



VA Regional Administration Office

Houston, TX

WinSert® super-insulating, ultra-high performance window inserts eliminate exterior window condensation and drastically improve thermal comfort at a fraction of the cost of full window replacements

THE PROJECT: Single-pane windows and excessive exterior window condensation causing façade deterioration

Originally constructed in 1994 primarily with single-pane windows, the 200,000 square foot U.S. Veterans Affairs Regional Administration Building at the Texas Medical Center in Houston, TX was experiencing several significant energy performance issues.

- › Periodically uncomfortable working environment
- › Overuse of HVAC systems trained on window surfaces
- › Excessive exterior window condensation

The building had recently become Energy Star certified for upgrading its water-cooling systems, but its single-pane windows offered minimal insulation from both hot and cold temperatures.

In Houston, Texas, the temperature regularly exceeds 100°F in the summer and can drop as low as 13°F like it did on February 16, 2021 during Texas' historic 'deep freeze.' This region consistently experiences among the highest humidity levels in the country, and this has only been exacerbated by climate change. Managing occupant comfort in the building, especially for those in close proximity to the windows, was a constant challenge.

“As long as we had single-pane windows, we were going to be fighting high energy demand.”

– Bill Abbott, Property Manager

In an attempt to offset the extreme heat, the HVAC systems were trained specifically on the windows on hotter days to help cool them down. This created an extraordinary amount of condensation on the exterior surface of the windows during much of the year, which would often last well into the afternoon. According to Bill Abbott, Property Manager of the building for more than two decades, “as long as we had single-pane windows, we were going to be fighting high energy demand.”

Project Highlight: WinSert®

This exterior window condensation was causing drip lines and discoloration stains on the façade of the building, impacting the building's overall appearance and aesthetics. If left unaddressed, the excessive condensation could lead to the risk of mold and premature deterioration of the window seals, which could ultimately cause the entire window system to fail.

THE SOLUTION: WinSert® Plus interior window inserts from Alpen High Performance Products

- › 900+ WinSert Plus super-insulating, ultra-high performance window inserts
- › New seals for existing window frames

The building's facility team began investigating how they could improve the building's thermal performance and eradicate the bothersome exterior window condensation. Because the gaskets used for the existing aluminum frames were no longer being made, they were initially told that window replacement was their best option. However, replacing the windows entirely would be extremely expensive and would present



WinSert high performance window inserts for the VA building, manufactured in Colorado.

unique structural challenges. "The framing wasn't designed for double-paned windows," said Abbott. Moving occupants out of the building during the window replacement work would have also created problems.

After first soliciting multiple window replacement bids, prime contractor Hunton Services found a solution that would not require ripping out the framework of the building. "They were interested in replacing all [window] glass to current standards, but it would have been a very expensive and difficult project," said Mike Corte, Project Manager at Hunton Services. "One of our engineers instead recommended considering high performance inserts."

The WinSert line of super-insulating window inserts from Alpen High Performance Products presented the perfect solution for the VA Building. A patented technology that incorporates an innovative use of thin glass technology and high performance, insulated fiberglass frames, WinSert offers a high performance alternative to expensive window replacement. The inserts attach directly to the interior of existing windows without any drilled holes or penetrations of the building. The result is reduced energy impact on the existing structure, a dramatic reduction in installation time, and elimination of almost all disruption for employees.

Alpen sent a team to evaluate the building and measure the windows. In combination with sealing the current window frames, the team determined that the effective triple-pane insulation of the WinSert Plus would be the best fit for the issues at hand. After all measurements were recorded, the team was set to install more than 900 WinSert Plus units throughout the building, covering just under 11,000 square feet of windows.

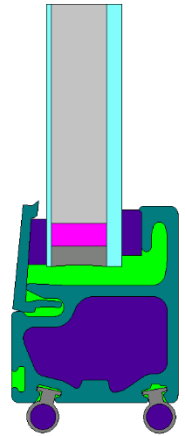


Diagram of the WinSert® Plus window insert.

