



Spanning 12 acres, the Consolidated Car Rental Facility (CONRAC) provides one-stop car rental services to travelers arriving at and departing Cincinnati/Northern Kentucky International Airport (CVG) in Hebron, Ky. CVG Airport moved all rental operations under one roof for several reasons: provide customers easy access to rental cars, eliminate emissions from shuttle buses transporting passengers between remote car lots and the terminal and provide a new front door to the airport.

The overall project included three connected structures. The Customer Service Building, which also connects to the airport terminal, is a structural steel system with concrete slabs on metal deck. The other two structures are post-tensioned (PT) beam-and-slab garages. The Ready Return Garage is used to pick up, drop off and store rental cars and features two Helix ramps, one on either side. The Quick Turnaround Garage is used for vehicle maintenance and fueling. Ceco provided preconstruction and deck formwork services for the Ready Return structure.

EARLY COLLABORATION LEADS TO HIGH-LEVEL CONSTRUCTABILITY

Ceco was brought on early in the project to assist the structural engineer and provide value engineering during preplanning. The early collaboration led to a garage design with uniformly sized bays and beams, enabling Ceco to implement a consistent formwork system so the field team could work with a high level of efficiency. Ceco used P1 Decking Panels and Ceco-owned Wadco steel beam forms for the girders and typical beams. All perimeter beams were built utilizing a panelized plyform beam bottom system. The panelized systems and beam forms also provided high-quality finishes.

Early scheduling collaboration also helped ensure realistic pour sizes and timing. A small but productive Ceco crew was able to install 12,000 square feet of deck at a time. The large footprint allowed the Ceco crew to stay ahead of the ironworkers so as not to delay them or other trades.

One of the Ready Return Garage's biggest challenges was the PT design, which called for all beams to remain formed and shored until the beam was stressed across the entire five-bay length. For instance, the garage was divided into Ready Return West and Ready Return East. Because the beams spanned both directions, deck formwork for each half of Ready Return West had to be locked in place until the last pour in the respective half was stressed. Nearly 50,000 square feet of deck equipment suddenly became available when the final pour was stressed, creating a formwork bottleneck that threatened to disrupt workflow, especially during the stripping process.

To overcome this challenge, Ceco engineers designed and fabricated steel beam interfaces/collars that allowed typical long steel beamforms to be stripped without having to strip the girder formwork (the last elements to become fully PT stressed). A pour strip also was placed to split Ready Return West into two halves, which helped alleviate the bottleneck. As a result, the project team exceeded all expectations.

FAST STATS

Project Owner: Kenton County Airport Board

General Contractor: Messer Construction

Designer/Architect: PGAL

Structural Engineer: THP Limited

Ceco Scope: Deck formwork services for the Ready Return Garage

Ceco Project Manager: Aaron Howell

Ceco Superintendents: Tim Winnett (garage), Lucas Hughes (helix)

Ceco Engineer: Adam Richards

Date Completed: March 2021