

# PASSENGER TERMINAL *WORLD*

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## HOW TO BUILD CIRCULARITY INTO AIRPORT TERMINAL CONSTRUCTION AND DESIGN

### ***Interview***

ACI Europe's head of sustainability, Marina Bylinsky, reveals more about the Airport Carbon Accreditation (ACA) program's new levels of achievement

### ***Renewable energy***

Airports are turning to greener resources to reduce emissions and generate extra income

### ***Post-Covid design***

PTW asks industry experts how design trends will align with the aspirations of modern travelers



## CHECK-IN

■ For Scott Gorenc, studio design director at Corgan, the integration of health screening verifications will be one of Covid-19's biggest influences on the check-in process. "Many international destinations are now requiring proof of health before checking in, and that verification process has become the responsibility of the airlines. This will lead to longer time spent at check-in and, as a result, increased queues. The opportunity is to design this process as touchless from the start, relying on cloud-based platforms even prior to arriving at the airport to expedite the process, and using virtual assistants at kiosks to minimize human interaction. We could even see health screening facilities integrated as landside amenities for those passengers requiring screening."

Blair Hanuschak, managing principal at Walter P Moore, agrees that the continued adoption of technology to streamline the check-in and bag-drop process at – or prior to arriving at – the airport will be key. "The proliferation of curbside check-in and ticketing kiosks will continue, to allow less congregating and queuing in the ticketing hall," he explains. "Social distancing, the use of masks, an emphasis on sanitization and the use of touchless technology, along with the use of biometrics and mobile apps, will set the stage at the beginning of the passenger journey."



The opportunity is to **design this process as touchless** from the start

Scott Gorenc, Corgan



# DESIGN FOR THE FUTURE

How will the global Covid-19 pandemic influence the way airports look and operate in the long term? *PTW* speaks to industry experts about how design trends will align with the aspirations of the modern traveler





Denver International Airport

ABOVE

VeriFLY allows access to a dedicated TSA screening lane and a reserved limited-capacity train car to the concourse at Denver International Airport

LEFT

The entire airport check-in and security screening process will become contactless



Biometrics will be the key to **touchless** passenger processing and screening

Jason Shevrin, Arora Engineers



## SECURITY SCREENING

■ In the security screening area, single-token authentication will continue to influence the design, according to Jason Shevrin, chief compliance officer and special systems discipline lead at Arora Engineers: "Security screening has been trending toward single-token authentication, meaning there will be a single credential by which you deposit your luggage, obtain your boarding pass, go through security and get on your airplane. Trends indicate that much of this screening will become automated, as illustrated by IATA's Checkpoint of the Future concept, which is designed to streamline passenger processing and strengthen security.

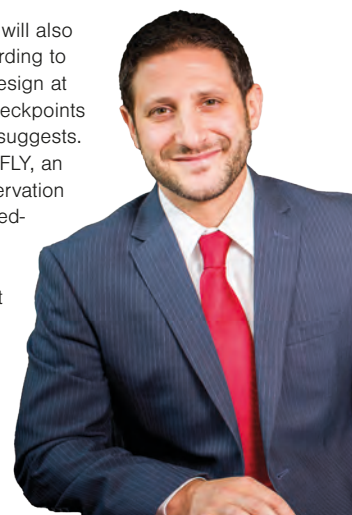
Biometrics will be the key to this touchless passenger processing and screening, and facial recognition will likely be the single-token authentication we see embraced by airports in the future." (Read Shevrin's article on *Realizing long-term ROI with biometric technologies* at [www.PassengerTerminalToday.com](http://www.PassengerTerminalToday.com).)

This increased automation will be led by the desire for less human interaction post-Covid, and the "ultimate goal" will be the evolution of security screening to a completely touchless experience, according to Scott Gorenc, studio design director at Corgan. "Biometrics, automation and blockchain technologies are all

foundational to achieving this," he says.

