A Better Idea

Innovative approach to preparation, scaffolding improves efficiency on bridge project for Construction Interlag

Traffic continued to flow on the Champlain Bridge during the five-month painting project.

Most painting contractors saw one way to prep and paint the southernmost quarter of the Champlain Bridge spanning the St. Lawrence Seaway near Montreal.

They understood that using a barge for the first part of the bridge to be bid and painted in the four-phase project would be difficult and perhaps impossible due to shallow water. As they formulated their bids, most also calculated in the work of a scaffolding subcontractor, which would perform a full teardown and rebuild of the platforms each time an area within the bridge section was completed.

But Robert Lagendyk and his Construction Interlag firm won the bid in large part because their bid didn't have such costs built into it. Lagendyk, whose ISO 9002-certified firm successfully completed the first phase of the bridge last summer and has submitted the winning bid on the second phase, has built a business on the ability to see what isn't apparent to many others.

"This project required some ingenuity," says Lagendyk, whose grandfather founded the company in 1947. "We often come up with a different approach. That's the main reason this business continues to grow and prosper."

MAJOR CORRIDOR

The Champlain Bridge is one of five major corridors connecting the island of Montreal to southeastern Quebec. Built in the late 1950s, the bridge had undergone periodic repaints below the roadway, but in recent years corrosion had become prevalent on the superstructure.

Lagendyk entered the bidding process for the first phase of the bridge with one key advantage already in his pocket. While many contractors sub their scaffolding work to specialized contractors, Construction Interlag performs its own scaffolding work.

"The engineering of scaffolding is taking on more and more importance in the painting indus-

Many contractors would have carried sand for blasting to the jetty beneath the work area, but Lagendyk brought the sand on site, and piped in air for blasting from the southern shore.

try," says Lagendyk. "On a job like this one, scaffolding can make up more than 50 percent of your costs and labor. We have an advantage in that we're not giving that work away to a subcontractor."

Construction Interlag is developing a reputation for custom scaffolding solutions for challenging projects such as the Champlain Bridge. Lagendyk designed two separate 70-foot work platforms with two 30-foot service platforms. While one work platform would serve as a base for ironworkers, the other would be a base for painters. When they completed their area, the painters would occupy the ironworkers' platform, while the other platform would be moved into a new position by the ironworkers.

While this work procedure and the designs for the platforms were not unusual, Lagendyk's innovative methods for moving them certainly were.

Part of the scaffolding was supported by cantilevered beams on either side of the bridge structure. Once blasting and painting in an area was completed, the scaffolding and the attached containment tarps simply slid along the beams into the next working position. Similarly, the upper areas of the scaffolding rolled separately along the top chords of the bridge structure, creating what Lagendyk calls a "rolling roof."

"The alternative is to take the whole thing down and move it," says Lagendyk, who estimates that the technique saved them 16 working days over the course of the 160-day project.

The lower 60-by-40-foot platforms supporting the scaffold over the traffic were lowered onto a flatbed truck at night, then moved when they were permitted to block three of the bridge's six traffic lanes. They achieved clearance in some of the bridge areas by less than one inch on either side, according to Lagendyk.

PIPED-IN SAND

Lagendyk also came up with an innovative time- and labor-saving approach to blasting. While an obvious method would have been to move sand out to the narrow jetty beneath the bridge and blow it up the bridge standard plus an additional 800 feet to the work site, Lagendyk devised a more efficient means.

"We left the air compressors on shore and brought the sand on-site," says Lagendyk. "This way we didn't have to blow any sand over a great distance."

At a Glance

PROJECT
Champlain Bridge, Montreal

COATING SYSTEM
Primer, Zinc Clad II, 2.5-3.0 mils dft
Intermediate: Macropoxy 646-846, 5.0-6.0 mils dft
Topcoat: Corothane II, 2.0-3.0 mils dft

CONTRACTOR
Construction Interlag, Montreal

The south shore was roughly 1,500 feet away, but Lagendyk installed enough 40-foot sections of air pipe to cover the distance and carry the air to the work site. The sand collection "pots" were hung below the roadway, with four small silos inside the median barriers above them.

Visible above is a work in motion. The scaffolding at left has been moved into a new position, and the "rolling roof" will soon follow. The enclosed area at right contains painters at work at the time of this photograph.

Lagendyk used a similar approach to make more efficient use of his 30,000 cfm dust collector. Set up on the service platform, the dust collector was connected to the work enclosures by a 30-inch duct, which could be easily disconnected or reconnected to either of the work areas without actually moving.

COATING SYSTEM

After blasting to SP-10, painters applied a Sherwin-Williams coating system that is in common use on the bridges of Canada. Zinc Clad II, shaded to a red for visibility, served as the prime coat at 2.5 to 3.0 mils dft. An intermediate coat of Macropoxy 646 then was applied at 5.0 to 6.0 mils dft, while the finish coat consisted of a 2.0 to 3.0-mil dft application of Corothane II Polyurethane.

The project neared completion in October, and all that remained were the bottoms of the wind bracing member above the lanes which could not be blasted because of restrictions above the roadway. Lagendyk chose to use a Sherwin-Williams moisture-cure system that would both broaden the application window during times of uncertain weather as well as achieve cure in a damp environment.

His only concern was matching the appearance of the zinc/epoxy/urethane system already in place. A test run showed a "perfect match," according to Lagendyk, and his crews began applying the moisture-cure system. First was a prime coat of Corothane MIO-Aluminum at 2.0 to 3.0 mils dft, followed by an intermediate coat of Corothane I Mastic. The topcoat was 2.0 to 3.0 mils of Corothane I Aliphatic.

"My painters were skeptical at first. The humidity was high and we came close to freezing, but it went on well." says Lagendyk. "That's the beauty of it."

Besides supplying paint, Sherwin-Williams provided additional useful services for Lagendyk.

"When you're working with government agencies, sometimes they just want reassurances about the product," he says. "Upon request, Sherwin-Williams had a technical representative on the job who was able to provide those reassurances."

PHASE TWO?

While Lagendyk has won phase two of the project, he's not as likely to employ the engineering innovations he used in phase one. A large jetty connected by bridge to the mainland will make methods such as piped-in sand less costly.

He is, however, confident in his choice of coatings supplier.

"We get paint the day we need it," he says. "And the Sherwin-Williams representatives know how the product will perform. For service and technical support, they're an outstanding partner to have."