
HVAC/Mechanical Contractor General Definitions

The following definitions apply to the general requirements and application of the 2020 Vermont Residential Building Energy Standard as relating to the general scope of influence of the HVAC/Mechanical Contractor. This list is a summary of the most relevant definitions to the scope of work of the HVAC/Mechanical Contractor but is not an all-inclusive list of definitions nor should stand to replace the full definitions list provided in the 2019 RBES standard under Sections R201-R202 -General Definitions. The full list of code terms and definitions can be found in this section.

STRETCH CODE. A building energy code that achieves greater energy savings than the base RBES. The Stretch Code is required for Act 250 projects and may be adopted by municipalities.

HVAC SYSTEM COMPONENTS. HVAC system components provide, in one or more factory- assembled packages, means for chilling or heating water, or both, with controlled temperature for delivery to terminal units serving the *conditioned spaces* of the building. Types of HVAC system components include, but are not limited to, water chiller packages, reciprocating condensing units and water source (hydronic) heat pumps (see "HVAC system equipment").

HVAC SYSTEM EQUIPMENT. HVAC system equipment provides, in one (single package) or more (split system) factory-assembled packages, means for air circulation, air cleaning, air cooling with controlled temperature and dehumidification and, optionally, either alone or in combination with a heating plant, the functions of heating and humidifying. The cooling function is either electrically or heat operated and the refrigerant condenser is air, water or evaporatively cooled. Where the equipment is provided in more than one package, the separate packages shall be designed by the manufacturer to be used together. The equipment shall be permitted to provide the heating function as a heat pump or by the use of electric or fossil-fuel-fired elements. (The word "equipment" used without a modifying adjective, in accordance with common industry usage, applies either to HVAC system equipment or HVAC system components.)

COEFFICIENT OF PERFORMANCE (COP)—HEAT PUMP—HEATING. The ratio of the rate of heat delivered to the rate of energy input, in consistent units, for a complete heat pump system under designated operating conditions. Supplemental heat shall not be considered when checking compliance with the heat pump equipment.

SEASONAL ENERGY EFFICIENCY RATIO (SEER). The total cooling output of an air conditioner during its normal annual usage period for cooling, in Btu/h, divided by the total electric energy input during the same period, in watt-hours, as determined by DOE 10 CFR Part 430, Subpart B, Test Procedures.

COLD-CLIMATE HEAT PUMP. A heat pump with an inverter-driven, variable capacity compressor that is designed to provide full heating heat pump capacity and having a minimum COP of 1.75 or greater at an outside air temperature of 5°F.

CATEGORY I COMBUSTION APPLIANCE. An appliance which operates with a non-positive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent. (Source: NFPA 54)

CATEGORY II COMBUSTION APPLIANCE. An appliance which operates with a non-positive vent static pressure and with a vent gas temperature that may cause excessive condensate production in the vent.

CATEGORY III COMBUSTION APPLIANCE. An appliance which operates with a positive vent static pressure and with a vent gas temperature that avoids excessive condensate production in the vent. (Source: NFPA 54)

CATEGORY IV COMBUSTION APPLIANCE. An appliance which operates with a positive vent static pressure and with a vent gas temperature that may cause excessive condensate production in the vent. (Source: NFPA 54)

DIRECT-VENT APPLIANCES. Appliances that are constructed and installed so that all air for combustion is derived directly from the outside atmosphere and all flue gases are discharged directly to the outside atmosphere. See also Sealed Combustion Venting System.

POWER-VENTED APPLIANCE. Appliances that operate with a positive vent static pressure (Category III) and utilize a mechanical fan to exhaust combustion gases from the appliance to the outside atmosphere.

SEALED COMBUSTION VENTING SYSTEM. A venting system designed so that all air for combustion is derived directly from the outside atmosphere and all flue gases are discharged directly to the outside atmosphere. (See also "Direct-vent Appliances.")

