

# Multifamily New Construction & Major Rehabilitation Program

MINIMUM PROGRAM REQUIREMENTS <sup>1</sup>									
Category		Efficiency Vermont Certified Track			High-Performance Track				
Heating System	Air Source Heat Pump (ductless) <sup>2</sup>	Single-zone	<input type="checkbox"/> ≥ 10.3 HSPF, ≥ 20.0 SEER, ≥ 12.0 EER			<input type="checkbox"/> ≥ 10.3 HSPF, ≥ 20.0 SEER, ≥ 12.0 EER			
		Multi-zone	<input type="checkbox"/> ≥ 10.0 HSPF, ≥ 17.0 SEER, ≥ 12.0 EER			<input type="checkbox"/> ≥ 10.0 HSPF, ≥ 17.0 SEER, ≥ 12.0 EER			
	Air Source Heat Pump (ducted) <sup>2</sup>	Split	<input type="checkbox"/> ≥ 8.5 HSPF, ≥ 15.0 SEER, ≥ 12.5 EER			<input type="checkbox"/> ≥ 8.5 HSPF, ≥ 15.0 SEER, ≥ 12.5 EER			
		Packaged	<input type="checkbox"/> ≥ 8.2 HSPF, ≥ 15.0 SEER, ≥ 12.0 EER			<input type="checkbox"/> ≥ 8.2 HSPF, ≥ 15.0 SEER, ≥ 12.0 EER			
	Boiler or Furnace	Oil	<input type="checkbox"/> 85% AFUE (<300 Mbtu/hr), 85% Et (>300 Mbtu/hr)			<input type="checkbox"/> 85% AFUE (<300 Mbtu/hr), 85% Et (>300 Mbtu/hr)			
		Gas	<input type="checkbox"/> 94% AFUE			<input type="checkbox"/> 94% AFUE			
		Pellet <sup>3</sup>	<input type="checkbox"/> 85% AFUE			<input type="checkbox"/> 85% AFUE			
	Boiler Control Features		<input type="checkbox"/> Modulate boiler water temperature based on outdoor temp. (Outdoor Reset Control). <input type="checkbox"/> Turn boiler off if outdoor temp is above 55°F (Warm Weather Shut Down – WWSD).			<input type="checkbox"/> Modulate boiler water temperature based on outdoor temp. (Outdoor Reset Control). <input type="checkbox"/> Turn boiler off if outdoor temp is above 55°F (Warm Weather Shut Down – WWSD).			
	Space Heating Loop - Circulator Pump and Balancing Valves <sup>4</sup>		<input type="checkbox"/> Variable speed, high performance "smart" circulator pump. 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.			<input type="checkbox"/> Variable speed, high performance "smart" circulator pump. 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)		Fluid Operating Temp Range		Nominal Pipe or Tube Diameter		Fluid Operating Temp Range		Nominal Pipe or Tube Diameter
<input type="checkbox"/> 141° -200° F			<input type="checkbox"/> 105° -140° F	<input type="checkbox"/> < 1"	<input type="checkbox"/> 1" to 1.5"	<input type="checkbox"/> 1.5" to 4"	<input type="checkbox"/> < 1"	<input type="checkbox"/> 1" to 1.5"	<input type="checkbox"/> 1.5" to 4"
<input type="checkbox"/> 141° -200° F			<input type="checkbox"/> 105° -140° F	<input type="checkbox"/> 1.5"	<input type="checkbox"/> 1.5"	<input type="checkbox"/> 2.0"	<input type="checkbox"/> 1.5"	<input type="checkbox"/> 1.5"	<input type="checkbox"/> 2.0"
Domestic Hot Water	Systems		<input type="checkbox"/> Advanced Wood Heat System or Oil System: Use indirect-fired storage tank.  <input type="checkbox"/> Natural Gas or Propane: Use ENERGY STAR® labeled, condensing, sealed combustion stand-alone water heater with minimum thermal efficiency of 90%. Space-heating boilers for heating shut off outside of heating season.  <input type="checkbox"/> All electric option: Air-to-water heat pump paired with electric resistance storage tanks.			<input type="checkbox"/> Advanced Wood Heat System or Oil System: Use indirect-fired storage tank.  <input type="checkbox"/> Natural Gas or Propane: Use ENERGY STAR labeled, condensing, sealed combustion stand-alone water heater with minimum thermal efficiency of 90%. Space-heating boilers for heating shut off outside of heating season.  <input type="checkbox"/> All electric option: Air-to-water heat pump paired with electric resistant storage tanks.			
	Pipe Insulation		<input type="checkbox"/> See table for pipe insulation under Heating System.			<input type="checkbox"/> See table for hot water pipe insulation under Heating System.			
	Drain Water Heat Recovery <sup>5</sup>		<input type="checkbox"/> \$300/unit additional incentive for each unit served by drain water heat recovery unit.			<input type="checkbox"/> \$300/unit additional incentive for each unit served by drain water heat recovery unit.			
	Water Conservation		Specify Water Sense toilets, fixtures. <input type="checkbox"/> Aerators = 1.5 gpm. <input type="checkbox"/> Showerheads = 2.0 gpm. <input type="checkbox"/> Toilets = 1.28 gpf.			Specify WaterSense toilets, fixtures. <input type="checkbox"/> Aerators = 1.5 gpm. <input type="checkbox"/> Showerheads = 2.0 gpm. <input type="checkbox"/> Toilets = 1.28 gpf			
Air	Air Source Heat Pump (packaged units)		<input type="checkbox"/> 15 SEER, 12 EER			<input type="checkbox"/> 15 SEER, 12 EER			
	Mini-Splits (cooling) only	Single-zone	<input type="checkbox"/> 20 SEER, 12 EER			<input type="checkbox"/> 20 SEER, 12 EER			
		Multi-zone	<input type="checkbox"/> 17 SEER, 12 EER			<input type="checkbox"/> 17 SEER, 12 EER			
	Chiller, Air Cooled		<input type="checkbox"/> Full Load ≤ 1.20 kW/ton; IPLV ≤ 0.78 (< 150 Tons)			<input type="checkbox"/> Full Load ≤ 1.20 kW/ton; IPLV ≤ 0.78 (< 150 Tons)			

