



May 21, 2015

City of Stratford  
City Hall, P.O. Box 818  
Stratford, ON N5A 6W1

Attn: Mr. Ronald Shaw  
Chief Administrative Officer

Dear Mr. Shaw:

**RE: Cooper Site Building - 350 Downie Street, Stratford, ON**  
**Costing for Cooper Site Partial Demolition Options**

**RJC No.: TOR.103282.0013**

## **1.0 Introduction**

Read Jones Christoffersen Ltd. was authorized by Mr. Ronald Shaw, Chief Administrative Officer for the City of Stratford, to complete a demolition cost review per our fee proposal dated May 8, 2015 (RJC No. TOR.099521.0001). It is our understanding that several demolition options, as outlined in the documentation contained in Appendix A, are currently under consideration by the City of Stratford .

In general, the purpose of this demolition cost review was to provide further input to the following demolition scenarios:

- .1 The cost of demolition of the west end wall compared to preserving the west end wall and providing required out-of-plane lateral wall bracing.
- .2 Cost of demolition of west half of building, including roof decking, steel superstructure, and south addition Annex directly adjacent to main building up to Gridline 18.
- .3 Assuming the building structure is to remain standing, what is the cost of removing all loose cladding and roof deck material from building.
- .4 Cost of demolition of all small detached buildings and small structures directly adjacent to main building.

As part of this demolition cost study, the following work, briefly described below, was carried out:

- .1 Review of available drawings and documents describing the structure and the roofing components to re-familiarize ourselves with the construction of the building.
- .2 Review of previous RJC reports for the Cooper Site dated June 25, 2012, July 15, 2013, July 23, 2014, November 14, 2014, and May 15, 2015 to re-familiarize ourselves with previous conclusions and recommendations provided to the City of Stratford.

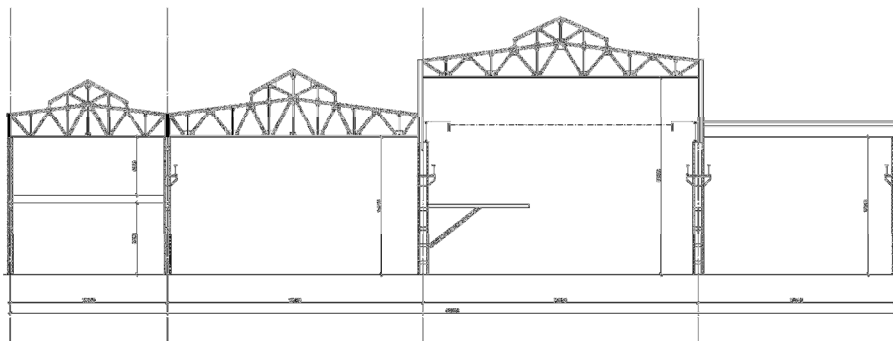
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## **2.0 Brief Description of the Existing Building**

The main building located at 350 Downie Street is an abandoned industrial building constructed circa 1871 generally of riveted steel construction currently covering a footprint of approximately 160,000 square feet. The building has undergone various iterations of additions and demolition over its history prior to and following abandonment in 1989.

It is our understanding that the building located at 350 Downie Street was originally constructed in 1871 as a locomotive repair shop with expansions in 1889 and 1907, and an addition in 1949. Currently, only the 1907 expansion and 1949 addition exist on site, with the original building and 1889 expansion having been demolished in 2004. The property is bound by a community centre on Downie Street to the east, a municipal parking lot and a university campus building on St. Patrick Street to the north, the Festival Hydro yard on Wellington Street to the west, and the rail lines to the south.

The remaining building is generally arranged with four (4) bays, all of which are open from the ground to the roof structure with the exception of the north-most bay, which includes a mezzanine level (*refer to Figure #1 below*). From north to south, the north-most bay (herein referred to as the "mezzanine bay") is approximately 615-ft long by 40-ft wide and 50-ft high to its peak. The next bay south (herein referred to as the "low bay") is approximately 770-ft long by 65-ft wide at a similar height of 50-ft to its peak. The 3rd bay south (herein referred to as the "high bay") is approximately 780-ft long by 70-ft wide and 67-ft high to its peak. Finally, the south-most bay (herein referred to as the "addition bay") is approximately 580-ft long by 50-ft wide and 38-ft high to the roof surface.



**FIGURE #1: TYPICAL BUILDING SECTION**

The building structure utilizes traditional structural steel construction with cast-in-place concrete foundations and footings. Currently, the exterior walls are typically a concrete frame fastened back to the building columns with large window openings, which have since been infilled with concrete block unit masonry. The building is clad with corrugated metal siding. The current roofing system consists of mopped multi-ply asphalt roofing on solid 2" thick tongue and groove wooden roof decking on the low slope roofs. The apex roofs are typically sheet metal supported by wood strapping and metal channel grits.

