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AUTHOR Walker Jaroch

NOT YOUR PARENTS' Boarding Bridge

Gone are the days of uncomfortable metal tubes as airports upgrade the boarding bridge experience for air carrier and passenger alike with new technology and great views.

TAKING A trip involves travel. Airport passengers often have a lot of traveling to do before their journey begins in earnest – from car or taxi to terminal, terminal to gate and gate to plane – there's a lot of movement happening leading up to a flight.

All those little leadup movements leave room for headaches to creep in and sully a passenger's experience before they've left the ground. Airports aware of that potential have taken measures to improve the passenger experience leading right up to the moment they board – literally – with passenger boarding bridges (PBB).

Brett Smith, CEO of Propeller Airports, which operates the recently opened Paine Field Passenger Terminal, learned firsthand the impact a PBB can have on a flyer.

"I got stuck in a boarding process for 15 minutes in a hot jet bridge looking at an ad for a bank and I said: 'You know what? We're not doing this,' Smith said.

The experience made Smith rethink the kind of PBBs he wanted for Paine Field and the flyers passing through it, leading him to adopt what is becoming a growing trend for airports in the U.S. – glass jet bridges.

"And so, I wanted the glass jet bridges because I want the first impression of the region and Paine Field in Everett, Wash., to be of the beautiful scenery. So, on a clear day, you can see the Olympic Mountain range, and you can always see the cool stuff going on at Boeing. That was why I did it," continued Smith. "At one point, we were going to put a

traditional jet bridge in because it saved a lot of money, but when I had that experience, I said, 'forget it.' It was not the aesthetic or passenger experience that I was looking for."

"The standard jet bridges tend to be somewhat claustrophobic. We've been very fond of glass jet bridges that are used throughout Europe and we felt it just added to the overall look and feel of the terminal. The way the building is situated when you walk out onto the glass jet bridges on a nice day, you're looking at the Olympic Mountains and you just don't feel closed in to get off the airplane or come out of the building. It just extends the comfortable feeling of the building," elaborated Mark Reichin, Propeller Airport's COO.

Installing Paine Field's bridges was Aero BridgeWorks who along with its partner company, Aero Systems Engineering, form the Aero Group – a team, specializing in the planning, design and construction of terminal-based, fixed ground support gate systems.

"We'll do all the engineering, all the layouts, all the detailing, and then on the construction side Aero BridgeWorks will furnish, install and commission the bridge and all associated equipment. There's lots of options and different equipment that go along with the bridge. The Aero Group



help clients design, procure, select it and then we will do all the field work, all the installation, and commissioning," described Russ Bramlett, president of Aero Systems Engineering Inc.

And while glass PBBs have been popular in Europe for some time, they've only recently been growing in popularity and prevalence in the U.S. thanks to changes made to national fire safety laws in the mid-2010s by the National Fire Protection Association (NFPA).

"The code requirements in the U.S. did not allow glass bridges because the glass walls wouldn't meet the fire protections ratings. NFPA changed the code a couple years ago and glass bridges are now allowed in the States," explained Jay Grantham, president at Aero BridgeWorks Inc. "You're going to see a lot more glass bridges as time moves on. It's a slightly higher price point, but many airports and agencies realize the benefits



THE AERO GROUP



THE AERO GROUP

to passenger experience outweigh the cost increase.”

Paine Field’s decision to go with glass PBB’s raised the direct equipment cost roughly 15 to 20 percent. However, it should be noted that as glass PBB’s become more prevalent in the U.S., it is expected the cost premium will begin to decrease. The price difference initially lead Propeller Airports to look at have traditional bridges until the aesthetic difference outweighed the price difference.

“It’s a far more pleasurable experience for the passengers, both usability and aesthetics,” Reichin said.

Grantham says that the aesthetic value of glass PBBs are the main attraction.

“The end product is a lot nicer because you have a clear line of sight,” he said. “Let’s be honest, you walk down a jetway, it’s not always the most exciting thing in the world. You’re sometimes standing in queue, sometimes it’s hot, sometimes

it’s cold, you’re anxious to get onto the flight. It can be a stressful situation for passengers, but if it’s a glass bridge and you have a line of sight to the view of the landscape, especially if you’re in the middle of Montana or somewhere with a nice view, it really does help the passenger experience. They’re a lot cleaner and they seem much more open. If you were to poll most people, they would say they like natural light than illumination light. Just getting the natural light into the bridge, that affects a lot of people.”

However, glass PBB do pose their own unique challenges, both during installation and after. Glass bridges tend to be heavier, sometimes requiring larger foundations to hold them. Glass bridges are also more delicate than their metal counterparts and can break from impact or severe weather changes – though Bramlett said it’s not a common issue.

“The glass can break, whether it be from impact or from just severe temperature changes, the glass can crack and although rare, it has happened. That probably goes into the category of it’s a just a newer product. It’s not something that’s been as thoroughly installed and thoroughly investigated nationwide in the U.S. In some ways we’re still in a bit of learning curve, but at the same time there haven’t been that many issues at all as far as mechanically or physically operating. The glass cracking or breaking is not common,” said Bramlett.

What is common, though, is cleaning. “You have to keep them clean,” said Reichin

“They certainly require more maintenance to upkeep, because they have to be cleaned on a regular basis,” added Smith.