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Category		Efficiency Vermont Certified Track	High-Performance Track
Thermal Shell <sup>7</sup>	Ceiling	<input type="checkbox"/> R-60 attic and/or R-49 Slope. <input type="checkbox"/> Attic sheetrock plane air-sealed.	<input type="checkbox"/> R-60 attic and/or R-49 Slope. <input type="checkbox"/> Attic sheetrock plane air-sealed.
	Flat Roof	<input type="checkbox"/> R-44 continuous above roof deck	<input type="checkbox"/> R-44 continuous above roof deck, sealed roof sheathing joints
	Wall <sup>8</sup>	<input type="checkbox"/> R-25, sheathing joints taped/sealed. See Footnote 8 for approved assemblies.	<input type="checkbox"/> R-31 minimum; R-11.25 continuous exterior and R-20 cavity minimum and sheathing joints taped/sealed. See Footnote 8.
	Floor <sup>9</sup>	<input type="checkbox"/> R-38 or R-5 Continuous and R-30 Cavity	<input type="checkbox"/> R-38 or R-5 Continuous and R-30 Cavity
	Foundation	<input type="checkbox"/> R-20 Continuous	<input type="checkbox"/> R-20 Continuous
	Slab Edge (on grade)	<input type="checkbox"/> R-15 (per code)	<input type="checkbox"/> R-15 (per code)
	Windows	<input type="checkbox"/> NFRC U value 0.28 or less	<input type="checkbox"/> NFRC U value 0.28 or less. <input type="checkbox"/> Meets NFRC 400 (air leakage no greater than 2 cfm @ 75 Pa pressure difference). <input type="checkbox"/> Window to wall area ratio no more than 20%.
	Elevator and Stairwell Vestibules	<input type="checkbox"/> For buildings with parking garages under living space. Required at parking level, recommended in corridors.	<input type="checkbox"/> For buildings with parking garages under living space. Required at parking level, recommended in corridors.
Air Leakage	Maximum Allowed	<input type="checkbox"/> 0.20 cfm50/ft2 (0.26 cfm75/ft2) of total thermal boundary surface area (6 sides include above grade walls, below grade walls and slab).	<input type="checkbox"/> 0.10 cfm50/ft2 (0.13 cfm75/ft2) of total thermal boundary surface area (6 sides include above grade walls, below grade walls and slab).
Lighting	In-unit <sup>10</sup> and Common area fixtures	<input type="checkbox"/> ENERGY STAR or Design Lights Consortium qualified LED fixtures. <sup>11</sup> <input type="checkbox"/> If screw-based fixtures are installed, must install ENERGY STAR qualified LED lamps. Per-apartment incentive will be adjusted accordingly.	<input type="checkbox"/> ENERGY STAR or Design Lights Consortium qualified LED fixtures. <sup>11</sup> <input type="checkbox"/> If screw-based fixtures are installed, must install ENERGY STAR qualified LED lamps. Per-apartment incentive will be adjusted accordingly.
	Interior common area controls <sup>12</sup>	<input type="checkbox"/> Occupancy controls included in all hallways, stairways, laundry rooms, etc. Day lighting control included in common areas with glazing.	<input type="checkbox"/> Occupancy controls included in all hallways, stairways, laundry rooms, etc. Day lighting control included in common areas with windows.
	Parking lot / Site	<input type="checkbox"/> LED fixtures installed and Lighting power density (LPD) no more than .11 watts/sq. ft for interior parking garage, no more than .025 watt/sq. ft for parking lots. LED fixtures listed on Design Lights Consortium qualified products list.	<input type="checkbox"/> LED fixtures installed and Lighting power density (LPD) no more than .11 watts/sq. ft for interior parking garage, no more than .025 watt/sq. ft for parking lots. LED fixtures listed on Design Lights Consortium qualified products list.
Appliances (Common Area or In-Unit)	In-unit	<input type="checkbox"/> ENERGY STAR Refrigerator, Clothes Washer, & Dishwasher.	<input type="checkbox"/> ENERGY STAR Refrigerator, Clothes Washers, & Dishwashers.
	In-unit Electric Dryers	<input type="checkbox"/> ENERGY STAR standard dryer or ENERGY STAR Heat Pump Dryers qualify for the following additional incentives: ASHP = \$400 per unit. Hybrid ASHP = \$200 per unit.	<input type="checkbox"/> ENERGY STAR standard dryer or ENERGY STAR Heat Pump Dryers qualify for the following additional incentives: ASHP = \$400 per unit. Hybrid ASHP = \$200 per unit.
	Common Dryers	<input type="checkbox"/> Recommend natural gas where available.	<input type="checkbox"/> Recommend natural gas where available.
In-unit Ventilation	Mechanical Ventilation serving residential units	<input type="checkbox"/> ENERGY STAR Labeled fan with continuous duty motor. Wire to operate continuously at low speed (30cfm for 1bedroom, 45cfm for 2bedroom) and boost to high speed from wall switch. Humidistats, twist-style, and pin-timers do not qualify. Ducted with smooth walled rigid pipe.	<input type="checkbox"/> Balanced Heat or Energy Recovery Ventilation (can be either central or individual systems). Minimum Sensible Recovery (SRE) of 75% for system <300 cfm, minimum SRE of 70% for systems >300 cfm. Supply ductwork delivers fresh air into bedrooms with appropriate registers that spread airflow for occupant comfort. Test and Balance report must be provided to Efficiency VT. Balancing damper installed to be accessible from hallway (avoiding need to enter unit, tenant can't close off airflow). Ducted with rigid, smooth-walled pipe.
Incentives	Base	<input type="checkbox"/> \$1000 per apartment (includes VGS portion when in VGS territory).	<input type="checkbox"/> \$2700 per apartment (includes VGS portion when in VGS territory).

