

Precast Concrete Façades in OREGON

by Keith Kaufman, Knife River Corp.

The Columbia River Gorge National Scenic Area includes 79 miles of I-84 that follows the Columbia River in Oregon. The I-84 Corridor Strategy provides guidelines from hundreds of agencies, stakeholders, and citizens related to the long-term vision and design for structures in the corridor. The guidelines emphasize a Cascadian bridge style that includes monuments at bridge abutments, textured formliners, haunched elliptical-girder profiles, and open bridge rail geometry.

To date, four bridges have been designed following these guidelines and three are complete. To achieve the appropriate aesthetics and desired bridge sight lines, the fascia panels are cast with specified formliners, normal weight gray concrete, and are supported from the bridge superstructure. After erection, specified stain combinations are applied to the fascia panels, superstructure, and substructure elements to complete the finish.

Keys to Success

Bridge contractors and engineers rarely deal with fascia panels and related connections. The *AASHTO LRFD Bridge Specifications* provides little guidance related to these important details. Engineers need to consider how to support the panels, whether to cast the deck before or after panel erection, and how to accommodate dead and live load deflections. Translation and vertical construction and erection tolerances need to be incorporated into the connections. Shop drawings must include details of the interface of fascia panels and supporting elements. Preconstruction meetings are critical to ensure tolerances and erection techniques requiring special hardware are understood. Engineers should also consider future inspection and the possible replacement of fascia panels due to damage from over-height vehicles or debris loading. The contractor and precast manufacturer must coordinate the purchase of formliners to ensure that field cast concrete and precast concrete match.

Keith Kaufman is chief engineer at Knife River Corp. in Harrisburg, Ore.

EDITOR'S NOTE

For more information related to the I-84 Corridor Strategy and bridge projects, see www.oregon.gov/ODOT/HWY/REGION11/ColumbiaGorge.



The guidelines in Oregon's I-84 Corridor Strategy emphasize a Cascadian bridge style that features precast concrete panels with a façade cast on textured formliners. Designers must pay close attention to the connections for such panels to ensure they fit in the field. Photos: Knife River Corp.