

The background of the cover is a detailed architectural floor plan in white lines on a dark blue background. The plan shows various rooms, corridors, and structural elements, including what appears to be a kitchen area with a sink and stove, and several rooms with doors and windows. The lines are thin and precise, typical of a technical drawing.

# Equipment Efficiency Guide

Commercial New Construction

Effective January 1, 2019  
Updated July 1, 2019

# Introduction

This guide is meant to be used for commercial new construction and major renovation projects in Vermont, pursuing any level of energy efficiency. Energy savings will vary based on building type, occupancy, and usage, as well as envelope, mechanical and electrical systems used. This guide provides specific efficiency requirements for lighting, HVAC, and refrigeration equipment, and the associated Efficiency Vermont incentive for each measure.

## Equipment Approach

**5-10%\***

energy savings

Minimum Assistance | Above-Code Equipment



Yankee Farm Credit

Efficiency Vermont provided financial support for efficient equipment, enabling above-code energy performance.

Equipment Approach

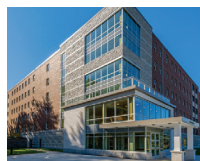


## High Performance

**10-20%\***

energy savings

Moderate Assistance | Above-Code Performance



Norwich University

Supporting a comprehensive approach to energy efficiency, Efficiency Vermont helped this customer attain a high performance goal.

Whole Building Approach



## Net Zero

**30-45%\***

energy savings

Extensive Assistance | Best Building Performance



Northfield Savings Bank

Efficiency Vermont worked closely with the project team to set a path to achieve their net zero goal.

Whole Building Approach

\*Versus 2015 VT CBES

Photos: Leslie O'Halloran & Gary Hall Photography

## Building Size

This guide is intended to be used for buildings less than 50,000 square feet in size. For buildings over 50,000 square feet, contact Efficiency Vermont to enroll the project and receive technical and financial assistance on a custom basis.

## Documentation Review & Verification

Design and Construction Documents, including all drawings and specifications, as well as equipment submittals during construction, must be submitted to Efficiency Vermont. These documents, and a final inspection, will be used to verify all requirements have been met.



## Get Started

Bring us to the table at your first design meeting, to maximize impact and incentives.

[www.encyvermont.com/cnc](http://www.encyvermont.com/cnc)

[pics@encyvermont.com](mailto:pics@encyvermont.com)

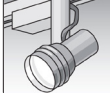



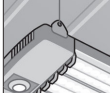



855-317-2254

Burlington Electric Department (BED) administers electric efficiency programs for the City of Burlington. For more information, call 802-865-7342. Vermont Gas administers natural gas efficiency programs for buildings served by natural gas. For more information call 802-863-4511 x321.



# Lighting




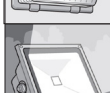



## Interior Lighting - LED Fixtures

Type	DLC Category	Specification	Incentive	Instant Rebate Available?
 Track Lighting Fixtures	 Track & Mono-Point Directional Luminaires	n/a	\$30 per head	No
 Surface & Suspended Linear Fixtures	 Linear Ambient Luminaires	n/a	\$30	Yes
 High- & Low-Bay Fixtures	 Low-Bay Luminaires	< 10,000 lumens	\$30	Yes
	 High-Bay & High-Bay Aisle Luminaires	≥ 10,000 lumens	\$80	Yes
 Troffer Fixtures	 1x4, 2x2, 2x4 Luminaires	n/a	\$30	Yes

## Lighting Eligibility Requirements

- A lighting power calculation must be completed using Efficiency Vermont's Lighting Power Calculation Tool.
  - Interior Lighting Power – Must follow the procedure in Section 405.4 of the 2015 Vermont Energy Code, use the **space-by-space method or (new!) building area method**, and a reduction of at least 25% must be obtained.
  - Exterior Lighting Power – Must follow the procedure in Section 405.5 of the 2015 Vermont Energy Code, and a reduction of at least 50% must be obtained.
- Fixtures must be qualified by Design Lights Consortium (DLC). To verify a product is qualified, visit [www.encyvermont.com/qualified-lighting](http://www.encyvermont.com/qualified-lighting). Please make sure your product is qualified by DLC by clicking on the Details button.
- For more information regarding these requirements, and to register for and download the LPDTool simply visit [www.encyvermont.com/lightingtool](http://www.encyvermont.com/lightingtool). You will be asked to fill out an online form which will provide free access to the tool. When major updates to the Tool occur, registered users will be notified by email.

