Intelligent, Intuitive, Inspired
IN ENGINEERING + SURVEYING
Surveying
Planning
Building Design
Engineering

www.inengineering.ca

8 Court St, Lyndhurst, ON K0E 1N0
Maple Syrup Factory Structural Review Report

From: IN Engineering
7 King St W, Suite 203
Brockville, ON K6V 3P7
613-342-2611
andrew.melchers@ineng.ca

To: Township of Rideau Lakes,
Malcom Norwood
mnorwood@rideaulakes.ca

Project Location:
8 Court St, Lyndhurst,
ON K0E 1N0

June 13, 2023

Introduction

IN Engineering Ltd. (INE) was retained by the Township of Rideau Lakes to perform a structural review at 8 Court Street Lyndhurst, ON, K0E 1N0. The site structural review was conducted by Andrew Melchers, P. Eng. Barbara Daniels, EIT, Chido Chitengu, EIT and Joseph Hough, EIT on May 04, 2023. The site visit was limited to a visual review on a preliminary basis. The purpose of this report is to provide an assessment of the structural integrity of the Delta Maple Syrup Factory in accordance with applicable codes and standards.

Background Information

Figure 1 Geolocation of buildings to be assessed. Property boundaries are approximate, this is not a plan of survey.

Although the comparable building, Old Stone Mill in Delta is a National Historic site, the Delta Maple Syrup Factory is not but still holding some heritage significance. The two and a half storey Old Town Hall building adjacent to the maple factory was constructed in the 1880s and renovated and reopened in 2013. The maple syrup factory has multiple additions that are estimated to have been constructed around the 1950s to 1980s. The original use of the building is the Confederated Foods Syrup Plant Facility. With limited knowledge, the building has been vacant for more than 10 years. No recent renovations have been completed to stabilize the structure. No records of maintenance nor capital repairs were provided by the municipality.

Buildings to be considered as follows:

It should be noted that building A is excluded from the structural review.

Figure 2 Labels of buildings to be referenced.

Figure 3 Building A – Old Town Hall

Figure 4 Building B

8 Court St, Lyndhurst, ON K0E 1N0

Maple Syrup Factory Structural Review Report

Figure 5 Building C

Figure 6 Building D

Timelines of relevant events

December 16, 2013
REMISZ Consulting Engineers was retained by Elite Auto Collision to do a structural site inspection. The report concluded that the structure is not safe of use with large amounts of structural deficiencies observed. Two options were presented to either repair the existing structure or replace with a new structure of similar size.

August 31, 2017
The Township issued an Unsafe order with the order number USO-2017-01.

June 13, 2019
Jewell Engineering was retained by the Chief Building Official at the Township of Rideau Lakes to conduct a building audit. This report recommended the dismantling of the collapsed roof in Building E and it's supporting masonry wall, sealing off windows and doors and designated access preparation.

Document Review & References

The following documents and references were reviewed for this report:

1. M. Vujicic, P.Eng., “Structural Review Report Factory at 153 Russel Block, Delta, Ontario”, REMISZ Consulting Engineers, Nepean, Ontario, Canada, Report No. 2014-101MV, Date Accessed: May 8, 2023
2. Z. D. Wang, P.Eng., “Maple Syrup Factory - June 2019 Jewell Assessment”, Jewell Engineering, Belleville, Ontario, Canada, Report No. 1909620-2, Date Accessed: May 8, 2023
3. Ontario’s Mall Halls, “Delta Old Town Hall”, ontariosmallhalls.com, Date Accessed: May 19, 2023 [Online]. Available

No additional documents were available for reviewed to produce this report.

Methodology

This site review was limited to a visual review only. No non-destructive testing was performed. No structural analysis nor design was performed for this report. The review was limited to building envelope and structural performance of the building. Mechanical, Electrical and Plumbing systems were not reviewed. Photos and notes of the items of concern were recorded during the site visit.

Building Examination

It should be noted that it rained the previous day from the site visit, thus highlighting effects of water damage. Refer to Appendix for all figures. The following notes were recorded during the site visit:

Building A

Not included in this report, out of scope.

