



# LEED

Leadership in Energy and Environmental Design





# GREEN BUILDING

## BUILDINGS ARE GETTING GREENER

Thousands of projects in the United States have registered for certification under the LEED (Leadership in Energy and Environmental Design) Green Building Rating System from the U.S. Green Building Council (USGBC). There are LEED projects in over 90 countries around the world. From reflective roofs and super-efficient windows to flexible access floors and ultra-efficient HVAC systems, a wealth of new technologies is adding function, value, and high performance to today's commercial buildings. Integrated design processes allow project teams to take full advantage of these technologies at the lowest first costs. Thanks to LEED and other programs such as ENERGY STAR, common benchmarks, support tools, and opportunities are emerging to offer market differentiation for buildings that create higher private and public value.

## RECOVER HIGHER FIRST COSTS – IF ANY

Asking if a high performance green building costs more than a conventional alternative is a little like asking which is more expensive, an efficient car or an inefficient one? The answer, of course, depends on factors such as the make and model, features, and driving preferences. Many green buildings cost no more to build - or even less than the alternatives - because resource-efficient strategies often allow downsizing of more costly mechanical, electrical, and structural systems.

## DESIGN FOR COST-EFFECTIVENESS

A high performance green building is an efficient building. Savings in energy costs of 20 - 50% are common through integrated planning, site orientation, energy-saving technologies, on-site renewable energy producing technologies, light reflective materials, natural daylight and ventilation, and downsized HVAC and other equipment.

## ENHANCE HEALTH AND WELL-BEING

High performance green buildings typically offer healthier environments for tenants. A new survey of laboratory and field research suggests rich opportunities ahead for owners and occupants alike to better understand and take advantage of various green building features to enhance worker well-being and performance. No wonder businesses are beginning to use high performance buildings as a potent tool for recruiting and retaining the best employees.

## REDUCED LIABILITY

The Environmental Protection Agency (EPA) recognizes "sick building syndrome" as a real occurrence. The World Health Organization reported up to 30% of

new and remodeled buildings worldwide may be subject to complaints related to indoor air quality.

With an increase in mold-related claims, insurance companies have begun to take defensive action with mold clauses and rate hikes. Some industry experts are even predicting that insurance companies will start linking lower premiums to high performance buildings.

## CREATE VALUE FOR TENANTS

According to the EPA, a tenant can save approximately \$0.50 per square foot per year through cost management and operations strategies that cut energy use by 30%. The tenant's accumulated savings can represent \$50,000 or more in a five-year lease of 20,000 square feet of office space. Savings can be even higher when incorporating a variety of high performance and flexible building design components.

## INCREASED PROPERTY VALUE

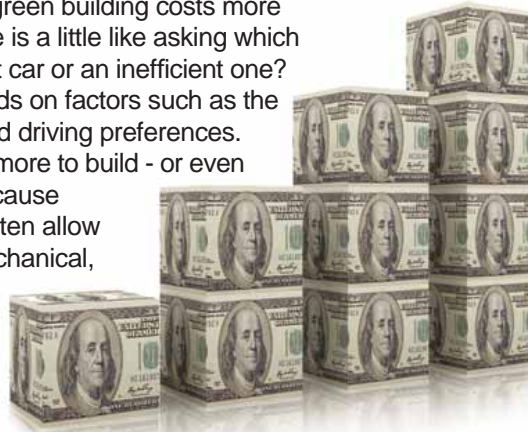
An asset that maintains its value through higher occupancy and easier maintenance is easier to sell and may command a higher market valuation. There is growing confidence in the industry that a high performance green building can either capture lease premiums or present a more competitive property in an otherwise tough market. Reduced operating costs also generate increased cash flow, which helps free capital for other investments. As green

buildings are increasing recognition of LEED and ENERGY STAR programs, the marketplace is expected to follow with a system of preferential pricing.

## EMPHASIS ON THE FUTURE

As concerns over energy prices and energy security grow, government support for improving our infrastructure is at unprecedented levels. Movements are underway to develop energy-efficient government facilities or refurbish existing facilities to set the example of how green buildings are the way of the future.

There is also a new emphasis on revitalizing thousands of school buildings across the country in need of repair and upgrade. Such efforts on renovation are projected to not only save billions of dollars in energy, but to improve the working and learning environments.





