

INCREASE VENTILATION TO RAISE

LEARNING
POTENTIAL ↑

INSTALL ERVs TO LOWER

ENERGY
COSTS ↓

Increase ventilation in classrooms
to improve health, cognitive function
and productivity for students and staff
while **lowering energy loads and
costs by up to 65%***

RENEWAIRE ERVs

*All data pertains to a RenewAire HE2XINH ERV when compared to conventional exhaust equipment at 1,500 CFM of OA in Minnesota using DX cooling and gas heat. Future energy costs calculated based on current energy costs.



RenewAire ERVs installed at school lower energy costs and combat COVID-19: bit.ly/3spBTGy



RenewAire.com
800.627.4499



ERVs LOWER CAMPUS HVAC COSTS BY 40%

THE PROBLEM

Grand Canyon University (GCU), Arizona's premier private Christian university, was undergoing an expansion in physical size and student body, and was looking for a way to provide better and more effective ventilation for several new and remodeled buildings. Specifically GCU needed a solution that would realize three goals: 1) enhance indoor air quality (IAQ), 2) maximize energy efficiency, 3) stay within a tight budget and schedule.

In order to achieve this tall order, the university turned to engineer Lawrence Black, P.E. of MSA Engineering Consultants and contractor Chris Baardsen of Central Supply & Metal. Both engineers have extensive ventilation experience, and knew there was only one solution for the job: RenewAire energy recovery ventilator (ERV) technology.

VENTILATION CHALLENGES

In order to reach the overarching goal of enhancing IAQ energy-efficiently, cost-effectively and sustainably, Black and Baardsen faced specific ventilation challenges posed by GCU's diverse array of new and remodeled campus buildings that made up the project. These challenges included:

- **Limited space:** In several buildings, in particular the administrative office, low ceilings meant that there wasn't enough space to install conventional ventilation equipment and ductwork.
- **Maxed-out, older systems:** When increased outdoor air was required, this placed extra strain on maxed-out, older air-conditioning systems that couldn't handle additional HVAC loads.
- **Increased outdoor air:** In all indoor spaces, but especially in classrooms and labs, it was essential to ensure enough fresh and filtered outdoor air was coming in to replace stale indoor air.
- **Balanced air pressure:** Where applicable, bathroom exhaust had to be incorporated in order to balance static pressure in the building.
- **Keeping within budget and on schedule:** GCU had laid out a very strict budget and schedule that had to be met.

"The GCU facilities department saw the value right away because of the significant energy savings and quick payback."

— Chris Baardsen, Central Supply & Metal

RenewAire ERVs use the exhaust air's sensible and latent energy (heat and humidity)—which is discarded by conventional systems—to temper fresh and filtered outdoor air coming in to replace stale indoor air. This process reduces HVAC energy use and costs, decreases monthly operating expenses and generates energy and cost savings year after year. RenewAire ERVs provide cleaner and healthier indoor air through increased and balanced ventilation, a process that realizes the highest levels of IAQ according to the Department of Energy (DOE).¹

Black and Baardsen knew that RenewAire ERVs would be the perfect solution

for the job. Baardsen noted, "My clients love RenewAire since their ERVs are simple to install, easy to use and don't need a lot of maintenance due to their tremendous reliability," he said. "The GCU facilities department saw the value right away because of the significant energy savings and quick payback, especially since GCU's previous ventilation system used a wheel that led to many problems. RenewAire ERVs use a static core, which is as durable and trouble-free as it gets."

The project consisted of the following RenewAire ERV installations, which were all set up on the roof of each building. Among five buildings the following units were installed: 4 HE4XRTs, 11 HE8XRTs, 12 LE8XRTs.



Rooftop installation of RenewAire ERVs at GCU. Image courtesy of MSA Engineering Consultants.

RESULTS

Faced with substantial ventilation challenges, the RenewAire ERVs were able to overcome these and achieve the following results:

- **Reduce HVAC loads by 40%:** By passively recapturing otherwise-wasted energy, RenewAire ERVs reduced the HVAC loads by 40%.
- **Decrease annual HVAC costs by 40%:** This reduction in loads lowers yearly HVAC costs. This savings will be generated every year for the life of the ERVs, which are built to last for over 25 years.
- **Downsize HVAC equipment:** Load reduction leads to HVAC equipment being downsized. This means that ductwork can be minimized throughout the building, which allows the ventilation infrastructure to fit inside small spaces.
- **Streamline operations:** All of the RenewAire ERVs are installed on the roofs of each building, thus creating central ventilation locations for each facility and streamlining operations.
- **Healthier indoor air:** The RenewAire ERVs provide cleaner and healthier indoor air for GCU's students and staff alike, thus promoting improved health, cognitive function, productivity and wellbeing.
- **On budget and schedule:** Due to RenewAire ERVs competitive pricing and simple installation process, the GCU project was completed within the allocated budget and on schedule.

For over 40 years, RenewAire has enhanced IAQ in every type of building via enthalpic-core, static-plate ERVs. Our ERVs optimize energy efficiency, reduce HVAC loads and generate significant cost savings. For more information, visit: RenewAire.com.

¹ Armin Rudd, Daniel Bergey, "Ventilation System Effectiveness and Tested Indoor Air Quality Impacts," U.S. Department of Energy, Building Technologies Office, February 2014, <http://www.nrel.gov/docs/fy14osti/61128.pdf>.