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## Crystal nears completion

Construction workers trained to rappel before working on steep frame

BY ANWAR ALI

Six thousand insulated panels of cladding and 3,500 tons of structural steel later, the enigmatic crystal facade that will eventually symbolize the Royal Ontario Museum will be complete in time for the architectural opening in June.

Construction of the Michael Lee-Chin Crystal, named after the \$30 million donor, is about to reach its zenith after three years of construction. Those involved with the project said that, conceptually, the design hasn't wavered much from the five interlocking crystals architect Daniel Libeskind scribbled on a napkin. But unpacking 240 containers of cladding material and putting it together hasn't come without challenges.

"This is not a normal job you do on a daily basis," said Al Shaikoli, executive director of the Renaissance ROM project and facilities director.

nature of the design, a conventional gridline pattern was incompatible

Given the intricate

pattern was incompatible with the \$250 million project.

In its place, the design was laid out on a computer using three-dimensional coordinates. John Martin, project director for Vanbots Construction, likened it to a GPS system.

"We have a computer model that tells us where every bolt is in the steel." Martin said. To hoist the aluminum-glass skin, or jewelry as it's affectionately called, onto the steel frame, engineers identify a bolt—of which there are 40 tons—paint it orange, and line up the steel to the precise coordinates shown

in the computer model, he said.

The challenge is transferring that computer-generated motion to the workers' hands. Some of the 180 workers who've been at the site during peak construction periods were trained to rappel before negotiating steep angles of the steel frame. Remarkably, there has been only one significant accident, which involved a worker who was struck by steel when his tool snapped. He was released from hospital the same day with no serious injuries.

The exterior panels, which end to end would be 30 kilometres long, were built by a German contractor and shipped here with the Canadian

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## St. Patricks's Day Bar and Pub Guide

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