



ENGINEERING DEPARTMENT

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MEMORANDUM

TO: Gary T. Barczak
Martin J. Weigel
Michael J. Czaplewski
Rosalie L. Reinke
Daniel J. Roadt

FROM: Peter C. Daniels, Principal Engineer

DATE: April 4, 2016

RE: Communication from Peter Daniels, Principal Engineer, regarding the proposed repairs to the City Hall facade

Based on the façade examination performed by the City's consultant, Malas Engineering, in cooperation with Inspec, our consultants have prepared bid documents for the City Hall façade repairs that will ensure, with an ongoing maintenance program, the long term integrity of the City Hall building walls while at the same time preserving the architecture and aesthetics of the City Hall.

The repairs are expected to cost **\$450,000**. The bids are expected to be opened on April 28 and placed on the Council agenda for their approval on **May 3, 2016**. The work with the old granite panels will need to be done very carefully and slowly so as not to damage the granite. The work will therefore take several months and necessitate barricades around City Hall even during **A La Carte on June 5**, the **4th of July Parade on July 2** and the **4th of July Fireworks on July 4**.

The project will include all of the following work:

Caulking/Sealants

All existing caulk joint material between the window frames, stone, stone veneer, concrete, steel and plaster must be removed. The existing caulk is from the original construction (1968) and is

deteriorated and hard (has lost all elasticity). The caulk must be completely removed from the surfaces, new backer rod installed and the joints sealed with new silicone sealant.

Concrete Repairs

There are numerous areas where the exposed concrete columns have deteriorated and the concrete has spalled off exposing corroded reinforcing steel. The corrosion has resulted in additional spalling due to rust jacking. All loose concrete must be removed to expose all rusted reinforcing steel. The steel must be sand blasted, cleaned, coated with epoxy and patched with matching concrete material. After sufficient curing, the new concrete will be bush hammered to match the texture of the existing concrete.

Steel Lintels

All steel lintels will be cleaned and the areas of corrosion sand blasted. The steel will be primed with a rust inhibited primer and finished with two coats of paint.

Cantilevered Floor Areas

The second floor cantilevered floor slabs on the entire north and south building elevations were never effectively insulated. The underside of the slabs are exposed to the elements causing conductive cold floor slabs and condensation during winter months. Spray foam insulation will be applied to all cantilevered slab areas.

Split Face Field Stone Veneer

There are split face field stone veneer infills between the exposed concrete columns. The second floor stone veneer infills have deteriorated in a number of areas. The removal and replacement of the mortar in these areas is required.

Epoxy Injection of Stone Veneered Precast Concrete

There are granite veneered precast concrete panels on every elevation of the City Hall. All of the panels have variable thickness and variable sized pieces of granite embedded in a full bed of epoxy mortar. Some pieces of granite were found not to be fully embedded. We are injecting an epoxy through the granite into the bed joint to adhere the granite to the precast concrete.

Existing Granite Faced Precast Concrete Panels – Council Chambers

The thirty (30) 18' tall granite faced precast concrete Council Chamber wall panels exhibit more movement than we would normally expect. All caulk joints are 100% failed. As a result, the consultant recommends installing multiple helical ties/pins from the outside of the precast concrete into the CMU (concrete masonry unit) back up wall. Specific placement of these pins in each panel will uniformly reinforce the panel resulting in minimal panel movement to more appropriate standards.

Existing Granite Spandrel Panels

The 51 cut granite spandrel panels at the second floor line weigh approximately 400 pounds each. Each panel is currently attached at the bottom with two (2) ½” brass gravity/friction bearing embedded anchors with a ¼” stainless steel threaded rod and two (2) ¼” stainless steel bent anchors in the top panel kerf (slot) for lateral stabilization. The spandrel panels have moved due in part to the original design method and due to water infiltration – freeze/thaw cycling, which has caused the deterioration of the panel anchors and panel integrity.

Further investigation and testing revealed that the existing panel installation does not meet current building code installation standards for stone panel veneer clad buildings. The existing four (4) point panel anchorage needs to be revised by adding a minimum of two (2) additional anchors per panel. Anchoring modifications necessitate that each panel be removed and modified prior to reinstallation.