

TECH TIP # 23



One of a series of dealer contractor technical advisories prepared by HARDI wholesalers as a customer service.

Heat Pump Installation Checklist

A simple installation checklist can be an invaluable guide for new personnel and a handy reminder for more experienced installers. What follows is a compilation of several manufacturers' recommendations. No list can cover all situations or conditions, so please add your own reminders and customize this guide to your specific needs.

House Construction Checklist

- Attic space is adequately vented.
- Ceiling has adequate insulation for geographic area.
- Cold walls have vapor barrier and full insulation.
- Floors over unconditioned spaces are insulated.
- Slab floor has required edge insulation.
- Crawl space is dry and ground is covered with a moisture barrier.
- Exposed basement walls are insulated.
- All windows and outside doors are tight and have storm sash or double glazing.
- All outside doors are weather-stripped.
- Fireplace (if any) is equipped with flue damper.
- Heat loss and heat gain determined for each room.

Outdoor Section Checklist

- Unit is proper size to satisfy loads.
- Voltage requirement of outdoor unit corresponds to available voltage.
- Compressor shipping blocks are removed and vibration isolators are free.
- Unit is mounted at proper height to provide defrost drainage.
- Unit is level, and square on pad.
- Outdoor coil is clean and crimped fins straightened.
- Power supply voltage has been double checked.
- Fuses and breakers are proper size and type.
- All electrical connections are tight.
- System has correct refrigerant charge.
- Refrigerant connections have been checked for tightness and leaks.
- Outdoor fan is free turning and tight on shaft.
- Outdoor thermostats are set for calculated balance points.
- All access panels and enclosures are in place and secured.

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Indoor section Checklist

- Indoor section is a matching unit to outdoor unit.
- Auxiliary heaters are properly sized.
- All electrical connections are correct and tight.
- Indoor blower is free turning and all shipping supports removed.
- Speed tap (or motor pulley) is correct for required CFM.
- Indoor coil is clean and in the correct configuration for application.
- Clean filters are in place.
- Condensate drain pan is in position and drain line is trapped and clear.
- Supply and return duct connections are tight.
- Refrigerant lines are correctly pitched and connected.
- Refrigerant lines are properly supported.
- Excess refrigerant tubing (if any) has no vertical loops or low spots.

Duct System Checklist

- Ductwork has been sized using accepted procedures such as ACCA's Manual "D" or SMACNA's duct sizing guide.
- Supply branches have accessible dampers or adequate register dampers for system balancing and are open.
- Ductwork inspected for tight joints and proper installation.
- Ductwork in unconditioned spaces is insulated.
- Supply and return openings are square, at proper distance from walls, ceilings and floors and clear of obstructions.

Thermostat Checklist

- Thermostat is correct model for equipment and installation.
- Thermostat is unaffected by extraneous heat and cold.
- Thermostat is level.
- Contacts have been checked for damage.
- Wiring connections are correct and tight.
- Temperature indicator reads correctly.
- No drafts from stud space behind thermostat.
- Heat anticipator (or cycle rate adjuster) setting is correct.

Start-up Checklist

- Fan switch tested with thermostat "off" and power "on."
- With indoor blower "on" preliminary system balance made.
- Current draw of indoor fan motor measured and compared to nameplate data.
- Power to crankcase heater turned on 45 minutes (per ton) prior to starting unit.
- Heat pump started in proper mode and allowed to stabilize.
- Compressor sounds normal.
- Voltage and current draw at compressor checked.
- Refrigerant tubing checked for vibrations both indoors and outside.

- Refrigerant charge checked at following conditions:
 - Outdoor entering dry bulb _____
 - Indoor entering dry bulb _____
 - Indoor entering wet bulb _____
 - Low side pressure _____
 - High side pressure _____
 - Suction line temperature _____
 - at outdoor unit
- Thermostat operation (first and second stage) tested.
- Unit manually placed in defrost cycle and defrost termination tested.
- Required indoor air flow adjusted by measuring temperature rise with only resistance heating operating.
- Supply dampers re-adjusted to balance system air flow.
- Customer instructed on operation of system.
- Customer instructed on changing filters.
- Registration cards filled out in presence of customer.
- Service call phone number attached to unit.
- Premises cleaned up.
- Thank the customer for choosing your company.

Note: For useful “Comfort Survey” checklists, see pages 61-62 of HARDI’s *Fundamentals of Cooling* textbook.