

HVAC Rebate Worksheet



TAKE CHARGE™

Before you start

Instructions: Complete all relevant information for your project. Include with complete application package.

The HVAC Worksheet should be completed for new construction projects exceeding code and for retrofit of existing HVAC equipment. New equipment baseline efficiency is presented in the tables in this worksheet. Certain projects are considered custom and are not eligible for the HVAC prescriptive rebate. Examples of custom projects include process cooling equipment and projects involving HVAC system redesign. Refer to the rebate application for pre-approval requirements for custom projects. All equipment must exceed baseline equipment efficiency, as determined by equipment specification sheets and AHRI ratings where applicable. Please refer to Appendix for eligible equipment efficiency. Rebates are paid per unit and are capped at 30% of project's total cost.

Submit your application

The following documents must accompany the HVAC worksheet in a complete application:

- Equipment spec sheet
- Itemized invoice showing model number
- Rebate application
- Completed HVAC rebate worksheet (this form)
- W9 for payee
- Copy of latest electric bill

Questions? Call 888-261-4567

1 Project Information

- Retrofit New Construction

ZIP (project location):

Estimated/Actual Install Date:

2 Building Type

- | | | |
|---|--|--|
| <input type="checkbox"/> Arena/Auditorium/Convention | <input type="checkbox"/> Medical - Clinic | <input type="checkbox"/> Public Assembly |
| <input type="checkbox"/> Convenience Stores | <input type="checkbox"/> Medical - Hospital | <input type="checkbox"/> Public Order and Safety |
| <input type="checkbox"/> Daycare | <input type="checkbox"/> Museum/Library | <input type="checkbox"/> Public Services (Non-Food) |
| <input type="checkbox"/> Education - College/University | <input type="checkbox"/> Nursing Homes | <input type="checkbox"/> Religious Worship/Church |
| <input type="checkbox"/> Education - K-12 | <input type="checkbox"/> Office | <input type="checkbox"/> Restaurant - Fast Food |
| <input type="checkbox"/> Grocery | <input type="checkbox"/> Other: _____ | <input type="checkbox"/> Restaurant - Sit-Down |
| <input type="checkbox"/> Gymnasium/Performing Arts | <input type="checkbox"/> Public Services (Non-Food) | <input type="checkbox"/> Retail - Large |
| <input type="checkbox"/> Industrial - 1 Shift/Light Mfg | <input type="checkbox"/> Outdoor - Parking Lots | <input type="checkbox"/> Storage - Conditioned |
| <input type="checkbox"/> Industrial - 2 Shift | <input type="checkbox"/> Outdoor - Parking Garage | <input type="checkbox"/> Storage - Unconditioned |
| <input type="checkbox"/> Industrial - 3 Shift | <input type="checkbox"/> Outdoor - Street Lighting | <input type="checkbox"/> Warehouses (Not Refrigerated) |
| <input type="checkbox"/> Lodging (Common Spaces) | <input type="checkbox"/> Penitentiary | <input type="checkbox"/> Warehouses (Refrigerated) |
| <input type="checkbox"/> Lodging (MF, Dorms) | <input type="checkbox"/> Police/Fire Stations | <input type="checkbox"/> Waste Water Treatment Plant |
| <input type="checkbox"/> Lodging Hotel (Guest Rooms) | <input type="checkbox"/> Post Office/Town Hall/Court | |

3 Trade Ally/Contractor Information

Business Name:

Contact Name:

Phone:

Business Address:

City:

State:

ZIP:

4 HVAC: Air-Source Air Conditioner and Air-Source Heat Pumps

Date Installed	Quantity Installed	Installed Equipment	Manufacturer	Model #	AHRI #	Cost
Rated Cooling Capacity (tons or BTU/hr)		EER ($\leq 65,000$ BTU/hr systems)	Cooling System Efficiency (SEER for $< 65,000$ BTU/hr systems, IEER for $\geq 65,000$ BTU/hr systems)	Heating System Type <input type="checkbox"/> Electric Resistance <input type="checkbox"/> None <input type="checkbox"/> Other	Heating System Capacity (BTU/hr) (Heat Pump Only)	Heating System Efficiency (HSPF for $< 65,000$ BTU/hr heat pump systems, COP for $\geq 65,000$ BTU/hr heat pump systems)