# THE LEED PROGRAM

Now that you've seen some of the benefits to LEED Certification, let's look at the actual heart of the programs and the various levels and factors that affect the ratings.

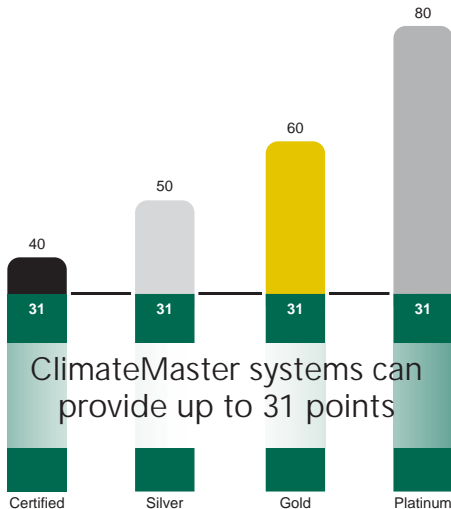
LEED for Building Design and Construction (BD&C) includes the following rating categories

- New Construction and Major Renovation
- Core and Shell Development
- Schools
- Retail
- Data Centers
- Warehouse and Distribution Centers
- Hospitality
- Healthcare
- Homes and Multi-family Lowrise
- Multi-family Midrise

The LEED rating system was first introduced in the year 2000 and is continuing to shape the building industry. There are prerequisite and point categories.

## Prerequisites

- Integrative project planning and design
- Construction activity pollution prevention
- Environmental site assessment
- Outdoor water use reduction
- Indoor water use reduction
- Building-level water metering
- Fundamental commissioning and verification
- Minimum energy performance
- Building-level energy metering
- Fundamental refrigerant management
- Storage and collection of recyclables
- Construction and demolition waste management planning
- PBT source reduction – mercury
- Minimum indoor air quality performance
- Environmental tobacco smoke control
- Minimum acoustic performance



## POINT SYSTEM

Seven basic categories make up the design points system. Totaled together, these points determine your certification level. The level of certification depends upon the total number of points.

As you can see, energy and atmosphere along with indoor environmental quality factors make up half of the available basic points. Product solutions from ClimateMaster are a perfect fit for these categories and can also offer additional points for enhanced solutions.

Seven categories for accumulating points

1. Intergration process.....1 Point
2. Location and transportation.....16 Points
3. Sustainable sites.....10 Points
4. Water efficiency.....11 Points
5. Energy and atmosphere.....33 Points
6. Materials and resources.....13 Points
7. Indoor environmental quality.....16 Points

Subtotal: 100 Points

Additional bonus points are available through:

- Innovation in design.....6 Points
- Regional priority.....4 Points

## THE CLIMATEMASTER SOLUTION

By choosing ClimateMaster Water-Source Heat Pumps, you can help satisfy more than half of the requirements for LEED Certification.



## HOW DOES CLIMATEMASTER HELP SATISFY LEED REQUIREMENTS?

### OPTIMIZED ENERGY EFFICIENCY

ClimateMaster produces the world's most efficient geothermal and water-source heat pumps. Since the LEED program assigns additional points based upon increased efficiency beyond ASHRAE 90.1 minimums, equipment selection can greatly affect the total number of points. For example, the ASHRAE 90.1-2013 specifies a minimum efficiency of 13 EER for water source equipment.

The Tranquility® 30 Series boasts an efficiency rating up to 30 EER when used with a ground loop. The reduced energy consumption of buildings designed around the Tranquility® Series can add a significant number of points for existing construction or new construction when used in conjunction with a geothermal loop system. Therefore, ClimateMaster equipment can provide a large percentage of points depending upon equipment selection.

