

BEST PRACTICES HVAC

NEW FURNACE INSTALLATION

1. 90+ units will be installed whenever possible; document in client file why a 90+ was not used. If a 90+ is not used, an 80% 2 stage variable speed must be used.
2. In **ALL** instances, when a furnace is being replaced a Manual J load calculation will be completed and a printout included in the client file. It is recommended that a BDR Comfort Optimizer hand held calculator be purchased and utilized for this purpose. Under no circumstance will a furnace be replaced without a load calculation being completed. The size of the new furnace installed must closely match the calculation results.
3. On 90+ installations intake air must be taken from outside the home. **NO EXCEPTIONS.**
4. Electrical systems on new furnaces will be grounded and polarity cannot be reversed. In situations where a ground system is not present in the home, contact the State WX HVAC specialist for details and remedies to these situations.
5. Cellular core PVC is not allowed for venting or combustion air.
6. PVC is combustible; 1" clearance must be maintained to "B" venting and 6" clearance to single wall vents. **NO EXCEPTIONS**
7. Concentric or Bayvent type termination kits are recommended whenever possible.
8. Mastic or tape is not allowed on venting systems.
9. Drilling B-Vent for testing is not allowed. For testing purposes the B-Vent can be lifted off the furnace and a temporary short section of B-Vent pipe, drilled for testing, can be inserted. The "test" section of pipe must be removed after testing. If practical, testing can also be accomplished at the termination point on a roof.
PVC venting can be drilled. The hole must be plugged with a stainless steel screw and RTV silicone sealant.
10. Replace all gas cocks and flex connectors on all new installations, gas flex connectors may not pass through an appliance cabinet and may not be concealed inside the appliance.
11. Pleated filters are mandatory and filter boxes are required if at all possible. If a filter box is not possible install a filter rack and pleated filter inside the furnace. Filter slots in return ducts are discouraged and should only be used when necessary. "Hog" hair filters will only be permitted on furnaces with documented reason for additional air flow needs. (only applicable on some mobile home 90% models)"
12. All condensate pumps located in or above finished areas, where damage could occur if a pump fails, will be required to have a safety switch connected to the furnace. This will shutdown the furnace in the event of a pump failure. If the pump is in an unfinished area, a pump with a safety switch is recommended but not required.
13. Condensate drain lines must be drained into an approved drain, dry vent or to the outside. These drains may never be "dumped" in a sewer line without an approved connection. Condensate drains terminating outside must not be discharged onto a sidewalk or driveway.
14. Condensate drains on mobile homes may be pumped to a dry vent in close proximity to the furnace. If a vent is not close, the drain will be discharged through the belly below the furnace and drained to the outside through a larger diameter insulated PVC pipe installed at steep incline to facilitate

draining and help prevent freezing. Dumping condensate water underneath the mobile home is NOT permitted.

DUCTING

1. All accessible cold air returns will be sealed. This includes removing floor panning, completely sealing panned area, reinstall and seal panning.
2. All ducts in un-conditioned areas will be sealed
3. All mobile home boots will be sealed, and if needed, new registers installed. It is imperative that the registers fit properly in the ducts.
4. Mastic is the preferred method of duct sealing.
5. UL 181 tape maybe used in locations where mastic is not allowed by code.
6. Silicone, caulk or high temperature caulk is not allowed for duct sealing; mastic must be used.

AC SYSTEMS

1. Refrigerant logs must be kept for refrigerant transfers.
2. Installation of a new 90+ furnace will require the installation of a new evaporator coil where an AC system is present and was functioning during the previous cooling season. Installation of a replacement condenser unit will be based on the payback of the new unit. If the AC was not working previously, no coil will be installed. The client must never be left with anything less than what they previously had.

WATER HEATER INSTALLATIONS

1. Replace all gas cocks and flex lines on new installations.
2. All water heater blankets will be secured with straps. Tape may be used to secure blankets on top of the water heater and on the vertical seams only.
3. **ALL** water heaters, regardless of age or factory insulation will be insulated with an R-11 blanket if spacing allows. If space is limited an R-5 blanket or foil ray may be used. No blanket will be installed if the manufacturer's tag, on the water heater, specifically states the warranty will be voided if a blanket is installed.

Electric water heater blankets will include a top. Cutouts will be made for gas controls. Electric controls and any "tags" will be marked on blanket for future reference.

4. Pipe insulation will be secured with "zip" ties.
5. Water heater venting "orphaned" during installation of a new furnace with be retrofitted by relining the flue or by providing a proper sized vent. If the situation requires a direct vent water heater may be installed.
6. Seismic straps and expansion tanks will be required on all new water heater installations.