

Albert Einstein Academy Charter Middle School, San Diego, CA



"The VRF system fit well on the energy efficiency component and allowed us to gain 12 points on the LEED point list."

- Gene Walsh, President, Walsh Engineering

Project Objectives

The board members of the Albert Einstein Academy charter middle school in San Diego, California had a vision. They wanted to take an abandoned, neglected former nursing facility and convert it into a quiet, comfortable environment for learning and enrichment. There were several challenges:

- original building would not easily support large mechanical systems
- variety of space requirements from small offices to large cafeterias
- wanted to achieve a LEED Silver certification
- needed to comply with California's Title 24 requirements

Solution

This application perfectly aligned with the many advantages of a Carrier VRF comfort system. Using the heat recovery outdoor units featuring inverter-controlled compressors along with a variety of indoor fan coil models, the VRF system was estimated to reduce energy usage from the original base system by 31.9%. The 47 individual fan coil units – Concealed Duct models, 4-Way in-ceiling Cassettes and Compact 4-Way Cassettes were used -- also provided maximum flexibility with their ability to be installed in space-challenged locations without ducts. With the assistance of Walsh Engineering and support from Sigler Wholesale Distributors, the Albert Einstein Academy charter middle school passed its first test with flying colors.

Project Details

- Albert Einstein Academy Charter Middle School, San Diego, CA
- Building retrofit – replaced packaged VAV with VRF System
- System capacity – 106 tons
- Outdoor units – Heat Recovery
- Indoor units – 47 total (4-Way Cassette, Compact 4-Way Cassette, Concealed Duct)

Project Synopsis

At the top of its list of core values, the Albert Einstein Academy charter middle school was created to “inspire a thirst for lifelong learning.” Also on the list is a desire to “promote and sustain a healthy global environment.” To achieve these, the charter school needed to create a comfortable indoor environment, and do it efficiently. President of Walsh Engineers, Gene Walsh, was a little skeptical when he first toured the proposed location – a worse-for-wear, abandoned skilled nursing facility.

According to Walsh, “With the rundown conditions, it didn’t seem to be the right choice for an educational facility.”

The nature of the new facility – a charter school – required an HVAC system versatile enough to provide comfort for a wide variety of spaces. Conference rooms, administrative facilities, cafeterias, classrooms, libraries and exercise facilities were all part of the plan. At the same time, the system needed to maximize energy efficiency as part of the school’s desire to achieve a LEED Silver certification.

Adding to the challenge was the condition of the existing HVAC system, a packaged central VAV system which was not configured to support large mechanical systems. While other options were considered, Walsh quickly keyed in on the idea of a Carrier VRF system. But he still needed to sell the idea to the school board. “There is some resistance out there to VRF and with the unknown, even though it’s been around for a good period of time in other countries,” said Walsh. “We knew the value.”

To help develop their plan for a VRF System at Albert Einstein, Walsh contacted Sigler Wholesale Distributors and representative Mike Kolaric. Sigler provided

engineering analysis and design considerations that would help persuade school representatives that VRF was indeed the best solution. Compared to the existing system, a Carrier VRF installation would achieve a 31.9% improvement in energy efficiency. That translated into 12 points towards the LEED Silver designation – a significant portion of the 50 total points needed for the building as a whole.

The data provided by Sigler proved to be invaluable for making competitive comparisons as other systems were considered for the project, even after the initial design had been submitted. Systematically, each of the newly proposed options were dismissed thanks to Sigler’s energy efficiency modeling and what they referred to as “value engineering” due to redesign considerations needed for the competing systems.

To implement the project, Walsh used complete engineering details, drawings, piping diagrams and equipment layouts provided by Sigler. The biggest surprise to Walsh was how seamlessly the whole process evolved, down to the start-up and commissioning. Walsh was thankful for the support he received from Kolaric and the team at Sigler. “The contractor was obviously paying attention. The system worked very well,” Walsh commented. “My surprise is when a job goes that smoothly, that surprised me.”

The results were, by all accounts, a success. Walsh attended the school’s

open house and was impressed with the system’s performance. “The rooms were full of people, it was very comfortable.” Paying particular attention to general functioning and sound levels, Walsh toured the facility and came away satisfied.

It was nice and quiet, and the system was doing the job it was designed to do - controlling temperatures very well.