"While the promise of these technologies has been around for quite some time, the pandemic will serve as the catalyst for the immediate integration into our terminal environments."

The traditional serpentine queue layout will also change to facilitate social distancing, according to Curtis W Fentress, principal in charge of design at Fentress Architects. "Managing security checkpoints by appointment is another alternative," he suggests. "Denver International Airport launched VeriFLY, an app that allows passengers to make a reservation to access a dedicated TSA line and a limited-capacity car that transports them to the concourses in lieu of the underground train. Montreal-Trudeau International Airport has also offered security checkpoint reservations for several years. Touchless technologies will also overhaul the traditional security screening process. The Transportation Security Administration recently introduced a system that allows passengers to insert their ID into a scanner to avoid contact with an officer."





# RETAIL/F&B

For most of our experts, the retail and food and beverage areas are where we will see the biggest overhaul. "Now that Covid-era consumers have changed not only their social habits (social distancing, minimal social gatherings) but their purchasing habits as well, we have become ever more dependent on personalizing experiences via our mobile devices," says Jason Shevrin at Arora Engineers. "Prior to Covid, we saw some nominal accoutrements of personalization cropping up in airports; for example, allowing passengers to purchase goods on their devices, which they could pick up or have delivered to them once they arrived in the airport. Airport operators could now allow patrons to reserve seating for a group at a location where on-demand services are available, such as food and retail delivery, using their own mobile device via QR."

"In a society that has now become accustomed to social distancing, patrons who arrive at the airport hours in advance of their flights may be hesitant to sit shoulder to shoulder with other patrons, and especially eat and drink in such close proximity. Airports could charge a small fee for this reservation system, and link with airline partners to provide

services to premium travelers where there is an absence of club/lounge space." Shevrin also believes that with increased mobile ordering, retail and food/beverage functions could be moved to back-of-house storage and kitchen prep areas, which would eliminate all but a few key retail and restaurant areas so that holdroom and boarding areas could be expanded. Curtis W Fentress of Fentress Architects agrees: "While airport delivery services are far from new, the trend has gained momentum during the pandemic, and it is likely here to stay. The expansion of low-touch concession opportunities, such as ghost kitchens that offer mobile app ordering, provide great alternatives to dine-in restaurants. Last year, Los Angeles International Airport piloted this experience with an on-demand food service program that allows passengers to order their meal online and pick it up at a designated kiosk."

Blair Hanuschak from Walter P Moore adds, "The creation of larger, more open 'community and civic space' that enables people to find a comfortable place to relax away from the congested holdrooms or restaurants will also be valuable for passengers' well-being."

**RIGHT**  
Biometric boarding and delivery robots will become a common occurrence in concourses

**BELOW**  
Fentress's flexible design for the Alaska Airlines Terminal 6 Lounge at LAX enables the airline to efficiently adapt to changes



Corgan



Ken Paul, courtesy of Fentress Architects



Larger, more open community and civic space will be valuable

Blair Hanuschak, Walter P Moore



**LEFT**  
On-demand food ordering is available at LAX via the Breeze app

# LOUNGES

Lounges are a space where the elevated passenger experience dictates a higher level of service, according to Corgan's Scott Gorenc, and "providing more square feet per passenger and personalizing the services will shift lounges from being spaces catering to communal offerings to being spaces designed for individualization and varying levels of privacy". He adds, "In fact, to differentiate the lounge experience and give passengers complete control of the journey, lounges will be directly tied to the security screening process on one end and to the boarding process on the other to make the departures experience both seamless and touchless."

For Curtis W Fentress from Fentress Architects, lounge design will need to be as flexible as possible to "evolve as future needs change" – whether it's a global health crisis or adapting to new technologies and customer preferences. He continues, "For example, Fentress's design for Alaska Airlines' Terminal 6 lounge at LAX enabled the airline to effectively transform the space to accommodate social distancing, new signage and check-in processes. The flexibility we designed into the space will enable the airline to seamlessly adapt to a post-Covid-19 world as well."

