

Corporation of the Township of Uxbridge

**Structural Re-inspection
Uxbridge Music Hall**

**16 Main Street S,
Uxbridge, Ontario**

Prepared by:

AECOM

1315 Pickering Parkway

Pickering, ON, Canada

www.aecom.com

February 2024

Project Number: 60726766

March 15, 2024

Amanda Ferraro
Director of Community Services
Township of Uxbridge
51 Toronto Street South
Uxbridge, Ontario L9P 1T1

Dear Ms. Ferraro:

Project No: 60726766

Regarding: Structural Re-inspection – Uxbridge Music Hall, Township of Uxbridge

AECOM is pleased to provide the following report of the structural inspection of the Uxbridge Music Hall.

AECOM would be pleased to assist should you require further assistance. Feel free to contact the undersigned to further discuss.

Sincerely,

AECOM Canada Ltd.



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Quality Information

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Introduction

The original structure of the Uxbridge Music Hall was constructed in 1901 and consists of timber roof trusses and timber floor joists supported by interior beams and columns, and exterior load bearing masonry walls. The building is 2 storeys high, comprising the main floor and an elevated balcony level. The underground section consists of a full-height basement. The overall outside dimensions of this building are approximately 75 feet by 49 feet.

AECOM has completed a structural re-inspection of the Uxbridge Music Hall in Uxbridge, Ontario. Previous structural inspections/monitoring were carried out by TSH/AECOM in 1989, 1991, 1999, 2003, 2009 and 2017. Previous reinforcement work was completed to upgrade the building's structural components, and roof repairs and replacements had been completed. The most recent structural repair was conducted in 2014-2015, including repair of structural floor joists at the balcony and crack repairs in the exterior wall.

As requested by the Township of Uxbridge, AECOM conducted a visual inspection on February 6th, 2024. The purpose of the inspection is to review the building structure, investigate the water stains on the ceiling, re-evaluate the cracks on the control room walls, and explore the feasibility of raising the lower roof to align with the existing main roof level.

Observations

The following is a summary of observations noted during the visual inspection of the Uxbridge Music Hall.

1. A visual inspection of the underside of the ceiling was conducted from the mezzanine level. Prominent leaking stains are noticeable on the ceiling, particularly along the sloped area beneath the chimney on the north side, and adjacent to the junction of the lower roof and main roof on both the south and north sides. Signs of water leakage are also evident near the first window from the northeast corner of the ceiling. (see Photo 1 to 3)
2. Cracks on the walls in the control room were measured during the site visit. Despite the absence of monitoring devices since October 2017, these measurements and photos have been compared with the records from 2017 to determine whether the cracks have been progressively worsening over time. (see Photo 4 to 8)
3. The attic was accessible and can be walked inside to assess the condition. The timber main trusses, roof beams between the trusses, and rafters were found to be in fair to good condition, with no significant cracks or chippings observed. (see Photo 9 to 12) However, water stains at the underside of roof planks were observed at many locations, some of the roof planks displayed splitting and cracking. Large gaps between roof planks exist at many locations. Waterproofing membrane above the gaps area visible from underneath. The largest observed gap between wooden planks measures approximately 3 inches. (see Photo 13 to 16)

4. Some of the rafters supporting the lower roof were found to have been cut to accommodate the air ducts. When observing from outside, significant unevenness and sagging were evident on the lower roof from both the north and south sides. (see Photo 17 to 20)
5. The stairs located at the northeast corner of the building are not level. (see Photo 21 to 22)
6. During the site visit, an open hole was noticed on the west basement wall. It can be observed that moisture and mold had accumulated on the membrane covering the stone foundation wall. (see Photo 23)
7. A visual inspection of the external brick wall was carried out. Majority of the existing brick wall has no significant change from our last inspection. Lower courses of the brick on the front face of the building have been recently repaired. However, the lower course of the brick wall on the north side has experienced significant spalling, likely as a result of snow piling and exposure to road salt. (see Photo 24)
8. An inspection of the full height basement was conducted during the site visit, revealing no apparent signs of structural concerns.
9. The two chimneys near the lower roof are no longer in use. Portion of the chimneys (from the ground floor to the underside of the ceiling) were previously removed but the upper portion (above the ceiling) still remain. Heavy water stain was observed along the surface of the chimney brick within the attic space.
10. Condition of the ceiling joists were not inspected as they are covered in roof insulation.

