

# Case study



*The 28,000 cfm air handler purchased by one of the world's largest biotechnology companies for one of its American manufacturing facilities meets extremely high standards for quality and performance, with chilled water cooling, steam heat and humidification capabilities.*

**MECHANICAL CONTRACTOR:**

**A. F. Lusi Construction;  
Smithfield, Rhode Island**

**CONSULTING ENGINEER:**

**Clark Richardson and Biskup;  
Plymouth Meeting, Pennsylvania**

**P**harmaceutical companies undoubtedly have the most stringent requirements for environmental control of any major industry. Maintaining process air requirements is extremely difficult, and the reliability of HVAC equipment is critical.

Even minor variations in humidity or temperature can compromise the manufacturing of life saving drugs or invalidate years of research and development.

## **Renovated Facility**

When one of the world's largest biotechnology companies purchased a 250,000 square foot pharmaceutical manufacturing facility in Rhode Island in 2001, the plant had to be completely redesigned and updated. Over the next few years, more than \$1.5 billion was spent to increase the existing plant's capacity and to add more than 500,000 square feet of space to the 73-acre campus, including a production building, warehouse, a central utility plant and a quality laboratory. The state-of-the-art manufacturing facility now has nine commercial-scale bioreactors, the tightly-controlled vessels needed to produce large quantities of drugs through recombinant DNA technology. The plant is the largest mammalian protein manufacturing facility in the world.

Approximately 700 people work at the Rhode Island facility. Employees enjoy such amenities as an on-site cafeteria and fitness center.

## **Quality and Value**

As part of the initial renovation efforts, a new HVAC unit was needed to supply conditioned air to the cafeteria. Company engineers wanted a quality unit at a competitive price, meeting the same standards as units installed in the high tech manufacturing areas of the



*The exterior of the unit was powder coated in a custom color, and a pitched roof was specified to deflect rain and melting snow away from the unit.*



*Return and outside air is filtered with 30 percent efficient prefilters and 95 percent efficient filters.*

facility. The company's long range plan is to create a base building concept that meets specific criteria, in order that any area could easily be modified to serve as a different type of space in the future. Based on overall value, ClimateCraft was awarded the contract for the job.

The 28,000 cfm unit is roof mounted and provides chilled water cooling and steam heating to the space. Return air and outside air are filtered with two inch, 30 percent efficient prefilters and 95 percent efficient filters. Two VIFB coils were used to provide better mixing capabilities. A humidifier was also specified for improved indoor air quality.

A housed DWDI airfoil supply fan is mounted on two-inch seismic isolators, with a variable frequency drive to adjust fan speed.

A service vestibule with convenience outlets



*Two VIFB coils were installed to provide better mixing capabilities, prior to the air passing through the chilled water coils.*

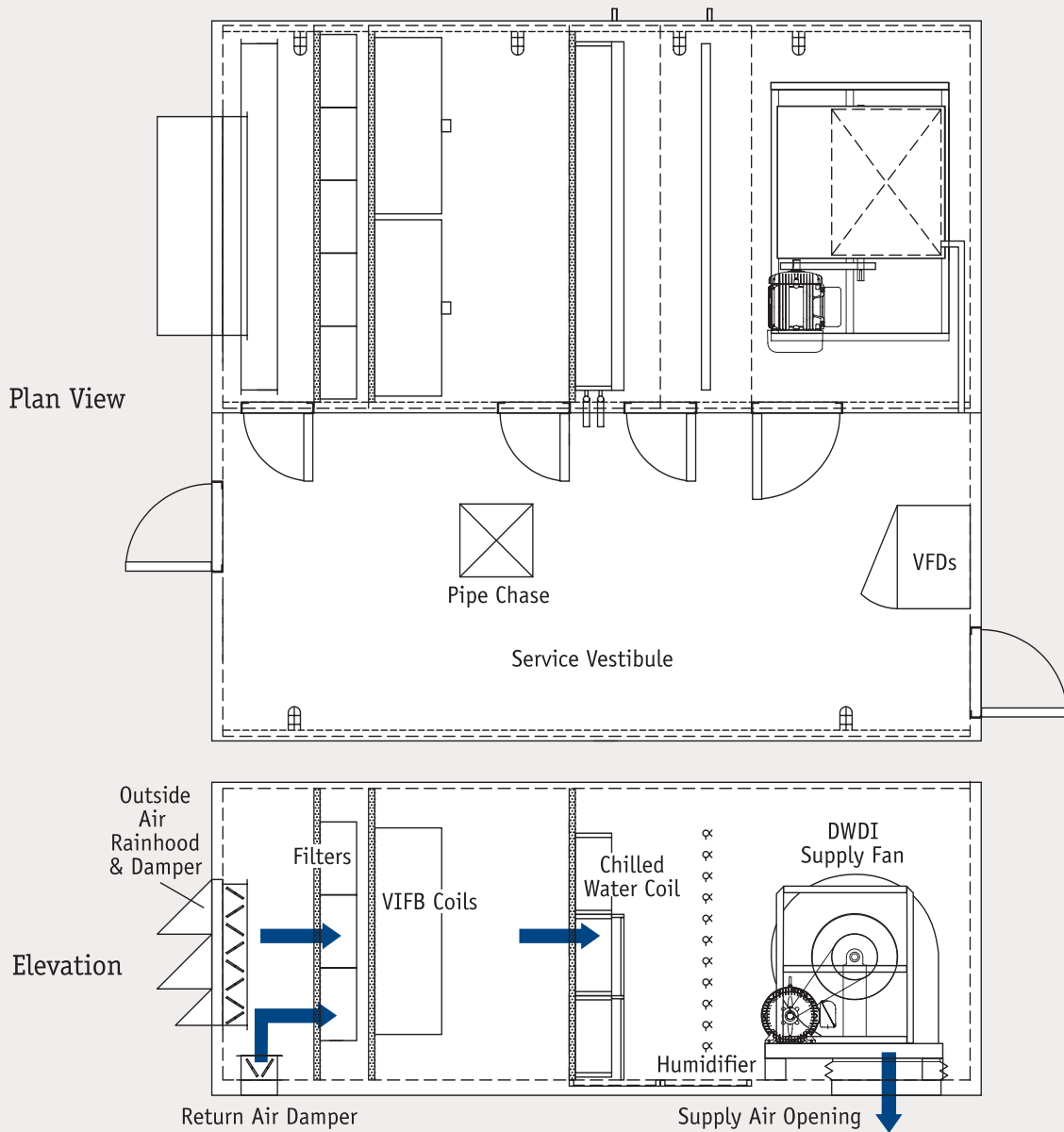
and vapor-proof mini-fluorescent lights runs the



*VFDs are mounted in the large service vestibule, with convenience outlets and vapor-proof mini-fluorescent lights installed to make maintenance more convenient.*

length of the unit. In addition to making maintenance more comfortable for service personnel, the VFDs are also mounted in the service vestibule. A pipe chase was custom-positioned in the floor of the service vestibule, and the piping stub-out was completed on site.

The facility owner specified that



the exterior of the unit be powder coated with a custom color, rather than ClimateCraft's standard galvanized pre-painted steel. Because every ClimateCraft unit is a custom unit, this presented no problems. A pitched roof was also

specified to deflect rain and melting snow away from the unit. Witnessed testing for air flow, performance and leakage was conducted at ClimateCraft's factory in Oklahoma City. The unit demounted into four sections for shipping.



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