pipe.
- * Size line-sets according to condenser manufacturers' instructions, or if that is not available, then use Chart # 2 & #3 on page 23. Line sets over 100' are not recommended. For line sets over 50' suction line accumulator must be installed.
- * Charge system from evaporator coil using the Pavilion instructions on page 25.
- * RCM evaporator coils are circuited differently from RM coils and are set for a 42° suction temperature instead of 38° shown on page 25
- * The RCM evaporator coils are equipped with wire mesh screens to prevent water carryover from the condensate pan to the fancoil. This should be installed according to the instructions.
- * Use .6 oz of refrigerant per additional foot of (3/8") line set over the condensers pre-charge when weighing in additional charge.
- * Systems using Puron must have an adjustable R410a TX valve, available from Pavilion.
- * Use head pressure control (for example, Motor Master) when system is operated with outdoor temperature below 70 degrees.
- * Both primary and secondary condensate drain connections must be piped with a pitch of ½ inch per foot.
- * Primary drain connection must have a vented P-trap, with vent between coil and trap. The trap should be primed.

- * Always use a secondary drain pan under the entire fancoil when installed in an attic or any area where a condensate leak could cause damage.
- * Never cover or restrict airflow of a working outside condenser.

• FLEXDUCT INSTALLATION

- * NEVER RUN THE SYSTEM DURING CONSTRUCTION. CONTAMINATION OF THE COIL OR BLOWER WILL VOID THE WARRANTY.
- * Install dust caps over all rough-in boots during installation to prevent the system from operating during construction.
- * Never cut 2" flex runs shorter than 10 feet. Always install required number of vents.
- * Don't crush the 2" flex duct or any main trunks. Keep vent spacing at 6" on center.
- * Place vent outlets in non-traffic areas of floors, ceilings or walls such as corners, near doors and wall switches, high on the wall and in toe-spaces of counters.
- * Avoid placing vents directly over doorways, desks, beds, window drapes, etc.
- * Compensate for long 2" runs with additional vents according to Chart #2 on page 6.
- * Never bend 2" flex duct any tighter than a 6" radius and repair any rips with foil tape.
- * Always secure flexduct coupling with a sheet metal screw to every branch take-off and every rough in boot.

• FANCOIL & MAIN SUPPLY TRUNK INSTALLATION

- * Never put a fitting of any kind on first 18" of supply trunk out of fancoil, including, elbows or offsets, tees or 2" flex duct take-offs.
- * Never use flex duct for any main trunk.
- * Seal EVERY seam of the main trunk with FOIL duct tape or approved duct sealer, including the main snap-lock seam of 26 gauge smoke pipe.
- * Never use cloth duct tape on any Hi-Velocity installation.
- * Always insulate the main trunk after sealing it, with a minimum R4 insulation and a foil or vinyl vapor barrier. Areas with extreme temperature require R8 insulation.
- * Never pull insulation tightly around main trunk. Adequate air-space ensures R-value.
- * Never exceed the maximum runs or length and minimum diameter in Appendix A.
- * Always install Tees on the main trunk according to Figure 11 on page 15
- * Maintain clearances on the access side of the fancoils listed in Figure 9 on page 14.
- * Always leave any cable ties on motor mounts in place. They are for vibration protection.
- * Seal any gaps between fancoil and other components with foil tape or silicone.
- * For long main trunk runs, remove static plate from fancoil according to instructions.
- * When suspending fancoil, provide vibration isolation on hangers.

<u>RETURN TRUNK INSTALLATION</u>

- * Make sure return air trunk is within 20% (+/-) of the recommended size as noted in Chart #3 on page 7. Return grills must be sized at least 10% bigger than return trunk.
- * Size multiple returns by adding up total square inches of duct using Appendix C on page 36 or a ductilator.
- * If using flex on the return, increase diameter by one size.
- * If using hard-pipe on the return, acoustically line the return for the first 5 feet.

• <u>AFTER-MARKET ACCESSORIES</u>

- * Any filters, humidifiers, UV lights, etc. should be installed according to their manufacturers' instructions and are not warrantied by Pavilion.
- * Never put any accessories on the main supply trunk.
- * Central steam humidifiers must have 5 feet of straight trunk before entering the fancoil return to allow absorption of humidity.

• MAINTAINENCE

- * Always maintain a clean return filter.
- * Make sure all vents are fully open in cooling mode.