MULTISTACK

Central Blood Bank

Pittsburgh, PA

Problem

Sometimes cooling needs go beyond comfort. Central Blood Bank, the fourth largest blood collection agency in the nation, requires critical cooling to save lives. Built in redundancy is not an option, it's a requirement.

So when the Pittsburgh Central Blood Bank facility decided to move to an existing building to accommodate its growth, the nonprofit faced several challenges. First and foremost, the facility needed 100 percent chiller uptime because its freezers and refrigerators need to maintain constant temperatures for the blood products and to provide constant data infrastructure to track the processing, history and distribution of blood. If the IT equipment room deviates from a range of 68 to 72 degrees, critical data could be lost and blood product rendered useless, directly jeopardizing thousands of lives at five major medical complexes in the region.

In addition, Central Blood Bank was relocating to a building adjacent to a residential neighborhood, so evening noise was a concern since blood collection and storage is a 24/7 operation.

Finally, the Central Blood Bank's "new" four-story facility offered logistical and maintenance challenges for the engineering team designing the cooling system; the existing roof-mounted split-system chiller's removal required the new design to incorporate a base rail system that would match the existing structural supports.

Solution

Loftus Engineers, in Pittsburgh, PA, designed an elegant solution to meet Central Blood Bank's challenges. Four Airstack chiller banks providing 330 tons of cooling were designed to be mounted on the roof of the 185,000 square-foot facility, ensuring the blood products are kept at constant temperatures. With redundancy a priority, Loftus selected Multistack

Critical Cooling Requirements for Central Blood Bank

- 185,000 sq. ft. building
- Critical Cooling Application
- Inherent Redundancy Necessary
- Low Noise
- Utilize Existing Base Rail System
- 330 Tons Cooling

Four banks of Airstack chillers provide 330 tons of cooling for Central Blood Bank.

"Multistack has a clear understanding of the keys to success. It's about integrity, innovation and professionalism. After all, we're in the business of saving lives."

- Jim Miller
Facility Manager

***Central Blood Bank Team*:**
Jeff Armstrong – Central Blood Bank,
Joe Tranchini – KASCAR HVAC Solutions,
Jim Miller - Central Blood Bank

chillers due to their modular multiple compressor design. Only one compressor at a time stages on automatically to meet the cooling load. If a compressor were to fail additional compressors sequentially start due to the inherent built-in redundancy.

In the event of a power failure, the emergency backups run sequentially so Central Blood Bank doesn't need to start a large compressor, saving the nonprofit 30-50 percent generator size and capacity.

In addition to reliability, efficiency was another critical issue factored in the decision to go with Multistack chillers. Central Blood Bank wanted a system that only operated compressors when required. And, with Pittsburgh temperatures frequently dropping into the mid-teens in the winter months, Loftus Engineers incorporated the use of free-cooling modules to provide 60-tons of compressor-less wintertime cooling.

Maintenance was also a major concern, but a majority of Multistack's parts are available off-the-shelf from local suppliers, and the multiple compressor design eliminated the need for cranes to lift large compressors to the roof, allowing installers to utilize the buildings elevators and steps during service calls.

The Multistack chillers also offer an added benefit in noise reduction. Multistack's "Airstack" chillers average 10-12 dB lower sound levels than the building's previous cooling system.

Result

Since its building renovations were completed more than two years ago, Central Blood Bank's critical cooling needs have never been compromised. Multistack's Airstack chillers have never failed.

The Airstack chillers, provided with environmentally friendly 407C refrigerant, maintain constant temperatures at the facility that produces five different end products, including blood platelets, red blood cells and cryoprecipitate, for five major hospitals. The institution uses three 27 x 15 foot and one 30 x 13 foot freezers to store blood and blood products at -30 degrees C during the processing, while refrigerators remain at a constant 4 degrees C. After processing, glycerin is added to some products which require storage even colder at -125 degrees C. The laboratory also is served by redundant air handlers with 100% back-up requiring the same critical 24/7 back-up cooling to process blood during disaster emergencies.

Central Blood Bank's data systems and IT infrastructure maintain constant temperatures around the clock as the nonprofit continues to serve more than half a million patients a year.

"Multistack has a clear understanding of the keys to success," said Central Blood Bank's facility manager, Jim Miller. "It's about integrity, innovation, and professionalism…they say what they are going to do and follow-through 100 percent of the time. And in our business, there's more than comfort at stake when we talk about critical cooling and redundancy. After all, we're in the business of saving lives.

MULTISTACK

1065 Maple Avenue PO Box 510
Sparta, WI 54656

Phone 608-366-2400
Fax 608-366-2450

E-mail info@multistack.com

www.multistack.com
www.airstack.com