



e-News

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Carrier Unveils Innovative Solution to Preserve Michelangelo's Frescoes in the **Sistine Chapel**



State-of-the-art heating, ventilation and air-conditioning system highlighted at Vatican Museums cultural heritage event developed to help preserve **Michelangelo's** masterpieces in **Sistine Chapel**.

Carrier announces the completed installation of an innovative heating, ventilating and air-conditioning (HVAC) solution for the Sistine Chapel, developed to help preserve Michelangelo's masterpieces against deterioration caused by increasing numbers of visitors. The new Carrier HVAC system was presented to an international audience specializing in cultural heritage preservation at a Vatican Museums event, **"The Sistine Chapel 20 Years Later: New Breath, New Light,"** in Rome.

The new system uses two Carrier **AquaForce® 30XWV** water-cooled chillers with **Greenspeed®** intelligence, each with 580 kW of capacity. It leverages specially designed software and components, as well as patented, energy-saving technologies to maintain optimal climate conditions for the protection of the paintings within the chapel. An intelligent system of controls, linked with an advanced video application from UTC Building & Industrial Systems, enables the HVAC system to anticipate visitor levels and adjust its performance intuitively.



The new system delivers twice the efficiency and three times the capacity of the former system, which was built and installed by Carrier in the early 1990s. In 1993, Carrier designed and installed the Sistine Chapel's first air conditioning system to accommodate a maximum load of 700 simultaneous visitors. Today, with daily visitor traffic of approximately 20,000 people, the new system is designed to accommodate up to 2,000 visitors at one time in nearly any weather condition.



“Our aim now is not restoration, but conservation. This is why we have chosen Carrier, because a masterpiece like the Sistine Chapel needs a comparable masterpiece of technology,” said **Antonio Paolucci**, director of the Vatican Museums.



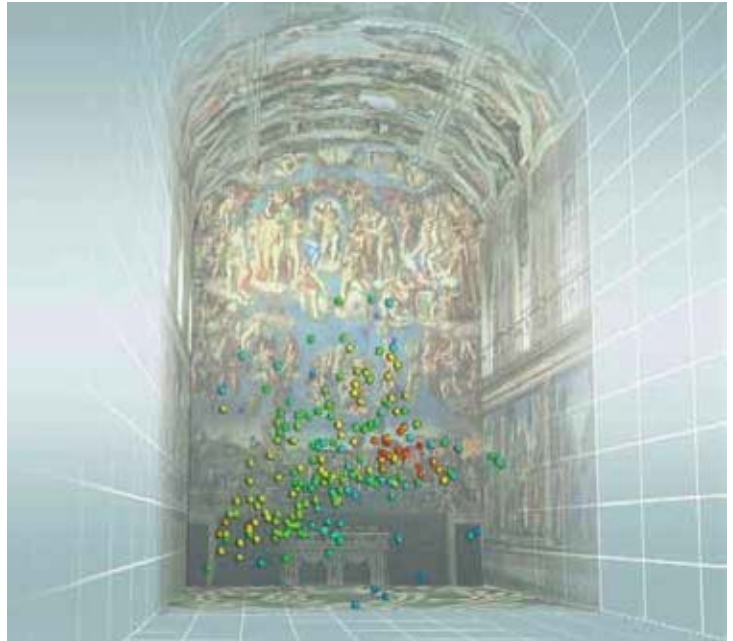
“Supporting the Vatican with our advanced technologies to preserve the extraordinary heritage of the Sistine Chapel was a remarkable opportunity,” said **Geraud Darnis**, President and CEO, UTC Building & Industrial Systems. “We put our world-class engineering and design resources into this project and are exceptionally proud of the outcome.”



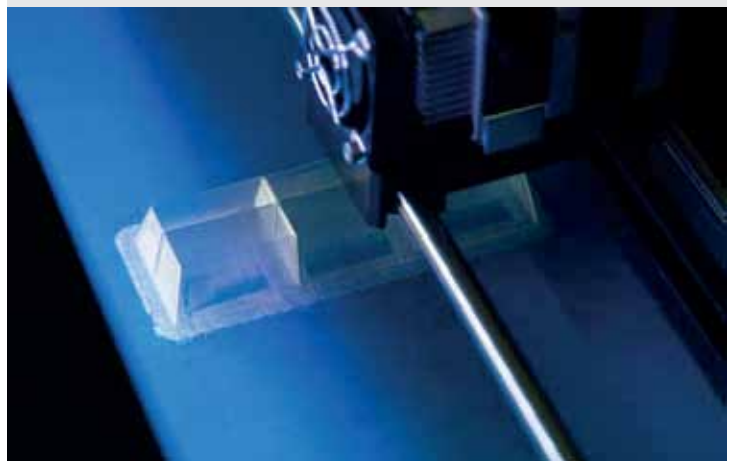
The company's expert global team of AdvanTE³C engineers developed the solution, working in close collaboration with the Vatican's technical teams and using leading-edge computer modeling and simulation techniques. The engineering team overcame several challenges to meet the chapel's unique requirements.

The system carefully manages the flow, humidity, quality and temperature of the air, maintains sound at “church-quiet” levels, is virtually invisible to visitors, and uses pre-existing duct openings in a protected, historic landmark setting. It was also designed to be adaptable to future needs.

The Vatican Museums was able to keep the chapel open to visitors throughout the system dismantling and installation process, which occurred over the peak summer season, through use of a temporary HVAC system provided by Carrier Rental Systems.



Advanced computer simulation to protect the Sistine Chapel's masterpiece from pollutants such as CO₂ which could degrade the frescoes.



3D modeling of the trumpet-shaped diffusers

“Today’s excellent outcome reflects the success of the development process. Collaborating for nearly three years with Carrier, my teams and myself were able to establish a fruitful working relationship, and together overcome all obstacles to develop this technical masterpiece,” said the **Rev. Rafael García de la Serrana Villalobos**, director, Vatican Technical Services.



“From start to finish, this project has highlighted the important role high technology can play in preserving our most important pieces of history for future generations,” said **Michel Grabon**, director, Carrier AdvanTE³C Europe.

Finally, the Governate of the Vatican City State and United Technologies Corp., have entered into an agreement to ensure the protection and safety of the Vatican Museums’ artwork, spaces and visitors through the deployment of building technologies from UTC companies. According to the terms of the agreement, the parties will work together on integrated solutions spanning HVAC, elevators and escalators, fire detection and alarm, fire suppression and safety, electronic security, access control, video surveillance services and related software solutions, from brands such as Carrier, Otis, Lenel, Kidde, Chubb and Marioff.

A video highlighting the new solution can be found at www.youtube.com/user/UTC BIS

Carrier, Corp., the world’s leader in high-technology heating, ventilating and air-conditioning solutions, is a part of UTC Building & Industrial Systems, a unit of United Technologies Corp. (NYSE:UTX).