

Multifamily New Construction & Major Rehabilitation Program

Efficiency Vermont, Burlington Electric and Vermont Gas want to work with all multifamily projects as early as possible. If a project is ultimately unable to meet all elements of the High-Performance Track described below, expect some reduction to the per unit incentive. The Efficiency Vermont, Burlington Electric and Vermont Gas representative assigned to your project are your best resources for technical assistance and figuring out how changes will affect your incentive. **As of 7/1/26, BED will honor the High-Performance Track program only for those projects associated with Low Income Multi-Family developers and associated affordable housing organizations. A custom incentive package will be available to market rate projects. Please contact BED at energyservices@burlingtonelectric.com for more information.* **Version issued: 10/20/2026**

MINIMUM PROGRAM REQUIREMENTS¹

Category		Planned	High-Performance Track			
Heating System	Air Source Heat Pump/ Cold Climate Heat Pump (ASHP/CCHP) ²	☐	Heat pumps must meet criteria for CEE Highest Tier of efficiency for Northern climate listed under the searchable list at NEEP ASHP (https://ashp.neep.org/). Units appearing on the list maintain greater heating capacity at lower temps and meet IRA criteria for tax benefits for Vermont.			
	Water Source Heat Pump (WSHP)	☐	Water source heat pumps must be ENERGY STAR Certified. If Ground Source Heat Pump (GSHP) or Air to Water Heat Pump (A2WHP) system is utilized, it is important for the developer to contact the local electric utility early on for possible Tier 3 incentives, which would come from the electric utility.			
	Vertical & Packaged Terminal Heat Pump ("Heat pump PTAC")	☐	Ducted and non-ducted cold climate VTAC HPs and PTAC HPs must meet Northeast Energy Efficiency Partnership (NEEP) criteria including operating in heat pump mode down to 5° F with minimum COP 1.5. Please confirm model with Efficiency Vermont Energy Consultant before ordering.			
	Ground Source Heat Pump systems (GSHP) ³	☐	Tier 3 incentives may be available from electric utilities for GSHP systems, IRA tax credits are available for new GSHP systems.			
	Cold Climate Heat Pump with integrated energy recovery ventilation	☐	A current example of this technology includes the Innova All in One (AIO) unit. Other units will be considered as they become available.			
	Hydronic Boiler	☐	Gas		95% AFUE/Thermal Efficiency	
			Pellet ⁴		85% AFUE	
	Boiler Control Features	☐	• Must modulate boiler water temperature based on outdoor temp (Outdoor Reset Control) with a maximum space heating temperature of 140°F • Turn boiler off if outdoor temp is above 55°F (Warm Weather Shut Down – WWSD)			
	Low Temperature Hydronic Distribution Space Heating Loop - Circulator Pump & Balancing Valves ⁵	☐	• Low temperature hydronic radiators with a maximum 140°F design temp required • Variable speed, high performance "smart" electrically commutated motor (ECM) circulator pump(s) • Pumps shall be set to proportional pressure mode and balanced accordingly. Efficiency Vermont will verify balance procedure and pump optimization. • Install combination air and magnetic or coalescing dirt separator on supply side of circulation loop			
	Hot Water Pipe Insulation (Pex and Copper) – Follow CBES requirements	☐	Fluid Operating Temp Range	Nominal Pipe or Tube Diameter		
< 1"				1" to 1.5"	1.5" to 4"	
		105 ° -140 ° F	1.0"	1.0"	1.5"	
Central Domestic Hot Water	Wood Pellet	☐	Advanced Wood Heat System: Use indirect-fired storage tank.			
	Natural Gas or Propane	☐	Natural Gas or Propane: Use ENERGY STAR labeled, condensing, sealed combustion stand-alone water heater with minimum thermal efficiency of 95%. This allows shut off of space-heating boilers outside of heating season.			
	Electric	☐	All electric central DHW option: ENERGY STAR or NEEA-listed integrated or split (monobloc) heat pump water heater(s). If geothermal system, contact Efficiency Vermont.			
	Pipe Insulation	☐	See table for hot water pipe insulation under Heating System.			
	Drain Water Heat Recovery ⁵	☐	\$500/unit additional incentive for each unit served by drain water heat recovery unit.			
	Water Conservation	☐	• Specify WaterSense toilets, fixtures • Aerators = 1.5 gpm; Showerheads = 2.0 gpm; Toilets = 1.28 gpf			

