



## U.S. Holocaust Memorial Museum

## Case Study

### The Challenge

Provide the stable temperature and humidity levels required to preserve copies of artifacts in cool storage

### The Solution

Three-Ton Challenger 3000 environmental control system

### The Liebert Difference

- Solutions oriented
- Versatile product
- Commitment to customer

### The Partner

Kelly HVAC Inc.

## Protecting History Is the Challenge; Liebert Has the Solution.

### The Situation

The U.S. Holocaust Memorial Museum, in Washington, D.C., is one of the largest and most comprehensive repositories of Holocaust-related records. Its vast collection includes personal papers, memoirs, photographs, videotapes and audiotapes of oral histories, and other invaluable items that document first-hand experiences of the Holocaust.

In keeping with its mission to record, study and interpret Holocaust history, the museum keeps copies of artifacts for use in research. These “user” copies must be stored in a controlled environment between 60° F and 70° F, with relative humidity between 30% and 40%. However, the air conditioning system in the cool storage room where these artifacts were kept could not maintain these ranges. A temperature-humidity recorder indicated that the existing system was not stabilizing the room – and might be putting its contents at risk.

“The primary problem was humidity,” says Louis Philizaire, engineer with the Museum’s facility management office. “Humidity readings in the room with the existing unit were above 55 percent.”

### The Solution

To develop an appropriate solution, Liebert identified the challenges specific to this application, per specifications provided by the Museum’s operations staff.

“The room was not designed for cool storage,” explains Rick Wiker, sales engineer at Liebert’s Capital Office. “It was basically a basement, with no vapor seal, and was susceptible to fluctuating temperature and humidity levels.”

The fact that the room wasn’t occupied and contained no heat-emitting equipment was also a factor, as was room size. The 2,516 square-foot room was relatively small and crowded. Existing ducting in the ceiling served a system in an adjacent room and could not be moved.

Fortunately, Liebert had a solution that addressed every challenge: the Challenger 3000, a versatile, compact environmental control system. The Challenger fits into just seven square feet of space and features front access to all interior components, enabling it to sit between existing equipment with no side or rear clearance requirements.



The U.S. Holocaust Memorial Museum in Washington D.C.



*"The equipment is very reliable, but what drove us to go with Liebert again was their excellent customer service. They were available to us 24/7.*

Louis Philizaire,  
U.S. Holocaust Memorial  
Museum

"A larger unit couldn't fit in the room, and there was no ceiling space to accommodate above-ceiling systems," says Wiker.

The versatility of the Challenger also proved valuable. It can be fully self-contained with all refrigeration components built within the cabinet, or "split," connecting to a condensing unit in a remote location. A split water-cooled design was selected for this application to take advantage of an existing condenser water loop. By utilizing a remote condenser, this had the added benefit keeping the condenser water piping out of the critical space.

The Challenger also can accommodate either up-flow or down-flow air discharge. Since the room was too small to accommodate an under-floor air distribution system, Liebert selected an up-flow design, vented into a distribution ductwork. The system was also configured with an optional one horsepower motor to increase CFM from 1300 to 1800 and ensure proper air flow through the ductwork.

The Challenger features standard microprocessor controls, including programmable temperature and humidity setpoints and alarm conditions, a proportional control system, and a choice of four custom alarms. Because of the lack of heat load in the room, an optional SCR control for reheat was included to provide precise temperature control, with a tolerance of plus/minus one degree.

"The microprocessor control had all the functionality we needed and more," says Philizaire. "It even could page the appropriate staff member at home in the event of an alarm."

The final piece of the puzzle was the ducting. Liebert subcontractor Kelly HVAC Inc. designed a duct system that ran beneath the ceiling, across the 34-foot length of the room, and tapped into an existing duct system to increase air flow for optimum room pressurization.

"Kelly did an excellent job," says Wiker. "Their experience helped ensure the success of this application."

## **The Results**

After just a half-year in operation, the Challenger gained the complete trust of the Museum staff.

"We monitored the temperature and humidity for six months. It was straight in line, so we don't even monitor it anymore," says Philizaire. "Right now, it's working so well, there's no reason to."

The success of the project earned Liebert an invitation to provide the environmental control system for a new computer room at the U.S. Holocaust Memorial Museum.

"The equipment is very reliable, but what drove us to go with Liebert again was their excellent customer service," says Philizaire. "They were available to us 24/7."

Yet, the most important service Liebert performed was to help ensure that researchers can continue to explore Holocaust history far into the future.



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