5 Air-Cooled and Water-Cooled Electric Chillers

Date Installed	Quantity Installed	Manufacturer	Model #	AHRI #	Equipment Type (Water-Cooled Only)	Chiller Capacity (tons)	Cooling Efficiency (EER for air-cooled, kW/ton for water-cooled)	Installed Integrated Part Load Value (IPLV)	Cost
					<input type="checkbox"/> Positive Displacement <input type="checkbox"/> Reciprocating <input type="checkbox"/> Centrifugal				
					<input type="checkbox"/> Positive Displacement <input type="checkbox"/> Reciprocating <input type="checkbox"/> Centrifugal				
					<input type="checkbox"/> Positive Displacement <input type="checkbox"/> Reciprocating <input type="checkbox"/> Centrifugal				

6 Water-Source and Geothermal Heat Pumps

Date Installed	Quantity Installed	Manufacturer	Model #	AHRI #	Heating System Type	Equipment and Capacity	Rated Cooling Capacity (BTU/hr)	Rated Heating Capacity (BTU/hr)	Energy Efficient Ratio (EER)	Coefficient of Performance (COP)	Cost
					<input type="checkbox"/> Electric <input type="checkbox"/> Other <input type="checkbox"/> None	<input type="checkbox"/> Ground Source Heat Pump <input type="checkbox"/> Ground Water-Source Heat Pump <input type="checkbox"/> Water-Source Heat Pump					
					<input type="checkbox"/> Electric <input type="checkbox"/> Other <input type="checkbox"/> None	<input type="checkbox"/> Ground Source Heat Pump <input type="checkbox"/> Ground Water-Source Heat Pump <input type="checkbox"/> Water-Source Heat Pump					

7 Ductless Mini-Split Heat Pump

Date Installed	Quantity Installed	Manufacturer	Model #	AHRI #	Replaced Heating System Type	Replaced Cooling System Type	Heating Seasonal Performance Factor (HSPF)	Seasonal Energy Efficiency Ratio (SEER)	Ductless Heat Pump Unit Cooling Capacity (BTU/hr)	Ductless Heat Pump Unit Heating Capacity (BTU/hr)	Cost
					<input type="checkbox"/> Standard DHP <input type="checkbox"/> Electric Resistance <input type="checkbox"/> ASHP <input type="checkbox"/> PTHP <input type="checkbox"/> Electric Furnace <input type="checkbox"/> Non-Electric Heating <input type="checkbox"/> New Space <input type="checkbox"/> No Heating	<input type="checkbox"/> Standard DHP <input type="checkbox"/> Central A/C <input type="checkbox"/> ASHP <input type="checkbox"/> Room A/C <input type="checkbox"/> PTAC <input type="checkbox"/> PTHP <input type="checkbox"/> New Space <input type="checkbox"/> No Cooling					
					<input type="checkbox"/> Standard DHP <input type="checkbox"/> Electric Resistance <input type="checkbox"/> ASHP <input type="checkbox"/> PTHP <input type="checkbox"/> Electric Furnace <input type="checkbox"/> Non-Electric Heating <input type="checkbox"/> New Space <input type="checkbox"/> No Heating	<input type="checkbox"/> Standard DHP <input type="checkbox"/> Central A/C <input type="checkbox"/> ASHP <input type="checkbox"/> Room A/C <input type="checkbox"/> PTAC <input type="checkbox"/> PTHP <input type="checkbox"/> New Space <input type="checkbox"/> No Cooling					
					<input type="checkbox"/> Standard DHP <input type="checkbox"/> Electric Resistance <input type="checkbox"/> ASHP <input type="checkbox"/> PTHP <input type="checkbox"/> Electric Furnace <input type="checkbox"/> Non-Electric Heating <input type="checkbox"/> New Space <input type="checkbox"/> No Heating	<input type="checkbox"/> Standard DHP <input type="checkbox"/> Central A/C <input type="checkbox"/> ASHP <input type="checkbox"/> Room A/C <input type="checkbox"/> PTAC <input type="checkbox"/> PTHP <input type="checkbox"/> New Space <input type="checkbox"/> No Cooling					

