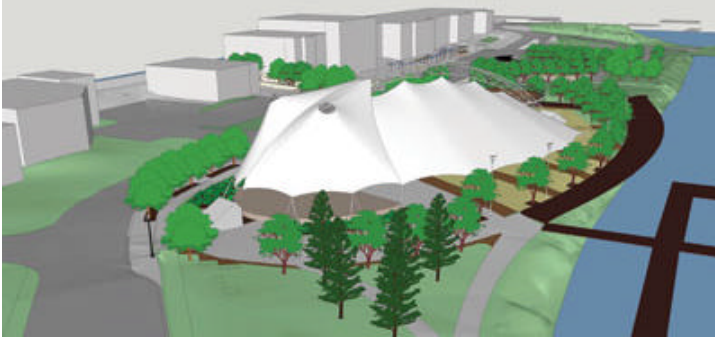


May 27, 2011



HILDERMAN THOMAS FRANK CRAM

In order to achieve greater efficiency, much of the work for Kenora, Ont.'s huge waterfront tent was completed up front as an engineered system.

FEATURE | Steel

Gigantic steel-framed tent in Kenora, Ontario will provide a year-round events venue

PETER KENTER

correspondent

The city of Kenora, Ont. is moving ahead with plans to build a gigantic steel-framed tent to provide a year-round events venue on the city's harbourfront.

KMA Contracting Inc. of Guelph, Ont. initially submitted a successful bid of \$1.38 million to build the structure. The contract price was raised to \$1.47 million when the city agreed to adapt what was conceived as a seasonal sidewall system into a year-round events venue.

The contract includes manufacturing and installing the tent's supporting steel arch, the vinyl coated polyester tent fabric and permanent opaque sidewalls.

"Kenora's waterfront has been developing a huge seasonal tourist industry and for many years they've been using rental tents for the summer," says project manager James Gallagher, president of Burlington, Ont.-based Tensile Integrity Inc., a company specializing in custom-designed structural fabric.

"This project was designed to create something dynamic and exciting to draw not only visitors, but the entire community, to the waterfront."

The project was designed by Winnipeg architectural firm Hilderman Thomas Frank Cram. "We went through several iterations, shapes and designs" says Gallagher. "We started off with just wanting to do sail panels, but that would be a little dicey with the effect of high wind funnelling into town. We also looked at a fixed stage cover and a seasonal audience cover, but the permanent system was the most economical."

In order to achieve project efficiency, much of the work is being completed up front as an engineered system.

The tent fabric will be manufactured and supplied by Seaman Corporation. The main arch, which will support the polyester tent shell, will be built in six segments of 16-inch rolled steel pipe by Depco International Inc., of Cambridge, Ont. The overall dimensions of the tent will be 222 feet long, and 130 feet wide. The metal arch will be 50 feet tall from grade.

The steel will be coated using an Amercoat paint system, which will provide both longevity and colour fidelity, even after seasons of exposure to sunlight.

“One of the things we’ve learned is that handling is the biggest threat to a good paint job,” says Gallagher. “You can go through an extensive coating process and it can all be ruined by a chain being thrown over the steel as it is loaded on the truck.”

Two cranes will lift the segments into place, as an eight-person crew assembles the sections.

The side segments will be erected using flange connections, while the top of the arch will be assembled using pin connectors.

The design includes additional structural strength provided by the tension of the fabric itself, which will compress the arch.

“We want to try to attach and lift the membrane as the arch is being assembled in one complex lift,” says Gallagher.

“We’re a little tight on one side with the construction of a new boardwalk on the waterfront, but we’d like to try this approach first.”

Balancing the tensions of the fabric will require considerable attention during the two- to three-week construction process.

“We need to compensate for a pull in one direction with a pull in the other, so it’s as wrinkle-free as possible,” says Gallagher. “We also can’t over-tension the fabric. I’m still blown away when I see fabric bending structural steel.”

KMA has worked closely with Gallagher on several projects, including the recent 401 Screen Structure and town of Halton Hills Monument project, completed for Transcanada Energy Ltd in 2010.

“That project featured an illuminated curved metal screen more than 512 feet long,” says KMA president, Keith McEwen.

“The horizontal galvanized steel webbing was supported on the bottom by a base steel tube 12 inches in diameter and on top with a long horizontal steel tube 26 inches in diameter, which supported an LED light.”

The optical effect of the design is to create a different impression of the screen approaching the structure and passing by it.

The goal for completion of the fast-track Kenora project is July 30, leaving time for the city to prepare for Harbourfest and the Kenora Bass International event in August.