

# HVAC for Schools

A Comprehensive Look  
at Products for a Clean,  
Comfortable Learning  
Environment



**LENNOX**  
*Innovation never felt so good.®*

# Why Schools Choose Lennox



Even as resources for schools continue to be constrained, education leaders and administrators still must achieve success for their students and communities. This begins with keeping students and staff comfortable through indoor air quality and temperature control.

*Lennox' team of education specialists can develop solutions that address your school's needs while reducing monthly energy costs.*

With high-performance systems providing industry-leading efficiency, and some of the best warranties in the industry, Lennox helps create an environment where learning and success are continual parts of the classroom experience.



## Solar technology for exceptional efficiency

Lennox is proud to introduce the SunSource® Commercial Energy System—the first and only commercial HVAC system that integrates directly with solar power. Designed to integrate with 3- to 6-ton solar-ready Emergence® rooftop units, which already provide unmatched efficiencies of up to 18.0 SEER, the SunSource system can provide effective efficiency levels of 34 SEER and beyond.<sup>1</sup> When not operating, the SunSource system converts solar energy to supply other electric devices. Surplus power can even be sent back to the power grid, possibly earning a credit on monthly utility bills.

<sup>1</sup> Effective SEER estimates for the SunSource® air conditioning system are based on the U.S. Department of Energy (DOE) annual performance factor (APF) method for heat pumps and air conditioners (10CFR part 430). Estimates of annual solar energy production are calculated for a centrally located city in each DOE heating region, using National Renewable Energy Laboratory's (NREL) PVWatts, Version 1. The annual solar energy production is solely an estimate for that region and is based upon a fixed-tilt south-facing array free of shading, with a module tilt angle equal to the local latitude of the installation. The annual solar energy production is included in the APF calculation as a reduction of the cooling season power consumption. In this example, the air conditioning unit is an Emergence® LGH060H4ES1P (5 Ton/17 SEER) located in Region IV (represented by Omaha, NE at 41° N. latitude) and with six solar modules rated 175 dc Watts each.



**PRODIGY**  
CONTROL SYSTEM  
SMARTWIRE™ SYSTEM

## Saving Energy with Intelligence®

*Lennox' Energence® rooftop units provide the lowest total cost of ownership by lowering energy costs through ultra-efficient design and the intelligent Prodigy® control system.*

**ENERGENCE™**  
Saving Energy with Intelligence

### Energence® rooftop units deliver:

- Up to 18.0 SEER and 12.8 EER
- The lowest total cost of ownership without compromising comfort
- The most energy-efficient light commercial rooftop unit<sup>2</sup>
- Exceeds ASHRAE 90.1-2010 minimum standards by up to 30%
- The most models in a light commercial rooftop product line that qualify for the highest level of energy rebates<sup>3</sup>
- Reduced energy consumption and enhanced comfort through available MSAV® supply fan technology
- Accurate setup with the Prodigy® control system that verifies units are installed properly and functioning as intended
- Hinged toolless access panels for quick access to components such as air filters

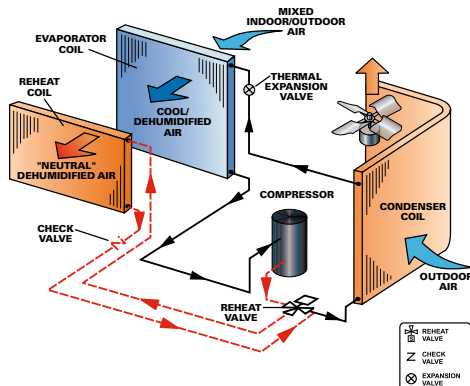
### Maintain comfort for students and staff

All Energence® rooftop units can be equipped with Lennox' patented Humiditrol® dehumidification system for optimum comfort in all environments. Three- to five-ton models can be equipped with an enhanced Humiditrol dehumidification system that is up to 20% more efficient than typical hot-gas reheat systems.

### Extensive warranties for added peace of mind

- 15-year limited warranty on stainless steel gas heat exchanger
- 10-year limited warranty on aluminized gas heat exchanger
- 5-year limited warranty on compressor
- 3-year limited warranty on Prodigy unit controller
- 1-year limited warranty on covered components

## The Humiditrol® system is activated on humidity levels, not the temperature



When humidity levels are above the desired setpoint, the Prodigy unit controller initiates dehumidification. The rooftop unit fans and compressor start and the coils are activated. The mixed indoor/outdoor air is cooled and dehumidified as it passes through the evaporator coil. The cooled and dehumidified air is heated back to near room temperature as it passes through the hot-gas reheat coil, and into the room. The rooftop unit will continue to operate until the room has reached the desired humidity level—all without overcooling.



