



## DAIKIN TECHNOLOGY HELPS ASHRAE REACH ITS MISSION OF SUSTAINABILITY

### THE CHALLENGE

ASHRAE wanted to renovate their headquarters and make a strong statement about sustainability.

### DAIKIN'S SOLUTION

Daikin's VRV inverter driven heat recovery and heat pump units using non-ozone depleting R-410A refrigerant fits perfectly into ASHRAE's goal.

### APPLICATION:

Renovation  
Sustainable  
Office Building

### LOCATION:

Atlanta, Georgia

It's only fitting that an organization whose mission is to advance technology to promote a sustainable world would choose a highly intelligent, cutting-edge HVAC system to heat and cool its newly renovated and expanded headquarters in Atlanta. "We wanted a system with a proven track record, but also one that our members may not be that familiar with so that we can extend the society's knowledge about the latest in sustainable technology,"

explained Mike Vaughn, Manager of Research and Technical Services for the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

ASHRAE chose a suite of Daikin AC products, including the nation's first installed VRV<sup>®</sup> III (Variable Refrigerant Volume) system, to serve the entire first floor of the society's headquarters. The donation provides 38 tons (approx. 133 kW) of inverter-driven R-410A



*The Daikin systems provided a solution to increase the usable space without any costly building modifications. The non-ozone depleting potential refrigerant, individual zone control capabilities and heat recovery technology helped the ASHRAE organization reach their goals of building an energy efficient and sustainable headquarters. The building has received a Platinum LEED Certification.*

The newly renovated ASHRAE headquarters marks the first installation of Daikin's VRV® III Heat Recovery System in North America. The system, along with other Daikin units, provides conditioned air to the first floor of the new headquarters.



“The heat recovery function allows us to heat and cool simultaneously, keeping energy expenditures to minimum.”

Thom Wille P.E.  
Johnson Spellman



Daikin's equipment's performance can be monitored in real time throughout the building of ASHRAE's new sustainable headquarters.

systems. This includes 28 tons (approx. 98 kW) of VRVIII heat recovery units designed with a 121% diversity factor to effectively handle 34 tons (approx. 119 kW) of fan coil capacity. The Daikin systems fit perfectly into ASHRAE's goal of creating a living lab within the headquarters, where members can access remotely a rich resource of data on the building's performance, noted Vaughn. “We wanted a system that is making a big impact in the HVAC industry,

one that our members can actually learn something from,” he said. “We looked at different systems for Level 1, such as chilled beams and radiant panels, but soon zeroed in on the Daikin VRV system, which is commonly used in Europe and the Far East. There is a lot of acceptance of the technology there, but it's just getting a foothold in the U.S.”

The technology was also relatively new to the team charged with the major

renovation and new construction.

The architectural firm Richard Wittschiede Hand brought in Johnson Spellman & Associates as the mechanical engineering firm, while ASHRAE – knowing that the mechanical systems were going to play a pivotal role in achieving the LEED (Leadership in Energy and Environmental Design) designation – engaged the mechanical contractor, Batchelor & Kimball, because of their previous association with the company.

While each group had some experience with inverter-controlled systems, they were able to count on the Daikin team to bring them up to speed in the specific processes and parts that make the new Daikin VRV III system unique. “Once we received the training, it was just a matter of applying what they told us to the ASHRAE project,” said Jim Wright, project manager for Batchelor & Kimball. “It's not complicated; it's just different from what we normally do.” Thom Wille P.E. of Johnson

Spellman agreed that his firm's experience designing a variable refrigerant flow system at a large Atlanta university also gave him the background he needed to take on this task; it was just a case of being apprised of the specifics of the Daikin system. ASHRAE's Vaughn served as the interface among the key mechanical system players, while the staff of Daikin provided the product data and training, as needed. "The nice thing about the Daikin system is that it's basically fan coil units inside the building and what amounts to a condenser outside the building. It's not that foreign to anyone experienced in the HVAC industry," Vaughn said.

The ASHRAE manager noted that prior to the new mechanical system being installed, it was common for some of the building's 106 occupants to complain that one room was too cool, while another was too hot. Now, each of the fan coil units making up the new Daikin system is controlled individually as well as centrally, precisely

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*Mike Vaughn , ASHRAE*

managing the conditioned space, allowing for comfort, energy efficiency, and remote monitoring. "The system now gives more zoning control, when people on one side of the building are warmer or cooler than those on the other side," Wille concurs. "The heat recovery function allows us to heat and cool simultaneously, keeping energy expenditures to minimum." Perhaps the big test of the variable load capacity of the Daikin system was at the dedication ceremony of the headquarters renewal project.

We wondered if we should pre-cool the meeting space before the 100 or so people arrived. We didn't want them to drive up the temperature of the space. For a number of reasons, we couldn't do it in advance. The great news is that the room temperature recovered to a

comfortable level immediately, even with all those people coming in and sitting down at once," Vaughn related. "I was very, very impressed."

Russ Tivolacci, vice president and general manager for Daikin AC noted that Daikin was honored to be part of the historic ASHRAE renewal. "We're proud to be in partnership with the ASHRAE organization and help it achieve its goal for a renewed sustainable headquarters," he said.

