

Creating a Better Connection

The Gerald R. Ford International Airport's ConRAC

By Susan Thwing

At Gerald R. Ford International Airport in Grand Rapids, convenience is the goal: returning a rental car, walking indoors to the terminal, and eliminating an extra trip elsewhere on the airport campus. From a construction standpoint, however, the \$156 million Consolidated Rental Car Facility, or ConRAC, was anything but simple.

The 733,615-square-foot facility combines a four-story Ready/Return parking structure and integrated Customer Service Building with a three-story Quick Turnaround Facility, or QTA, where vehicles can be fueled, washed, vacuumed, and prepared for their next customer. A climate-controlled skybridge links the facility directly with the terminal.

Bringing those components together meant constructing what Turner Construction Company Project Executive Dave Snyder describes, in straightforward terms, as “a parking

garage with a gas station, and then, of course, a Customer Service Building.”

Then add the realities of building beside an operating airport, working under air traffic control tower height restrictions, and navigating extensive underground infrastructure. The project also required coordinating post-tensioned concrete construction, managing multi-level fueling and vehicle-washing systems, addressing significant unexpected soil conditions, phasing procurement, and moving thousands of workers and deliveries through the site.

The result is Michigan's first consolidated rental car facility and one of the largest projects in the airport's ongoing ELEVATE capital improvement program. More importantly for the construction team, it became an exercise in how planning, communication, and quick decision-making can prevent a major problem from becoming a major delay.

Building for Growth

The ConRAC grew out of Gerald R. Ford International Airport's broader ELEVATE program, launched in 2018 as airport leaders anticipated continued passenger growth and considered the infrastructure needed to support both the airport and the West Michigan economy. Car rentals were part of that equation.

Previously, customers picked up and returned rental cars on the first floor of the airport's existing parking garage. After each return, employees drove the vehicle approximately 1.5 miles to a remote service location for washing, vacuuming, and fueling, then drove it another 1.5 miles back to the terminal area. The new ConRAC brings that operation together in one place.

"The first goal is really to support the growth of our airport and the growth of our region," said Casey Ries, Chief Asset Development Officer for the Gerald R. Ford International Airport Authority. The change eliminates the approximately three-mile cycle required each time a rental vehicle needs to be serviced, taking those movements off airport roadways and reducing congestion as well as fuel use and emissions. The completed facility is expected to reduce carbon emissions by approximately 500,000 pounds annually.

**"The complicated part was building it.
The finished experience is
intended to be anything but."**



ABOVE: The \$156 million ConRAC brings together a four-story Ready/Return parking structure, Customer Service Building, and three-story Quick Turnaround Facility, with a climate-controlled skybridge providing a direct enclosed connection to the Gerald R. Ford International Airport in Grand Rapids.

Photo courtesy of Adam Meeker, Fishbeck

RIGHT: The finished Customer Service Building extends the terminal experience into the ConRAC with terrazzo flooring, expansive glazing, integrated lighting, and airport artwork.

Photo credit: Maconochie Photography



Moving rental operations out of the existing parking deck also created another benefit. Ries said the change returns approximately 800 close-in covered spaces to airport parking inventory. That need had been identified years earlier. A 2019 study found that the airport was approximately 1,100 spaces short of demand for close-in covered parking.

"The first goal is really to support the growth of our airport and the growth of our region."

Rather than simply constructing another parking garage – an option complicated by air traffic control constraints – the airport began looking at the bigger picture.

Fishbeck joined the process as design partner in 2019, initially helping evaluate what type of parking solution made the

most sense. That planning ultimately pointed to a ConRAC as the long-term answer. Specialty consultants Stantec, Jensen Hughes, and TLC Engineering were subsequently added for the highly technical elements associated with consolidated rental car operations.

The airport also evaluated several project delivery methods before selecting construction managers, allowing contractor expertise to be incorporated while design was still underway. That early contractor involvement would prove particularly important as the project moved from drawings into the field.

A Natural Extension of the Terminal

For all the technical complexity behind its construction, the completed ConRAC still had to feel like part of Gerald R. Ford International Airport. Ries said the Customer Service Building continues the terminal's architectural feel, including its finishes and flooring, so passengers moving from baggage claim through

the enclosed skybridge and into rental operations experience a continuous environment. "We've even introduced a few elements of the airport art program into the ConRAC so the ConRAC doesn't feel like a standalone facility," Ries said. "It feels like part of the airport."

