

ArcBest

Corporate Headquarters Building Increases Occupant Density by 50%



About ArcBest

ArcBestSM is a multibillion-dollar logistics company delivering integrated solutions primarily under the ArcBest brand. Offerings include less-than-truckload services via the ABF Freight[®] network, ground expedited solutions through Panther Premium Logistics[®], household moving under the U-Pack[®] brand and vehicle maintenance and repair from FleetNet America[®]. From Fortune 100 companies to small businesses, customers trust and rely on ArcBest for their transportation and logistics needs.

The Challenge

Originally designed to support an occupancy level of 850 people, the corporate headquarters has grown to now have 1,085 people plus visitors, sometimes reaching up to 1,200 people. Ten percent of the people work at night, requiring 24/7 conditioning of air. The increase in occupancy drove a need to introduce more outside air to maintain indoor air quality. All of this outside air had to be conditioned, increasing electrical energy costs. In addition, the extra outside air caused drafts on cold winter days, and during the summer the extra outside air flow through the air handlers resulted in some parts of the building getting too cool. "I previously got calls from people that they were cold during the summer, which was a direct result of having to introduce so much chilled air into the building to meet the appropriate CO₂ levels," said Richard Rieske, Director of Corporate Facilities at ArcBest. "Likewise, they felt drafts during the winter due to all the outside air that was being used to ventilate the building. When the HLR modules are running, our people are more comfortable."



Figure 1: The five-story ArcBest Corporate Headquarters Building, has approximately 190,000 ft² of office space divided into two primary zones per floor.



Customer: ArcBest
(NASDAQ: ARCB)

Climate Zone: 3A

Deployed: June, 2016

Location: Fort Smith, Arkansas

Industry: Freight Transportation and Logistics

Employees: Over 13,000

Annual Revenue: \$2.67 billion
(Year Ended December 31, 2015)

Challenges: Building was designed for 850 people; now supports up to 1,200. As a result, increased ventilation is required causing drafts in the building during both winter and summer.

Solution: 10 enVerid HLR 1000E modules - two installed on each floor, one per wing - to scrub air of contaminants and reduce the amount of outside air ventilation required.

Results:

- 273 tons reduction in HVAC cooling peak load
- \$63,709 energy cost savings annually
- 65% average reduction in outside air (IAQP using HLR vs VRP)
- \$11,535 in water and wastewater savings
- \$66,900 utility rebate
- Extended filter life
- Maintained indoor air quality
- Better indoor air comfort

Solution

Faced with higher than desired energy costs and a commitment to high air quality and comfort, ArcBest turned to enVerid for help. The enVerid project team assessed the air quality and comfort goals, as well as the HVAC mechanical environment, to come up with a solution and a detailed installation plan.

Using the ASHRAE 62.1 Indoor Air Quality Procedure (IAQP), ArcBest could use enVerid HLR modules to clean the indoor air of the building, instead of relying solely on outside air. Ten enVerid HLR systems were installed, enabling a 65% average reduction in required outside airflow.

273-Ton Peak HVAC Load Reduction

The HLR reduced peak HVAC load by 273 tons, which corresponds to a 36% decrease in total HVAC load. This savings impacts the “demand charges” on ArcBest’s utility bill, which in many locations, has a major impact on the overall cost of electricity. In addition, when ArcBest replaces the HVAC equipment in the future, the peak capacity required will be 36% less, providing significant savings in capital expense.

Energy Savings of \$63,709 per Year; Outside Air Reduced 65%

Using HLR technology, ArcBest could take advantage of ASHRAE 62.1 Indoor Air Quality Procedure (IAQP) and use 65% less outside air compared to using the ASHRAE 62.1 Ventilation Rate Procedure (VRP). As a result, the annual energy savings for heating and cooling are calculated to be \$63,709.

Water Savings of \$11,535 per Year

ArcBest was also able to conserve on cooling tower water but a separate water meter wasn't available so this information was not included in the overall project savings. However, based on standard calculations, ArcBest is saving 2.175 million gallons of water and saving \$11,535 in water and wastewater charges.

Earned a One-Time Energy Rebate of \$66,900

The local electric utility, Oklahoma Gas & Electric, offers rebates for energy efficiency projects. The rebate of \$6,690 per HLR module, funded a substantial portion of the deployment.

Additional Savings:

- **Filters:** Reducing outside air extends the lifetime of outside air filters.
- **Reduced Corrosion:** Reducing outside air intake provides several secondary benefits that include extending the useful life of the existing mechanical equipment and ductwork.



www.enverid.com 1.617.795.4000 info@enverid.com

enVerid Systems, Inc. is committed to improving energy efficiency and indoor air quality in buildings worldwide through its innovative HVAC Load Reduction® (HLR®) solutions. Awarded the prestigious 2016 R&D 100 Award, enVerid is the only solution that helps commercial, education and government buildings remove carbon dioxide (CO₂), aldehydes, volatile organic compounds (VOCs) and particulate matter (PM_{2.5}) from indoor air, reducing the outside air intake required for ventilation. enVerid’s HLR technology is ASHRAE-compliant and has been recognized by the U.S. Department of Energy, the U.S. General Services Administration’s Green Proving Ground Program, and the U.S. Green Building Council. For more information, please visit www.enverid.com.



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Richard Rieske
Director of Corporate Facilities,
ArcBest



We are reducing approximately 273 tons of HVAC cooling capacity.

Tom Daigle
Manager of Building Systems,
ArcBest



enVerid’s people are Class A, top-notch and the HLR system works as advertised.

Tom Daigle
Manager of Building Systems,
ArcBest