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*Mike Vaughn, ASHRAE*



*The HVAC system included a Daikin VRV®-S Heat Pump System. Design and installation of the inverter-controlled systems was supported and serviced by Daikin during the project.*

## THE DAIKIN SUSTAINABILITY GARDEN

In addition to donating the nation's first VRV® III system, a VRV®-S Heat Pump system, a SkyAir Heat Pump system, a mixture of ducted and duct-free fan coils, and a selection of controllers



*The donation of the roof is expected to result in lowering the amount of energy needed to heat and cool the buildings and reduce the building's carbon footprint.*

and monitoring systems, Daikin also contributed toward the installation of an environmentally friendly vegetative roof garden.

Named the "Daikin Sustainability Garden," the "green" roof at the ASHRAE headquarters in Atlanta is expected to result in lowering the amount of energy needed to heat and cool the buildings and reduce the building's carbon footprint and CO<sub>2</sub> emissions. The green rooftop is a layer of vegetation that helps control overall rain runoff, provide an aesthetic appeal to the roof, and protect the underlying roof material by controlling exposure to the sun's ultraviolet radiation and extreme daily temperatures.

## Additional Information

### Product Profile Daikin Equipment

| Model       | Qty | Description  |
|-------------|-----|--|
| REYQ168PTJU | 2   | Heat recovery VRV-III P SERIES 208/230V For two REYQ168PTJU the following condensers are required:<br>(2) REMQ72PTJU<br>(2) REMQ96PTJU |
| RZQ36MVJU   | 2   | Heat pump SkyAir R-410A 36K Btu/h  |
| RXYMQ48MVJU | 1   | Heat pump VRV S R-410A 48 Btu/h  |
| BSVQ36PVJU  | 20  | Branch selector unit R-410A  |
| BSVQ60PVJU  | 1   | Branch selector unit R-410A  |
| FXAQ07MVJU  | 1   | Wall Mounted Unit Cool-75K Btu/h Heat-85K Btu/h  |
| FHQ36MVJU   | 2   | SkyAir Ceiling Suspended Unit - Cool-36K Btu/h Heat-37.5K Btu/h  |
| FXMQ30MVJU  | 2   | Concealed Ceiling Unit - Cool -30K Btu/h Heat 34K Btu/h  |
| FXMQ36MVJU  | 2   | Concealed Ceiling Unit - Cool 36K Btu/h Heat - 40K Btu/h   |
| FXMQ48MVJU  | 2   | Concealed Ceiling Unit - Cool 48K Btu/h Heat - 54K Btu/h   |
| FXSQ12MVJU  | 9   | Concealed Ceiling Unit - Cool 12K Btu/h Heat - 13.5K Btu/h   |
| FXSQ18MVJU  | 6   | Concealed Ceiling Unit - Cool 18K Btu/h Heat - 20K Btu/h   |
| FXSQ24MVJU  | 1   | Concealed Ceiling Unit - Cool 24K Btu/h Heat - 27K Btu/h   |
| KHRP25M22T  | 6   | REFNET™ branch piping kit  |
| KHRP25M33T  | 7   | REFNET™ branch piping kit  |
| KHRP25M72TU | 7   | REFNET™ branch piping kit  |
| DCS601C71   | 1   | Intelligent Touch Controller   |
| DMS502B71   | 1   | BACnet® gateway  |
| 669649      | 8   | Capacity Plug (12mbh > 9mbh)   |
| BRC2A71     | 25  | 7 Day Programmable Controller  |
| DACA-CP1-1  | 1   | Condensate Pump (Local) Up to 24mbh  |
| DACA-CP2-1  | 2   | Condensate Pump (Local) 24 - 48mbh   |

## Location

ASHRAE Headquarters  
Mike Vaughn  
1791 Tullie Circle N.E.  
Atlanta, GA 30329  
[www.ashrae.org](http://www.ashrae.org)  
404-636-8400  
[mvaughn@ashrae.org](mailto:mvaughn@ashrae.org)

## About Daikin AC

**Daikin AC** offers North America intelligent air-conditioning solutions with superior energy performance and sophisticated design. These advanced systems fall under the VRV®, VRV-S®, and SkyAir and Quaternity product names.

The company, based in Carrollton, Texas, is a subsidiary of Daikin Holdings (USA), Inc., which is owned by the Japanese-based Daikin Industries, Ltd. For more information, call 866-4DAIKIN or visit [www.daikinac.com](http://www.daikinac.com).

## Contact Information

**Daikin Contact**  
Christina Trondsen,  
Director of Marketing  
1645 Wallace Drive, Suite 110  
Carrollton, TX 75006  
[christina.trondsen@daikinac.com](mailto:christina.trondsen@daikinac.com)  
972-245-1510  
[www.daikinac.com](http://www.daikinac.com)

**General Contractor**  
Gay Construction Company  
Atlanta, GA  
[www.gayconstruction.com](http://www.gayconstruction.com)

**Architect**  
Richard Wittschiebe Hand  
Atlanta, GA  
[www.rwhdesign.com](http://www.rwhdesign.com)

**Mechanical Engineer**  
Thom Wille P.E.  
Johnson Spellman &  
Associates  
6991 Peachtree Industrial Blvd  
Norcross, GA 30092  
[www.jsace.com](http://www.jsace.com)  
[twille@jsace.com](mailto:twille@jsace.com)  
770-447-4555

**Mechanical Contractor**  
Jim Wright, Project Engineer  
Batchelor & Kimball  
P.O. Box 70  
Lithonia, GA 30058  
[www.bkimechanical.com](http://www.bkimechanical.com)  
[jim@bkimechanical.com](mailto:jim@bkimechanical.com)  
770-482-2000