The most visible example is Jerry's Map, an installation by Grand Rapids native Jerry Gretzinger. More than 2,700 panels form a continuous artwork extending through four floors behind the escalators in the Customer Service Building.

More than a Parking Garage

Parking structures are familiar territory for architects, engineers, and contractors. What made this project different was everything occurring inside and alongside the parking operation. The QTA is essentially an industrial vehicle-service operation incorporated into a multi-story structure. Rental vehicles move through fueling, washing, vacuuming, and preparation before returning to the Ready/Return area.

That required specialty fuel systems, compressed air, vacuum equipment, carwash infrastructure, reclaimed-water systems, extensive electrical and plumbing work, and fire protection – all layered into a structure carrying vehicles above and around those systems.

For Adam Meeker, AIA, Vice President and Senior Architect at Fishbeck, one of the fundamental structural decisions was the use of post-tensioned concrete. "The biggest difference is the structural span in using post-tensioned concrete," Meeker said. Rental car operators, particularly around the fueling operation, "need lots of space to move vehicles around. That's not traditionally done in a parking garage." The system provided the spans and open circulation areas required for vehicle movement while helping the design accommodate an unusually demanding program.

The project materials illustrate its scale in another way: Kent Companies placed enough concrete over the course of construction to fill more than seven Olympic-sized swimming pools. In addition, Buist Electric, Andy J. Egan Company, and Stenstrom Petroleum

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An enclosed skybridge stretches between the ConRAC and terminal, creating a weather-protected passenger route while crossing an active airport roadway. Portions of the skybridge ceiling and exterior wall were prefabricated to shorten field installation time and reduce overhead congestion. *Photo credit: Maconochie Photography*

Services completed underground work supporting electrical duct banks, plumbing, fuel, and carwash operations, while Brigade Fire Protection provided fire suppression design and installation.

Building Information Modeling became particularly valuable there. Snyder said the team undertook an exhaustive BIM effort for the QTA, beginning with underground conditions. Fuel piping, electrical conduit, plumbing, carwash lines, reclaimed-water components, and other systems had to be placed correctly before the structure advanced above them. BIM was then used to coordinate those systems vertically as fueling and washing operations moved onto multiple levels.

The post-tensioned concrete construction made that coordination even more critical. Anchoring systems after a slab was poured required detailed knowledge of tendon locations and deeper scanning for larger anchors. The team therefore coordinated MEP inserts in the BIM model so they could be located before concrete placement, reducing later drilling, field conflicts, and rework.

Meeker considers the multi-level fueling and washing operation one of the project's most significant technical accomplishments. "Being able to do fuel and wash on two levels, inside a building, really is sort of the technical achievement here," he said. Specialty design consultants and

subcontractors were essential because those systems are far removed from conventional parking-deck construction.

When the Ground Changed the Plan

If one challenge defines the ConRAC construction story, it is what the team found below grade. Excavation and foundation work on the Ready/Return parking structure began from the west and progressed eastward. Massive foundation mats, some approximately 25 feet by 25 feet and 6 feet deep, were excavated and poured in sequence.

Then crews encountered unsuitable soils. Initially, the condition appeared isolated. Continued excavation revealed something far larger: an extensive area of organic material running through the project footprint. To address the problem, additional soil borings were ordered to determine its depth and extent. Historical information offered an explanation: the area had once included wetlands before airport development expanded across the site.

Jeff Salowitz of Coalition Companies, serving as the owner's representative, remembers the moment the problem became clear. "We were excavating, and we ran into substantial bad soils ... over 40,000 cubic yards of bad soils that were unexpected," he said. "This is an issue that could completely derail this project."

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The potential consequences were significant. Ries said the condition initially carried the possibility of adding three to four months to the schedule and as much as \$4 million in cost. He said the problem could not be solved with one approach because construction had progressed differently across the two major structures. On the Ready/Return portion, foundations were already being constructed using the designed system.

Snyder said the team considered whether auger-cast piles could bypass the unsuitable material, but once that foundation system had begun, switching systems within the structure was not viable. The solution there was excavation and replacement.

In areas where unsuitable soils extended beneath previously completed work, the response became even more difficult. Two large foundations that had already been poured were demolished, unsuitable soil beneath them was removed, engineered fill replaced, and the foundations were reconstructed.

