



Taylor Kalilo, Kalamazoo Aerial Media

Makeover in Battle Creek

Cereal City icon revitalized

Location:

Battle Creek, Michigan, USA

Type:

High-rise, 19-stories - Adaptive reuse, historic restoration

Architect:

Architecture Plus Design, Battle Creek, Michigan

General contractor:

The Christman Company, Lansing, Michigan

Distributor:

Blackberry Systems Inc., Kalamazoo, Michigan

Window system manufacturer:

Quaker Windows and Doors, Freeburg, Missouri, USA

- Historic Series H600 - replication based on original design with Trickle Ventilators (or trickle vents)

Situation:

The newest mixed-use redevelopment project in downtown Battle Creek, Michigan, is *The Milton*—consisting of luxury apartments combined with retail and business space. Erected in 1930 and 1931 as the Old Merchants National Bank, the building is listed in the National Register of Historic Places and is one of the last projects designed by Chicago architectural firm Weary and Alford. The repurposing of the 19-floor historic downtown high-rise building is transforming the heart of the city, historically known as Cereal City, due to the legacy of the Kellogg Company (beginning in 1900) inventors of popular breakfast cereals such as Kellogg’s Corn Flakes, Special K, and Frosted Flakes.

When *The Milton* renovation is complete, the iconic structure will feature 85 residential units and two floors of office space with the original jazz-age, Art Deco-inspired adornments meticulously restored.

Fenestration materials used in the windows of historic high-rise buildings were comprised primarily of single pane glass, galvanized steel, cast aluminum, and wrought iron. Windows and fenestration components—glass, frames, infills, and attachments—used in any opening are possibly the most visible materials in any facade, whether a building is old or new. Modern aluminum framing is the ideal material to replicate historic windows due to its inherent flexibility, ability to facilitate taller and wider sizes, offer narrow sightlines, bent shapes and provide the worry-free structural performance of the thermal barrier composite.



The Milton: Makeover in Battle Creek

Action plan:

Since Michigan is located in a climate zone exposed to extreme weather conditions—Battle Creek averages 53-in. of snowfall annually— facade materials must be thermally efficient against harsh northern winters. The warm season lasts for 3.8 months from May to September where temperatures in the city will average 75°F and will reach 95°F or greater on the hottest days.

Preserving the look of The Milton high-rise treasured facade is possible through accurate reproduction by matching the appearance of the original panning, window stiles, meeting rails and muntins. “Shop drawings and a mockup were provided for review by the State Historic Preservation Office before use in this historic structure,” says architect Randy Case, LEED AP, NCARB, president of Architecture Plus Design. “I enjoyed working in partnership with Quaker Windows and regional supplier and window installation company, Blackberry Systems, in the preliminary design stage since both companies have a good understanding of preservation projects that meet the Secretary of Interiors Standards for the Treatment of Historic Properties,” he says adding that, “besides being able to meet acceptable sightlines and configurations we worked together on finding a solution to the complex issues of fixed

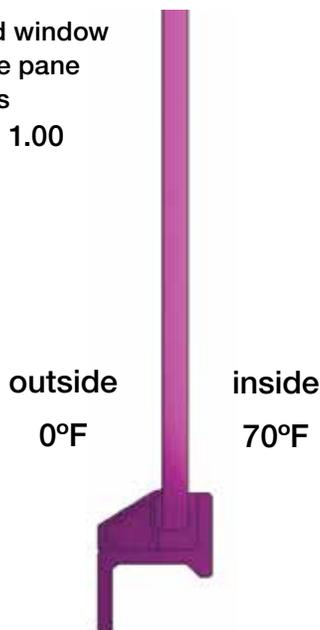
windows versus operable on high rise structures.” Case explains, “People like to be able to smell and feel the air, and higher wind velocities in tall buildings leads to wall hangings, papers, and light object blowing all over. The Milton is using a unique ‘Trickle vent’ system at the sill that has a small operable slot to allow natural ventilation when opened from the inside, while not putting a burden on energy efficiency of mechanical systems.”

About the fenestration products:

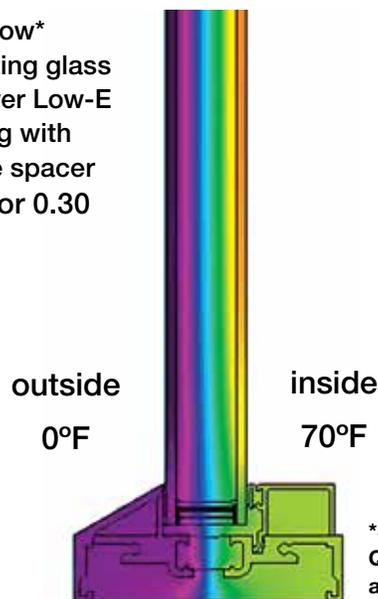
Using structural aluminum fenestration materials in The Milton facade with polyurethane polymer thermal barriers will optimize energy savings, increase comfort, and lower operational costs. The custom thermal barrier windows are based on the Historic Series H600 design manufactured by Quaker Windows. The window glazing consists of 1-in. insulating glass with double silver low-E, argon filling, warm edge spacers provide a U-factor of 0.30 for high energy efficiency, comfort, and protection when the weather and temperatures are extremely cold or hot. Simulation software allows a visual snapshot of the overall performance of the fenestration system shown in Figure 2.

Thermal comparison of 1930s steel window to modern aluminum

Steel fixed window
1/4-in single pane
clear glass
U Factor: 1.00



Fixed window*
1-in Insulating glass
Double silver Low-E
Argon filling with
warm edge spacer
U Factor 0.30



*Series H600 by
Quaker Windows
and Doors

Figure 2