Renovate by
FACADE RETROFIT SYSTEM
Berkowitz™

RENOVATE by Berkowitz is Improving on Energy Star

In 2012, Kevon Office Center, a 40-year-old office building in Pennsauken, N.J., received an ENERGY STAR® rating of 90, placing it among the top 10 percent for energy efficiency in buildings of its type across the country. Nevertheless, when it came to utility bills, the owners, Kaiserman Company, Inc., Philadelphia, knew they were still throwing money out of the building's old, single-pane facade. That was until they decided to make an investment in the Renovate by Berkowitz™, LLC (Renovate) window retrofitting system.

High Reward without the High Cost

Like many commercial buildings built in the past 30 to 60 years, the 100,000-square-foot Kevon Office Center was constructed without the energy-efficient insulating window glass technologies available today. The building's clear single-pane window glass, originally installed in 1971, lacked a low-e coating and an insulating barrier and, consequently, were notorious for letting solar heat in during summer and letting furnace heat escape during the winter.

CASE HISTORY: KEVON OFFICE CENTER

The Environmental Protection Agency (EPA) estimates that inefficient windows like those in Kevon Office Center account for as much as 25 percent of a typical building's heating load in cold climates and 50 percent of the cooling load in warm climates.

Knowing the mix of weather conditions in the greater Philadelphia area, Kaiserman Company began to investigate facade retrofit solutions that could have a big impact on reducing year-round energy costs. "We researched a few options and considered a number of variables, including climate, glass surface area, building orientation, past experience, and cost," said Carolyn Pfeiffer, commercial property manager for Kaiserman Company. "We had used window film in the past, but found that it deteriorates over time. It is really only effective in warm weather and it also enables condensation to build up, so we knew window film was not going to help us reach our goals."

The company also considered traditional window replacement, which can yield significant improvements in energy efficiency, but comes at a high cost in terms of price and tenant disruption. "Money is always one of the top considerations in any project," Pfeiffer noted. "For this project, we were looking at updating 651 windows with 19,000 square feet of glass surface area. The cost of doing a full window replacement was prohibitive, so we decided to take another look at the **Renovate** system, which produced great results for us the first time we used it."

One year earlier, Kaiserman Company had updated a 40-year-old high-rise in downtown Philadelphia with the **Renovate** system, which had just been introduced to the market. Because of the significant energy savings they achieved at that location—as well as the positive feedback they got from tenants—the company decided to install the **Renovate** system at Kevon Office Center.

Pfeiffer explained. "The building remains enclosed and the project moves fast, eliminating the time and cost of temporarily relocating tenants. And with a cost estimate that came in at about half of a traditional window replacement, it was an easy decision to specify the **Renovate** system—it was a win-win-win."

Kaiserman Company selected the **Renovate** Platinum Plus II system for the east-, west-, and north-facing offices of the two-building, four-story Kevon Office Center, and the **Renovate** Platinum Plus II XL system for the south elevations, which are exposed to more solar heat gain throughout the day.

"The **Renovate** system works by adding two lites of high-performance low-e glass to the existing interior window glass surface, creating a permanently sealed, no-maintenance, triple-glazed IGU," said Arthur Berkowitz, president and CEO of J.E. Berkowitz, the company that developed the window retrofitting system. "The new IGUs offer a solar heat gain coefficient (SHGC) of as low as 0.27, a winter U-Value of 0.15, and an R-value of up to 6.67. The system also rates 37 on the Sound Transmittance Class (STC) scale, which helps minimize the outside noise from the nearby highway."