The QTA presented a different opportunity because its foundation work

had not advanced to the same stage. Instead of removing the full volume of unsuitable soil, Fishbeck, Turner, and the structural and trade teams redesigned the QTA foundation from spread footings to an auger-cast pile system. That approach allowed foundations to transfer loads below the problematic soil while avoiding the cost and schedule implications of removing and replacing the material across the entire footprint. Meeker estimates that approximately 35 to 40 percent of the foundation design ultimately changed to respond to the conditions.

The technical redesign was only half of the response. The other challenge was keeping people working. A project of this scale depends on sequences established months in advance. Crews, concrete pours, material deliveries, and subcontractors are scheduled around one another. If a major operation suddenly stops, the effects can cascade through the project.

Salowitz recalls the project team regrouping almost immediately after recognizing the magnitude of the problem. "We worked late that night



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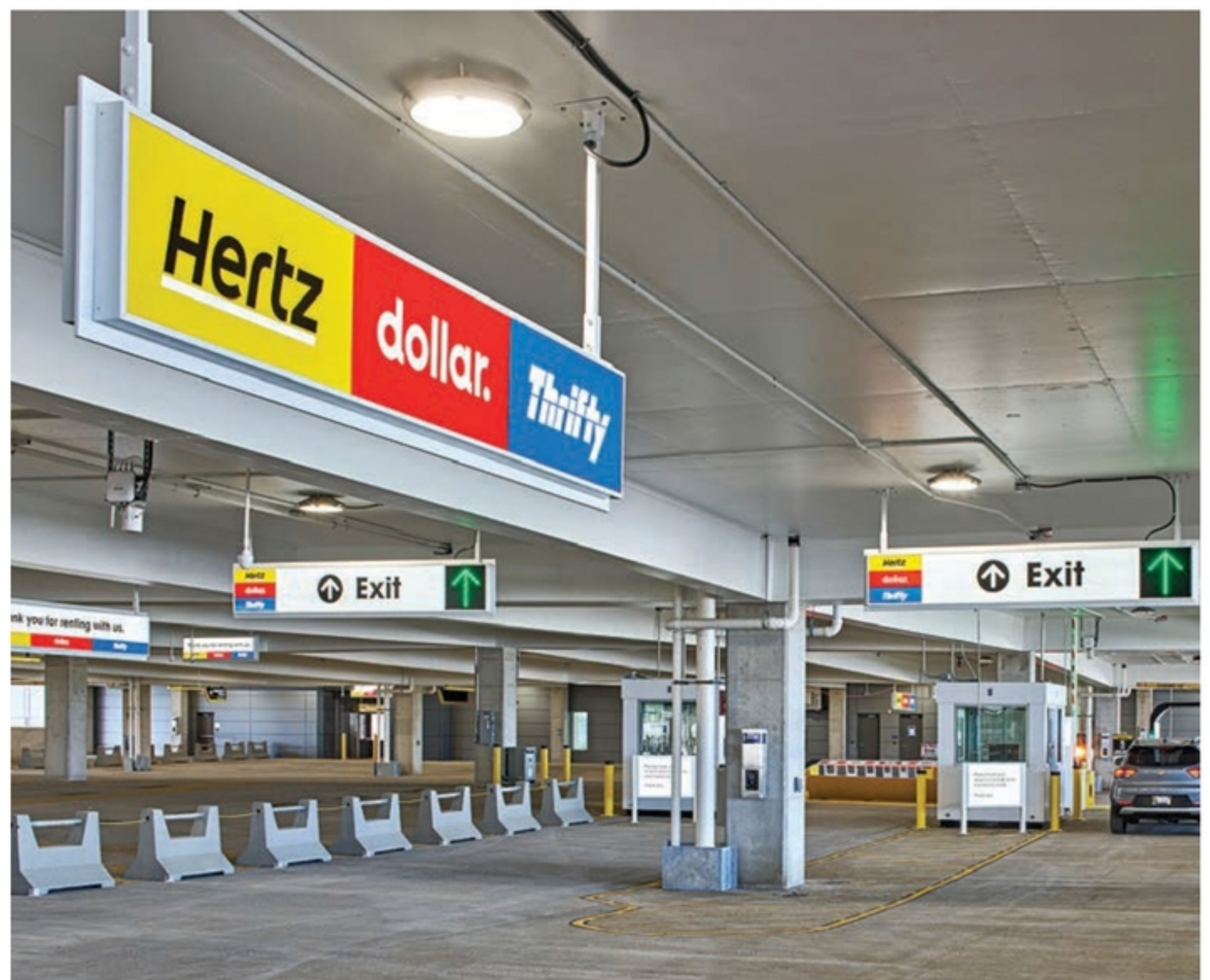
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The Ready/Return parking structure brings rental-car pickup and return into one organized space, with prominent wayfinding signs directing drivers to individual rental companies and helping streamline traffic throughout the facility. Photo credit: Maconochie Photography