8 Packaged Terminal Air Conditioners

Date Installed	Quantity Installed	Manufacturer	Model #	Rated Cooling Capacity (BTU/hr)	Project Type	Energy Efficiency Ratio (EER)	Cost
					<input type="checkbox"/> Electric <input type="checkbox"/> Other <input type="checkbox"/> None		
					<input type="checkbox"/> Electric <input type="checkbox"/> Other <input type="checkbox"/> None		
					<input type="checkbox"/> Electric <input type="checkbox"/> Other <input type="checkbox"/> None		

9

Packaged Terminal Heat Pumps

Date Installed	Quantity Installed	Manufacturer	Model #	Rated Cooling Capacity (BTU/hr)	Rated Heating Capacity (BTU/hr)	Energy Efficiency Ratio (EER)	Coefficient of Performance	Cost

10

Economizer Controls

Date Installed	Quantity Installed	Manufacturer	Model #	Area of Space Served by Controlled Unit (sq. ft.)	Operating Schedule	Air Conditioner Type	Air Conditioning Capacity (BTU/hr)	Seasonal Energy Efficiency Ratio (SEER) if System is Air-Source Air Conditioner < 65,000 BTU/hr	Integrated Energy Efficiency Ratio (IEER) if System is Air-Source Air Conditioner ≥ 65,000 BTU/hr, Water-Source Air Conditioner, or Evaporatively Cooled Air Conditioner	Cost
					<input type="checkbox"/> 8 a.m.–5 p.m.; 5 days/week <input type="checkbox"/> 8 a.m.–12 a.m.; 5 days/week <input type="checkbox"/> 24 hours/day; 5 days/week <input type="checkbox"/> 24 hours/day; 7 days/week	<input type="checkbox"/> Air-Source Air Conditioner <input type="checkbox"/> Water-Source Air Conditioner <input type="checkbox"/> Evaporatively Cooled Air Conditioner				
					<input type="checkbox"/> 8 a.m.–5 p.m.; 5 days/week <input type="checkbox"/> 8 a.m.–12 a.m.; 5 days/week <input type="checkbox"/> 24 hours/day; 5 days/week <input type="checkbox"/> 24 hours/day; 7 days/week	<input type="checkbox"/> Air-Source Air Conditioner <input type="checkbox"/> Water-Source Air Conditioner <input type="checkbox"/> Evaporatively Cooled Air Conditioner				
					<input type="checkbox"/> 8 a.m.–5 p.m.; 5 days/week <input type="checkbox"/> 8 a.m.–12 a.m.; 5 days/week <input type="checkbox"/> 24 hours/day; 5 days/week <input type="checkbox"/> 24 hours/day; 7 days/week	<input type="checkbox"/> Air-Source Air Conditioner <input type="checkbox"/> Water-Source Air Conditioner <input type="checkbox"/> Evaporatively Cooled Air Conditioner				
					<input type="checkbox"/> 8 a.m.–5 p.m.; 5 days/week <input type="checkbox"/> 8 a.m.–12 a.m.; 5 days/week <input type="checkbox"/> 24 hours/day; 5 days/week <input type="checkbox"/> 24 hours/day; 7 days/week	<input type="checkbox"/> Air-Source Air Conditioner <input type="checkbox"/> Water-Source Air Conditioner <input type="checkbox"/> Evaporatively Cooled Air Conditioner				