<sup>2</sup>Commercial gas/electric or electric/electric single packaged rooftop units, 3- to 5-ton units. Claim pertains to 18.0 SEER rating for LGH036H4 unit. Established through review of competitive literature available to the general public in September 2011.

<sup>3</sup>Pertains to G/E, 3- to 20-ton models only. Ten models qualify for CEE's highest level of energy rebates (Tier 2). Established through internal review of competitive literature, September 2011.

## When it comes to high quality for schools, Landmark® units stand out

*Landmark® rooftop units set the standard for reliable, efficient performance that can significantly improve indoor environments for school systems.*



Built on the Lennox legacy of advanced technology and innovation, Landmark® rooftop units conform to the demanding ISO 9001-2000 quality standards and deliver the level of assurance you would expect from a Lennox® product with extensive warranty coverage.

### The smart choice

- Units available in gas/electric, electric/electric and heat pump models
- Reliable, long-lasting construction guards against unexpected replacement and maintenance costs
- Common components and easy-to-maintain unit increase service employee productivity
- Available MSAV® technology to decrease energy consumption

With a low cost of ownership and high-quality design and construction, Landmark units bring the best combination of comfort and value to today's rooftop units.

## Reliable, cost-effective, large split systems

*Lennox' T-Class™ large split system units are ideally suited for school systems, providing excellent comfort control along with low operational costs. These split systems are available in a variety of tonnage sizes to meet a wide range of school applications.*



### Designed for durability and inexpensive service

T-Class™ large air conditioners and heat pumps are made from high-quality, durable components to ensure years of reliable performance.

- Units are easy to service and maintain, helping reduce maintenance expenses for schools needing to be cost-conscious over the long term
- Dual independent refrigeration circuits provide part-load cooling capability for better comfort

### Air handlers built for better indoor air quality

The T-Class line of large air handlers is designed to match the large AC/HP units to provide optimum performance and indoor air quality.

- Low-maintenance blower belt auto tensioner provides longer belt life and quick belt replacement
- Industry-leading accessories such as MERV 16 filtration and bacteria-killing UVC germicidal lamps provide top-notch indoor air quality

## High efficiency combined with excellent temperature and humidity control

### Maximum energy efficiency

S-Class™ split systems from Lennox are the most energy-efficient commercial split systems. With efficiencies up to 16.5 SEER and 8.5 HSPF, S-Class units are ENERGY STAR® qualified, and can help significantly reduce utility bills.

Lennox' SLP98V variable-capacity heating system is designed to save energy and reduce energy costs for schools. By automatically adjusting variables in small increments, the SLP98V delivers peak efficiency in the short term and over the life of the unit.

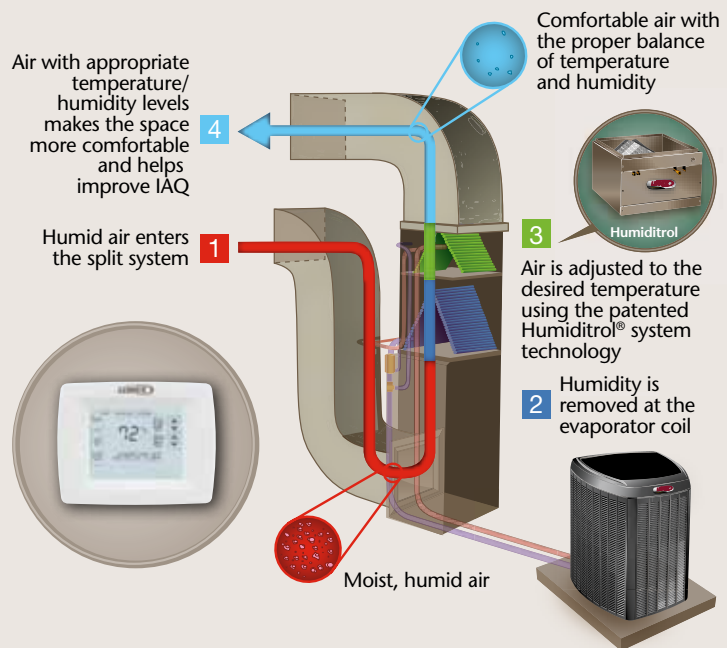
Combined, the S-Class split system and SLP98V furnace can increase energy efficiency for years to come.