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Central Domestic Hot Water (continued)	All Recirculation Systems ⁶	☐	The goal is a DHW recirc system with low flow (3.0 gpm or less) at steady state temperatures. DHW system design consultation must happen in design phase and resulting design must be approved by Efficiency Vermont/BED/Vermont Gas: - A mixing valve shall be selected with the lowest possible continuous flow requirements that is appropriate for the building. In buildings with less than 40 units, mixing valves capable of a continuous recirculation flow of 3 gpm or less shall be selected. - The recirculation pump shall have an electrically commutated motor (ECM), be equipped with "smart" controls (proportional pressure, constant pressure), and have a digital display that show real-time gpm flow rates. The DHW recirculation system shall have a steady state flow rate less than 125% of the mixing valve's minimum flow. - Balancing devices must be used for each DHW branch where a recirculation water connection is made. Non-powered, automatic thermostatic balancing valves (circuit solvers or equal), or fixed orifice, manually set balancing valves (circuit setters) or a combination of both are acceptable. The valves will be located as close as possible to recirculation water connection after the last living unit served. - Systems with more than one fixed orifice (e.g manually set) balance valve must be professionally balanced before occupancy, which adds cost. The resulting Test and Balance report must be submitted to efficiency utility. Alternatively, systems with zero or no more than one fixed orifice balance valve (installed in a system relying primarily on automatic, thermostatic circuit solvers) can be set up by the mechanical contractor for minimum flow when the system is at steady state. No hydronic balancing contractor or process is required for the circuit solver design case, which offers cost savings. Regardless of the balancing devices used (fixed orifice manually-adjusted valves, or non-powered thermostatic valves, or a combination of both), the steady state recirculation flow shall not be more than 125% of the mixing valve's minimum flow <i>Example: The mixing valve minimum flow is 2 gpm. Therefore, the maximum steady state recirculation flow will not exceed 2.5 gpm.</i> - GC to schedule site visit by EVT/BED/VGS staff to assist/verify DHW setup - See following DHW Recirc Guidance document for more detail
Air Conditioning ⁷ (Cooling only)	Air Source Heat Pump Single Packaged	☐	Minimum 16.0 SEER2, 9.0 EER2 (These are CEEs Tier 2 efficiencies).
	Air Source Heat Pump Split System	☐	- Minimum 15.2 SEER2, 10 EER2 for ducted systems - Minimum 16.0 SEER2, 9.0 EER2 for non-ducted systems
	Chiller, Air Cooled	☐	<150 tons; 11.5 EER, 15 IPLV @ AHRI >150 tons; 15 EER; 18 NPLV @55F chilled water
Thermal Shell ⁸	Ceiling	☐	R-60 attic and/or R-49 Slope. Attic sheetrock plane air sealed.
	Flat Roof	☐	- R-45 continuous above roof deck - Sealed roof sheathing joints and connect roof sheathing to wall sheathing at perimeter
	Wood Framed Wall ⁹	☐	- R-12 continuous exterior insulation (CBES or RBES) - R-21 cavity minimum - Sheathing joints taped/sealed. - See Footnote 8 for guidance for steel framed
	Exposed Floor ¹⁰	☐	Meet Code requirements (2020 or 2024 RBES or CBES)
	Below Grade Wall	☐	R-20 Continuous.
	Slab Edge (on grade)	☐	Meet Code requirements (2020 or 2024 RBES or CBES)
	Windows ¹¹	☐	- NFRC U value 0.27 or less - Storefront: U-0.33 or less Triple Pane Option: Additional incentive of \$100/window, up to project maximum of \$5,000, meeting ENERGY STAR Version 7 for Northern Climate.
	Elevator & Stairwell Vestibules	☐	For buildings with parking garages under living space. Required at parking level, recommended in corridors at each floor.
Air Leakage ¹²	Maximum Allowed	☐	Air tightness target of 0.075 cfm50/ft2 (0.10 cfm75/ft2) of total thermal boundary surface area. Must be verified by blower door test. Building envelope commissioning incentives of 50% (up to \$5,000) available to achieve this air tightness target. Make sure the air leakage target is specified in any agreement with a building envelope commissioning agent. If air tightness target is not met, incentives will be prorated.