Jerry's Map, by Grand Rapids native Jerry Gretzinger, spans more than 2,700 panels across four floors behind the escalators, bringing a distinctive piece of the airport's art program into the ConRAC.

Photo credit: Maconochie Photography

as a team, and we walked out of there with three potential solutions that we knew we could pursue,” he said. The solution required trades to abandon what had been a largely linear progression and work in multiple available areas instead. Salowitz compared the revised sequencing to “Swiss cheese ... crews working wherever conditions allowed while other areas were being investigated or remediated.”

Turner also deliberately kept subcontractors active on site. “We didn’t want the subcontractors to basically go away,” Snyder said. “While we were doing this remediation, could we keep them doing things that kept them on-site and moving forward?” Crews were shifted back to previously available areas, sometimes at reduced manpower, to maintain momentum.

The soil discovery initially carried the potential for a three- to four-month schedule impact. As the team developed its response, the actual schedule impact was estimated at approximately eight weeks. Through coordination with the concrete contractor, Turner, Fishbeck,

and the airport reversed portions of the planned concrete sequence, recovering three to four weeks. Project documentation indicates another sequencing change allowed Ready/Return East slabs to be poured and post-tensioned in the opposite direction from the original sequence, eliminating approximately a month of potential schedule extension.

For Ries, the outcome validated the collaborative project structure. “The design and construction team took that challenge to heart and re-sequenced the project,” he said, ultimately avoiding an impact to the final completion schedule.

The team also found savings elsewhere to offset the additional foundation expense. According to Meeker, that effort allowed the project to absorb the substantial structural change while remaining within its original overall budget.

Construction Beside an Operating Airport

The ground beneath the project was not the only constraint. Above it was an airport that could not stop operating

while construction progressed. One early strategy made a significant difference: relocating the Airport Operations Area, or AOA, perimeter so most of the construction footprint fell on the non-secure side. That reduced the security requirements that would otherwise have applied to thousands of construction workers and deliveries. But it did not eliminate airport-related coordination because the project still interfaced with secure areas.

Turner coordinated with the airport and TSA to move the AOA fence and construct temporary fencing. Work also affected aircraft movements near Concourse B, requiring changes to apron striping and careful consideration of jet blast and safe working distances. The project additionally included installation of a 48-inch storm drain affecting the AOA.

Cranes added another dimension. At times there were as many as eight cranes operating on the site. Every crane required advanced coordination and approvals because of the proximity to airport operations and controlled airspace.

The existing air traffic control tower influenced the permanent building as



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well. Unlike many modern airports where the tower is located separately on the airfield, Grand Rapids' tower is located atop the terminal. Since controllers need uninterrupted views of runways and taxiways, this created strict height limitations for the ConRAC and required repeated FAA coordination and visibility studies. "It really limited the height of our facility," Meeker said. "We had to get creative." The restrictions affected floor-to-floor dimensions, overall massing,

FORD AIRPORT CONSOLIDATED RENTAL CAR FACILITY



Automated carwash equipment is integrated into the multi-level Quick Turnaround Facility, one of the project's most technically complex features. Fuel piping, plumbing, electrical conduit, carwash lines, and reclaimed-water systems were coordinated through BIM before and during construction to reduce field conflicts and rework. *Photo credit: Maconochie Photography*

and even aesthetic choices, requiring the building to remain below prescribed sight-line thresholds.

At ground level, another challenge involved Gateway Drive. The ConRAC footprint required the project team to reconstruct the access roadway serving Northern Jet, Signature Aviation, and the airport's aircraft rescue and firefighting operations. Work included new storm infrastructure, sub-base, pavement, and curbs.