"In airport lounges of the future, passengers can expect a more contactless experience," Fentress adds. "Digital membership cards such as Priority Pass and LoungeKey facilitate touchless check-in methods, avoiding the need for members to touch a device. Contactless food and beverage options will also become more prominent, with mobile app ordering and self-service kiosks inside the lounge."



## BOARDING AREAS

Resilience, flexibility and customization will be key to the successful design of boarding areas post-Covid. "Holdrooms will need to be highly configurable to accommodate shifting passenger levels, safety protocols and sporadic social distancing requirements," explains Curtis W Fentress of Fentress Architects. "Flexible seating provides options for passengers to customize their experience and maximize their personal space. Another interesting option is to expand the holdroom outdoors to accommodate higher passenger levels while maintaining a comfortable, socially distanced environment for travelers."

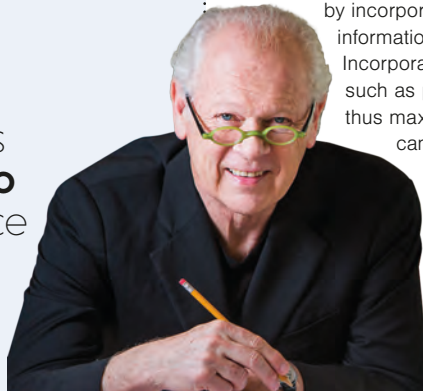
At Austin-Bergstrom International Airport, we optimized the site's unused space by expanding the holdroom outdoors. This creative approach significantly elevated the passenger experience by providing opportunities to host local food trucks and live music. This concept also provides natural ventilation for passengers, to maintain a healthy and comfortable atmosphere.

"Airports can further enhance the holdroom/pre-boarding experience by incorporating digital signage and increasing flight information display locations to keep passengers informed. Incorporating additional amenities throughout the holdroom, such as pop-up retail, provides an alternative to sitting, thus maximizing holdroom capacity. Disinfection robots can also ensure these public spaces remain clean while easing the worries of passengers."

Walter P Moore's Blair Hanuschak agrees, adding, "As passengers board the aircraft, social distancing and measured boarding processes will contribute to their comfort during the boarding process. Touchless technology will allow self-boarding, including proof of vaccination, identification and boarding passes."

Flexible seating provides options for **passengers to customize** their experience

Curtis W Fentress, Fentress Architects



## RESTROOMS

The increased focus on the need to wash hands and maintain good hygiene will reinforce the importance of well-designed restrooms within public spaces such as airport terminals, believes Scott Gorenc of Corgan. "Therefore, the design of restroom facilities moving forward will be focused on improving sanitation protocols and providing psychological comfort to the passengers," he says. "To do this, first we can analyze restroom layout and fixture and finish selection to improve usability and perception of the restroom. It is critical that restrooms are not only clean, but that they look and smell clean as well. Additionally, we can incorporate data analytics via occupancy sensors not only to improve operational protocols by alerting airport staff that there is a need to clean, but also to empower passengers to know when a stall is in use without physically interacting with it, thus mitigating congestion inside the facilities."

**RIGHT**  
Hong Kong International uses intelligent sterilization robots in restrooms and key operating areas

**BELOW**  
UV lighting and occupancy sensors improve sanitation in restrooms



Corgan

The design of restroom facilities will be **focused on improving sanitation** protocols

Scott Gorenc, Corgan



## POST-COVID DESIGN

### RIGHT

Vanderlande's FLEET mobile baggage robots, seen here at Dallas/Fort Worth, can handle almost 450 bags/hour



## CONNECTIONS AT HUB AIRPORTS

■ There are some simple changes to services and design that can be made to facilitate passengers' needs post-Covid, believes Curtis W Fentress at Fentress Architects. "To improve the experience for connecting passengers, airlines can offer simple changes including opportunities to check bags through to the final destination and a focus on on-time arrivals to reduce the stress of travel. For scenarios where baggage cannot be transferred to the final destination, mobile baggage robots – such as the FLEET autonomous vehicle solution that was launched at Dallas/Fort Worth International – can create a more seamless transfer of luggage. Hub airports can further improve the experience for connecting passengers by implementing biophilic design elements such as gardens, and enhanced amenities including outdoor lounges, public art and movie theaters, as well as health-focused options such as Covid-19 testing and hand sanitizing stations."