Project Highlight: WinSert®



Exterior condensation before WinSert Plus installation.



Condensation eliminated after WinSert Plus installation.

THE RESULTS: Improved thermal performance, eliminated exterior window condensation, and reduced energy bills

- › Effective triple-pane performance at a fraction of the cost of double-pane, full window replacement
- › Extremely fast installation without occupant disruption
- › Eliminated exterior window condensation
- › Significantly improved thermal comfort
- › Reduced energy costs and improved building performance

At a fraction of the cost compared to complete window replacement, the WinSert Plus units provided the facility with effective triple-pane performance – without having to move occupants during the installation process. “This worked much better,” said Abbott. “We would have been exposed to the elements with a huge opening in the building. It would have been a disruption to all employees.”

The WinSert Plus units started to eliminate the exterior window condensation almost immediately, with a noticeable reduction only thirty minutes after the installation. “We noticed right away that the condensation started to go away,” said Abbott.

“We were in the high 90s, and the building held at 74 degrees – much lower than before the WinSert installation.”

– Bill Abbott, Property Manager

The windows now provided better insulation from the extreme outside temperatures, which dramatically reduced the heating and cooling demand previously needed for the single-pane system. “We were in the high 90s and the building held at 74 degrees [Fahrenheit] – much lower than before the WinSert installation,” said Abbott. “For at least a month, the temperature on the 2nd floor didn’t change.” According to Abbott, energy usage and utility bills dropped by almost 25% directly following the installation.

Abbott noted that even when Texas experienced its historic ‘deep freeze’ in February 2021 with temperatures dropping as low as 13°F – about 35°F less than average for that time of year – the facility continued to show remarkable performance and very manageable heating loads that would have been challenging prior to the WinSert installation. “Prior to the window work, this may have created a huge

Project Highlight: WinSert®

challenge, but the building performed great while many similarly constructed buildings didn't fair so well," said Abbott. "We're happy. We're very, very happy."



The WinSert Plus secondary window inserts installed into the VA administration building, providing added insulation.



The ultra-lightweight construction of WinSert allows it to be easily installed in minutes without drilled holes or permanent attachment devices.

Alpen High Performance Products is an American window and door manufacturer that designs and builds some of the most energy efficient window and door products in North America and the world. Alpen's core product offering draws on a 30-year history of industry leadership in advanced, high performance window and glass manufacturing and innovation. Alpen continually improves its product offerings by developing ongoing enhancements that are responsive to the needs of its customers. Visit www.ThinkAlpen.com for updates to this publication.

Project Facts

PROJECT:	VA Regional Administration Building
LOCATION:	Houston, Texas, USA
CONSTRUCTION TYPE:	Commercial
PROJECT SCOPE:	900 windows; 11,000 ft ²
ALPEN HIGH PERFORMANCE PRODUCTS USED:	WinSert® Plus
PRODUCT CONSULTANT/SUPPLIER:	ENVOCORE
PRIME CONTRACTOR:	Hunton Services



WinSert® – High performance, secondary, interior window inserts

WinSert™, an ultra-high performance, secondary, interior window insert from Alpen High Performance Products significantly improves existing window performance, making it the perfect solution to today's sustainability problems in poorly-performing commercial, multifamily and residential buildings.

Its ultra-lightweight construction makes it an ideal solution for retrofitting older or historical buildings. These window inserts improve the thermal performance without altering the exterior aesthetic and without adding significant weight to structures that were not engineered to support traditional dual- and triple-pane windows.

Why WinSert®?

- Combines state-of-the-art thin glass technology with proven high performance fiberglass frames
- Improves window insulation and performance without the hassle or cost of complete window replacement
- Maintains the exterior aesthetic of existing historical buildings
- Ultra-lightweight construction is easily installed in minutes without drilled holes or permanent attachment devices
- Little to no disruption from installation
- Extremely cost-effective acquisition and installation with exceptional ROI
- Reduces noise, exterior condensation, air leakage, and interior glare
- Much shorter lead and installation times than window replacement