



End User:

United Airlines,
united.com

Architect & Engineer:

RW Armstrong,
rwa.com

General contractor:

Turner Construction,
turnerconstruction.com

Metal Building Supplier:

Nucor Building Systems
nucorbuildingsystems.com

Statistics:

- 138' (42 m) wide x 28'47" (8.5/14.3 m) high 3-Part Megadoor
- CLE is the snowiest commercial airport in the nation

Megadoor provides cold weather reliability and energy efficiency for United Airlines

Background

Cleveland Hopkins International Airport (CLE) was a Continental Airlines hub where aircraft maintenance was performed in a complex of three hangars before merging with United Airlines in 2010.

One of these hangars was dedicated to line maintenance and overnight phase checks on Continental's fleet of 737-300/500 aircraft. This old hangar was originally built to house two small regional jets, and then expanded for a corporate tenant to accommodate a 737-classic.

When Continental originally leased the hangar, it was able to fit its older 737s through the door. However, its newly acquired 737-NextGen aircraft would not fit because the opening was serviced by a 110' x 45' (33.5 x 13.7 m) bottom rolling door, stored in a 22' (6.7 m) pocket on the front of the hangar. The hangar-operations team realized that, if they eliminated the need for the door pocket, they could open the entire width of this fully confined hangar, and thus have plenty of room to accommodate their new aircraft. That is when they called Megadoor.

From the very beginning they mentioned that they were well aware of the outstanding reviews that Megadoor had received two years earlier from a

Continental group at the Houston-Bush hub, which had visited the FedEx site in Memphis. However, as they pointed out, Cleveland's climate is much colder, and Hopkins International receives more snow than any other major commercial airport in the nation.

The team was therefore very interested in reviewing a few of the Megadoor installations that have a long operational history in cold weather environments. They traveled to Montreal on a windy, 0°F-day and visited the Air Transat hangar and the more than eighty vertical lifting fabric doors installed at the Bombardier manufacturing facilities in Dorval and Mirabel. During this trip the Cleveland team was able to experience first-hand the tight seal provided by the Megadoor system against the bitter cold winds, and to take note of the comfortable work environment this creates for the technicians. They also met with the facilities and operations managers at each location, getting an even better understanding of how well the doors perform in the harsh Canadian winters. After a thorough review by United management, the Megadoors were selected as the best fit for the project.



Before



After

Critical issues

- **Opening maximization** – Newly acquired 737- NextGen aircraft were too wide to fit through the existing bottom-rolling hangar door.
- **Site constraints** – The hangar was confined between other hangars on either side.
- **Energy efficiency** – Cost-effectively climatecontrol the hangar during the cold winter months, to provide a comfortable working environment for technicians.

Megadoor Provided

- Hangar door design and technical assistance with the structural integration of the door system into the building.
- A 138' (42 m) wide x 28'/47' (8.5/14.3 m) high door system. Each vertical liftig fabric door consists of three individually operated door leafs and two retractable mullions.
- Installation and commissioning.
- Five-year extended warranty and preventive maintenance program.

Benefits

- **Cost Savings** – By utilizing the space-saving features of the vertical operating Megadoor, the United team was able to modify its existing hangar to accommodate its new, larger aircraft. This retrofit was significantly less expensive than the other retrofit plans under initial consideration.
- **Cold Weather Performance** – Megadoor understands that aircraft movement delays caused by door problems can be extremely costly. Originally developed near the Arctic Circle in Northern Sweden, the Megadoor has earned the reputation over the last thirty years as the best cold-climate solution for large openings. Here are some of the ways in which Megadoor achieved this:

- Unlike bottom rolling doors, the vertically operating Megadoor does not require floor tracks that commonly fill with ice, hindering operations during winter months.
- Since Megadoor systems operate vertically in the same plane, end-users do not have to plow the snow in front of the door prior to opening it, as is required by bi-fold or canopy doors.
- Ice does not accumulate on the Megadoor exterior surface, as it does on conventional doors. As the door fabric flexes in the wind or folds during operation, the ice just flakes off.
- Lastly, the Megadoor will not freeze to the ground like other door systems that can be severely damaged if operated while locked in ice.
- **Energy Efficiency** – With over one hundred Arctic and Antarctic installations in thirty years, the Megadoor has proven to be the most energy-efficient hangar door in the world. Eighty percent of energy loss on a closed hangar door is attributed to air infiltration around poor seals. The dramatically superior seals on the Megadoor reduce this air infiltration to levels lower than those experienced with any other door.

The United Megadoor systems were designed with a 47' (14.3 m) tall center door and 28' (8.5 m) tall side doors, to accommodate the 737's tail and wings respectively. This minimizes the square footage of the hangar door system without losing any operational flexibility. In addition, the vertically operating doors enable the user to open each door just enough to allow for aircraft or vehicle movement. With this system, crews do not unnecessarily expose the top of the hangar, releasing all the warm, conditioned air. Together, these features enable a cost effective climate-controlled hangar.

For more information about this product, please contact: (800) 927-6342 or sales.us.megadoor@assaabloy.com