

Beeche Exterior Cladding Installation System for High-Rise Buildings

Engineered Access Systems™ (EAS) by Beeche Systems Corp. has evolved into a combination of modular, re-configurable components and custom products engineered to address almost any access requirement on a bridge or high-rise building. Beeche's most recent innovation, introduced to and currently in use on the construction of the Trump World Tower in New York City, combines several distinct Beeche products into the Beeche Exterior Cladding Installation System. It will become the method of choice for installing curtain wall on high-rise buildings.

From our knowledge of the industry, for the first time on high-rise buildings, unitized curtain wall panels (cladding) are being installed entirely from the building's exterior without the use of expensive tower cranes. The Beeche method – to unload, store, transport, hoist, and traverse panels to the installation point – has the following advantages:

- radically reduces the labor costs to erect the curtain wall system
- frees up interior floor space for other trades to perform work sooner and more efficiently as construction progresses, thereby reducing total construction costs
- reduces the competition among trades for scheduling the use of expensive tower cranes and materials' elevators at the site, thereby significantly advancing the completion of the project
- virtually eliminates breakage of glass curtain wall panels due to more effective handling methods, thereby eliminating material and labor costs associated with replacement and repair
- frees up critical ground space around the perimeter of the building.

The Beeche Exterior Cladding Installation System automates the way exterior cladding is installed on buildings, significantly reducing costs and greatly enhancing the construction schedule.

The Beeche Exterior Cladding Installation System is designed to:

UNLOAD curtain wall panels directly from delivery trucks utilizing a hoisting unit similar to an overhead crane suspended from the patented *Beeche Aluminum Space Frame*® grid. The grid is erected on columns located on the ground or on a setback roof. Curtain wall panels are hoisted in multi-panel packages, shipped directly from the factory, and attached to lifting harnesses customized to specifically match the panel dimensions and shapes. This allows for rapid unloading of tractor-trailers and minimal handling.

STORE curtain wall panels on the Beeche-designed trolley track system attached to the *Beeche Aluminum Space Frame*® grid. This eliminates the need to off-load to the ground or to a specific building floor for further handling, minimizing panel damage and enhancing productivity.

TRANSPORT the curtain wall panels on the trolley track system attached to the patented *Beeche Aluminum Space Frame*® grid to hoisting points.

HOIST, using the patented *Beeche Crab*™, located on the upper floors of the building, the curtain wall panels to the specific installation work level. During hoisting, packages of panels are protected from damage through the use of a specially designed hoisting carriage with spring-loaded rollers that ride a cable-guide system. This system is attached to the building structure to keep the panels secure and protected from wind while traveling up the building face.

TRAVERSE to the installation point utilizing the patented *Beeche Mecano Monorail*™, which is attached to the building's columns and wraps around the building perimeter. Curtain wall panels are transferred to "proprietary" trolley suspenders that traverse on the *Beeche Mecano Monorail* around the building's exterior to the installation point. The trolleys include hoists for vertical adjustment of the panels for easy installation onto the building.

In the case of the Trump World Tower, the entire 70 stories, including the building corners, are being handled by the Beeche Exterior Cladding Installation System.

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Curtain wall panels are installed with the use of a Beeche designed and fabricated L-shaped corner suspended platform, the patented Beeche Mecano Monorail™, the Beeche Crab™, and other Beeche designed and fabricated assemblies and systems.



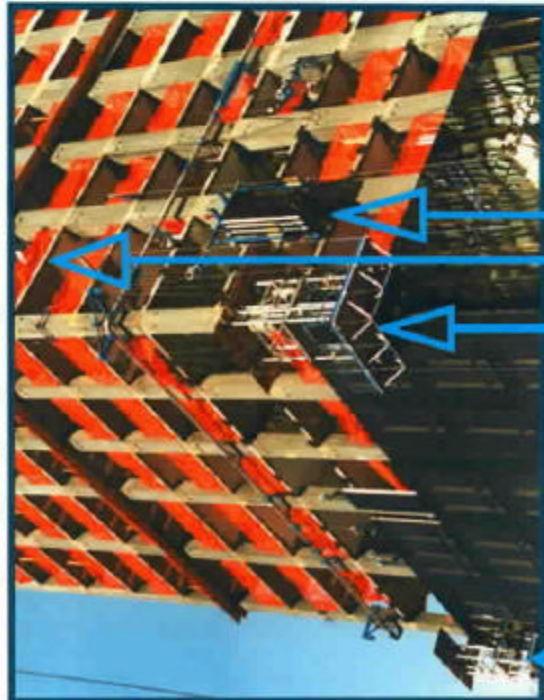
The curtain wall panels (cladding) are stored on a Material Handling Grid below the patented Beeche Aluminum Space Frame System until they are hoisted into position on the building.



Lifting beam suspended from the patented Beeche Crab™ hoist above, ready to be lifted.



The Beeche Crab™ is positioned to lift panels using the Beeche designed Cable Guide System.



Beeche Corner Platform System

The patented Beeche Crab



Beeche Engineered Cable Guide System

Proprietary trolleys for traversing individual panels



Beeche patented Mecano Monorail



Traversing panels to the installation point on the building