Summary and Recommendations

Based on the visual inspection, it is concluded that the existing building appears to be in generally in fair structural condition, with some minor non-structural deficiencies. Accordingly, the following recommendations are provided based on the observations noted on site.

1. Large gaps exist between the roof planks. The roof membrane above these gaps is unsupported, which leads to water infiltration and pre-mature membrane damage. To mitigate water leakage, it is recommended to apply a layer of ½" plywood over the existing wooden planks to cover the gaps when re-roofing the building. If opting for a replacement of the current shingle roof with metal sheathing, plywood is optional. It is advised to conduct the re-roofing promptly to minimize water penetration.
2. The two chimneys near the lower roof are no longer in use. Portion of the chimneys (from the ground floor to the underside of the ceiling) were previously removed but the upper portion (above the ceiling) remain. The area surrounding the chimneys appears to be a primary source of roof leakage. Therefore, it is

recommended that these two chimneys be completely removed and the roof patched to match adjacent areas.

3. Regarding the existing wall cracks in the electrical room, the measurements taken during this inspection were compared with the past records from 2017. No significant changes in the gaps were observed. It is recommended to monitor them regularly. If there is further structural movement or new wall cracks observed, please report to us for future investigation or monitoring.
4. The notched rafters at the lower roof lack adequate strength and lead to increased deflections and should be repaired by installing doublers. It is recommended to reinforce the rafters of the lower roof by adding another 2x6 lumber at each existing rafter. This reinforcement should enhance the roof's loading capacity and help prevent the development of roof unevenness.
5. The stairs are currently functioning well. However, it is recommended to monitor them regularly.
6. Moisture and mold on foundation walls can be a common occurrence. It is recommended that the existing drywall hole in the basement area be repaired by cleaning debris, patching damaged membranes, and reinstalling drywalls.
7. It is recommended that the spalling bricks near the base of the wall along the north side of the building be repaired / replaced as soon as possible to prevent further deterioration.
8. The feasibility of raising the lower roof has been reviewed, considering the existing structural configuration and the current building code requirements. Raising the lower roof to match the high roof requires significant change to the structural system, including demolition of existing low-roof structure, extending existing load-bearing brick wall, and construct new roof trusses, beams, rafters and roof panels. We further noted that such structural modification is categorized as "Minor Vertical Addition" under the building code, requiring the combined new and existing structure be assessed and upgraded for Level 3 seismic load in accordance with Commentary L, 2015 National Building Code. Considering the existing structural configuration (unreinforced brick wall supporting timber trusses), age of the building, historical heritage status of the building, and the overall condition of the structure, we expect the seismic upgrade and roof addition be technically difficult and very costly. Therefore, we recommend that a more conservative approach, which includes the protecting, repairing and maintenance of the building, be considered by the Town of Uxbridge, in lieu of such structural modifications.

APPENDIX A

Photos



Photo 1: Water Stains near the Junction of Lower Roof and Main Roof



Photo 2: Water Stains beneath the North Chimney



Photo 3: Water Stains near the First Window from the Northeast Corner



Photo 4: Measurement at Monitor Point #1



Photo 5: Measurement at Monitor Point #2



Photo 6: Measurement at Monitor Point #3



Photo 7: Measurement at Monitor Point #4



Photo 8: Measurement at Monitor Point #5



Photo 9: Trusses and Rafters in the Attic (Main Roof)



Photo 10: Trusses and Rafters in the Attic (Main Roof)

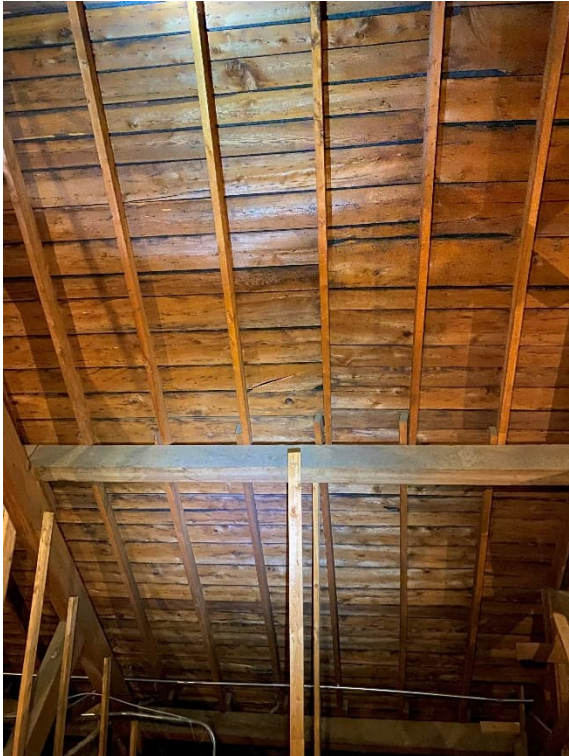


Photo 11: Trusses and Rafters in the Attic (Main Roof)



