



Quick Reference on Residential Retrofit Heat-Pump Options

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**Instructions: 1. Choose your column(s) >>>>
2. Consider the 6 HP Types listed below**

						Existing Indoor Heat Distribution Method				
		Heat Source	General Type	Common Name	Seasonal COP <small>best-performing models</small>	Common Name	Air Ducts <small>from furnace & A coil + outdoor A/C compressor*</small>	Hydro-Air <small>One boiler + multiple air handlers with hydrocoils & outdoor A/C compressors*</small>	Hydronic Baseboards	Hydronic Radiant Panels <small>(Walls or floor)</small>
Existing Heating System	Fossil Fuel	Burn Oil, Natural Gas, or LP gas	Furnace or Boiler	<1	Medium	Forced-Air	Water + Forced-Air	Water	Water	Electricity
	Electricity	Electric Joule Heating; current through resistor makes heat	Electric baseboards, radiant panels (Walls or floor), or Furnace	1	Conduit	Ducts	Pipes + Ducts	Pipes	Pipes	Wiring
					Indoor Heat Distribution with new Heat Pump	Suitability for use with New Heat Pump <small>existing system may be retained to supplement or backup heat pump</small>				
Candidate New Heat Pump Type	Outdoor Air	Air-Source Heat Pump (ASHP)	Ductless Mini-Split* aka Multi-Zone or Multi-Split*	-3	Refrigerant lines, sometimes via branch box*, Replaces all existing indoor heat distribution	Yes, if ducts unsuitable or rooms w/o ducts	Yes, if ducts unsuitable or rooms w/o ducts	Yes, may be the only feasible ASHP option	Yes, may be the only feasible ASHP option	Yes, may be the only feasible ASHP option
			Central Ducted ASHP	-2.7	Existing or new air ducts Replaces any other existing indoor heat distribution	Yes, if ducts OK or remediated. High velocity ducts (UNICO) work with Bosch BOVA	Yes, if ducts OK or remediated. One HP per air handler* or added vertical ducting	No	No	No
			Air-to-Water Heat Pump (AWHP)**	-2	Insulated water pipes, separate outdoor loop for split systems*	No	Yes, May re-use heating coils in existing hydro-air installations	Yes, but multiple series register connections and/or poor pipe insulation may dergrade performance	Yes, but multiple series register connections and/or poor pipe insulation may dergrade performance	No
	Earth (Ground)	Ground-Source Heat Pump (GSHP) or Geothermal Vertical Closed Loop. Other alternatives like Open Loop, Horizontal Loop, Pond Loop, Deep Geo, and DX have various drawbacks and some may even be illegal in this area.	Central Ducted GSHP	-4.5	Existing or new air ducts Replaces any other existing indoor heat distribution	Yes. If ducts OK or remediated	Yes, if ducts OK or remediated. One HP per air handler* or added vertical ducting	No	No	No
			Water-to-Water GSHP	-3	Insulated water pipes	No	Yes, May re-use heating coils in existing hydro-air installations	Yes, but multiple series register connections and/or poor pipe insulation may dergrade performance	Yes, but multiple series register connections and/or poor pipe insulation may dergrade performance	No
			Ductless GSHP	-3	VRF Refrigerant lines* Replaces all existing indoor heat distribution	Yes, if ducts unsuitable	Yes, if ducts unsuitable	Yes, may be the only feasible GSHP option	Yes, may be the only feasible GSHP option	Yes, may be the only feasible GSHP option

*Split system increases risk of refrigerant leaks
 **See "Air-to-Water Heat Pumps – Homeowner Reference" <https://heatsmartalliance.org/resources/>

Key:

Not Heat Pump	Not feasible or Necessary or very costly	Not widely used or mature, very few installers	Mature and well supported	Also Supports Cooling & Ventilation
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