



REPORT FOR ACTION

Amendment to Purchase Order No. 6044338 for Toronto City Hall Building Envelope Improvements

Date: March 18, 2019
To: General Government & Licensing Committee
From: Interim General Manager, Facilities Management &
Chief Purchasing Officer
Wards: Ward 10 - Spadina-Fort York

SUMMARY

The purpose of this report is to request authority to amend Purchase Order No. 6044338 issued following award of Tender No. 300-2016 to Phoenix Restoration for building envelope improvements on the first, second, and third floors of City Hall, including the council chambers. The total Purchase Order Amendment being requested is for an additional amount of \$2,020,993, net of all applicable taxes and charges (\$2,056,562 net of HST recoveries).

The original project scope of work incorporated stakeholder requirements and site conditions identified through consultation and due diligence conducted prior to contract award, including a review of building drawings and investigative openings to confirm construction details and ascertain site conditions. The requested amendment addresses work that was added to the current project to realize efficiencies and avoid costs or disruptions associated with re-tendering and remobilizing construction in the future, as well as changes to the original scope of work necessary to meet heritage or code requirements that were identified as the heritage review process progressed. These added items and project modifications provide important benefits to the City including enhanced security for City Hall occupants and preservation of the heritage nature of the building.

The requested amendment is also required to address costs to remediate concealed site conditions attributable to the age of the building and the original construction methods and materials, including additional asbestos, salt corrosion, and curtain wall characteristics not identified during the due diligence process. If not completed as part of the current project, this remedial work would have been required prior to completing curtain wall improvements at a later date. This work also supports ongoing efforts to manage asbestos and other designated substances to ensure the safety of building occupants.

To address scope changes and the remediation of concealed site conditions, the project has been extended to October 2019. Therefore, the contract value must be increased to accommodate increases in the cost of labour, materials, and project administration.

Once completed, this project is expected to reduce maintenance requirements in the future, improve the air sealing of the building and increase its energy efficiency, and more effectively dampen noise from Nathan Phillips Square and adjacent areas.

RECOMMENDATIONS

The Interim General Manager, Facilities Management and the Chief Purchasing Officer recommend that:

1. General Government & Licensing Committee, in accordance with Section 71-11.1C of the City of Toronto Municipal Code Chapter 71 (Finance Control By-Law) grant authority to amend Purchase Order No. 6044338 issued to Phoenix Restoration, for the scope changes requested by Heritage Preservation Services and Corporate Security, additional work related to the unforeseen conditions, and cost increases associated with project delays by an additional amount of \$2,020,993 net of all applicable taxes and charges (\$2,056,562 net of HST recoveries), revising the current Purchase Order value from \$5,753,700 to \$7,774,693 net of all applicable taxes and charges (\$7,911,528 net of HST recoveries).

FINANCIAL IMPACT

Funding for the requested Purchase Order Amendment amount of \$2,056,562 net of HST recoveries is available in the Council approved 2019 Facilities Management, Real Estate, Environment & Energy Capital Budget and 2020-2028 Capital Plan and is within the approved overall project budget of \$9.125 million under Work Breakdown Structure element CCA218-06 "100 Queen W - Concrete Soffit Slats & Other."

The Chief Financial Officer and Treasurer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

On November 23, 2016, Bid Committee Meeting BD111.12 adopted the recommendation to award Tender No. 300-2016 to Phoenix Restoration, for Toronto City Hall Building Envelope Improvements at 100 Queen Street West, being the lowest bidder meeting the requirements of the tender.

The Bid Committee decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.BD111.2>

COMMENTS

Project Overview

The project scope includes interrelated building envelope improvements on the first, second, and third floors of City Hall (including the council chamber), including window replacements, concrete repairs and associated improvements to the building envelope's air leakage resistance, thermal efficiency and sound-proofing.

Once completed, this work will rehabilitate the building envelope and is expected to reduce maintenance costs in the future. It will also increase City Hall's energy efficiency—resulting in environmental benefits and energy cost savings estimated at \$25,000 per year—and improve the comfort of City Hall occupants. In addition to these benefits, acoustic testing has confirmed that the renovated curtain wall will better dampen sound from Nathan Phillips Square and adjacent areas.

Stakeholders were consulted prior to the start of the project, including building occupants, City Hall Facilities Operations staff, and City Planning (Heritage Preservation Services). Based on feedback received from stakeholders, the scope of work was finalized and the tender was issued. Following a competitive tender process, a Purchase Order was awarded to Phoenix Restoration for \$5,253,700 net of all taxes and charges (\$5,346,165 net of HST recoveries) in December 2016.