11 Guest Room Occupancy Sensor

Date Installed	Quantity Installed	Manufacturer	Model #	Cooling Capacity (tons)	HVAC System Type	Guest Room Baseline Controls	Cost
					<input type="checkbox"/> PTAC with Electric Resistance Heat <input type="checkbox"/> PTAC with Gas Heat <input type="checkbox"/> PTHP <input type="checkbox"/> Central Hot Water Fan Coil with Electric Resistance Heat <input type="checkbox"/> Central Hot Water Fan Coil with Gas Heat	<input type="checkbox"/> Housekeeping Setback <input type="checkbox"/> No Housekeeping Setback	
					<input type="checkbox"/> PTAC with Electric Resistance Heat <input type="checkbox"/> PTAC with Gas Heat <input type="checkbox"/> PTHP <input type="checkbox"/> Central Hot Water Fan Coil with Electric Resistance Heat <input type="checkbox"/> Central Hot Water Fan Coil with Gas Heat	<input type="checkbox"/> Housekeeping Setback <input type="checkbox"/> No Housekeeping Setback	
					<input type="checkbox"/> PTAC with Electric Resistance Heat <input type="checkbox"/> PTAC with Gas Heat <input type="checkbox"/> PTHP <input type="checkbox"/> Central Hot Water Fan Coil with Electric Resistance Heat <input type="checkbox"/> Central Hot Water Fan Coil with Gas Heat	<input type="checkbox"/> Housekeeping Setback <input type="checkbox"/> No Housekeeping Setback	
					<input type="checkbox"/> PTAC with Electric Resistance Heat <input type="checkbox"/> PTAC with Gas Heat <input type="checkbox"/> PTHP <input type="checkbox"/> Central Hot Water Fan Coil with Electric Resistance Heat <input type="checkbox"/> Central Hot Water Fan Coil with Gas Heat	<input type="checkbox"/> Housekeeping Setback <input type="checkbox"/> No Housekeeping Setback	

12 Programmable Thermostat

Date Installed	Quantity Installed	Manufacturer	Model #	Cooling Capacity (tons)	Heating Capacity (BTU/Hour)	Equipment Type	Cost
						<input type="checkbox"/> Air-Source A/C with Non-Electric Heat <input type="checkbox"/> Air-Source A/C with Electric Heat <input type="checkbox"/> Air-Source A/C with Heat Pump <input type="checkbox"/> Air-Source A/C with Non-Electric Heat <input type="checkbox"/> Air-Source A/C with Electric Heat <input type="checkbox"/> Air-Source A/C with Heat Pump	
						<input type="checkbox"/> Air-Source A/C with Non-Electric Heat <input type="checkbox"/> Air-Source A/C with Electric Heat <input type="checkbox"/> Air-Source A/C with Heat Pump	
						<input type="checkbox"/> Air-Source A/C with Non-Electric Heat <input type="checkbox"/> Air-Source A/C with Electric Heat <input type="checkbox"/> Air-Source A/C with Heat Pump	

13 VFD for HVAC Equipment

Date Installed	Quantity Installed	Manufacturer	Model #	Type of Motor Controlled	Fan Type	Motor Size (total HP controlled by VFD)	Motor Nameplate Efficiency (at full load)	# Motors Controlled by VFD	Motor Configuration	Cost
				<input type="checkbox"/> Air Handling Unit	<input type="checkbox"/> Constant Volume <input type="checkbox"/> Air Foil / Backward Incline <input type="checkbox"/> Air Foil Backward Incline w/inlet Guide Vanes <input type="checkbox"/> Forward Curve <input type="checkbox"/> Forward Curve w/ Inlet Vanes					
				<input type="checkbox"/> Chilled Water Pump						
				<input type="checkbox"/> Hot Water Pump						

