enVerid Snapshot

Broadcasters' Child Development Center

Optimizing indoor air quality for young children and teachers while saving space and energy

enVerid
Energy savings. Air quality.

About Broadcasters' Child Development Center

Founded in 1980 by employees of broadcast companies, Broadcasters' Child Development Center (BCDC) in Northwest Washington, DC provides full-day care for children from infancy to 5 ½ years of age. Located in a mixed-use building in Tenleytown, BCDC provides a Creative Curriculum® learning program including both indoor and outdoor play and learning spaces.

The Challenge

Having cared for DC's children for over forty years, BCDC recognizes the importance of providing a safe and comfortable learning environment. That's why, when they wanted to add a new child care center on the lower level of their building, it was very important to choose a reliable HVAC system that would work for them for many years. At the same time, their available space could not accommodate larger ductwork, nor did they have easy access to additional outside air. BCDC presented the engineers at Little Diversified Architectural Consulting with a challenge: find a way to improve indoor air quality, energy efficiency and comfort in additional new space without increasing the size or changing the location of the existing HVAC equipment.

"Providing a safe learning environment is the top priority for operating our child development center," said Kim Mohler, BCDC Director. "Our investments in enVerid air scrubber technology and filter upgrades were critical for reopening safely during the COVID-19 pandemic. The HLR system coupled with high-efficiency HVAC filters allows us to provide healthy indoor air quality cost-effectively, protecting both children and staff."

CUSTOMER: Broadcasters' Child Development Center

CHALLENGES: BCDC needed an HVAC upgrade to improve air quality and comfort but was extremely space-constrained.

SOLUTION: An enVerid HLR module to scrub air of contaminants including CO_2, VOCs and other contaminants. The HLR reduced the amount of outside air ventilation required and delivered superior indoor air quality while maintaining the existing duct size. The project would not have been possible without using enVerid HLR technology.

RESULTS:

- $4,645 in energy cost savings annually
- 25-ton reduction in HVAC cooling peak load
- 73% average reduction in outside air (IAQP using HLR vs. VRP)
- Maintained indoor air quality while saving energy, without increasing HVAC system footprint

SALES REPRESENTATIVES: Havtech

LOCATION: Washington, DC

DEPLOYED: 2020

SQUARE FOOTAGE: 11,749 ft²

BCDC
BROADCASTERS'
CHILD DEVELOPMENT CENTER

Figure 1: The next generation of engineers at Broadcasters' Child Development Center in Washington, DC

The Solution

"Under normal circumstances, we would have added a Dedicated Outdoor Air System (DOAS), which requires larger ductwork and more power," said Julisan Wijaya, Mechanical Engineer at Little Diversified Architectural Engineering. "We had to find a way to reduce the outside air requirement and, if possible, improve indoor air quality. Fortunately, we have an enVerid HVAC Load Reduction® module at our office and I learned that it would address the challenge while delivering superior indoor air quality. This unit allowed us to reduce amount of outside air required to meet minimum ventilation air per ASHRAE standard 62.1. and local code."

Using the ASHRAE Standard 62.1 Indoor Air Quality Procedure (IAQP), Wijaya found that just one enVerid HLR module would effectively clean BCDC's indoor air enough to enable an HVAC upgrade without increasing the exhaust duct size. And over and above removing VOCs and other contaminants from the air, the unit would reduce the electricity use of the existing system and make it easier to keep the space comfortable by recirculating cleaned, conditioned air. In the end, adding the HLR unit made the HVAC upgrade possible.

Chief Engineer Robert Donor of Avison Young Property Managers was interested to learn about the HLR solution and to see it go into the space. "This is the first HLR unit in one of our buildings, so I was a bit skeptical," he said. "But now that I've seen how well this innovative solution works, I'll look forward to seeing more HLRs in the future."

Energy Savings of $4,645 per Year; Outside Air Reduced 73%

Using HLR technology, BCDC was able to take advantage of ASHRAE's Standard 62.1 Indoor Air Quality Procedure (IAQP) to use 73% less outside air than would have been required by the ASHRAE 62.1 Ventilation Rate Procedure (VRP). As a result, the annual energy savings for heating and cooling is $4,645.

Keeping students and teachers safe and productive

While the HLR unit reduced the emissions associated with energy generation by making the whole HVAC system more efficient, it also improved the indoor air quality by removing CO_2 and both indoor-generated contaminants (such as VOCs like formaldehyde and toluene) and outside air contaminants like pollution, particulate matter, and car exhaust. Better air quality will improve productivity in the facility and will keep both its littlest occupants and the grown-ups who care for them safe and healthy well into the future.

Additional Benefits

Because the HLR module offers 75%+ single-pass efficiency at removing viruses such as COVID-19, adding filtration to the space ensured a sufficient number of Effective Air Changes Per Hour to comply with the recommended viral mitigation strategies in the ASHRAE Epidemic Task Force's "Guidance for the Re-opening of Schools."

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> **Julisan Wijaya**
> **Mechanical Engineer, Little Diversified Architectural Consulting**

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