But the road could not simply be shut down as emergency vehicles needed uninterrupted access, while aviation tenants needed customers and employees to move through the area safely. Turner established recurring stakeholder meetings to review upcoming construction: curb pours, asphalt

placement, utility crossings, temporary lane restrictions, and other work that could affect access. Flaggers maintained traffic when portions of the road had to be reduced to one lane. Construction traffic, particularly the steady stream of concrete trucks, had to be managed alongside airport users. In addition, dust and noise were ongoing considerations.

To manage this, ongoing meetings became a practical extension of the construction schedule. Rather than informing neighboring operators after work was underway, the team could explain what was coming and make adjustments before conflicts reached the field. Ries said that maintaining both airport operations and the customer experience remained an owner priority throughout construction.

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Coordination Before Construction

The project's coordination structure extended through nearly every level of the job. Owner-architect-contractor meetings brought leadership together weekly to review schedule, pricing, RFIs, submittals, and outstanding decisions.

Turner used Lean construction practices, including daily foreman coordination meetings, weekly work plans, and four- to six-week look-ahead planning. The purpose was not simply to document what crews intended to do. Teams actively identified constraints – for example, an unanswered RFI, a late submittal, an access issue, or a conflict between trades – early enough to remove the obstacle before the scheduled activity began.

The project also used Turner's Weekly Work Plan app to place more responsibility for short-term planning directly with trade partners and reduce manual schedule administration. Those practices ultimately earned the project Turner's Lean "Go and See" designation, an internal recognition allowing other project teams to visit and learn from strong Lean implementation.

Technology reinforced that planning. OpenSpace captures were created during regular field walks using a camera mounted to a hard hat. The imagery provided a documented view of installed work that the team could revisit from the office rather than repeatedly walking the same area to verify conditions.

Those captures could also be compared against the coordinated BIM model to identify discrepancies between planned and installed work. Within the QTA, Snyder said BIM coordination also supported "batching" — breaking large areas into smaller work zones so multiple plumbing, electrical, and fueling crews could work concurrently without creating unmanageable congestion.

Prefabrication, Quality, and Safety

Where work could be moved away from the active site, the team took advantage of prefabrication. PCP prefabricated the skybridge ceiling, including its multi-elevation framing and complex drywall shapes, along with portions of the exterior skybridge wall. The strategy shortened

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field installation time and reduced overhead congestion compared with conventional stick-built construction.

Quality control was likewise treated as an ongoing construction activity rather than something reserved for closeout. Turner conducted repeated quality walks with trades, Fishbeck, and airport representatives and used Procore to document flood-testing observations and pre-punch items. Finished terrazzo floors in the Customer Service Building were protected with temporary floor coverings as work continued around them.

Safety and organization became intertwined with production. Snyder said the project team placed considerable emphasis on maintaining an orderly site, organized laydown areas, and daily cleanup. During superstructure construction, Turner and Kent Companies also reviewed the handling and circulation of beam and girder tubs, then standardized a process that improved both safety and

productivity. Some trade contractors subsequently incorporated safety practices used on the ConRAC into their own company procedures, Snyder said.

Behind that polished passenger environment is a facility shaped by much less visible work: post-tensioning, deep foundations, underground utilities, specialty fuel systems, prefabricated assemblies, BIM coordination, aircraft sight-line studies, and countless conversations about which crew needs to be where next Tuesday.

It is also a distinctly regional construction effort. More than 2,000 construction jobs were projected for the project, with an extensive roster of Michigan contractors and suppliers contributing to its completion.

For Snyder, what stands out now is less an individual material or building system than the way the team responded when the project became difficult. "The challenges that we faced through the project were, at the time, 'Oh my goodness, how are we

going to get through it?'" he said. They did it, he added, through collaboration among the airport, Coalition Companies, Fishbeck, Turner, and the trade partners needed to solve each problem.

That may ultimately be the clearest measure of the ConRAC's construction achievement. When travelers walk through the skybridge, collect their keys, and drive away, they are unlikely to think about 40,000 cubic yards of unsuitable soil, reversed concrete sequences, auger-cast piles, crane approvals, or underground fuel piping. They are not supposed to. The construction team's job was to make all of that complexity disappear into a facility that works: one that gives Gerald R. Ford International Airport additional parking capacity, reduces vehicle movements and congestion, returns covered parking to airport travelers, and creates a more direct path from airplane to automobile.

The complicated part was building it. The finished experience is intended to be anything but. 



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