



## **Commercial uPVC vinyl windows and doors: Energy efficiency, strength, and beauty for New York buildings - by Steve Chen**

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Building owners and developers of new and existing properties across the country are eager to achieve greater energy efficiency to meet advanced building energy codes, keep operating costs at the lowest possible levels, reduce carbon footprints, and optimize occupant comfort. Windows, curtain walls, and storefront fenestration are key components of making buildings energy efficient, and there are many window frame materials to choose from.

One window material which has been widely used throughout Europe for decades is unplasticized polyvinyl chloride (uPVC), also known as high-end commercial vinyl. While ordinary vinyl windows have been used in single-family and low-rise residential homes for decades in the US, uPVC vinyl is relatively new here but gaining popularity. In many cases it is a superior alternative to aluminum frame windows for mid- and high-rise properties and any building with large window openings because of its incredible characteristics.

High-end commercial vinyl window and door products offer the best of both worlds: structural performance and strength equal to top aluminum products while simultaneously providing the extraordinary thermal performance of vinyl windows. With thermal performance up to 45% more efficient than comparable thermally-broken aluminum windows, uPVC windows can play a key role in buildings seeking to qualify for LEED and Passive House certifications, or simply to reduce energy bills.

Headquartered in New York, Crystal Window & Door Systems fabricates, in addition to aluminum and standard vinyl products, a complete line of high-end commercial uPVC vinyl products—the MAGNUS line—for many types of properties. MAGNUS products are available in double-hung, slider, casement, picture, and tilt-turn styles and sliding glass doors. We offer a wide array of options for these products to achieve any aesthetic, including top quality hardware, between-glass grids, and color and finish choices. For superior energy efficiency, many glazing options are available such as triple insulated glass, low-E glass coatings, and Argon gas filling. To facilitate new construction and replacement projects in a variety of building types, numerous installation accessories are available. Our high-end commercial vinyl products with internal reinforcements can also be combined in larger window openings to provide expansive views.

One bonus characteristic of commercial vinyl as a window product material is the sound attenuation it offers. Because of the inherent nature and design of the non-metallic frame with multiple chambers, uPVC vinyl windows and doors reduce exterior sound, improving comfort of tenants. Used throughout the city, Crystal's MAGNUS product line is perfect for properties in demanding high-noise locations near highways, airports, railways, or busy urban streets.

Finally, high-end commercial vinyl is often a lower cost window solution compared with aluminum or wood, both in initial cost and in overall maintenance costs throughout the life of the window.

Crystal high-end commercial vinyl windows have been utilized in many new multi-family high-rise buildings. Recent New York City examples include 2,400 windows for the new Archer Green Apartments in Queens (which at 23 stories in twin towers is amongst the tallest uPVC projects in North America), 1,500 windows for One Flushing also in Queens, and 925 windows for The Gilbert on First in Manhattan. Crystal has also supplied many uPVC projects across the nation with high-end commercial uPVC vinyl products, such as 5,100 windows and doors for Monticello Villages, a luxury apartment complex in Santa Clara, CA, 325 windows for a new Marriott hotel by the San Diego airport, and nearly 1,000 windows and doors for The Finery, a new mixed-use development in Nashville.

High-end commercial (uPVC) vinyl window and door products are a quality, cost-effective solution for many property development and renovation applications. They provide strength, durability, and beauty all in one material, with extraordinary thermal performance needed to meet energy codes today and beyond. Investing in high-end commercial vinyl fenestration definitely adds value to any property.

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