### Improve humidity control

Available as a field-installed accessory on the S-Class split system, the Humiditrol® enhanced dehumidification accessory provides independent humidity and temperature control in one easy-to-use device. As an added benefit, installation and operation require no additional control boards or sensors, which reduces the cost of parts, installation and maintenance for a lower total cost of ownership.

### PRECISION HUMIDITY AND TEMPERATURE CONTROL IN ONE EASY-TO-USE DEVICE



## Penthouse MultiZone HVAC System

Every Penthouse MultiZone HVAC System is individually designed and built to match specific demands. Each unit contains multiple split systems designed for highly efficient, reliable performance in schools. Multiple economizers, fans, cooling coils and heating sections condition independent zones without the complexity, lack of redundancy and energy waste found in other zoning systems. The result is exceptional comfort, low operating costs and the most energy-efficient multi-zone unit available.



- Up to 98% AFUE gas heating (two stages)
- Modulating economizers
- Up to 16.5 SEER/12.5 EER condensing units
- Individual zone control
- Multiple-speed DC inverted fan motors
- Energy management options

### Ideal flexibility

Each unit is custom-built to meet design requirements with one to 18 control zones, nine to 45 tons of cooling and 165 to 792 MBH of heating output. Unit base and duct connections are built to match existing or new roof curbs. Heating is available in natural gas, electric, hot water, heat pump and dual fuel. Cooling is available in direct expansion and chilled water.



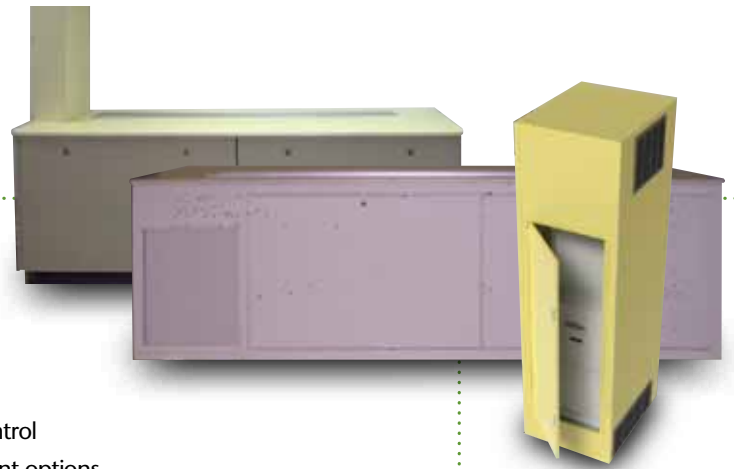
*Over 50% of a school's energy consumption goes toward heating, cooling, and ventilation, with significant energy savings attainable at little cost.*

**SOURCE:** U.S. Department of Energy, "School Operations and Maintenance: Best Practices for Controlling Energy Costs," August 2004.

## Pulse Unit Ventilator

Designed to improve classroom environment by reducing drafts, the Pulse Unit Ventilator uses a variable speed motor to reduce airflow when in ventilation mode. This ventilates the space while minimizing drafts, producing comfort for teachers and students.

- Up to 98% AFUE gas heating (two stages)
- Up to 21.0 SEER condensing units
- Enthalpy economizers
- Individual zone control
- Energy management options



**For increased flexibility, PUVs and SRUs are available custom-built in gas/electric, electric/electric, heat pump, dual fuel, geothermal, hot/chilled water and steam.**

## Single Room Unit

The Single Room Units are specifically designed for portable classrooms to match that application's unique needs. Available either as a gas-fired two-stage furnace or an electric appliance, the SRU delivers efficient, reliable performance. Each unit is equipped with an economizer and a condenser with a high-efficiency evaporator coil for maximum energy savings as well as comfort and control.

- Up to 98% AFUE gas heating (two stages)
- Up to 21.0 SEER condensing units
- Modulating economizers
- Energy management options





*Poor indoor air quality can impact the comfort and health of students and staff, which in turn can affect concentration, attendance and student performance.*

*SOURCE: U.S. Environmental Protection Agency, IAQ Tools for Schools  
"Step-by-step guidance to improving the air quality in our nation's schools."*

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