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Category		Planned	High-Performance Track
Lighting	In-unit ¹³ and Common area fixtures	☐	- ENERGY STAR fixtures highly recommended for downlights; reputable manufacturers highly recommended for other fixtures. - Commercial interior and exterior fixtures are Design Lights Consortium qualified LED fixtures
	Interior Common Area Controls	☐	- Occupancy controls included in all hallways, stairways, laundry rooms, etc. - Day lighting control included in common areas with glazing.
	Parking lot / Site	☐	- LED fixtures listed on Design Lights Consortium qualified products list. - Lighting Power Density (LPD) 20% better than CBES: - No more than 0.096 watts/sq. ft for interior parking garage - No more than 0.016 watt/sq. ft for parking lots
Appliances (Common Area or In-Unit)	Common area washing machines	☐	ENERGY STAR certified.
	In-unit	☐	ENERGY STAR Refrigerator, Dishwasher, Clothes Washer and Clothes Dryers.
	In-unit "all in one" clothes washer/heat pump clothes dryer	☐	Additional incentives for ENERGY STAR combination washer/dryer units: - ENERGY STAR "most efficient" = \$400 per unit - ENERGY STAR = \$200 per unit
	In-unit Electric Dryers	☐	Additional incentives for ENERGY STAR "most efficient" category: - Heat pump = \$400 per unit - Hybrid heat pump = \$200 per unit
Ventilation	Mechanical Ventilation serving residential units & common areas	☐	Balanced Heat or Energy Recovery Ventilation can be either a central system or individual systems each serving a living unit. Systems must have a Minimum Sensible Recovery Efficiency (SRE) of 70%. Supply ductwork will deliver fresh air into bedrooms with appropriate registers that spread airflow for occupant comfort. Critical to IAQ and energy efficiency to have systems balanced. Test and Balance report must be provided to Efficiency Vermont. Ducting must be rigid, smooth-walled pipe. ERV supply air tempering, if desired, must have controls allowing operation only when outdoor temperature is below 5 deg F.
Incentives	Base	☐	\$3,700 per apartment (includes VGS portion when in VGS territory) up to 75 units. Incentives for projects above 75 units determined on a custom basis. Incentives may be affected by available budgets.

Notes:

- Project will meet or exceed applicable Vermont Residential or Commercial Building Energy Codes. Less comprehensive Major Rehabilitation projects will be analyzed on a custom basis.
- Qualifying cold climate heat pumps receive additional point-of-purchase midstream incentives from Vermont suppliers. Efficiency Vermont recommends developers specify that point-of-purchase midstream incentives be reflected in invoices to project to ensure cost savings are passed along to the project.
- Ground Source Heat Pump incentives are included in the per unit incentive.
- Low temperature hydronic distribution designed to operate at maximum 140°F temp allows condensing boilers to condense at all space heating distribution fluid temperatures. It also allows the use of heat pump technology utilizing hydronic distribution. Use of an automatic balancing valve either integrated with, or in addition to, a 2-way zone valve provides consistent heat delivery, improves occupant comfort, and saves energy when using variable speed pumps. It should also reduce the time and cost of system balancing.
- Examples are drainwater heat recovery unit made by Powerpipe or Sharc. Sharc heat pump drainwater recovery units are appropriate for larger multifamily buildings.
- Example mixing valves capable of low flow operation are the Armstrong Brain or Watts Intellistation 2. More detailed DHW recirculation system guidance and information is in the pages following this one.
- Minimum efficiencies when air conditioning is proposed for project. This is not a requirement to add air conditioning.
- A pre-drywall insulation inspection is required of insulation installed in cavities that will be closed. Air sealing in attics will be inspected prior to insulation being installed. R-value minimums are cavity + continuous and do not include structural or finished materials. Minimum requirements may be relaxed when historic building rehab prevents altering wall section.
- For steel framed RBES or CBES buildings, the calculated U value of the assembly must be no more than 0.037 (U value = -1/R value)
 - Example: R25 exterior continuous insulation only or R20 exterior continuous and R13 cavity insulation
- Exposed floors over unconditioned space. Basements are considered conditioned space.
- ENERGY STAR Version 7.0 U value and SHGC criteria for Northern Climate at [ENERGY STAR Residential Windows, Doors, and Skylights Version 7.0 Specification](#). Look at Table 1 to see minimum U value and SHGC and Table 4 to see possible tradeoffs between U value and SHGC for Northern Climate.
- The total thermal boundary surface area is measured using gross square footage of all 6 sides of the building, including roof, above grade walls, and slab.
- Efficient LED lighting shall be included in every room and exterior space. ENERGY STAR has stopped listing fixtures other than downlights in 2025.

