

Multifamily New Construction & Major Rehabilitation Program

MINIMUM PROGRAM REQUIREMENTS¹

Category		Efficiency Vermont Certified Track	High-Performance Track								
Heating System	Air Source Heat Pump (ductless) ²	Single-zone	≥ 10.3 HSPF, ≥ 20.0 SEER, ≥ 12.0 EER	≥ 10.3 HSPF, ≥ 20.0 SEER, ≥ 12.0 EER							
		Multi-zone	≥ 10.0 HSPF, ≥ 17.0 SEER, ≥ 12.0 EER	≥ 10.0 HSPF, ≥ 17.0 SEER, ≥ 12.0 EER							
	Air Source Heat Pump (ducted) ²	Split	≥ 8.5 HSPF, ≥ 15.0 SEER, ≥ 12.5 EER	≥ 8.5 HSPF, ≥ 15.0 SEER, ≥ 12.5 EER							
		Packaged	≥ 8.2 HSPF, ≥ 15.0 SEER, ≥ 12.0 EER	≥ 8.2 HSPF, ≥ 15.0 SEER, ≥ 12.0 EER							
	Boiler or Furnace	Oil	85% AFUE (<300 Mbtu/hr), 85% Et (>300 Mbtu/hr)	85% AFUE (<300 Mbtu/hr), 85% Et (>300 Mbtu/hr)							
		Gas	94% AFUE	94% AFUE							
		Pellet ³	85% AFUE	85% AFUE							
	Boiler Control Features		Modulate boiler water temperature based on outdoor temp. (Outdoor Reset Control). Turn boiler off if outdoor temp is above 55°F (Warm Weather Shut Down – WWSD).	Modulate boiler water temperature based on outdoor temp. (Outdoor Reset Control). Turn boiler off if outdoor temp is above 55°F (Warm Weather Shut Down – WWSD).							
	Space Heating Loop - Circulator Pump and Balancing Valves ⁴		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.	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		
			< 1"	1" to 1.5"	1.5" to 4"			< 1"	1" to 1.5"	1.5" to 4"	
141° -200° F			1.5"	1.5"	2.0"	141° -200° F		1.5"	1.5"	2.0"	
		105° -140° F		1.0"	1.0"	1.5"	105° -140° F		1.0"	1.0"	1.5"
Domestic Hot Water	Systems		Advanced Wood Heat System or Oil System: Use indirect-fired storage tank. 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. All electric option: Air-to-water heat pump paired with electric resistance storage tanks.	Advanced Wood Heat System or Oil System: Use indirect-fired storage tank. 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. All electric option: Air-to-water heat pump paired with electric resistant storage tanks.							
	Pipe Insulation		See table for pipe insulation under Heating System.	See table for hot water pipe insulation under Heating System.							
	Drain Water Heat Recovery ⁵		\$300/unit additional incentive for each unit served by drain water heat recovery unit.	\$300/unit additional incentive for each unit served by drain water heat recovery unit.							
	Water Conservation		Specify Water Sense toilets, fixtures. Aerators = 1.5 gpm. Showerheads = 2.0 gpm. Toilets = 1.28 gpf.	Specify WaterSense toilets, fixtures. Aerators = 1.5 gpm. Showerheads = 2.0 gpm. Toilets = 1.28 gpf							
Air	Air Source Heat Pump (packaged units)		15 SEER, 12 EER	15 SEER, 12 EER							
	Mini-Splits (cooling) only)	Single-zone	20 SEER, 12 EER	20 SEER, 12 EER							
		Multi-zone	17 SEER, 12 EER	17 SEER, 12 EER							
	Chiller, Air Cooled		Full Load ≤ 1.20 kW/ton; IPLV ≤ 0.78 (< 150 Tons)	Full Load ≤ 1.20 kW/ton; IPLV ≤ 0.78 (< 150 Tons)							

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Thermal Shell ⁷	Ceiling	R-60 attic and/or R-49 Slope. Attic sheetrock plane air-sealed.	R-60 attic and/or R-49 Slope. Attic sheetrock plane air-sealed.
	Flat Roof	R-44 continuous above roof deck	R-44 continuous above roof deck, sealed roof sheathing joints
	Wall ^{8, 9}	R-25, sheathing joints taped/sealed. See Footnote 8 for approved assemblies.	R-31 minimum; R-11.25 continuous exterior and R-20 cavity minimum and sheathing joints taped/sealed. See Footnote 9.
	Floor ¹⁰	R-38 or R-5 Continuous and R-30 Cavity	R-38 or R-5 Continuous and R-30 Cavity
	Foundation	R-20 Continuous	R-20 Continuous
	Slab Edge (on grade)	R-15 (per code)	R-15 (per code)
	Windows	NFRC U value 0.28 or less	NFRC U value 0.28 or less. Meets NFRC 400 (air leakage no greater than .2 cfm @ 75 Pa pressure difference). Window to wall area ratio no more than 20%.
	Elevator and Stairwell Vestibules	For buildings with parking garages under living space. Required at parking level, recommended in corridors.	For buildings with parking garages under living space. Required at parking level, recommended in corridors.
Air Leakage	Maximum Allowed	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).	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 ¹¹ and Common area fixtures	ENERGY STAR or Design Lights Consortium qualified LED fixtures. ¹² If screw-based fixtures are installed, must install ENERGY STAR qualified LED lamps. Per-apartment incentive will be adjusted accordingly.	ENERGY STAR or Design Lights Consortium qualified LED fixtures. ¹² If screw-based fixtures are installed, must install ENERGY STAR qualified LED lamps. Per-apartment incentive will be adjusted accordingly.
	Interior common area controls ¹³	Occupancy controls included in all hallways, stairways, laundry rooms, etc. Day lighting control included in common areas with glazing.	Occupancy controls included in all hallways, stairways, laundry rooms, etc. Day lighting control included in common areas with windows.
	Parking lot / Site	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.	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	ENERGY STAR Refrigerator, Clothes Washer, & Dishwasher.	ENERGY STAR Refrigerator, Clothes Washers, & Dishwashers.
	In-unit Electric Dryers	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.	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	Recommend natural gas where available.	Recommend natural gas where available.
In-unit Ventilation	Mechanical Ventilation serving residential units	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.	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	\$1000 per apartment (includes VGS portion when in VGS territory).	\$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. Call for consultation. Approved assembly usually 2x6 walls with minimum R-11.25 insulated sheathing, joints taped. Mineral wool R20 minimum in cavity. No interior vapor barrier required by RBES. If vapor barrier desired, smart vapor barrier recommend (no poly).
10. Floors over unconditioned space. Basements are not considered unconditioned space.
11. Efficient lighting shall be included in every room and exterior space.
12. Qualifying LED fixtures receive additional point-of-purchase incentive from Vermont suppliers.
13. 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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