

University of Miami

UHealth Fitness and Wellness Center



About University of Miami

A private research university with more than 16,000 students from around the world, the University of Miami is a vibrant and diverse academic community focused on teaching and learning, the discovery of new knowledge, and service to the South Florida region and beyond.

The 60,000 ft² Wellness Center sits atop a parking garage, occupying the top two floors of a thirteen-story building. The center includes a 15,000 ft² fitness floor with over 100 pieces of state-of-the-art cardio and strength equipment, four group fitness instructional classrooms including a dedicated studio cycling room, pool, indoor courts, restaurant and instructional kitchen.

The Challenge

The indoor air quality (IAQ) was not at the level the facilities management team desired. Fitness centers generate a lot of carbon dioxide (CO₂) from people exercising, and the equipment and mats can off-gas formaldehyde and volatile organic compounds (VOCs). Using increased outside air ventilation to improve the air quality inside was attempted, making it difficult for the HVAC systems to maintain a comfortable indoor temperature and humidity. Further, the energy consumption of the HVAC equipment was already quite high and adding more hot, humid outside air ventilation would cause a significant increase in utility costs. Finally, increased outside air ventilation would result in an increase in fine particulate matter coming from the neighboring highway.



Figure 1: Air quality and the environment are important aspects of health, and therefore a priority to the Wellness Center.

UNIVERSITY OF MIAMI



Deployed: July 2015

Location: Miami, Florida

Climate Zone: 1A

Industry: Higher Education

Enrollment: 16,000 students

Challenges: Poor indoor air quality and high HVAC energy consumption at state-of-the-art university wellness center

Solution: enVerid HLR modules installed on each floor of 60,000 ft² wellness facility to scrub air of contaminants and reduce the amount of outside air ventilation required

Results:

- 36% average reduction in total HVAC energy consumption - saving \$19,500 per year
- 41% peak HVAC capacity reduction
- 75% average reduction in outside air
- Estimated water savings of \$9,200 per year
- Better indoor air comfort: relative humidity decreased 10% and air temperature reduced 2.5 °C
- Improved air quality: Reduced TVOCs to 780 µg/m³, formaldehyde to 29 µg/m³, CO₂ to 753 ppm, and reduced particulate matter from the neighboring highway

Solution

Faced with higher than desired energy costs and a commitment to high air quality and comfort, the Wellness Center turned to enVerid for help. The enVerid project team assessed the air quality goals and 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), the university could use enVerid HLR modules to clean the indoor air of the Wellness Center, instead of relying solely on outside air. Three enVerid HLR systems were installed, enabling a 75% average reduction in required outside airflow.

36% Energy Savings and Improved IAQ

Acceptance tests for each HLR module, followed by the entire facility, were conducted by a third party. HLR energy savings were validated and confirmed by the National Renewable Energy Lab (NREL). IAQ measurements were performed per EPA standard and analyzed by an independent lab.

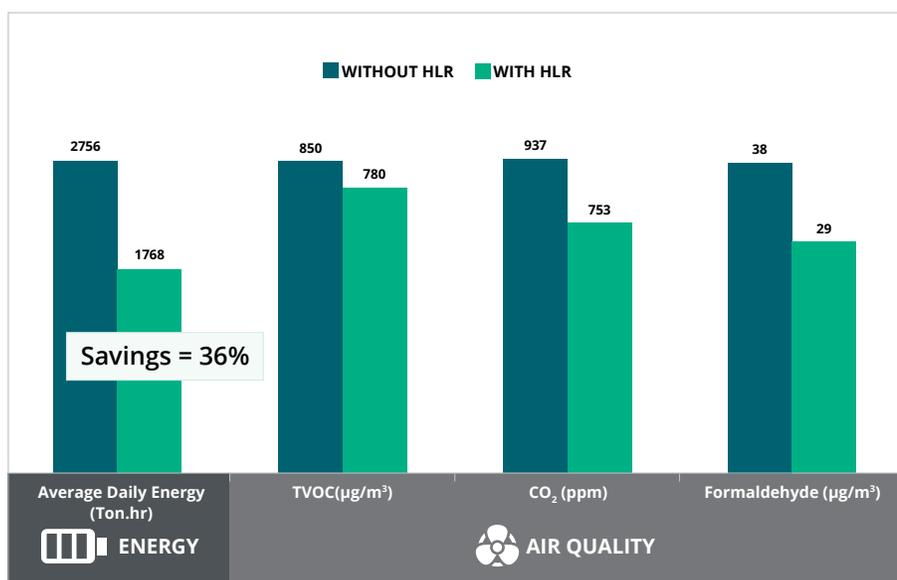


Figure 2: Comparison of Total VOCs, CO₂ and Formaldehyde with and without HLR technology. Individual speciated VOCs were also measured and found to be at healthy levels.



As a result of this successful implementation, enVerid was selected for three additional projects at the University of Miami: a library, an administrative office building, and a medical office and classroom building.



University of Miami is committed to the environment, energy efficiency, and providing a healthy environment for our faculty and students. We have used enVerid's HLR technology to achieve a 36% savings in total HVAC energy consumption and a 41% peak capacity decrease. To achieve this while improving indoor air quality demonstrates this is truly disruptive technology for the HVAC industry.

Ron Bogue
VP for Facilities and Services,
University of Miami



We consider our facilities management processes best-in-class. When we identified issues at the Wellness Center, we immediately looked for a solution that addressed both air quality and energy efficiency simultaneously. HLR technology was the only real choice, and gives the added benefit of future reductions in HVAC capital expenditures.

Marcelo Bezos
Director of Energy Management
Systems, University of Miami



We wanted to improve the indoor air quality at the Wellness Center, as well as reduce total energy consumption. Given that other air cleaning products like bipolar ionization are not ASHRAE-compliant, we decided to use HLR technology. enVerid has been great to work with, and we plan to do more deployments of their HLR modules.

Carl Thomason
Energy Manager, University of Miami

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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.