14 ECM Circulating Fan

Date Installed	Quantity Installed	Manufacturer	Model #	Existing Motor Type	Efficient Motor Horsepower (HP)	Fan Usage	Motor Nameplate Efficiency (at full load)	Cost
				<input type="checkbox"/> SP <input type="checkbox"/> PSC	<input type="checkbox"/> 0.5 <input type="checkbox"/> 0.75 <input type="checkbox"/> 1.0	<input type="checkbox"/> Heating Only <input type="checkbox"/> Cooling Only <input type="checkbox"/> Both Heating and Cooling		
				<input type="checkbox"/> SP <input type="checkbox"/> PSC	<input type="checkbox"/> 0.5 <input type="checkbox"/> 0.75 <input type="checkbox"/> 1.0	<input type="checkbox"/> Heating Only <input type="checkbox"/> Cooling Only <input type="checkbox"/> Both Heating and Cooling		
				<input type="checkbox"/> SP <input type="checkbox"/> PSC	<input type="checkbox"/> 0.5 <input type="checkbox"/> 0.75 <input type="checkbox"/> 1.0	<input type="checkbox"/> Heating Only <input type="checkbox"/> Cooling Only <input type="checkbox"/> Both Heating and Cooling		

HVAC Rebate Worksheet

APPENDIX

Air-Source Heat Pump

Measure Description: This measure applies to the installation of new, properly sized, packaged or split system heat pumps that exceed efficiency requirements of 2009 IECC.

System Description: Packaged systems enclose all system components in one unit and are synonymous with roof top units (RTUs). Split systems have system components physically separated, with the condensing unit located outside and one or more air handling units located inside and conditioned air distributed via ductwork. This measure does not include ductless mini-split heat pumps.

How It Saves Energy: Equipment exceeding minimum standards for energy efficiency uses less energy to produce an equivalent amount of cooling and heating.

Eligibility: New equipment must exceed the efficiency requirements of IECC 2009 and be used solely for comfort cooling purposes. Equipment can be installed in a new application or can replace equipment that has failed or that is expected to fail imminently. Submit the project as custom if equipment is replacing a different equipment type, if equipment being replaced is still fully operational, or if the equipment serves process heating or cooling loads.

Entry Guidance: Enter Rated Cooling Capacity and efficiency values (IEER, COP, and EER for systems > 65,000 BTU/hr and HSPF and SEER for systems < 65,000 BTU/hr) based on manufacturer's data and equipment ratings in accordance with ARI standards. If necessary, convert SEER to EER by using $EER = SEER \times (11.3/13)$ and COP to HSPF by using $HSPF = COP \times 3.412$.

Air-Source Air Conditioners

Measure Description: This measure applies to the installation of new, properly sized, packaged or split system air conditioners > 5.42 tons (65,000 BTU/hr) that exceed efficiency requirements of IECC 2009.

System Description: Packaged systems enclose all system components (condenser, compressor and air handler) in one unit. They are often found on roofs and are referred to as roof top units (RTUs). Split systems have system components physically separated: the condensing unit is located outside, and one or more air handling units are located inside with conditioned air distributed via ductwork.

How It Saves Energy: Equipment exceeding minimum standards for energy efficiency uses less energy to produce an equivalent amount of cooling.

Eligibility: New equipment must exceed the efficiency requirements of IECC 2009 and be used solely for comfort cooling purposes. Equipment can be installed in a new application or can replace equipment that has failed or that is expected to fail imminently. Submit the project as custom if equipment is replacing a different type of equipment, if equipment being replaced is fully operational, or if the equipment is used for process cooling.

Entry Guidance: Enter Rated Cooling Capacity and efficiency values (EER and IEER for systems > 65,000 BTU/hr and SEER for systems < 65,000 BTU/hr) based on manufacturer's data and equipment ratings in accordance with ARI standards.

Air-Cooled Chillers

Measure Description: This measure applies to the installation of new, properly sized, electric air-cooled chillers that exceed minimum program efficiency standards.

How It Saves Energy: Equipment exceeding minimum standards for energy efficiency use less energy to produce an equivalent amount of cooling.

