

# KONE EcoSpace®

Optimizing Energy Efficiency in a LEED® Gold Building



MARKET SEGMENT  
Corporate

LOCATION  
St. Tammany Parish, La.

TIMELINE  
2007-2008

ARCHITECT  
Forum Studio  
St. Louis, Mo.

BUILDING FOOTPRINT  
300,000 Sq. Ft.  
4 Stories/Floors  
750 Occupants

CERTIFICATIONS  
LEED-NC Gold

PROJECT SOLUTION  
10 EcoSpace Elevators



## fast fact

Elevators and escalators account for 2-10% of a building's entire energy consumption.

*Installing environmentally friendly elevators can reduce energy costs by 70% as compared to standard elevators.*

## optimizing building energy performance

Energy efficiency offers big returns when it comes to greening a building whether the goal is financial savings, environmental protection, occupant comfort, LEED® certification or all of the above. To achieve Energy & Atmosphere credits, LEED® 2.2 for New Construction and Major Renovations requires buildings (100,000 sq. ft. or greater) to undergo a whole building energy simulation and demonstrate an improvement in energy performance from 8% to 48% using ANSI/ASHRAE/IESNA Standard 90.1-2007 as the baseline.

Regulated energy (lighting, HVAC, and water heating) along with process energy (computers, office equipment, kitchen cooking/refrigeration and building transportation) are included in this computer simulation. Since elevators and escalators are considered process energy users, there is an opportunity for these transportation systems to not only contribute measurable energy savings, but help acquire additional LEED credits, too.



**U.S. Operations Center**  
One KONE Court  
Moline, Illinois 61265  
1-800-956-KONE (5663)

**Canadian Operations Center**  
80 Horner Avenue  
Toronto, Ontario M8Z 4X8  
1-416-252-6151

**KONE Mexico, S.A., de C.V.**  
Calvel 227  
Colonial Atlampa  
Mexico City, D.F. 06450  
+51.55.1946.0100

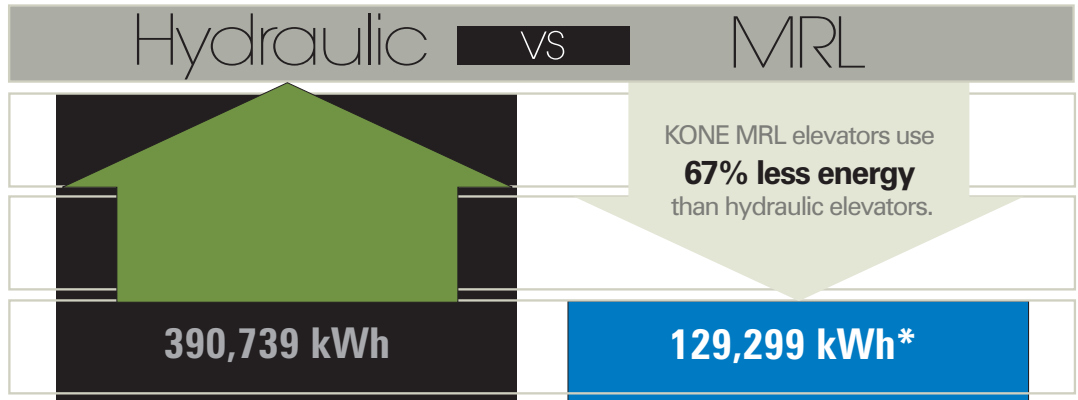
For the latest product information and interactive design tools, visit [www.kone.com](http://www.kone.com).

KONE Inc. reserves the right to alter design and specifications without prior notice.

©2009 KONE Inc. KONE is a registered trademark of KONE Inc. EcoSpace is a trademark of KONE Inc.

"USGBC" and related logo is a trademark owned by the U.S. Green Building Council and is used by permission.

*The gearless design of KONE elevators not only guarantees energy efficiency operation but minimizes groundwater contamination because there is no hydraulic oil system.*



\*estimated annual energy use for 10 elevators in a 300,000 sq ft. building.

### the energy simulation process

The 300,000-square-foot office building was the first LEED-Gold certified building built in Louisiana. As part of the certification process, a whole building energy simulation was performed. This computerized modeling compared a building baseline case (ANSI/ASHRAE/IESNA Standard 90.1-2007) with the new building design. For simulation purposes, process energy was assumed to be 25% of the total energy usage.

Through the energy simulation, the building designers were able to show a 20% decrease overall in energy use for the new building design compared to the baseline, which garnered three LEED points for E&A Credit 1. Energy savings were achieved through more efficient regulated energy uses such as HVAC, lighting and heat rejection. Process energy estimates used for this simulation were identical for the baseline case and the new building design case, which included 10 standard hydraulic elevators for the building.

A second energy simulation was then done to specifically compare traditional hydraulic elevators to machine room-less elevators (MRL) known for their energy-efficient design. All other energy inputs remained the same. This second simulation showed that by installing KONE MRL elevators, the energy needed to operate the new building's 10 elevators could be decreased by 67% as compared to hydraulic elevators. As a percentage of overall building energy use, the MRL elevators consumed 3.3% compared to 9.4% for hydraulic elevators, a 6.1% reduction.

According to Architect Lance McOlgan, LEED AP, of Forum Studio, the project team selected KONE elevators for the project because they delivered a significant level of energy efficiency, which provided an additional point toward LEED Gold certification.

### the KONE contribution

KONE installed 10 EcoSpace® elevators in the first LEED Gold Certified building in Louisiana. The energy efficiency of the advanced EcoDisc® hoisting technology not only provides long-term operational cost savings, but environmental and social benefits as well. The EcoSpace elevator required 67% less energy on this particular project, in comparison to a traditional hydraulic elevator, reducing energy bills and CO2 emissions. Its design puts the hoisting machine inside the elevator shaft, requiring no machine room, which saves space and construction costs.

"Because there are no hydraulics, there is no hole to drill, making this elevator an ideal choice for buildings in areas of the country where high water tables are the norm," said Todd Wilcox, KONE sales engineer. "Having Machine Room-Less elevators also allows for greater design freedom with smaller, remote control spaces, a more hassle-free installation with less construction interface and the ability to keep pace with an aggressive construction schedule."

The EcoSpace elevator provides benefits to the building occupants, too. Traveling 150 feet per minute, riders enjoy safe, smooth and efficient transportation.

### the bottom line

KONE's EcoSpace MRL elevators reduce energy costs by up to 70% when compared to a traditional hydraulic elevator. Through a computerized whole building energy simulation, the energy savings achieved by EcoSpace elevators is treated as an Exceptional Calculation Measure for process energy reduction and can be revealed for any building project as well as contribute to LEED certification.