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DHW Recirculation System Design

Through monitoring and metering, Efficiency VT has learned that recirculating DHW systems with typical steady state flows (e.g. 8+ gpm) waste a significant amount of energy. By utilizing mixing valves that can operate accurately at low flows and minimizing the steady state flow of the recirculation system, energy waste can be significantly reduced without compromising health and safety or hot water delivery to living units. Recirculating systems in a 30 unit building with minimum flows of 3 gpm or less can save \$4,000/year or more in operating costs over systems with flows of 8 gpm at current energy rates.

Key design features of a low flow recirculation system:

- A mixing valve capable of operating with minimum flows of 3.0 gpm or less at system steady state temperature. Examples of mixing valves are the Armstrong Brain or the Watts Intellistation 2.
- A pump suitable for domestic hot water shall be installed to serve as the domestic hot water recirculation pump. The pump must have with a digital gpm readout. The piping of the recirculation pump and domestic hot water mixing valve shall be compliant with the mixing valve manufacturers' piping recommendations.
- The domestic hot water recirculation pump shall be capable of continuously flowing the minimum gallons per minute (3.0 gpm or less) required by the mixing valve when the DHW system is up to design temperature and working at steady state.
- The steady state recirculation system flow shall not exceed 125% of the mixing valve min flow at steady-state temperature.
- At each end-of-line termination in the recirculation system there shall be a non-powered thermally actuated valve (circuit solver or equal).
- The circuit solver will be located as close as possible to the recirculation water connection. The piping downstream of the circuit solver is considered domestic hot water recirculation and should be piped directly back to the mechanical room.
- When the water in the pipe upstream of the circuit solver is at or above the circuit solver temperature set point, the valve will be closed to its minimum position, allowing some bypass flow (Cv). When in the closed/bypass position, the Cv of the circuit solver is 0.2. The flow at Cv=0.2 and 2 psi of pressure differential across the circuit solver is 0.28GPM. The flow at Cv=0.2 and 5 psi of pressure differential across the circuit solver is 0.45gpm.

Example sequence of operation when non-powered thermostatic valves are used:

Domestic hot water recirculation pump operation.

Operation mode: Proportional pressure

On a cold startup of the system, the water flowing through the circuit solvers will be below the setpoint temperature and the non-powered valves will modulate open. As the valves open, the pump will sense a decrease in system pressure and speed up. As the water passing through the circuit solvers warms up, the non-powered valves will modulate closed. The pump will sense an increase in pressure drop, and the pump will slow down. As the temperature of the water passing through the valve approaches the setpoint, the Circuit solvers will modulate to their fully closed bypass position (Cv=0.2). The pump will sense this pressure increase and will slow to its steady state minimum speed and flow.

How to set the pump speed

With the domestic hot water system operating at setpoint temperature and operating at steady state flow, the pump speed should be adjusted such that the flow is equal to the desired mixing valve minimum flow. At full temperature and steady state, the flow will be the lowest. As the system cools off and valves actuate open the pressure will drop, the pump will speed up and the flow will increase. It is critical that the pump speed be set while the system is at steady state temperature.

At steady state, flow should be verified in the valve farthest from the mech room. If the piping up, or downstream of the balance valve is at or near the thermostatic mixing valves temperature setpoint, then flow is verified. If there was no flow, the temperature of the piping would be significantly lower than the valve's setpoint.

A strategy to ensure that adequate flow to the mixing valve is available with a system using all thermostatic valves is to add a single manual valve (Watts idroset or equal) somewhere in the system that is easy to access. If thermostatic valves at steady state are not providing adequate flow to meet the minimum flow requirement of the mixing valve, the single manual valve can be opened until the desired flow is reached. The total desired flow can be verified on the recirc pump display. If this strategy is utilized, the system must be set up before the manual valve is opened. This strategy utilizing thermostatic balancing valves and one manual valve to enable easily calibrating flow to the minimum flow requirements of the mixing valve could make balancing and system set up more straightforward and less costly than for a system with multiple manual balancing valves.

Your Energy Consultant is: _____

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Don't have an Energy Consultant? Call us to have one assigned to your project.



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