## Exterior Lighting - LED Fixtures

Type	DLC Category	Specification	Incentive	Instant Rebate Available?
 <b>Area Fixtures &amp; Retrofit Kits:</b> <ul style="list-style-type: none"> <li>Outdoor Pole-Mounted</li> <li>Outdoor Decorative Area &amp; Post-Top</li> <li>Parking Garage &amp; Canopy</li> <li>Outdoor Wall-Mounted (Including Wall Packs)</li> </ul>  <b>Bollard Fixtures</b>  <b>Outdoor Flood and Spot Light Fixtures</b>  <b>Soffit Lighting</b>	 Outdoor – Low Output	≤ 5,000 lumens	\$50	Yes
	 Outdoor – Mid Output	5,001 – 10,000 lumens	\$100	Yes
	 Outdoor – High Output	> 10,000 lumens	\$200	Yes

Lumens are based on the values reported by the DLC.



## What is the DLC qualified products list?

The DesignLights Consortium™ (DLC) Qualified Products List is a leading resource for efficient commercial LED products. Efficiency Vermont and BED provide rebates based on DLC qualifications to ensure that you receive high quality products for your business.



## Instant Rebates

Instant rebates are available for select lighting equipment purchased from participating distributors.

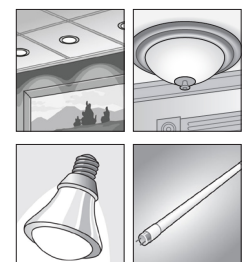
Visit [www.encyvermont.com/smartlight](http://www.encyvermont.com/smartlight) for details.

*Projects purchasing more than 250 fixtures are not eligible for instant rebates.*

DLC LED Interior Fixtures: Surface/Suspended Linear Fixtures, Troffer Fixtures, Low- and High-Bay Fixtures, Refrigerator/Freezer Case Fixtures

DLC LED Exterior Fixtures: Area Fixtures, Bollard Fixtures, Outdoor Flood and Spot Light Fixtures, Soffit Lighting

ENERGY STAR: Screw- or Pin-Based LED Lamps, LED Fixtures





# Commercial Refrigeration

## Evaporator Fan Motor Controls

Type	Eligibility Requirements	Incentive / Fan
Evaporator Fan Motor Controls	<ul style="list-style-type: none"> <li>Must be installed in walk-in cooler or refrigerated warehouse application</li> <li>Must control synchronous or brushless DC motor</li> <li>Controls must cycle or reduce fan air flow to ensure energy savings</li> </ul>	\$30

## LED Case Light Fixtures: Refrigerator and Freezer

Type	Eligibility Requirements	Incentive / Fixture
Refrigerator or Freezer Case	<ul style="list-style-type: none"> <li>Product must be qualified by DesignLights Consortium® (<a href="http://www.designlights.org/QPL">www.designlights.org/QPL</a>).</li> <li>Horizontal and vertical doors are eligible.</li> <li>Available for instant rebate from participating distributors</li> </ul>	\$30

## Display Case Strip-Curtain and Continuous Covers

Type	Eligibility Requirements	Incentive / Foot
Display Case Strip-Curtain and Continuous Covers	<ul style="list-style-type: none"> <li>Eligible covers are PVC, metal, or equivalent curtains.</li> <li>Installed on open, multi-deck (merchandise) coolers.</li> <li>Rebate is based on length (in feet) of case covered.</li> </ul>	\$6

## ENERGY STAR® Ice Machines

Ice Machine Type (batch or continuous)	Eligibility Requirements	Harvest Rate (lbs ice/day)	Incentive
Ice Making Head (IMH)	<ul style="list-style-type: none"> <li>Must be ENERGY STAR air-cooled ice machines listed at <a href="http://www.energystar.gov/productfinder/product/certified-commercial-ice-machines/results">www.energystar.gov/productfinder/product/certified-commercial-ice-machines/results</a>.</li> </ul>	< 450	\$50
Remote Condensing Unit (RCU)		≥ 450	\$75
		< 1000	\$50
Self-Contained Unit (SCU)		≥ 1000	\$75
		< 175	\$50
		≥ 175	\$75