Heritage Review Pre-Contract Award

Toronto City Hall is a coordinated architectural and landscape campus that arose from an international design competition. Due to its architectural significance, City Hall was designated under Part IV of the Ontario Heritage Act in 1991 to recognize and conserve the design intent of the structures and overall complex. The reasons for designation include the two towers and Council Chamber structure, and their interior and exterior features such as glazing and glass curtain walls. Alterations to heritage attributes are subject to review and approval by Heritage Preservation Services to conserve the integrity of these attributes.

Public works on a heritage property are directed in the Official Plan to ensure the integrity of its heritage values consistent with federal standards and guidelines. In this context, the Heritage Preservation Services review process entails preliminary review and comment on the project design, with more detailed review and guidance (including the creation of mock-ups where appropriate) occurring as the project progresses to final design and implementation phase. This iterative method reflects the nature of heritage building rehabilitation, as designs are refined to reflect and conserve the heritage values intrinsic in the building fabric, and responds to information gathered during exploratory testing.

In anticipation of the heritage review process, Facilities Management sought to proactively address potential concerns during the design phase of the project. Facilities staff considered drawings from the previously-completed tower window replacement

project, which had incorporated similar elements (double-pane windows and new window framing system) and had received approval from Heritage Preservation Services.

Based on the draft design, window mock-ups were produced and installed on the second floor of the building. Figure 1 shows a photograph of the installed mock-ups indicated within a red box. Figure 2 provides a close-up view of the same area. These mock-ups were produced to assess the acoustic performance of the window options and were not requested as part of the heritage review process but were nonetheless reviewed by Heritage Preservation Services staff. These mock-ups did not include certain visual elements, such as bird-friendly dots and the new finishing components, as their inclusion was not required for the purpose of acoustic testing; however, these elements were identified in the design drawings.



Figure 1: Exterior view of window mock-ups



Figure 2: Close-up view of window mock-up

Heritage Preservation Services provided input based on their review of drawings, mock-ups, and other project documentation at this initial design phase. The tendered design incorporated this preliminary feedback.

Heritage Review and Modifications Post-Contract Award

As the project progressed and additional detail about various elements became available, Heritage Preservation Services identified concerns about the visual impact to the council chamber windows and the aluminum snap caps that frame the windows on the first and second floor of City Hall. By responding to potential impacts to heritage attributes as they were identified, City Hall retains higher degree of integrity as a cultural heritage resource, and demonstrates best practice in heritage conservation by maintaining the design intent of the original windows and curtain wall and minimizing visual impact of the interventions detailed below.

Council chamber window assembly

To improve the building's energy efficiency, the existing single pane windows will be replaced with double-pane windows. The existing window framing system cannot support the added weight of the new windows and must be redesigned, which will

impact the visual appearance of the interior and exterior of the council chamber. Figure 3 shows an interior view of the council chamber windows, including the existing window framing system.



Figure 3: Interior view of existing council chamber window assembly

The existing council chamber window assembly reflects the modernist architectural design using metal and glass that minimizes ornamentation and obstruction. The walkway around the council chamber building is bordered on the outside wall by

continuous windows, framed with low-profile vertical metal caps approximately 1.5 inches high by 2.5 inches wide. Because replacement of the existing windows requires a stronger replacement framing system, the tendered design proposed framing having interior dimensions of approximately 4 inches by 4 inches. Figures 4 and 5 show the exterior and interior views, respectively, of the existing, tendered, and modified window framing system designs.