### **3.0 Summary of Findings**

The following cost estimates represents our opinion of the probable construction costs and are based on the information known to date. The following cost estimates are a "Class D" - Cost Estimates and should be treated as "ball park" figures and cannot be guaranteed accurate. The figures presented assume all work is performed in one year in 2015 dollars. Based on the findings of our previous reports, field notes, and the current building standards for construction, we provide the following:

#### **3.1 Preservation vs. Demolition of West End Wall**

Refer to Appendix A for Cooper Building Site Plan and documentation received from the City of Stratford. To preserve the west end wall, assuming the remainder of the west half of the building is demolished and removed, the following would be required:

- .1 Rehabilitation of the west end wall would include repairs to the deterioration currently observed as well as protection from future moisture and chloride degradation for the long term. The intent of this rehabilitation strategy is to retain the heritage value of the structure by using concrete repair mortars that naturally blend in with the existing concrete structure and limit the visual appearance of having to undertake major repairs. Based on RJC's 'West End Wall Condition Assessment Report' dated July 23, 2014, the scope of work for rehabilitation and preservation of the wall would include the following:

- Installation of full height scaffolding and dust protection to enclose the west end wall while repairs are ongoing.
  - Localized rebuilding of the concrete structure and repair of all corrosion related concrete deterioration on the interior and exterior faces of the wall.
  - Urethane crack injection of select cracks to mitigate moisture ingress into the concrete wall.
  - Installation of a clear penetrating concrete surface sealer on the interior and exterior faces of the wall to reduce the rate of chloride and moisture migration through the concrete elements.
- .2 Installation of out-of-plane lateral bracing to stabilize the west end wall. The most practical way to achieve this is to have three steel framing bays remain along each of Gridlines Cs, Ds, and Es and supplement additional vertical and horizontal steel bracing as required.
- .3 To protect the wall bracing system, the east end of the three steel bays to remain would require to be enclosed. This would involve the installation of frost wall foundations along the east extent of the three-bay section to protect the foundations and interior slab-on-grade. Installation of tarping or siding at the east elevation of the three-bay section would be required to prevent wind gusts from entering the building and to protect against increased uplift wind pressures.
- .4 Controlled cutting of the roof, walls, and foundations at the east extent of the three preserved steel bays.

The probable cost to have the west end wall remain standing, rehabilitate the wall, and provide the required lateral support as outlined above is approximately **\$890,000 (plus H.S.T.)**.

Alternatively, the probable cost for complete demolition of the west end wall is approximately **\$300,000 (plus H.S.T.)**.

### **3.2 Demolition of West Half of Building Including West Half of South Addition Annex**

Refer to Appendix A for Cooper Building Site Plan and documentation received from the City of Stratford . This option includes the demolition of the west half of the building up to approx. Gridline 18 (highlighted in blue). This option also includes the demolition of the west half of the south addition annex (highlighted in yellow) up to approx. Gridline 18. It includes the demolition and removal of all the roof deck materials, steel roof superstructure, mezzanine level, portion of steel columns above grade, and north and south cladding walls. In total, the building area to be demolished is approximately 70,000 sq.ft. or 44 % of the total building footprint. For structural stability of the east half of the building (highlighted in green), the

portion of the south addition annex directly adjacent to it must also remain. The concrete slab-on-grade and foundations are assumed to remain in place with this option. In consideration of this option, the following would be required:

- .1 The costs associated with the demotion or preservation of the west end wall are summarized in Section 3.1 of this report and are not included below.
- .2 An enclosure would be required along the west side of the building portion that remains to prevent wind gusts from entering the building and to protect against increased uplift wind pressures. This would involve the installation of frost wall foundations along the west extent to protect the foundations and interior slab-on-grade. Installation of tarping or siding on the west elevation of would be required.
- .3 Controlled cutting of the roof, walls, and foundations at the west extent.
- .4 The opinion of probable cost summarized below does not include costs associated with the installation of a new roofing assembly (including strapping and decking) or any interior renovations to the portion of building that remains.

The probable cost to demolish the west half of the building and to construct an enclosure along the one side of the remaining building section as outlined above is approximately **\$760,000 (plus H.S.T.)**.

### **3.3 Removal of Loose Cladding and Roof Deck Material From Building**

This option is relatively self-explanatory and assumes the entire building is to remain. It involves the removal and disposal of all loose roof deck material and loose wall cladding at perimeter of building in order to satisfy provincial health and safety regulations and the current unsafe order.

The probable cost to remove and dispose of all loose cladding and loose roof deck material as outlined above is approximately **\$520,000 (plus H.S.T.)**.

### **3.4 Demolition of Detached Buildings and Attached Structures on Cooper Site**

There are approximately seven small building structures at the Cooper Site. Some of the structures are completely detached from the main building, however some of the structures are directly adjacent and connected to the main building. This option involves the complete demolition and removal of these small building structures and assumes that the concrete slab-on-grades at each of these structures remain in place.

The probable cost to remove and dispose of the small exterior buildings as outlined above is approximately **\$75,000 (plus H.S.T.)**.

#### **4.0 Closing Remarks**

Thank you for selecting Read Jones Christoffersen Ltd. for this project. RJC would be pleased to assist you with the implementation of our recommendations. Should you have any questions or concerns, please do not hesitate to contact this office.