Photo 12: Trusses and Rafters in the Attic (Main Roof)



Photo 13: Splitting Wooden Planks at Main Roof



Photo 14: Splitting Wooden Planks at Main Roof



Photo 15: Gaps between the Wooden Planks at Main Roof

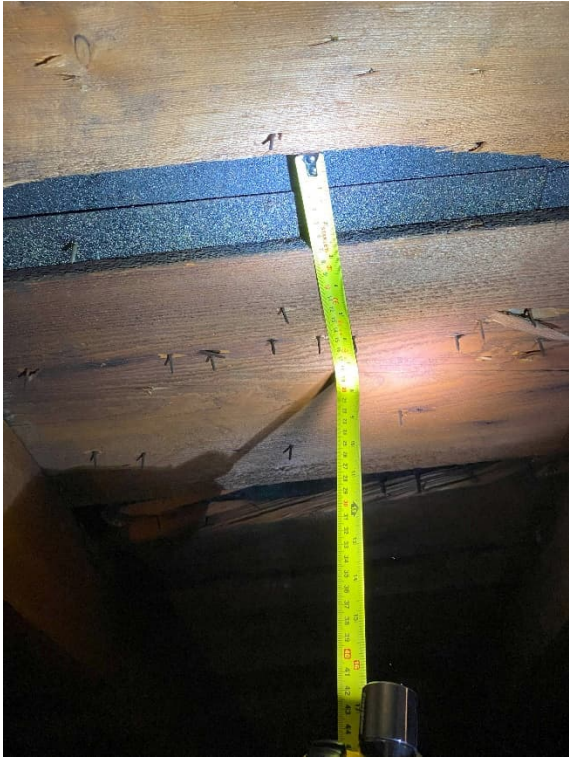


Photo 16: Measurement from One of the Largest Gaps



Photo 17: Rafters in the Attic (Low Roof)



Photo 18: Notched Rafter in the Attic (Low Roof)



Photo 19: Observing Low Roof from Outside

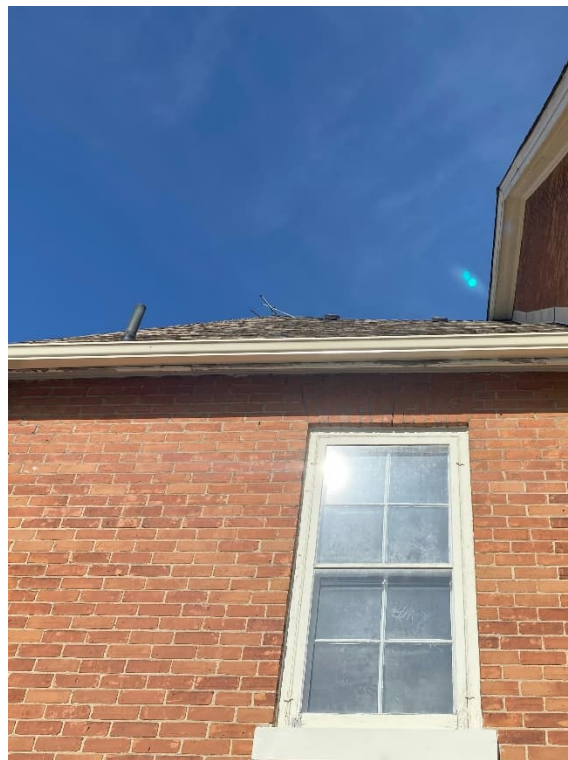


Photo 20: Unevenness on Low Roof



Photo 21: Unlevel Stairs at the Northeast Corner of the Building



Photo 22: Slope Measurement of the Unlevel Stairs



Photo 23: Exposed Foundation Wall



Photo 24: Brick Spalling on North Exterior Wall

About AECOM

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As a fully integrated firm, we connect knowledge and experience across our global network of experts to help clients solve their most complex challenges.

From high-performance buildings and infrastructure, to resilient communities and environments, to stable and secure nations, our work is transformative, differentiated and vital. A Fortune 500 firm, AECOM companies had revenue of approximately US\$19 billion during the 12 months ended June 30, 2015.

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