Eligibility: New equipment must exceed the efficiency requirements of IECC 2009. Equipment can be installed in a new application or can replace equipment that has failed or that is expected to fail imminently. New equipment must be a single chiller serving a single comfort cooling load. All other chiller applications, including chiller plants having multiple chillers or serving multiple loads, and chillers used for process cooling must be submitted as custom. Projects must be submitted

as custom if equipment is replacing a different equipment type, if equipment being replaced is fully operational, or if an existing chiller is retrofitted with a variable speed drive.

Entry Guidance: Enter Rated Cooling Capacity and efficiency values (IPLV and EER) based on manufacturer's data and equipment ratings in accordance with ARI standards.

Water-Cooled Chillers

Measure Description: This measure applies to the installation of new, properly sized, electric water-cooled chillers that exceed minimum program efficiency standards.

How It Saves Energy: Equipment exceeding minimum standards for energy efficiency use less energy to produce the same amount of comfort cooling.

Eligibility: New equipment must exceed the efficiency requirements of IECC 2009. Equipment can be installed in a new application or can replace equipment that has failed or that is expected to fail imminently. New equipment must be a single chiller serving a single comfort cooling load. All other chiller applications, including chiller plants having multiple chillers or serving multiple loads, and chillers used for process cooling must be submitted as custom. Projects must be submitted as custom if equipment is replacing a different equipment type, if equipment being replaced is fully operational, or if an existing chiller is being retrofit with a variable speed drive.

Entry Guidance: Enter Rated Cooling Capacity and efficiency values (IPLV and EER) based on manufacturer's data and equipment ratings in accordance with ARI standards.

Ductless Mini-Split Heat Pump

Measure Description: Ductless mini-split heat pumps are split system heat pumps that have a single outdoor unit and multiple indoor coils. Instead of distributing air around the space, ductless mini-splits distribute refrigerant to each zone and individual air handling units within the zone deliver air for space cooling.

How It Saves Energy: By eliminating ductwork, ductless mini-split heat pump systems eliminate the loss (through duct leakage) of heated and cooled air. They also reduce the heat transfer that tempers conditioned air within traditional ducts. Mini-split heat pumps use variable speed control to achieve high-efficiency heating and cooling.

Eligibility: For eligibility, ductless mini-split heat pumps must be 65,000 BTU/hr (5.4 tons) or smaller, ENERGY STAR-rated, and used for comfort cooling and heating only. Larger capacity systems should be treated as custom rebates. Systems can be new installations or retrofit. Old systems must be de-energized and removed from the site.

Entry Guidance: Use manufacturer's performance specifications at ARI rated conditions to enter Heating Season Performance Factor (HSPF) and Seasonal

Energy Efficiency Ratio (SEER).

Default baseline efficiencies are as follows:

- Electric Furnace COP: 0.95
- Heat Pump HSPF: 7.7
- Electric Resistance HSPF: 3.412

If necessary, convert performance factors using the following formula:

- $SEER \times 11.3 / 13 = EER$
- $HSPF = COP \times 3.412$

Economizer Controls

Measure Description: Dual enthalpy economizers monitor outdoor temperature and humidity and open dampers to draw in outdoor air when conditions will reduce mechanical cooling needs.

How It Saves Energy: Dual enthalpy economizers control the amount of outside air brought into the building. When outdoor conditions will cool the interior space (or reduce latent heat) then dampers allow outdoor air into the space.

Eligibility: To be eligible, controls must monitor outdoor air and return air enthalpy (and not simply temperatures).

Entry Guidance: Enter the area of the conditioned space that will be served by the controller, the facility operating schedule, and the location. If HVAC equipment efficiency is unknown, default values will populate. If known, enter HVAC equipment efficiency in IEER, EER, or SEER. Convert SEER to EER by using $EER = SEER \times 11.3 / 13$.

