

# Heating & Cooling

## TECHNOLOGY

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# SpacePak Solves Commercial Business Cooling Need

In a commercial setting, how can you reduce your cooling equipment size and cost, while still providing sufficient AC to all of the tenants in your building? That was the question that Oasis Mechanical of Lanham, Maryland had to answer when addressing the needs of the Greenbriar Community Building in Greenbelt, Maryland.



When the Greenbriar Community Building was renovated, Oasis Mechanical of Lanham, Maryland was hired to install a cooling solution for the facility's four separate offices. SpacePak representative Ken Herne suggested they marry SpacePak high-velocity AC with an energy recovery system for maximum cost and energy savings.

The Greenbriar Community Building is a small commercial office building (approximately 6,000 square feet in size) that was undergoing a renovation. Originally, the building was occupied by a single tenant, however, when that tenant moved to a new location, the building owner decided to partition the building into four separate business offices. As a result, the renovated, single-story facility required four separate HVAC systems to allow each tenant to control their individual heating and cooling requirements.

### THE ORIGINAL PLAN

“The original plan called for four separate heat pump systems. Two 7.5-ton and two 5-ton systems, for a total of 25 tons of heating and cooling. At 12,000 Btu/ton, that was a considerable

load. In addition, each zone required approximately 260 CFM of untempered fresh air, per the ASHRAE 62.1 ventilation code,” said Rick Cummings of Oasis Mechanical.

Several contractors bid the project as originally specified – including Oasis Mechanical. With the four separate systems – two of which required their own mechanical rooms in the office floor space – the cost in terms of equipment dollars and lost billable space was significant. “We sensed from the beginning that the scope of the project might be an issue,” said Oasis’ Rick Cummings, “so we brought in Ken Herne, a SpacePak representative with Harry Eklof Associates.”

SpacePak is a high velocity air-conditioning system originally designed for

installation in residential applications where traditional AC ductwork is not an option. The SpacePak system is also used in commercial applications, and in the case of the Greenbriar facility, SpacePak was the ideal choice.

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SpacePak pioneered flexible central air conditioning nearly 40 years ago. The SpacePak system distributes conditioned air through a network of flexible, insulated two-inch in diameter tubing. This flexible duct work can be installed inside existing 2 x 4 wall structures and around obstructions without requiring extensive construction or renovation to the property. A small air-handler is typically installed in the attic, basement, mechanical space, or recessed in the existing ceiling space.

Oasis Mechanical had installed several SpacePak systems in condominium

buildings, and Oasis partners Dennis Bean and Rick Cummings thought that the Greenbriar facility might also benefit from a SpacePak system. They were concerned however, that the largest SpacePak system, at five tons,

would not be large enough for the application.

#### **THINKING OUTSIDE OF THE BOX**

Herne was brought in to evaluate the project and see if a SpacePak system could work. The need to meet ASHRAE 62.1 made the project

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sufficient, but suggested an unusual solution – marry the SpacePak system to an energy recovery system.

Herne and his team soon found the Lifebreath TRV energy recovery equipment. By adding this equipment to the design, they could reduce the load of the untempered fresh air by 65 percent and still meet the ASHRAE 62.1 requirement.

The unique TRV system is a compact dual core system designed to move stale, contaminated air from inside to the outside. At the same time, the system draws clean fresh air in from the outside. The two air streams pass through the TRV without mixing. Instead, they pass on either side of an

HRV style heat exchanger core first (sensible load), which transfers heat from the outgoing to the incoming air, and then an ERV style core, which reduces the Latent load of the untempered air in the summer and helps maintain humidity levels of the space in the winter by providing fresh but tempered air into the facility.

SpacePak systems are ultra quiet and nearly invisible once installed. All you see in each room is a small round air-outlet about the diameter of a CD. The



Greenbriar Community Building



outlets can be installed through floors, walls or ceilings, and can be painted or covered with wallpaper. There are not any large ductwork systems that consume large amounts of space or the

### HUGE SAVINGS

The newly configured system reduced the overall cost of the equipment for the owner, eliminated the need for conventional AC ductwork, and also

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unsightly appearance of space air conditioners inside or outside of the building. Most important, with a SpacePak unit, there is no noisy, drafty operation, and no need to install, remove and store air conditioner units at the end of the season.

“With the combined system and ventilation recovery equipment, we reduced the total system tonnage requirement from 25 tons to 18 tons. The new system would include two five-ton units and two four-ton units, which offered several benefits,” said Herne.

decreased the labor by one-third for installing the system. Combined, this shaved approximately \$80,000 from the original project estimate.



The SpacePak equipment was small enough that it did not require a separate mechanical room in the office space, which provided the building owner with more billable space.

Due to the flexibility of the system and the 2-inch flexible ductwork, the system can be easily re-arranged down the road if or when the space requires further reconfiguration.

Finally, the downsized equipment is seven tons smaller and will provide a significant energy operating cost savings to the owner on an on-going basis.

“The owner is very happy with the solution,” said Cummings. “Oasis Mechanical provided a unique solution to his problem by working closely with the local sales representative and design engineering firm. It’s a great showcase project for Oasis as well as for SpacePak.”



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