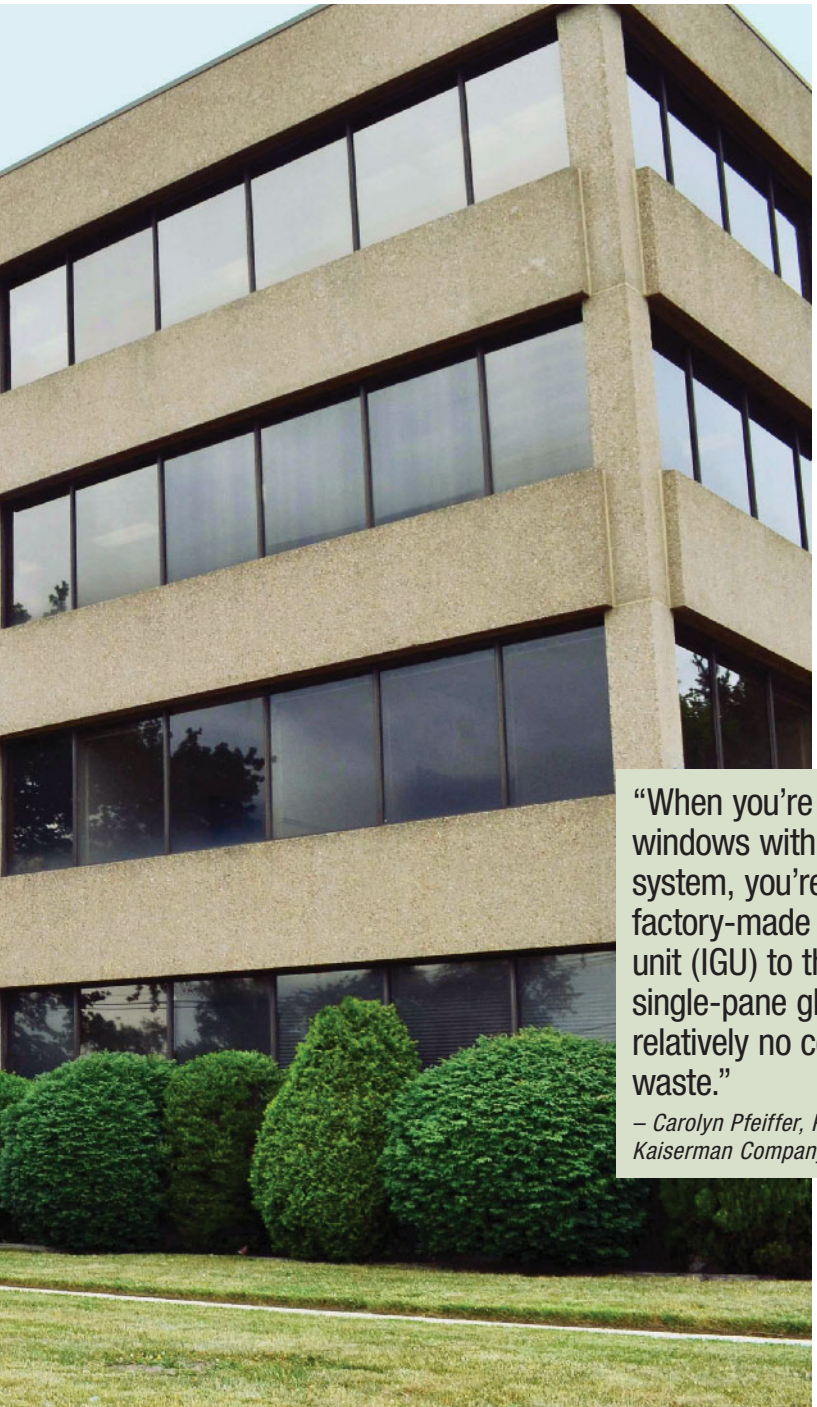
A Hub of Information

Kevon Office Center is one of three projects being monitored by the U.S. Department of Energy's Consortium for Building Energy Innovation (CBEI). Headquartered in Philadelphia, the CBEI Hub was established to accelerate the adoption of "Advanced Energy Retrofits" for commercial buildings by making use of new technologies, systems, and processes. The CBEI Hub aims to develop the means and methods to reduce energy use in commercial buildings by 20 percent by the end of this decade.

Installation by Certified Installers

Hank Foley, executive director of the CBEI Hub, said, "It is clear that the glazing retrofit at Kevon Office Center will reduce energy consumption. We are measuring the amount so we can better understand the value proposition for this type of facade retrofit."

Because of the potential the **Renovate** system has for lowering energy use in aging commercial buildings, Public Service Electric and Gas Company (PSE&G), New Jersey's oldest and largest publicly owned utility, provided $400,000 of funding to **Renovate** by Berkowitz, LLC, through its $12 million Technology Demonstration Program, for facade retrofits using the **Renovate** system. A portion of these funds were used for the installation at Kevon Office Center.



"When you're upgrading windows with the **Renovate** system, you're adding a factory-made insulating glass unit (IGU) to the existing single-pane glass, so there's relatively no construction waste."

– Carolyn Pfeiffer, Property Manager/ Kaiserman Company, Inc.

