

**INSTALLING THE LARGEST GLASS IN THE WORLD**



**OVERVIEW:**

Since 1999 E1 has been designing heavy glass and curtain wall panel lifting equipment to meet the growing demand by Architects and building owners for Jumbo Glass and Jumbo IG Unit installations.

E1 had no choice but to take on the challenge of designing the equipment because at the time there was nothing commercially available that could lift glass in excess of 2800lbs and nothing that would allow the easy manipulation of glass or curtain wall panels when there was an overhead obstruction, like an overhang or power lines, preventing the use of a crane.



Services  
Automatics  
Doors  
Glass

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**DOOR + GLASS + METAL**  
**905-669-9911**

## SOLUTION:

To meet the below the hook heavy lift challenge E1 developed the Counter Balanced Lifter. The lifter is capable of handling load up to 4800lbs with an 8 cup vacuum array. The lifter was the first to incorporate the unique counter balancing capability allowing the installer to bring the load into the same plane as the frame. This, together with the hydraulic rotator means precise control over positioning of jumbo glass or IG units greatly reducing the potential for edge damage or breakage. E1 has used the Counter Balanced Lifter extensively installing IG Units weighing up to 4200lbs, over 60' in the air.

When the use of a crane is not an option E1 has the "End-Effector". Originally developed in 1999 for the installation of Curtain Wall panels the End-Effector has become indispensable tool for jumbo glass installation. Mounted on a forklift the End-Effector can go where cranes can't. The 5 axis hydraulic manipulator gives the operator precise control over loads as heavy as 2700lbs. The End-Effector can lift glass or curtain wall panels and perform complex manipulations like flush glazing into a pocket at the jamb, head or sill. It can be used to move glass through doors holding the load parallel to the ground and then swinging it up into position once the opening has been reached. E1 has used the End-Effector extensively on projects in Ontario, New York, Michigan, Connecticut, Maryland and Ohio. It has proven itself over and over again.

Architects are never satisfied and recently E1 was called on to install a piece of glass 46'X10' weighing over 5600lbs. The installation required the development of a whole new lifting system and process to move the glass and lifter into a confined interior space. Low head room, limited floor capacity and the need to be able to move the lifter easily from exterior to interior were considerable issues in developing a process to successfully install the glass. To meet the challenge E1 developed a light weight modular, self hoisting lifter with counter balancing capability. Over 40' long the lifter rolled on balloon wheels through the opening and rigging was simplified because of 2 inboard 5000lbs hoists.

The experience E1 has gained installing Jumbo Glass and Jumbo IG Units is unparalleled in the industry. E1 has installed over 200 IG units weighing 2500lbs or more, in every imaginable situation.

## HIGHLIGHTS:

Lifting the worlds largest plate glass into ICI construction

Capable of using developed system in areas where overhead obstructions exist and prevent typical crane operation

Counter Balance Lifter capable of lifting a load of 4800lbs with its 8 suction cup array

Reduced breakage and edge damage

Developed the counter-balance lifter to help safely install IG units well above conventional altitudes

Easier installs needing less man-power than historically required

Speeds up install times when all elements are employed

E1 has installed more that 200 IG units weighing over 2500lbs

Capable of being used for curtain wall systems as well

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