Project Objectives

Infusing some much-needed comfort into one of North Carolina’s most prominent World War II memorials took a yeoman’s effort. Not only would the new HVAC system need to help preserve the historical accuracy and ambiance of the decommissioned ship, it needed to deliver comfort across a variety of load requirements while blending unobtrusively into the background.

- ability to heat and cool simultaneously to account for wide temperature differences on different sides of the ship
- Ceiling Cassettes shallow enough to fit unobtrusively into overhead spaces
- longer piping runs to keep outdoor units away from the touring public
- install flow selector boxes in overhead spaces without running separate power

Solution

Combining two heat recovery outdoor units and 14 indoor units, with system management provided by Lite-Vision Plus Remote Controllers, this Toshiba Carrier VRF heat recovery system is the perfect fit to deliver comfort to a battleship designed and built in the late 1930s. This floating relic of the Pacific theater includes a meeting space and museum area along with employee offices, a catering space and public restrooms, all in need of cooling and heating. The individual fan coil units – evenly split between Ceiling Cassettes and High Wall indoor units – provided the perfect balance between unobtrusive installation for aesthetics and quiet, comfort for hard-to-reach individual work spaces. Designed and installed by Jacksonville Heating Contractors with training and factory support from Carrier Enterprise, this system has helped bring a welcome breath of fresh air to an important monument of North Carolina’s and our Nation’s past.

“The original engineering specifications called for a traditional split system with forced air. That would have been really hard to squeeze in here... We really like that with this system the cassettes are in the ceiling. We're really happy with the system”

- Terry Kuhn
  Maintenance Director, USS North Carolina
enough – about the size of a toaster oven – to fit into the overhead spaces. They also were installed without running additional wiring because they could be powered by the nearest head unit.

Regarding the physical challenges of the ship, Jacksonville’s Randy Ramsey indicated that, “dealing with condensate was a bigger issue than refrigerant.” So a number of condensate pumps were installed. Glenn Davis, one of Jacksonville’s lead technicians described an unusually heavy amount of drilling needed to run refrigerant piping and difficulty leveling the Ceiling Cassettes due to the ship’s motion. To account for the ship’s port holes and other interior obstructions, custom-fabricated mounting brackets were needed to install the High Wall units in their optimal locations. “It was a challenging job, but we conquered it,” said Davis.

Now that the installation is complete, employees of the battleship are more comfortable and more productive due to the extremely quiet High Wall units that replaced noisy wall units in their offices. “These new units make almost no noise whatsoever,” says Kuhn. “I don’t really know if we’ve had to run heating and cooling at the same time, but I really don’t have to worry about it. If my office is too hot, I turn it down. If I’m too cold, I bump it to heat... the system just takes care of it.” And as plans for future usage of additional spaces materialize, the Toshiba Carrier VRF system gives Kuhn and the staff the flexibility they need to add additional indoor units as needed.

For Ramsey, who remembered the grassroots fundraising campaign that saved the mothballed battleship from being scrapped in the late 1950s, it was an emotional journey as well. “To walk on this ship and see what other guys did in 1943, 1944... they had no air conditioning... they were in the South Pacific... they only had ventilation. And for me to have the pleasure to work on this ship, it was a great honor. The whole team felt the same way.”