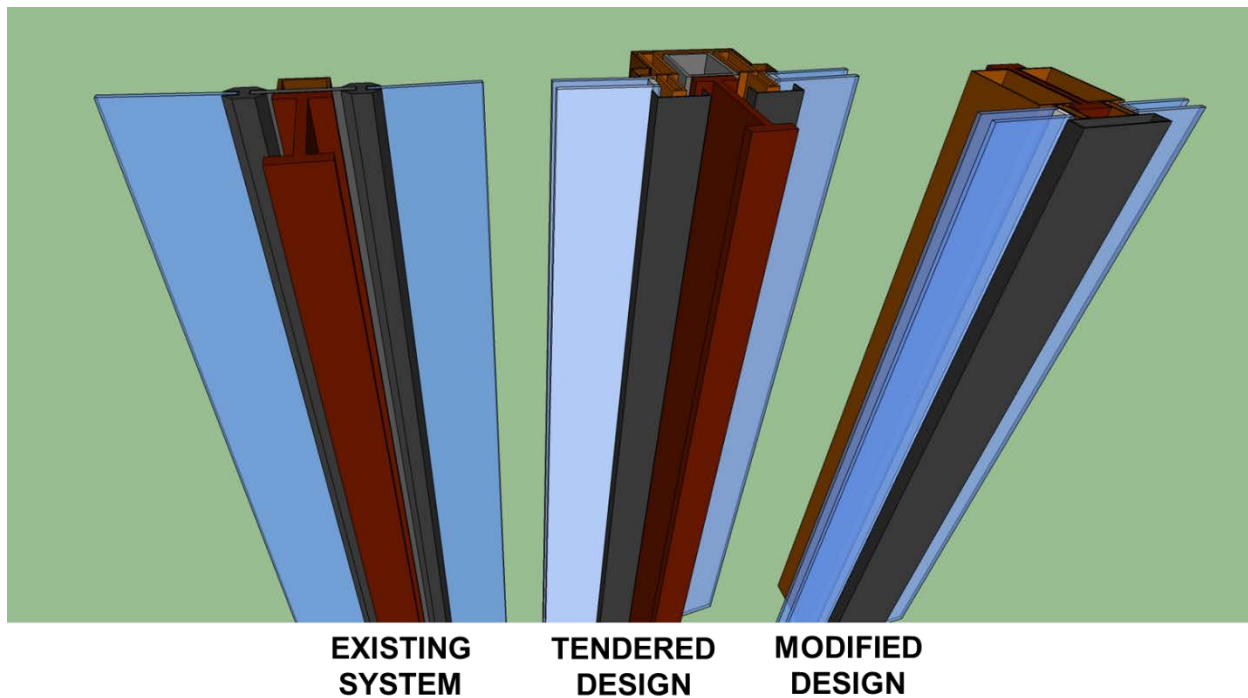


Figure 4: Window framing system designs (exterior view)

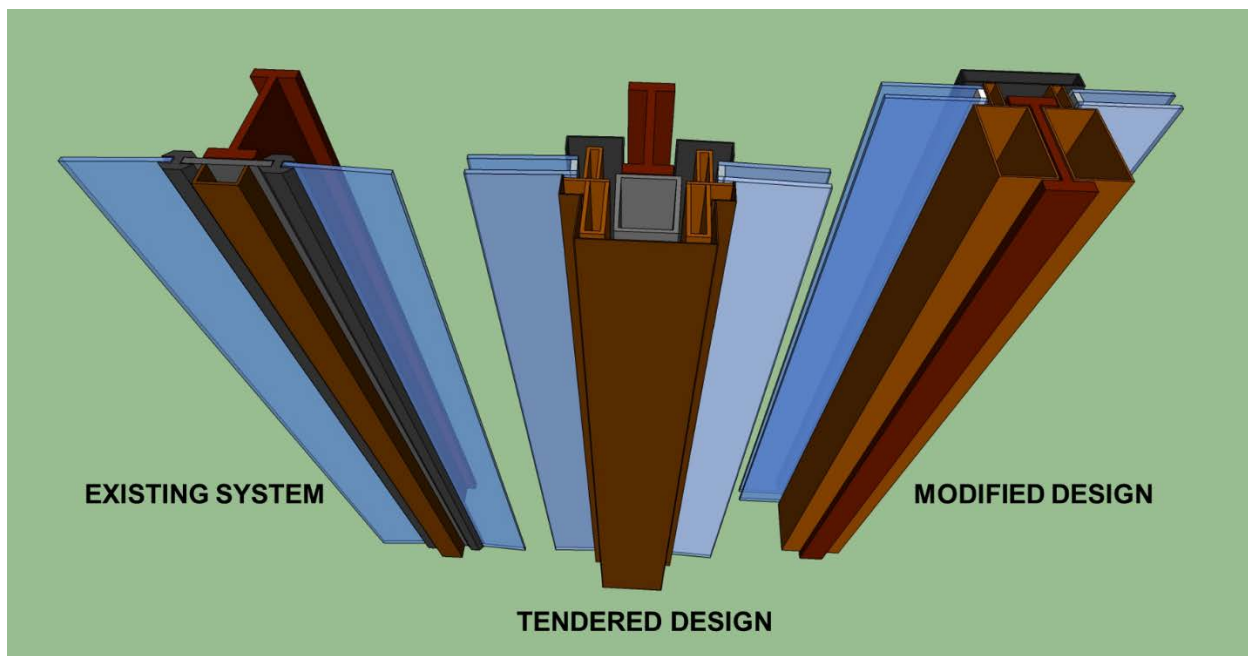


Figure 5: Window framing system designs (interior view)