Water-Source and Geothermal Heat Pumps

Measure Description: This measure applies to the installation of ground source heat pumps, groundwater source heat pumps, water source heat pumps, water source air conditioners, and evaporatively cooled air conditioners that exceed efficiency requirements of 2009 IECC.

How It Saves Energy: Equipment exceeding minimum standards for energy efficiency uses less energy to produce an equivalent amount of heating and cooling.

Eligibility: New equipment must exceed the efficiency requirements of 2009 IECC and be used solely for comfort cooling. Equipment can be installed in a new application or can replace equipment that has failed or is expected to fail imminently.

Entry Guidance: Submit the project as custom if the new equipment is replacing a different equipment type, if equipment being replaced is fully operational, or if the new equipment is used for process cooling.

Packaged Terminal Air Conditioners

Measure Description: This measure applies to the installation of packaged terminal air conditioners that exceed efficiency requirements of 2009 IECC.

How It Saves Energy: Equipment exceeding minimum standards for energy efficiency uses less energy to produce an equivalent amount of cooling.

Eligibility: New equipment must exceed the efficiency requirements of 2009 IECC and be used solely for comfort cooling. Equipment can be installed in a new application or can replace equipment that has failed or is expected to fail imminently.

Entry Guidance: Submit the project as custom if the new equipment is replacing a different equipment type, if equipment being replaced is fully operational, or if the new equipment is used for process cooling.

Packaged Terminal Heat Pumps

Measure Description: This measure applies to the installation of packaged terminal heat pumps that exceed efficiency requirements of 2009 IECC.

How It Saves Energy: Equipment exceeding minimum standards for energy efficiency uses less energy to produce an equivalent amount of heating and cooling.

Eligibility: New equipment must exceed the efficiency requirements of 2009 IECC and be used solely for comfort cooling. Equipment can be installed in a new application or can replace equipment that has failed or is expected to fail imminently.

Entry Guidance: Submit the project as custom if the new equipment is replacing a different equipment type, if equipment being replaced is fully operational, or if the new equipment is used for process cooling.

Guest Room Occupancy Controls

Measure Description: This protocol applies to the installation of a control system in hotel guest rooms to automatically adjust the temperature setback during unoccupied periods.

How it saves energy: Temperature setback reduces heating and cooling energy consumption.

Eligibility: Control must automatically adjust temperature setback when rooms are unoccupied. Savings are per guestroom controlled, rather than per sensor, for multi-room suites.

Programmable Thermostat

Measure Description: Programmable thermostats control heating and/or cooling in buildings by adjusting setpoints for occupied and unoccupied periods.

How it saves energy: Compared to manual control, programmable thermostats save energy by automatically setting temperatures back during unoccupied periods.

Eligibility: A programmable thermostat replacing an existing standard thermostat for an existing ducted HVAC system with electric resistance heating and DX cooling

VFD for HVAC Equipment

Measure Description: This protocol applies to the installation of Variable Frequency Drives (VFDs) in standard commercial building applications on a motor without a VFD control.

How it saves energy: VFD's closely match equipment demand with load by varying motor speed to match load thus saving energy at part load conditions.

Eligibility: For eligibility, VFD control must be added to a comfort-cooled HVAC supply fan motor, cooling tower fan, and chilled or hot water pumps. If savings are estimated to be greater than 250,000 kWh/year, project must be submitted under the custom program.

ECM Circulating Fan

Measure Description: This measure applies to the retrofit of shaded pole (SP) or permanent-split capacitor (PSC) air handling motors with an electronically commutated motor (ECM).

How it saves energy: Fractional horsepower EC motors are more efficient than permanent split capacitor (PSC) or shaded pole (SP) motors of similar size, meaning they produce the same airflow at a lower power input. In addition, EC motors result in less waste heat added to the refrigeration coil that must be subsequently cooled by the air conditioning system.

Eligibility: Measure applies to the installation of an EC fan motor in an air handling unit, replacing an existing shaded-pole (SP) or permanent-split capacitor (PSC) fan motor. Measure applies to fans of 1 HP or less.