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## Notes:

1. 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.
2. Cold climate heat pumps receive additional point-of-purchase midstream incentives from Vermont suppliers.
3. Qualifying wood pellet systems eligible for additional \$1.25/sq. ft. combined Efficiency Vermont and CEDF incentive.
4. 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 can also reduce the time and cost of system balancing.
5. Examples are drainwater heat recovery units made by Powerpipe or Ecodrain.
6. Minimum efficiencies when air conditioning is proposed for project. This is not a requirement to add air conditioning.
7. 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.
8. Call for consultation. Approved assemblies include 2x6 walls with one of the following insulation strategies:
  - R6 insulated exterior sheathing with all joints and edges taped, 2x6 cavity fully insulated. Smart vapor barrier required (no poly).
  - 2x6 flash & batt or cavity/continuous combination paired with smart interior vapor barrier.
9. Floors over unconditioned space. Basements are not considered unconditioned space.
10. Efficient lighting shall be included in every room and exterior space.
11. Qualifying LED fixtures receive additional point-of-purchase incentive from Vermont suppliers.
12. At a minimum, occupancy controls reduce light output by 50%. Remote mounted sensors: minimum 175 watts controlled. Switch or fixture mounted sensor: minimum 75 Watts controlled.

Your Energy Consultant is: \_\_\_\_\_

Phone: \_\_\_\_\_

Email: \_\_\_\_\_

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



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