Heritage Preservation Services flagged the tendered design as having potential for visual disruption, as it breaks the continuity of the exterior window wall with the increased space between panes and depth of the structure above the glass. This impact was confirmed by the installation of additional mock-ups to simulate the identified effect. In response to the original design, an alternative new framing system was introduced to reduce the span between panes and size of exterior components, which minimizes the visual impact of this work. Due to the substantial additional cost associated with the modified design (approximately \$350,000), Facilities Management will continue working with Heritage Preservation Services to find a solution that meets requirements within the existing project budget.

Cleaning of aluminum snap caps

The initial scope of work included only the removal and re-instatement of the aluminum snap caps that frame the exterior windows and spandrel panels. Figure 6 shows the placement of the aluminum snap caps.

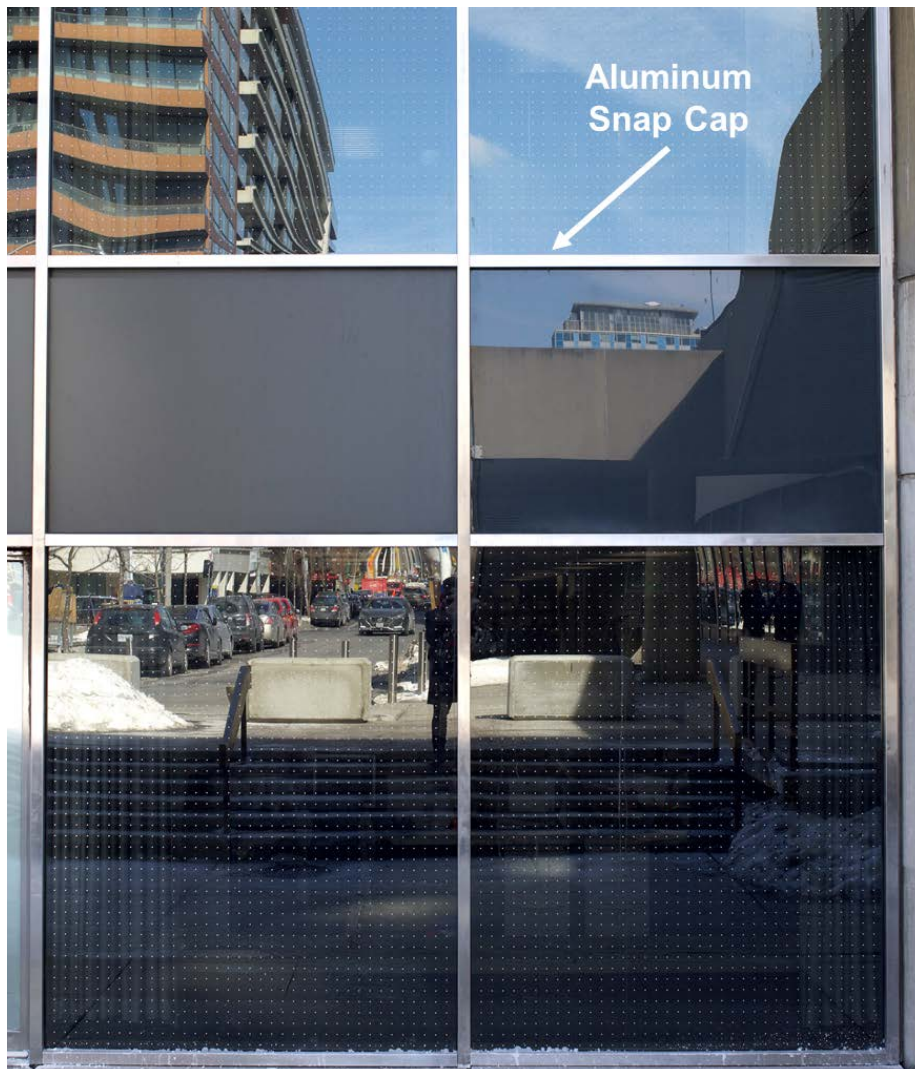


Figure 6: Placement of aluminum snap caps within the City Hall curtain wall

Following contract award, Heritage Preservation Services requested additional work to clean the snap caps. The snap caps in their original condition had a reflective metallic surface. Over time, airborne and other deposits dulled this quality. Trial mechanical cleaning of these materials did not reinstate their reflective quality but instead resulted in a burnished effect, while trial manual cleaning did (see Figure 7). While manual cleaning is more expensive, Heritage Preservation Services identified it as the preferred option as it restores the snap caps to their original finish. Aluminum snap cap work has since been completed at a cost of approximately \$250,000.