SERVICE WATER HEATING. Supply of hot water for purposes other than comfort heating.

DEMAND RECIRCULATION WATER SYSTEM. A water distribution system having one or more recirculation pumps that pump water from a heated water supply pipe to the heated water fixture upon user demand via push-button at the fixture.

UNITARY COOLING AND HEATING EQUIPMENT. One or more factory-made assemblies which include an evaporator or cooling coil, a compressor and condenser combination, and which shall be permitted to include a heating function as well. When heating and cooling equipment is provided in more than one assembly, the separate assemblies shall be designed to be used together.

UNITARY HEAT PUMP. One or more factory-made assemblies which include an indoor conditioning coil, compressor(s) and outdoor coil or refrigerant-to-water heat exchanger, including means to provide both heating and cooling functions. When heat pump equipment is provided in more than one assembly, the separate assemblies shall be designed to be used together.

WHOLE HOUSE MECHANICAL VENTILATION SYSTEM. An exhaust system, supply system, or combination thereof that is designed to mechanically exchange indoor air with outdoor air when operating continuously or through a programmed intermittent schedule to satisfy the whole house ventilation requirements.

MECHANICAL VENTILATION. The mechanical process of supplying conditioned or unconditioned air to, or removing such air from, any space by powered fans. For purposes of this standard, mechanical ventilation does not include processes driven by wind, such as turbine ventilators.

LOCAL VENTILATION. A mechanical ventilation system including fans, controls and ducts, dedicated to exhausting moisture-laden and/or contaminated air to the outside of the building from a room or space in which the moisture or contamination is generated or supplying outdoor air to that space.

WHOLE HOUSE VENTILATION SYSTEM, BALANCED. Balanced systems provide outdoor air for ventilation such that supply and exhaust air quantities are of equal capacity to achieve pressure equalization, such as heat recovery ventilator, an air-to-air heat exchanger or any other system that is designed to provide mechanical supply as well as mechanical exhaust.

WHOLE HOUSE VENTILATION SYSTEM, EXHAUST ONLY. Exhaust only systems exhaust stale indoor air via a single fan, multiple fans or the installation of dual-purpose fans (i.e., serving both localized and whole house ventilation functions). Fresh incoming air may be provided by installed inlet ports or from typical leaks in the building envelope. Exhaust only systems may depressurize the indoor environment.

WHOLE HOUSE VENTILATION SYSTEM, MULTI-PORT. A whole house ventilation system that has more than one exhaust or supply port inside the house.

WHOLE HOUSE VENTILATION SYSTEM, SINGLE-PORT. A whole house ventilation system that has only one connection to the conditioned space and one connection to outdoor air.

ENERGY RECOVERY VENTILATION SYSTEM (ERV). Systems that employ air-to-air heat exchangers to recover sensible and latent energy from exhaust air for the purpose of preheating, precooling, humidifying or dehumidifying outdoor ventilation air prior to supplying the air to a space, either directly or as part of an HVAC system.

HEAT RECOVERY VENTILATION SYSTEM (HRV). A factory-assembled device or combination of devices, including fans or blowers, designed to provide outdoor air for ventilation in which heat is transferred between two isolated intake and exhaust air streams.

SENSIBLE RECOVERY EFFICIENCY (SRE): The net sensible energy recovered by the supply airstream as adjusted by electric consumption, case heat loss or heat gain, air leakage, airflow mass imbalance between the two airstreams and the energy used for defrost (when running the Very Low Temperature Test), as a percent of the potential sensible energy that could be recovered plus the exhaust fan energy.

OUTDOOR AIR. Air taken from the outdoors and, therefore, not previously circulated through the building.

RATED CAPACITY. In terms of ventilation, the volume of air (in cfm) that the fan can move against a given static pressure (in inches or water gage). Prescriptive compliance with the Vermont Residential Building Energy Standards requires that all fan capacities be rated at 0.1 inch (25 Pa) of water gage.