### Points for Percentage in Energy Performance

New Construction	Major Renovation	Core and Shell	Points (except schools, healthcare)	Points Healthcare	Points Schools
6%	4%	3%	1	3	1
8%	6%	5%	2	4	2
10%	8%	7%	3	5	3
12%	10%	9%	4	6	4
14%	12%	11%	5	7	5
16%	14%	13%	6	8	6
18%	16%	15%	7	9	7
20%	18%	17%	8	10	8
22%	20%	19%	9	11	9
24%	22%	21%	10	12	10
26%	24%	23%	11	13	11
29%	27%	26%	12	14	12
32%	30%	29%	13	15	13
35%	33%	32%	14	16	14
38%	36%	35%	15	17	15
42%	40%	39%	16	18	16
46%	44%	43%	17	19	
50%	48%	47%	18	20	

Credit	Intent	Point Potential	ClimateMaster Contribution
Category - Energy and Atmosphere (EA)			
Optimize Energy Performance	To achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic harms associated with excessive energy use.	Schools 1 to 16 Healthcare 1 to 20 Other 1 to 18	HVAC systems account for a large portion of the energy use in a building. ClimateMaster products provide significant energy savings above the prerequisite minimum efficiency thus increasing energy performance of the building.
Enhanced Refrigerant Management	To reduce ozone depletion and support early compliance with the Montreal Protocol while minimizing direct contributions to climate change.	1	The long life cycle and low refrigerant leak rates of ClimateMaster products qualify them for the Enhanced Refrigerant Management credit.
Demand Response	To increase participation in demand response technologies and programs that make energy generation and distribution systems more efficient, increase grid reliability, and reduce greenhouse gas emissions.	1 to 2	ClimateMaster products may be equipped with DDC systems and or DXM2 controller to provide demand response capabilities.
Category - Indoor Environmental Quality (EQ)			
Enhanced Indoor Air Quality Strategies	To promote occupants' comfort, well-being, and productivity by improving indoor air quality.	1 to 2	ClimateMaster ERV and DOAS products may be equipped to provide CO2 monitoring and MERV 13 rated air filters.
Thermal Comfort	To promote occupants' productivity, comfort, and well-being by providing quality thermal comfort.	1	ClimateMaster offers a variety of unit thermostats and wall sensors that provide air temperature, air flow, or humidity control.
Category - Innovation (IN)			
Innovation	To encourage projects to achieve exceptional or innovative performance.	1 to 5	Water source heat pumps may be applied in unique ways to help conserve resources and save energy.
Total potential points contribution to LEED certification		31	

# THE CLIMATEMASTER SOLUTION

## INDOOR ENVIRONMENTAL QUALITY

Building management controls are becoming increasingly popular in the commercial marketplace. ClimateMaster DDC controls allow the building owner to Monitor and optimize building energy usage. Plus, DDC controls from ClimateMaster provide maximum flexibility with all of the most popular protocols – LonWorks, BACnet, Modbus and Johnson N2.

One to two LEED points are available for systems that promote occupancy comfort, well being, and productivity. ClimateMaster's Rx ERV module provides a very cost-effective method for bringing in outside air through the use of energy recovery technology. In addition, up to 70% of the energy can be recovered from the building's exhaust air, saving 3 tons of equipment capacity for every 1,000 cfm of outside air. Smaller equipment directly impacts building life cycle costs and lowers up-front installation costs.



Rx (ERV) Module

## THE CLIMATEMASTER



## THERMAL COMFORT

ClimaDry<sup>®</sup>, one of the finest innovations in ClimateMaster's broad product line, is the perfect compliment to a HVAC system when humidity control is essential. One LEED point is available for systems that monitor and control temperature and humidity. The patented ClimaDry<sup>®</sup> dehumidification system is the only modulating reheat option in the WSHP industry that maintains neutral supply air temperature even with cool building loop temperatures, using a standard AHRI certified refrigerant circuit (the reheat function is applied to the condenser water circuit).

## THE INDUSTRY LEADER

In summary, ClimateMaster equipment offers the designer substantial flexibility in maximizing LEED points, while minimizing up-front installation costs and decreasing overall building operating costs. LEED certification is

based upon long-term environmental impact, so HVAC equipment selection is extremely important in determining building sustainability and life cycle costs. ClimateMaster's reputation for high quality products and leadership in the industry provides the building owner with peace of mind.

For over 50 years we have been focused on enhancing business and home environments around the world. Our mission as the world's largest and most progressive leader in the water-source and geothermal heat pump industry reveals our commitment to excellence – not only in the design and manufacture of our products, but in our people and services. Let ClimateMaster be your answer to LEED building design.

# FAMILY OF PRODUCTS





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