## Reach-In Refrigerators and Freezers

Size	Eligibility Requirements	Incentive / Solid Door Freezer and Refrigerator	Incentive / Glass Door Freezer and Refrigerator
< 15 cu. ft.	<ul style="list-style-type: none"> <li>Eligible units are high-efficiency, ENERGY STAR certified commercial reach-in units that meet the ENERGY STAR V3.0 specification.</li> <li>Units must be listed on the ENERGY STAR certified products list, available at <a href="http://www.energystar.gov/productfinder/product/certified-commercial-refrigerators-and-freezers/results">www.energystar.gov/productfinder/product/certified-commercial-refrigerators-and-freezers/results</a>.</li> <li>\$100 bonus for propane/butane (R-290/R-600a) refrigerant reach-in units that meet the ENERGY STAR V3.0 specification.</li> </ul>	\$200	\$250
≥ 15 - < 30 cu. ft.		\$200	\$250
≥ 30 - < 50 cu. ft.		\$250	\$300
≥ 50 - < 80 cu. ft.		\$300	\$400



## Instant Rebates

Special pricing is now available at participating distributors for the following products. For more information, contact Efficiency Vermont at 855-317-2254 or visit [contractors.efficiencyvermont.com/programs/refrigeration](http://contractors.efficiencyvermont.com/programs/refrigeration)

- Efficient Evaporator Fan Motors
- High Efficiency Condensing Units



# Heating, Ventilation & Air Conditioning


## Unitary Air Conditioning and Split Systems

Btu/Hour	Tons	Eligibility Requirements	Minimum Efficiency SEER / EER / IEER	Incentive / Ton
< 65,000 Split	< 5.4	<ul style="list-style-type: none"> <li>Both the condensing unit and the coil must be matched and together meet or exceed the minimum efficiency rating defined for split systems.</li> </ul>	15.0 SEER / 12.5 EER	\$90
< 65,000 Packaged	< 5.4		15.0 SEER / 12.0 EER	\$90
≥ 65,000 to < 135,000	5.4 to < 11.25		13.8 IEER / 12.0 EER	\$80
≥ 135,000 to < 240,000	11.25 to < 20		13.0 IEER / 12.0 EER	\$80
≥ 240,000 to < 760,000	20 to < 63		12.1 IEER / 10.6 EER	\$50

## Water Source Heat Pumps

Type	Eligibility Requirements	Incentive / Ton
Water Source Heat Pumps	<ul style="list-style-type: none"> <li>Minimum EER: 14 (Cooling Mode: 86° F entering water temperature).</li> <li>Minimum COP: 4.6 (Heating Mode: 68° F entering water temperature).</li> <li>Units must be installed in water loop applications where a boiler and/or cooling tower is utilized.</li> <li>For ground-or groundwater-source applications contact Efficiency Vermont.</li> </ul>	\$80

## Central Wood Pellet/Wood Chip Boilers & Furnaces

Fuel Type	Peak Efficiency	Emissions	Eligibility Requirements	Incentive
Wood pellet	≥ 85% on an HHV basis	PM2.5 emissions ≤ 0.08lbs/MMBTU	<ul style="list-style-type: none"> <li>Qualifying equipment is eligible for an Efficiency Vermont incentive and a Small Scale Renewable Energy Incentive Program (SSREIP) incentive from the Department of Public Service's Clean Energy Development Fund*. Checks will be issued and mailed separately, with a portion going to the installer.</li> <li>Equipment must be installed by an Efficiency Excellence Network HVAC-Central Wood Pellet Heating Systems contractor. A list of participating contractors is available at <a href="http://www.energystar.gov/products/certified-products/detail/fans-ventilating">www.energystar.gov/products/certified-products/detail/fans-ventilating</a>.</li> <li>System must be installed as primary central heating systems and reduce fossil fuel usage (e.g., oil, propane, kerosene).</li> <li>Eligible square footage must be heated space connected to the installed wood heating system.</li> <li>Systems must be classified as indoor and installed inside.</li> <li>System must have at least 1 ton fuel-storage and automated on/off and fuel feed.</li> <li>Qualifying models must meet Peak Efficiency and Emissions requirements or be listed at <a href="http://www.erc-vt.org/AWHSEquipment">www.erc-vt.org/AWHSEquipment</a>.</li> </ul> <p><i>*For projects greater than 5000 square feet, the incentive is provided solely by Efficiency Vermont and included as part of the entire project incentive payment.</i></p>	 \$0.20/ft <sup>2</sup>  Minimum of \$4,000
Wood chip	≥ 80% on an HHV basis	Total PM emissions ≤ 0.1lbs/MMBTU		

