



Changing Retail Facades

Handling Jumbo Glass In Tight Spaces

Overview: What used to be bricks and mortar is now massive plate glass.

When a computer retailer was setting up their newest store in a high-end Toronto shopping mall, they needed someone who could handle the massive plate glass installation. To complicate matters, the space they had to bring the glass in was pedestrian sized and could not be modified.

E1 was called in to perform the task.

Solution: Thanks to our custom tool set and talented employees, E1 was able to deliver. Our crew outfitted a forklift with our custom designed End-Effector. For those who haven't heard about our End-Effector, it's a robotic arm outfitted with suction cups that we designed and built almost a decade ago. Better than any commercially available tool on the market, our End-Effector has a 5 axis hydraulic manipulator and has the capacity to make handling massive pieces of glass a breeze. We wanted to create a tool that would set us apart from other glazing companies. Our investment into the proper tools made performing this task a breeze.

Since E1 had the equipment to carefully, and accurately, move the glass we were able to handle the tight operating space. In addition to delivering on time, we used less man hours than other contractors would have had to use, helping keep the costs down for the client.

Project Highlights

- **6 massive Jumbo Plates of glass installed efficiently and effectively**
- **Moved large plate glass within tight operating spaces**
- **Used E1 Designed and Built End-Effector**
- **Installation was less expensive thanks to innovative equipment investments**
- **Store Front Glass consisted of 111" x 189" (1" Low Iron Laminated Tempered Glass)**
- **Glass featured 12mm Low Iron Tempered/0.060" PVB interlayer/ 12mm Low Iron Tempered**
- **Each pane weighs 2000 lbs**
- **Glass glazed with Dow 983, a two part structural silicone, which was completed on-site with silicone pump**
- **Main entrance glass fin system with stainless steel glass connections for transom shelf**
- **Doors were 45" x 120" pair of 19mm Low Iron Laminated Tempered Glass**
- **Doors were hung on patch with Dorma BTS In Ground Closers and patch fittings in transom**
- **End-Effector Glass Handler (Vacuum Equipment with Hydraulic Manipulator) can lift up to 3000lbs**
- **The End-Effector mounts on forks of a forklift or telehandler**
- **Extremely maneuverable, the End-Effector has 5 axis rotation and smooth operation; 'touch of a button' for 1/32" tolerance movement**
- **Eliminates large installation crews**