Unico System Passes The Tests of Advanced Technology

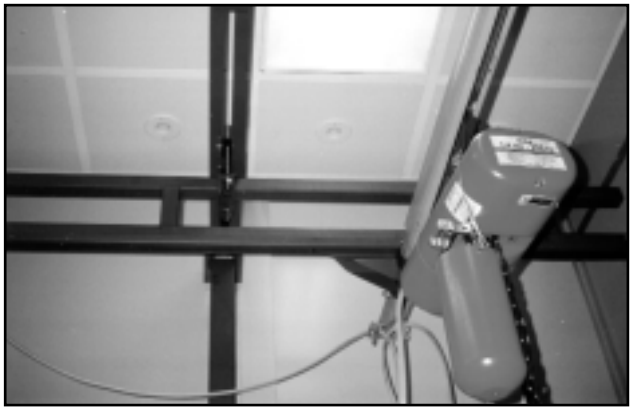
Clean Room Installation At Caterpillar Plant First Of Many For Midwest Contractor

As technology has advanced and machinery has become more specialized, so have the requirements for operating such equipment. So Jim Hennessy, Sr. of Gateway Air made the decision to specialize in HVAC systems specifically for clean room installations. Designing and building clean rooms and close-tolerant enclosures for companies all across the country since 1996, Hennessy had yet to install a Unico System. But that was *before* he encountered the special challenges he met at the Caterpillar Plant in Lafayette, Indiana.

Rick Dossett, Quality Analyst and Project Manager with Caterpillar, purchased a Prismo CMM (Cordinate Measuring Machine) from Zeiss Manufacturing and contacted Hemco Corporation for the construction of a clean room to house the equipment. Hemco, in turn, hired Gateway Air for their expert design and construction experience.

The clean room constructed and cooled by Gateway Air for Caterpillar's CMM equipment.

Due to the advanced technology, the enclosure needed to meet very specific requirements for the equipment to operate properly. The manufacturer required a temperature of 68° with the gradient of plus or minus one degree. In addition, airflow in the room needed to be even from top to bottom with virtually no tolerance for error.



Unico System outlets in the clean room ceiling allow ample room for the unobstructed operation of the overhead crane used in the CMM process.

Adding to the special challenges of the job was the environment of the plant itself. The factory, which manufactures parts for large diesel engines, is often oily and misty. Geography also plays a role. The plant is subjected to both the extreme heat and cold of the Midwest as well as seasonal humidity.

(over)

Unico System air handling equipment located outside the clean room.

Unlike conventional systems, the Unico System works on the principle of aspiration. Whereas conventional systems leave hot and cold spots as well as drafts, Unico's streams of air enter the room and gently mix with the room's existing air currents. From floor to ceiling, air temperatures are even and drafts are eliminated.

Hennessy, who had used conventional HVAC systems for his previous installations, decided to test the Unico System for the room at Caterpillar. For the 18 x 12-foot enclosure with 14-foot ceilings, Hennessy installed a two-ton Unico System using an air-chilled condensing unit. The air handler unit was placed outside the building to provide easy access for maintenance. The 5-inch round outlets of the Unico System were placed every two feet around the perimeter of the enclosure's ceiling.

Installed last year, the system's results have been excellent. The Unico System is maintaining the required temperatures, airflow is even, and the system has helped to significantly reduce humidity levels.

"With the sensitivity of the equipment, humidity is a factor for us," explained Dossett. "The room can't exceed 60% humidity, and the Unico System is doing an excellent job of meeting our requirements."

"We're very pleased with the Unico System," said Hennessy. "I haven't had any callbacks regarding problems and it's done the job it was supposed to do for my customer."

With the continued advancement of technology, the design of clean rooms and close-tolerant enclosures offers great potential for growth for Hennessy and other HVAC contractors in the industry. Hennessy plans to build on the success of the technically advanced Unico System.

"We'll be using the Unico System in our future designs," said Hennessy. "In fact, I'm anxious to offer it to my other customers and hopeful that this system will help us develop more business." □

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