## Ventilation Fans

CFM	Eligibility Requirements	Incentive / Fan
10 - 89	<ul style="list-style-type: none"> <li>Ventilation fans must be ENERGY STAR certified. For qualifying models, see <a href="http://www.energystar.gov/products/certified-products/detail/fans-ventilating">www.energystar.gov/products/certified-products/detail/fans-ventilating</a></li> <li>Custom incentives and savings analysis may be available for fans over 500 CFM.</li> </ul>	\$30
90 - 150		\$50
151 - 250		\$70
251 - 500		\$90

## Furnace Fan Motors

Unit Capacity (Output)	Eligibility Requirements	Incentive / Motor
< 225 MBh	<ul style="list-style-type: none"> <li>For efficient brushless DC motors (e.g., BPM, ECM, ICM) installed on new furnaces that meet the following minimum furnace efficiency requirements:               <ul style="list-style-type: none"> <li>LP: 95% AFUE</li> <li>#2 Fuel Oil: 85% AFUE</li> <li>Natural Gas (NG): 95% AFUE</li> </ul> </li> </ul>	\$100

## Whole-Building Heat Pumps

Type	Eligibility Requirements	Incentive
Centrally Ducted Heat Pumps	<ul style="list-style-type: none"> <li>Incentive is for centrally ducted heat pumps &lt; 65,000 Btu/h Nominal Capacity</li> <li>Must be listed on NEEP Cold Climate Specification</li> <li>Minimum HSPF: 10.0</li> <li>Minimum SEER: 15.0</li> <li>COP @5° F &gt; 1.75 (at maximum capacity operation)</li> <li>Compressor must be variable capacity</li> <li>Indoor and outdoor units must be part of an AHRI matched system</li> <li>Custom incentives and savings analysis may be available for systems &gt; 65,000 Btu/h Nominal Capacity</li> <li>Vermont Gas customers are not eligible</li> </ul>	\$300/ton (nominal capacity)
Air-to-Water Heat Pumps	<ul style="list-style-type: none"> <li>Incentive is for air source heat pump with refrigerant-to-water or water/glycol heat exchange ≤ 65,000 Btu/h Nominal Capacity</li> <li>Installed equipment must feed into building space heating hydronic distribution system</li> <li>Equipment must meet performance level A5W110-COP of 1.7 (at an outdoor temperature of 5°F, the unit can provide 110°F water at a COP of 1.7 or above)</li> <li>Must be listed on the Efficiency Vermont Qualified Product List</li> <li>Custom incentives and savings analysis may be available for systems &gt; 65,000 Btu/h Nominal Capacity</li> <li>Vermont Gas customers are not eligible</li> </ul>	\$500/ton (nominal capacity)

## Thermostats

Type	Eligibility Requirements	Incentive / Unit
Smart Thermostats	<ul style="list-style-type: none"> <li>Incentive is for new ENERGY STAR certified smart thermostats</li> <li>Must be listed on the Efficiency Vermont qualified products list</li> <li>Customer must contribute minimum of \$50 per thermostat</li> <li>Limit: Up to 6 per business location</li> </ul>	\$100



## Instant Rebates

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Special pricing is now available at participating HVAC distributors for the following products. For more information, contact Efficiency Vermont at 855-317-2254 or visit [contractors.efficiencyvermont.com/programs/heating-cooling](https://contractors.efficiencyvermont.com/programs/heating-cooling)

- High Performance Circulator Pumps
- Heat Pump Water Heaters
- Cold Climate Heat Pumps



## Appliance Rebates

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Rebates are available for the following ENERGY STAR products. For more information and to submit a rebate application, visit [efficiencyvermont.com/rebates](https://efficiencyvermont.com/rebates)

- Clothes Washers
- Clothes Dryers
- Refrigerators
- Dehumidifiers



## Additional Incentives

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For information about custom incentives that may be available, contact Efficiency Vermont at 855-317-2254. Your electric utility may also provide additional incentives. Contact your utility to learn more about offers and eligibility.

### NOTES:

- Incentives offered throughout this guide will not exceed 100% of the incremental (upgrade) equipment purchase price.
- Incentives listed in this guide are subject to change without notice and may not be combined with any other Efficiency Vermont offer.

[www.efficiencyvermont.com/cnc](https://www.efficiencyvermont.com/cnc)

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