Building B

Roof structure

1. Gambrel shaped roof with upper rafters supported by light framed knee wall and the lower rafters supported by exterior masonry walls.
2. Evidence of water damage and rot in roof systems seen in **Figures (42, 43)**

Wall assembly

1. Wall assembly consists of exterior masonry walls and interior light framed walls for the different room partitions **(Figure 44)**

2. Door and windows sealed off **(Figures 49, 50, 51, 52)**

Floor system

1. Light framed joists with evidence of moisture damage on flooring (**Figure 44**)

Foundation

1. Repointing required for spalled masonry units for foundation wall **(Figure 51)**

Building C

Roof structure

1. Exposed rafters seen in **Figures 13, 30, 31, 32, and 34** with no moisture protection and indications of significant water damage.
2. No insulation and building envelope modifications (insulation and structural sheathing) that match current Ontario Building Code standards.

Wall assembly

1. Exterior masonry walls required repointing at varying locations evident in **Figure 6.**
2. Discoloration of masonry wall from improper roof drainage.
3. Exit access and windows sealed off as seen in **Figure 7 and 9.**

Floor system

1. Slab on grade with inconsistent sections of only dirt **(Figure 34)**

Foundation

1. The stone foundation wall has loose mortar in many places; masonry repointing is necessary.
2. Improper drainage from roof resulting in green hue over exterior masonry wall seen in **Figure 4.**
3. Exterior masonry wall bearing on dirt only and at some sections floating with no support; footing may have been deteriorated over the years. **(Figure 5)**

Building D

Roof structure

1. Roof structure consists of wood trusses which partially rest on masonry exterior walls.

Wall assembly

1. Wall assembly consists of exterior masonry walls and interior light framed walls for the different room partitions.
2. Separation from building C and E **(Figure 27, 28, 29).**
3. Exit access and windows sealed off as seen in **Figure 14.**

Floor system

1. Light framed joists span from exterior wall to exterior wall with midspan steel beams and steel posts (**Figures 35, 36, 37, 38, 40**),
2. Evidence of moisture damage on flooring (**Figure 41**).

Foundation

1. Trees with roots close to the foundation wall may affect structural integrity of foundation. Although tree roots do not directly harm a foundation, drought-induced soil shrinkage has the potential to uproot supporting soil from around or beneath a foundation. This gives the foundation leeway to settle unevenly, which might result in cracks **(Figure 11).**

Building E

Roof structure

1. No evidence of roof structure; may have been removed as seen in **Figure 16.**

Wall assembly

1. Displaced steel lintel for door framing seen in **Figure 18**. Masonry around mentioned lintel displace with minor spalling.
2. Exposed and opened pipe with water runoff sections that may potentially cause water damage of the exterior foundation wall. **(Figure 15).**
3. Windows and doors sealed off, condition of sill wood framing details have rot with constant exposure to moisture **(Figures 23, 24, 25).**

Floor system

1. Not reviewed at the time of the site visit, not accessible.

Foundation

1. Retaining wall bulging forward evident in **Figures 19 and 20.**
2. Similar conditions to buildings above.

Overall Observations

The buildings show multiple signs of structural failures in the foundations, Concrete Masonry Unit (CMU) walls, subflooring and floor joists, and the roof system. Due to years of neglect and disregard to the proper maintenance required, the buildings have deteriorated exponentially from water damage, shifting foundations and walls, and vandalism.

Foundations

The footings and foundations of each building show signs of deterioration and structural failure. Poor workmanship, cracks, and water damage has led to spalling of the concrete, and washout of the footings from under the walls (**Figure 5**). Due to the neglect of the property, trees and other vegetation has been allowed to grow within 1 to 2 feet of the walls in some areas around the buildings, which aided in deterioration.

Walls

The exterior walls of each building are made of CMU blocks and have multiple areas where cracking and shifting was observed. Although there are several areas of wall which look to have

been temporarily repaired, the cracking is likely due to non-uniform settling from the washed-out and damaged foundations. Several locations also exist where sections of the CMU walls have shifted, as seen around the north bay door of building B (**Figures 17, 18**).

Roof

The roof system was observed from the ground, and only where sheathing had fallen away to expose the roof joists. From the inside of building D, sunlight was shining through some roof sections indicating that panels of the tin roof and roof sheathing were damaged and/or removed. The roof trusses that were visible showed signs of water damage and rot. Large section of roofing from building B and C were damaged and had fallen through to the floor below. The entire roof system for building E has failed and collapsed.

Floor

Since most of the roof system of buildings B and C have deteriorated, the floor below has been exposed to the elements for an extended period. This has led to the floors becoming weak with evidence of water damage. In some areas, holes have formed trough the floor finish and subflooring to the floor below. The floor system for building D is a slab on grade, with several sections of the slab removed.