Sincerely,

**Read Jones Christoffersen Ltd.**



Tim Van Zwol, M.Sc., P.Eng.  
Project Engineer  
Building Science and Restoration

Reviewed by:

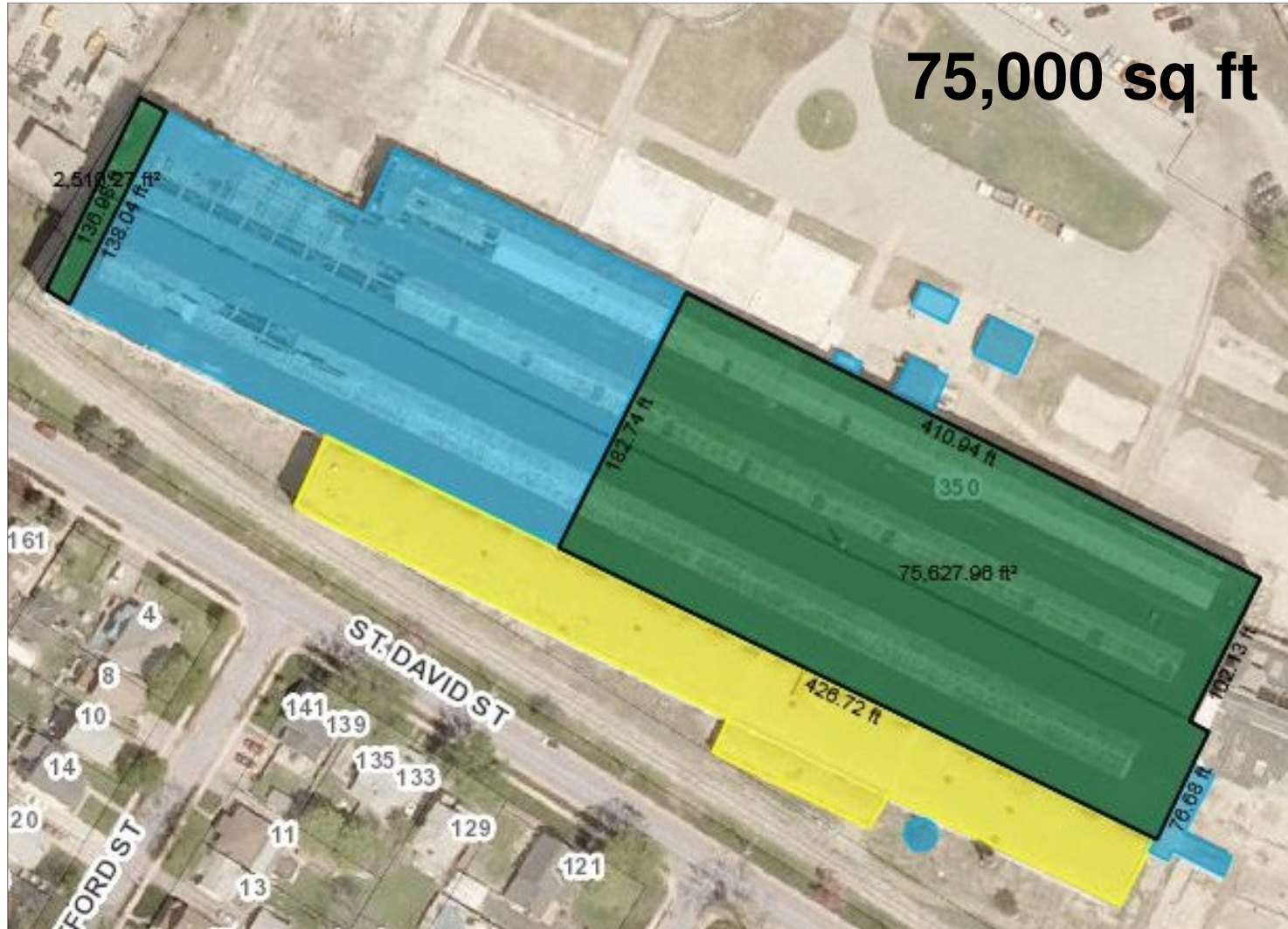


Jeremy Horst, C.E.T., LEED AP  
Principal  
Building Science and Restoration

## Appendix 'A'

# City of Stratford Cooper Building Proposed Actions - Powerpoint Slides

# Cooper Building – 4 May 2015





# Proposed Actions

1. **Retain 75,000 Square Feet of the building ([green](#)) with west wall, steel, and date stone;**
2. Remove only loose roof material from balance of building for health and safety;
3. Because Heritage Stratford did not include the Annex ([yellow](#)) in reasons for designation, the Annex is to be demolished in the future because it has no heritage value;
4. We will contact the railway to discuss permitted uses on the site and the 30 meter setback;
5. Council will review the costing of available options and public uses as discussed at subcommittee on 30 April;
6. Commercial relator to market remaining 75,000 square feet as adaptive re-use to prospective developers until 30 September;
7. Remove cladding, loose material from building, and all outside buildings ([blue](#));
8. Fencing issue to be decided by the Chief Building Official as per the Unsafe Order.

