Infant Care Center Replaces Packaged DX Units with HB Series Air Handlers

Citrus College is located in Glendora, CA a suburb of Los Angeles. It is a two year community college offering associate degrees and certifications in areas such as business, arts, science, and even HVAC. Founded in 1915 Citrus College is the oldest community college in Los Angeles County. In the Behavioral and Social Sciences Department, certifications offered in Child Development include Child Development Teacher, Child Development Master Teacher, and Child Development Master Teacher - Early Intervention Specialist. To provide a complete learning environment, the college includes an infant care center for hands on child development training.

An infant care center is a child care center for children ages 6 months to 2 years. Infant care centers are becoming more popular because of the increasing amount of single parent families and families with two working parents. The Infant Care Center at Citrus College is one of five community college child care programs selected by the California Department of Education and WestEd, a nonprofit education research agency, to serve as a PITC, Program for Infant/Toddler Care, demonstration program. The goal of PITC is to "ensure that America's infants get a safe, healthy, emotionally secure and intellectually rich start to life." Part of this goal is ensuring a high quality environment for the children. This environment must be clean and sanitary, include correctly sized flexible furniture, natural lighting, and an HVAC system that can provide adequate ventilation and maintain a comfortable temperature and humidity during all occupied hours.

In 2007, the Infant Care Center's existing DX cooling and gas heating packaged rooftop units were reaching the end of their life cycle. The college had previously decided, that to improve

overall campus energy efficiency, it would gradually convert a majority of the campus buildings over to hydronic air handlers and tie them into a new high efficiency campus wide chiller/boiler system. In addition to being more efficient the hydronic air handler system would be able to provide more consistent occupant comfort because the buildings' heating and cooling loads would be matched with the air handlers' modulating water valves. Thus, a hydronic air handler renovation of the Infant Care Center's HVAC system was planned.

The Renovation Dilemma

Because the Citrus College Infant Care Center is relied upon for child care from early in the morning to late at night, nearly all year round, the building could not close down for an extended renovation. This meant that the HVAC renovation would need to be able to be completed as quickly as possible. Consequently, the renovation was scheduled to take place during the school's spring break.

Angelina Kalianda, the specifying engineer from Alliance Consulting Engineers, Inc., which provides engineering consulting for many California campuses, initially wanted to "use one large rooftop VAV hydronic air handler for the Infant Care Center renovation because of its energy efficiency benefits, however, modifications to the buildings ductwork would have been needed and structural calculations would have been required, along with possible additional roof structural supports, that would have to be submitted to and approved by the California Division of the State Architecture (DSA)." Thus, it would have been a time consuming renovation for the Infant Care Center.

Another renovation option was using indoor hydronic air handlers in the Infant Care Center. This would have also been an energy efficient option that would not require any additional roof structural support, however, it would have required time consuming modifications to the building's ductwork and interior to add room for the air handlers, ductwork, and water piping.

Size Allows Renovation to Meet Timeline

Ultimately, Kalianda decided to work with Brett Gaviglio, an AAON representative from Vertical Systems LLC, on a solution with small rooftop hydronic air handlers. Gaviglio suggested AAON HB Series rooftop air handlers, which he describes as "a custom quality air handler in a packaged unit size." The air handlers would provide the improved energy efficiency and consistent comfort of a hydronic coil air handler and be able to use the previous packaged DX units' ductwork and rooftop connections. In addition, using the air handlers would not require any structural calculations or submittals to the California DSA because of the units' light weight. Therefore, using HB Series air handlers would save renovation costs and be able to meet the spring break renovation timeline of the Infant Care Center.

HB Series Air Handler Highlights

The HB Series air handler includes many superior standard features. It is constructed of double walled 1" thick high performance composite panels with an injected polyurethane foam interior core and a minimum R value of 6.5 and exterior paint which exceeds a 2500 hour salt spray test, per ASTM B 117-95 requirements. This construction provides the unit with custom quality sound attenuation, thermal insulation, cleanability, and extended unit life. The air handler also includes a direct drive multi speed, backward inclined fan. This allows the unit to be able to provide both part and full load cooling with improved humidity control at part load conditions. As standard with all AAON equipment, the HB Series air handler includes full length stainless steel piano hinges and zinc cast handles on the unit access doors and isolated controls cabinet with color coded wiring diagrams provided on the inside of the controls cabinet door in both point-to-point and ladder form. These features allow the unit to be serviced easily and quickly.

The HB Series air handlers specified for the Infant Care Center included both chilled water and hot water coils so the units can provide both energy efficient cooling and heating. Added to these coils was the optional corrosion resistant polymer e-coating, which is applied to the complete coil and casing before being installed in the unit. The coating exceeds a 6000 hour salt spray test, per ASTM B 117-97 requirements, and thus will provide the coil with an extended life in coastal environments like California. An optional 115V convenience outlet was specified for each of the units to ease servicing. By providing an outlet at the unit the need to run an extension cord to the roof during service of the unit is eliminated. Finally, an optional DDC controlled economizer was included on the units for the many moderate temperature days in California when free outside air cooling can be used. The DDC controlled economizer option allowed the economizer to be controlled by the building's existing automation system.

