

# Cold-Climate Air Source Heat Pumps

Improving Installations by Weatherizing First



**NYSERDA**  
New York State Energy Research  
and Development Authority

## Reducing Loads Leads to Improved Heat Pump Installations

**Nine out of 10 homes in the U.S. are under-insulated.** Air leakage can account for **25-40% of the energy used for heating and cooling** in a typical home. Basic weatherization improvements can reduce the design loads of a New York State home significantly.

### HVAC Contractor Benefits



Reduced design loads allow for a **more compact system design, saving installation time and first-cost.**

Resulting in a **more competitive bid** and **long-term bill savings.**



Upgrading the building envelope before the heat pump installation **prevents an oversized, inefficient heat pump and ensures customer comfort while preventing callbacks.**



Offering weatherization services **improves your reputation with customers,** increases revenue, and diversifies your business.



Providing the homeowner with the best solution **builds customer trust,** even if it means delaying heat pump installation.



Reducing the heating load creates **more balanced loads for homes in cold climate regions** and prevents ineffective humidity control and short cycling.

Weatherization measures vary in impact and complexity. The table below ranks common measures by priority to the building. Measures with a (✓) are easily done without much additional training. HVAC contractors can often offer measures with a (+) after some extra effort. Other measures are best done in collaboration with a home performance contracting partner. **Build more trust with your customers and improve heat pump installations by upgrading the home's envelope first.**

Priority	Weatherization Measures	Homeowner DIY	HVAC Contractor	Home Performance Partner
★★★★★	Air-seal attic and below-grade spaces*		✓	✓
★★★★★	Duct clean, seal, and insulate*		✓	✓
★★★★★	Attic insulation and radiant barrier to Energy Code		+	✓
★★★★★	Rim joist/below-grade insulation		+	✓
★★★★	Continuous exterior insulation and windows upgrade			✓
★★★	Air-seal any wall penetration	✓	✓	✓
★★★	Weatherstrip windows & doors	✓	+	✓
★★	Solar control window film	✓	+	✓
★	Electrical outlet gaskets	✓	+	✓
★	Exterior shading on exposed walls	✓		✓

\*Tightly air-sealing a home requires addressing ventilation and indoor air quality. The HVAC contractor or home performance partner should also install kitchen and bathroom exhaust fans which vent to the exterior, and/or an Energy-Recovery Ventilation (ERV) or Heat-Recovery Ventilation (HRV) mechanical ventilation system.

## How to Add Weatherization to Your Business



**Join or use resources from trade associations**, such as the Building Performance Contractors Association (BPCA) of New York State, to learn more about the industry. You'll also expand your network to grow your business and workforce.



**Partner with an established home performance contractor** and work together to decarbonize more homes by weatherizing and electrifying heating and cooling.



**Hire an experienced professional in the home performance market** to help kick start your weatherization services. **NYSERDA workforce development programs offer wage reimbursement** that can support you financially.



**Seek training support** from a trade association, manufacturer or distributor of insulation and air sealing materials, or attending a sponsored conference or workshop. **Take advantage of free training** from the Department of Energy, WxTV, Building Performance Association, and National Grid's Project C.



**Obtain certifications and credentials**, i.e. Building Performance Institute (BPI), **to become an installer in existing weatherization programs** such as NYSERDA EmPower+, NYSERDA Comfort Home, PSEG Home Comfort, and more.

## How to Sell Weatherization to the Customer

Help your customers understand the value of adding weatherization to your scope of work by making your services more relatable.

**Drawing a comparison for them - like how cell phones need updates to maintain their functionality, home HVAC systems and building envelopes need attention** to ensure reliability, performance, comfort, and safety. Adding insulation and air sealing is the update your customers' homes need!



## Additional Benefits to the Customer



Homeowners **can purchase a smaller and higher quality HVAC system**, while using less energy right away and potentially lowering their monthly bills.



**Temperatures and humidity stay more consistent** throughout the home. This leads to **better year-round comfort**.



**Less pollen, dust, and pests** enter the home, **improving the quality of living** for those with allergies, asthma, and with other respiratory concerns.



Roof snow melts more evenly **reducing the chance of ice dams**. The attic will stay drier, **reducing the risk of building damage from moisture**.