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DOMENIC CHERUBIN/M&G STEEL

Exterior support beams connected to arms reach out from the interior of the Queen Richmond Centre West project.

FEATURE | Steel

Historic Toronto building to get steel delta frame for stabilization

DON PROCTER
correspondent

Before construction starts on the 13-storey office building that makes up part of the Queen Richmond Centre West development in downtown Toronto, extensive modifications to the 97-year-old brick-and-beam structure on the site are required.

The objective is to stabilize the four-storey historic building to allow for a new interior while maintaining the existing bricks and mortar shell, says Chris Adach, project manager, M&G Steel Ltd., the steel fabricator for the contract.

The new interior will include a steel delta frame system engineered to support the 13-storey building which will be constructed above the historic structure.



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To stabilize the old four-storey building, a temporary steel structure consisting of twelve 50-foot-tall "steel towers" or columns are being inserted through the roof and down the interior walls to below the existing

foundation where underpinning for a new foundation is created to stabilize the old masonry facade, Adach says.

The towers consist of vertical boxed trusses braced in three directions.

Protruding through the windows to the outside from the towers are galvanized horizontal steel outriggers or arms attached to steel HSS members to brace the structure on the inside and outside while the interior is gutted.

"The versatility of steel permitted the uncertainty of the century-old masonry walls to be engulfed in a secure but flexible lateral support system until the new remodeled structure could be tied in," says Adach.

M&G Steel awarded the steel erection contract to McCormick Campbell Steel Services Inc. To avoid closing down busy Richmond Street for long periods, the erection crew placed its mobile crane on the opposite side of the building, reaching over top of the existing structure to hoist the steel into place.

"Once it is tied in, the old floors can be removed and the new interior completed." Exterior masonry restoration will also be done prior to the removal of the steel bracing system, he says. The steel support structure can be reused or recycled.

Adach says it is the second time M&G Steel has stabilized an old building using this type of bracing system. The first was a nearby warehouse in downtown Toronto.

"There are other stabilization methods but none as simple, non as elegant," he says, pointing out that M&G's Domenic Cherubin, an experienced former ironworker, is overseeing the work project to ensure safe and expedient practices.



500 Hood Rd, 4th Flr., Markham, ON. L3R 9Z3
Phone: 905-752-5408 | Fax: 905-752-5450
Toll free: 800-465-6475 | Toll free Fax: 888-396-9413
E-mail: dcnonl@reedbusiness.com

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