Another Air Handling Option

The HB Series air handler is one of many industry unique equipment solutions offered by AAON. It provides a rooftop air handling option to building owners and specifying engineers that is compact and light weight with the features and options of larger and more expensive rooftop air handlers.

The Citrus College Infant Care Center was able to use the HB Series air handler from AAON to improve the building's energy efficiency and provide consistent occupant comfort. The unit's small size and flexibility allowed the renovation to meet the time constraints and required no structural changes or calculations for the building, while still providing the specific air handling features needed for the system. Today, as the AAON HB Series air handlers provide year round comfort, the children, students, and teachers at the Infant Care Center are provided with a high quality environment.

Because the Citrus College Infant Care Center is relied upon for child care from early in the morning to late at night, nearly all year round, the building could not close down for an extended renovation.

"A Custom Quality Air Handler in a Packaged Unit Size"

The HB Series air handler is a totally unique product solution. It can be specified to supply as little as 600 CFM with the features of a 10,000 CFM air handler. This allows the air handler to be used in applications where

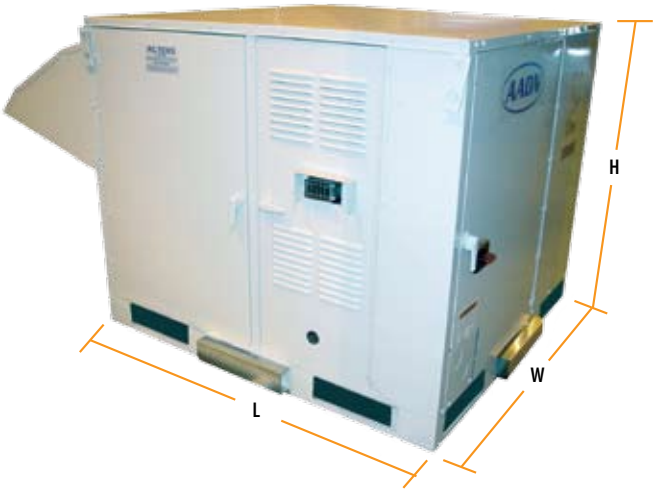
large air handlers with VAV terminal units, small indoor air handlers or small packaged DX units are normally thought to be the only options.

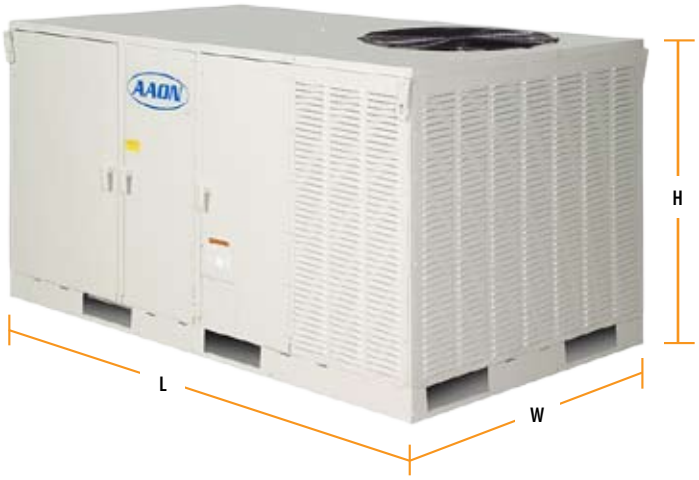
The air handler can include a chilled water coil, a non-compressorized R-410A DX coil, or be heating only. The chilled water coil includes a return air bypass option for single coil humidity control and a single row integrated preheat option for coil freeze protection. The coils are available with or without a corrosion resistant polymer e-coating.

The HB Series air handler can also include a hot water coil, gas heating, electric heating, or be cooling only. The hot water coil is available with or without a corrosion resistant polymer e-coating.

No outside air (100% return air), manual outside air with return air, motorized outside air dampers with return air, or an economizer can be selected for the air handler. The economizer and motorized outside air options include a fully modulating actuator with two minimum positions to maintain a minimum volume of outside air with two stage cooling. The air handler can also be specified for either vertical or horizontal supply and return air discharge locations.

Other options available on the HB Series air handler include return air CO_2 override, 115V convenience outlet, clogged filter switch, and return air and/or supply air smoke detectors.





HB Model	Nominal CFM	Width	Height	Length	
				AHU	RTU
02	800	42	38	46	74
03	1,200				
04	1,600				
05	2,000				

All dimensions are in inches

Contact your local AAON sales representative to learn more about the HB Series air handler and the many other air handler solutions offered by AAON.