For Scott Gorenc at Corgan, taking lessons from the healthcare industry – "which has created a path to defining processes for design, construction and operations related to the specific health risks present in various spaces in hospitals" – is key. He says, "We believe this could be applied to aviation by defining a series of health event levels and their specific risk profiles, then applying those profiles across multiple classifications of spatial types. This type of approach could take the guesswork out of what needs to be done and when, and allow airports to prepare for the next disruption."

## OVERALL TERMINAL DESIGN

■ Although the current pandemic has disrupted the aviation industry, it has also served as a reminder of the importance of resilient airport terminal design, according to Curtis W Fentress of Fentress Architects. "By designing flexibility into the physical structure, airports can respond to unexpected crises such as Covid-19. Resilience also enables airports to become catalysts for public health and sustainability. As architects, this strategy gives us an opportunity to think well beyond sanitation efforts; it places the well-being of users and the environment at the heart of the design. The goal is to maximize ventilation, clean air, flexible facilities and health-conscious materials while reducing the airport's carbon footprint."

Matt Needham, director of aviation and transportation at HOK, agrees, adding that designing flexible, multipurpose spaces will be integral to the future of airport design. He continues, "While these [design trends] are driven by pandemic-related fiscal constraints, the long-term trends will be to build for flexibility and longevity. Today's capital investments need to be futureproofed, with a useful



Astula Inc./Raul Garcia, courtesy of Fentress Architects

### LEFT

Fentress Architects' design for Austin-Bergstrom International Airport's South Terminal expands the holdroom outdoors, establishing an efficient way to optimize the site's unused space

## ARRIVALS

■ For Curtis W Fentress of Fentress Architects, the future arrivals experience will need to become more streamlined to minimize passenger congestion and queues. "Leveraging artificial intelligence, airports can adopt virtual queues to analyze and control the flow of passengers. This technology would allow travelers to schedule a time slot for processing – similar to the check-in and security process. Adding more retail and dining options means passengers can shop or grab a meal while they wait for their processing time in a less crowded area." The use of customer service robots to respond to passengers' needs as they disembark the airplane, such as those used at Incheon International Airport, may also become commonplace.

Blair Hanuschak from Walter P Moore agrees that technology will play a bigger role: "The arrivals experience will be similar to current processes, but with the incorporation of touchless technologies that will assist passengers throughout their arrivals journey in the airport. Passenger flow should enable social distancing and minimize cross-traffic, and appropriate space for any arrivals passenger processing and screening should be considered. Additional food and beverage and retail concessions could be needed for arriving passengers who are interested in taking advantage of them prior to leaving the airport. Concessionaires should seize the opportunity to tailor their offerings to current needs driven by the pandemic and those post-pandemic."

### RIGHT

The check-in area at Louis Armstrong New Orleans International is spacious and flexible



Leo A Daly / Atkins | Creative Sources Photography / Ron Rizzo



The long-term trends will be to **build for flexibility** and longevity

Matt Needham, HOK

life beyond 50 years. To better accommodate future security, baggage and conveyance technologies, flexibility is key. We don't know the future, but we can make an educated guess."

Walter P Moore's Blair Hanuschak is hopeful that airports will return to their former glory in the long term: "The world of airport design is dynamic and ever-changing, and airport terminals will continue to morph based on changes in the aviation industry, and in our world in general. There may be a short-term need to treat them more like efficient processing spaces as we navigate through the current pandemic, but it is my belief that they will continue to be important civic gateways to the cities and communities they serve." ■