“Typically, it requires everybody to be a little more diligent when it comes to keeping things clean, because now you can see a lot more,” Bramlett said. “If you’re putting in a glass bridge to improve passenger experience, it’s going to take some effort to make sure that experience stays top-notch. You’d even think that along the ramp. If your passengers are able to now walk outside that building face and look down, maybe underneath some areas that are typically covered and not visible, now those areas have to have equal scrutiny to make sure that nothing is an eyesore. Or you’re counter-productive in your efforts to provide a glass bridge.”

In Atlanta, Hartsfield-Jackson Airport is currently underway with what is considered the largest ground support project in U.S. history – the renovation of 116 PBBs. At the time of writing, 97 of the bridges have been replaced in what airport assistant director of project management Todd McClendon described as a quality of life update.

“The bridges are really no different to any other system in the building. At least, we don’t treat them any differently. You can live without AC, no one is going to be happy, but it’s hard to live without a bridge to get on a plane,” said McClendon as to what lead to the project. “They have a useful life and when they start getting close to the end of their useful life, then you start making plans to replace them. It

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truly is that simple and these get a lot of use. They are a life-blood to this airport. One of the elements that we rely on every day to get people from the concourse level straight out to the airplane, so without them it creates dynamics that we don't want to get into."

The bridges, also being installed by the Aero Group, are getting much needed upgrades to their infrastructure and technology.

"We kind of laugh in the office as some



One of the new boarding bridges at Hartsfield-Jackson Atlanta International Airport.

HARTSFIELD-JACKSON ATLANTA INTERNATIONAL AIRPORT

of the bridges we're taking out were made well before cell phones and well before pagers. Just the new technology that we're installing is a world of difference than what they had before," Grantham said.

"Aero has been in Atlanta for a very long time. We were founded here and we are headquarterd here. We've been working at the Atlanta airport since we were first founded," continued Bramlett. "We've had the opportunity, in one way or another, to plan and work at every one of these gates before this project happened. Being very familiar with the equipment, when this project kicked off we had the opportunity to bring any ideas forward for stakeholder discussion and consideration; to determine exactly what kind of passenger boarding bridge finishes they wanted, specs they wanted, if there's any kind of changes they wanted with aircraft parking. We were able to put a whole menu in front of them and let them decide what they did or did not want to budget for."

And where Paine Field's bridges focused on aesthetics for a pleasing passenger experience, Hartsfield-Jackson's bridges renovations are more focused on the wants and needs of the airport's air carriers – namely technology and safety features.

One of the most strongly requested features is automatic aircraft-docking technology – ADB Safegate– which the airport has equipped each bridge to take advantage of should the bridge's carrier want it. McClendon said that Delta is the first to take advantage of the auto-docking in ATL.

"The controls and the computer capabilities have been brought up to modern standards," said McClendon. "They just come down, press a button, and the bridge pre-positions itself to be in line with the location it needs to be in to receive the aircraft. It's a much smoother, safer operation."

"I mean, it's amazing. The technology now has changed quite a bit. You have

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systems now the aircraft can basically automatically dock to the bridge with minimal human effort. Where, 20 years ago, you had to have ramp walkers on the ramp, you had to have agents in the bridge... The technology has come a long way," added Grantham.

Jason Pearson, an Aero Group project executive who leads several docking system projects across the country, said that aircraft docking systems are something the Aero Group has seen a lot of and that it's been a growing design-build trend in the U.S. over the past 12 to 18 months.

Outside of the bridge's auto-docking capabilities, other features include self-diagnosis systems and integration with the airport's building asset tracker software, Maximo, allowing for the airport and the carriers operating the bridges to perform preventive maintenance and track who has done what with the bridges. The bridges also sport a pre-cool function, which allows the same pre-conditioned air

units used to cool sitting aircraft to cool the bridge and create a more comfortable environment for passengers as they queue off of the plane.

Then there are the personal touches each carrier requested of their bridges.

"Finishes on the interior, the way the carrier likes the rubber floor or the carpet floor. One carrier likes the carpet and one carrier likes the rubber mat, so they were tailored to the carrier's request. They're trying to get a consistent level of finish and customer service across their brand and we're sensitive to that. How it felt inside of the customers was another key item that they wanted to be sure was addressed," said McClendon.

The project, costing \$174 million, has so far gone smoothly and McClendon estimates they are about 84 percent of the way to completion. The first phase of the project was completed 41 days ahead of schedule – in time for Atlanta's hosting of Super Bowl LIII – thanks to deft coordination between the airport,

Aero Group and the airlines.

"We were able to accelerate the job at no cost to the owner, and finish all 86 phase one gate replacements one month before the Super Bowl and about a month and half before the actual substantial completion," said Grantham.

"Our carrier partners are instrumental in saying, 'hey, we have a lull coming up here' and they give us an advanced notice that we can get more bridges in our hands and we can take advantage of the time where they're able to free up an extra date and we're able to get more done," McClendon said. "That goes back to the very early co-ordination and collaboration with our stakeholders that we had and paid big dividends here as we moved along. So they're at our meetings with us, we're seeing schedules every week, we're collaborating with them as if they were managing the project. We couldn't do it any other way, they got to be there." ▽

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