"The projects we help fund through our Tech Demo program all have the potential to benefit the state's economy and help our customers hold the line on energy costs," said Frank Czigler, director, energy services for PSE&G. "We look to help finance ideas with technical merit, real-world application, and the potential to move New Jersey's energy sector forward. We think the **Renovate** system certainly fits the bill."

Berkowitz expects the **Renovate** system to have a significant impact on the building's utility bills. "Simulations using energy-modeling software showed that the **Renovate** system may enable Kevon Office Center to lower annual energy costs by up to 26 percent," he explained. "That's pretty impressive for a building that already ranks among the most energy-efficient of its kind, and presumably doesn't have much more fat to trim, so to speak."

Kevon Office Center also was part of a $1.6 million DOE-funded project with Quanta Technologies and the NAHB Research Center. Thomas Culp of Birch Point Consulting, who works with the Glass Association of North America, managed the study to measure indoor thermal comfort using tools such as mean radiant temperature tracking and infrared imaging.

"Our study of Kevon Office Center allowed us to quantify the significant improvements to occupant comfort made possible by the **Renovate** system," Culp said. "The unique low-e retrofit system greatly reduced the daily temperature swings of the window surface temperatures, both raising the minimum temperature and lowering the maximum temperature by over 20 degrees. The results are similar to what you would expect if the existing glass was replaced with triple low-e glazing, but at a fraction of the cost."

A Star will Rise

In addition to updating Kevon Office Center with the **Renovate** system, Kaiserman Company installed solar panels on the complex's roof, applied cool roof coatings, and retrofitted all lighting with high-efficiency fixtures.

"The building received a 90 on the EPA's energy performance scale prior to these renovations," said Homer Robinson, president and CEO of Kaiserman Company. "While we are proud of this achievement, we actively track the performance of all our commercial properties and we saw room for improvement. The installation of the **Renovate** system, along with the other updates we've made, will certainly lower our energy costs, improve the comfort level for our tenants, and help the building earn a higher rating," he added.

ABOUT THE RENOVATE SYSTEM

About the Renovate System

The **Renovate** system features lites of low-e glasses, separated by an argon-gas-filled cavity. A specially developed spacer system "hermetically" seals the insulating glass unit to the interior surface of the existing glass, creating a permanent, no-maintenance attachment.

Available in three configurations, the **Renovate** system can offer solar heat gain coefficients as low as 0.27, winter U-values as low as 0.15, and R-values up to 6.67. For more information on the **Renovate** system, visit **www.RbBwindow.com**.

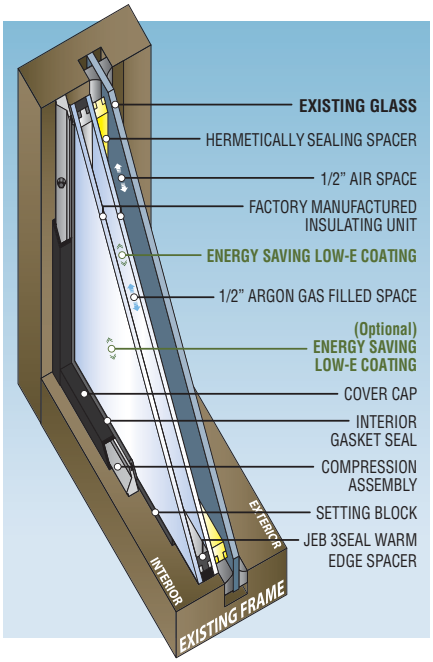
SYSTEM OPTIONS

	RbB Platinum	RbB Platinum Plus II	RbB Platinum Plus II XL
Double Silver Low-E	●	●	
Triple Silver Low-E			●
Pyrolytic Low-E Coated Glass		●	●
Argon-Filled Air Space	●	●	●

SYSTEM PERFORMANCE

Data	Existing 1/4" Clear	Platinum	Platinum Plus II	Platinum Plus II XL
R-Value[1] (Center of Glass)	.97	5.56	6.67	6.67
SHGC[2] (Solar Heat Gain Coefficient)	.84	.42	.35	.27
STC[3] (Sound Transmission)	30	37	37	37
Winter U-Value[4] (Center of Glass)	1.02	.18	.15	.15
VLT (Visible Light Transmission)	89%	63%	57%	50%

[1]R-Value – Higher is better [2]SHGC – Lower is better [3]STC – Higher is better [4]U-Value – Lower is better



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