Figure 7: Uncleaned (top) and manually-cleaned (bottom) aluminum snap caps

Anticipated modifications to the third floor egress doors

The glass doors that lead from the towers and the council chambers to the podium (green roof) do not meet present-day code requirements. This had not been identified by the City's consultant prior to contract award. Accordingly, the project scope must be modified to incorporate additional work to design, fabricate, and install code-compliant doors. The requested amendment provides for additional contract value to complete this work (approximately \$280,000). Facilities Management will work with Heritage Preservation Services to mitigate the visual impact of the redesigned doors within budget constraints.

Other Scope Changes to Realize Efficiencies and Minimize Disruption

To enhance the security and safety of City Hall occupants, the addition of a window film has been incorporated into the project scope of work at the request of Corporate Security. By adding this work to the project scope, staff were able to realize efficiencies and avoid costs or operational disruptions associated with re-tendering and re-mobilizing construction at a later date. The cost of this work is \$296,291.

Remediation of Concealed Site Conditions

Prior to finalizing the project scope of work and issuing the tender, FM performed due diligence including a review of existing drawings, a review of documentation from the previously-completed City Hall tower window replacement project, the results of annual assessments of asbestos-containing materials, and the removal of select windows to confirm the details of their construction and underlying site conditions. This follows regular practice to conduct invasive due diligence at a sample set of locations in order to minimize the impact to the building occupants and operations. The original scope of work accounted for site conditions identified through the investigative removal of windows.

Once construction began, contracted staff uncovered concealed site conditions that were not identified through due diligence performed prior to the contract award. These site conditions included unexpected asbestos found on the hidden backside of the spandrel panel assembly. Salt corrosion hidden at the base of the existing ground floor curtain wall system was also discovered and required significant repair.

Furthermore, upon disassembly of the former curtain wall system, it was determined that additional work would be required to ensure compatibility between the existing curtain wall system and the new windows. The former curtain wall system had shallower than normal openings and used shorter fasteners to attach existing components. The new fasteners were longer and required additional drilling to provide the necessary depth to ensure the windows would be safely secured.

Project Extension Costs

The target completion date for the project has been extended to October 2019 due to scope changes requested by stakeholders and the remediation of concealed site conditions.

The contract value must be increased to account for costs resulting from the project extension, including inflationary increases to labour and materials costs, the extension of the insurance bond, and new aluminum tariffs that took effect in spring 2018.

Required Purchase Order Amendment

In fall 2018, staff increased the value of the Purchase Order by \$500,000 net of all taxes and charges under delegated authority, thereby avoiding further construction delays that would have resulted in additional costs and disruption to building occupants. To complete the project, an additional \$2,020,993 net of all applicable taxes and charges is required. Table 1 outlines both amendments, including actualized and estimated costs by category.

Table 1: Breakdown of contract amendments (excluding all taxes and recoveries)

Item	Amendment 1	Requested Amendment 2	Total (All Amendments)
Scope added to realize efficiencies (security window film)		\$296,291	\$296,291
Scope changes required to meet heritage and code requirements (code-compliant doors, aluminum snap cap cleaning)	\$6,687	\$530,000	\$536,687
Costs associated with project extension (labour/material price increases, insurance bond extensions)	\$60,530	\$589,774	\$650,304
Remediation of concealed site conditions (salt corrosion, asbestos, curtain wall incompatibility)	\$417,292	\$320,419	\$737,711
Additional contingency	\$15,491	\$284,509	\$300,000
Total	\$500,000	\$2,020,993	\$2,520,993

If approved, the requested amendment will allow construction to proceed with completion expected in October 2019.

Continuous Improvement

Facilities Management is committed to continuous improvement. The project team has shared the lessons learned from this project with all Facilities Management Project Management Office staff so that they may apply relevant learnings to ongoing and future projects, especially those that impact heritage facilities. Facilities Management and Heritage Preservation Services will work collaboratively to identify ways to streamline the heritage review process for future projects.

Facilities Management has recently implemented improvements to its project planning, due diligence, and change control processes, which will ensure full accountability for scope changes and will decrease the likelihood of unexpected costs due to concealed site conditions.

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