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BUILDING CONDITION ASSESSMENT

11151 Weston Road

Vaughan, Ontario

Prepared for – Saberwood Homes --

SOSCIA ENGINEERING LTD.

Project number 24 – 54

Executive Summary

Soscia Professional Engineers Inc. visited 1151 Weston Road in the City of Vaughan, Ontario for the purpose of determining whether the existing dwelling is structurally stable and whether the dwelling is suitable for habitation.

The study was limited to a visual inspection of the building components and as found conditions. Destructive testing was not performed. The Ontario Building Code and the Occupation Health and Safety Act (OHSA) are used in assessing the building condition.

The subject building is a 2-storey structure and appears to have been abandoned for many years. The building sits on a stone foundation wall and was not maintained in a manner conducive to preservation. The building and roof were not properly sealed which allowed water to pour in the building over 8 years.

The building underwent a fire approximately 30 years ago and reminiscent of the fire exists on some of the wood framing in the basement (**Figure. 1**). The existing walls are of load bearing stone (basement) and stud exterior walls (above grade). The exterior façade exhibits brick damaging at high stress locations with stones making up the foundation wall. The ground and 2nd floors are significantly out of level and pose a structural hazard. The roof rafters bear on the exterior walls. This structure has undergone significant deterioration and does not meet the structural requirements of a dwelling as defined in the Ontario Building Code. Furthermore, we are of the firm opinion that the structure will not be capable of withstanding centrifugal forces during the transportation of the building. Transportation of this building will pose a safety hazard to the general public.

The exterior walls are a face sealed envelope assembly. They do not provide the required resistance for vapor diffusion; they do not provide the necessary resistance to air transfer and do not provide the required resistance to heat transfer. In consequence of no air barrier, no vapor barrier and no thermal insulation the building assemblies and materials have deteriorated. The deterioration has led to the development of mold, rot and corrosion, all of which are detrimental to an individual's health and is in strict contravention of both the Ontario Building Code and the Occupation Health and Safety Act.

To make the building habitable, a complete reconstruction is necessary, starting with excavation and progressing through foundations, above-grade framing, and finishes. Excavation is required to facilitate foundation repairs and the preparation for a new slab on grade. The foundations need to be entirely rebuilt, including new footings, foundation walls, and a new slab on grade, all adhering to the Ontario Building Code (OBC) requirements. Above-grade framing will involve constructing new exterior walls, lintels, and solid load bearing brick, along with an engineered floor joist system for both the ground and second floors. The roof will need to be reconstructed with new trusses, sheathing, and shingles. Finally, the finishes must be redone to include new insulation, vapor barriers, drywall, painting, and all other finishing touches in accordance with OBC standards. Overall the repairs needed to make the house habitable are extensive.

In addition, based on the structural condition identified in this report, the dwelling must be fully shored and braced to withstand the centrifugal forces should a relocation be contemplated. There are additional safety concerns with the east chimney, north central chimney, exterior solid load bearing brick interlocking, and floor joists. The east chimney is projecting out and lacks lateral interconnection, with deteriorated grout increasing the risk of detachment. The north central chimney is tied to the structure, making it unstable under vibrational and centrifugal forces during transport. The exterior solid brick has cold joints from additions to the structure, providing no lateral stability and likely to detach during movement. Floor joists have been compromised by modifications and termite infestation, reducing their structural capability. Transporting the structure poses significant health and safety hazards to the public. The reconstruction and repair required to make it safe for transportation would be costly and may not eliminate all risks to the structure, and is therefore, not recommended.

Based on our findings we are of the opinion that this building is not habitable. The building does not meet the minimum acceptable standards for public health and public safety, structural sufficiency, environmental integrity and energy conservation. We recommend demolition of 1151 Weston Road, City of Vaughan.

We further conclude that the non-compliance with the Ontario Building Codes, and the Ontario Occupational Health and Safety Acts overrides any historical and cultural value that this dwelling is said to contain. We recommend, that this house undergo demolition because of its inhabitable condition.



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BUILDING CONDITION ASSESSMENT

11151 Weston Road

Woodbridge, Ontario

1.0 INTRODUCTION

1.1 Terms of References

Soscia Engineering Ltd. was authorized by Mr. Bartos of Saberwood Homes, to conduct a building condition survey of the building and property located at 11151 Weston Road. Soscia Professional Engineers personnel were to carry out a visual walk-through survey of the building and property to review various elements and services of the building. The purpose of the building survey was to determine whether the existing dwelling is structurally stable and whether the dwelling is suitable for habitation.

1.2 Scope of Work

Our scope of work was to include visual assessment and review of:

- Review of the roof and building envelope (visual only),
- Review of the building structural components,

The work was to be conducted in accordance with Soscia Professional Engineers verbal agreement with Mr. Bartos. The objective of the survey was to review the condition of the various building elements and components to assess their present condition in reference to compliance with the latest edition of the Ontario Building Code and Occupation Health and Safety Act.

1.3 Brief Description of Building

The building at 11151 Weston Road is a 2-storey structure and appears to have been abandoned for many years. The structure is a wood framed building with wood floor joist, wood planking and conventional wood framed roof members. The exterior walls are load bearing. The structure has undergone a fire in the course of its lifetime with the residual damage unknown.

The exterior walls are a face sealed envelope assembly and does not provide the required resistance for vapour diffusion, does not provide the necessary resistance to air transfer nor provide the required resistance to heat transfer.

The building utilities have been decommissioned.

2.0 METHODOLOGY

The survey of the building components was carried out on May 5th, 2024. Soscia Engineering Ltd. personnel were on-site to review the components outlined in the Scope of Work (report Section 1.2). Access was provided throughout the building. Our general approach to the project consisted of the following:

- Discussions with the client.
- Visual examination of accessible components.
- Preparation of a report summarizing our findings.

The observations of exterior cladding and structural framing were made from floor level by unaided visual observation. The visual review was conducted to evaluate each item specified in the report format outline, in an effort to determine obvious areas of concern with respect to the general characteristics of the building.

The Structural Assessment in part 3 will be broken down into the following:

- Exterior
- Roof
- Basement
- Ground Floor

- Second Floor

For each observation item under review (listed above), the report describes:

- Description,
- observations of existing conditions
- Compliance with OBC and OHSA of Ontario.

Representative photographs were taken of typical deficiencies.

3.0 STRUCTURAL ASESMENT

3.1 Exterior

3.1.1 Description

The exterior of the building is of a solid load bearing brick façade with interior stud walls. The foundation walls are of stone and porches located at the west, south and east are propped up on masonry block which appears to have been added some years after the building was built.

3.1.2 Observations

The solid load bearing brick façade is crumbling in certain areas at high stress points i.e. window openings. There appears to be no steel lintels to support the window openings which may explain the cracking and crumbling of brick due to inadequate support. The cracking occurs at a 45-degree angle in many locations indicating shear failure of the solid load bearing brick walls at those locations **(Figure. 2)**.

Foundation walls made of stone and protruding above ground level are falling apart in multiple locations. The stones are visibly detached from the structure and can be picked up by hand **(Figure. 3)**. The stone wall has gaps which allows for elements from the outside to penetrate through to the basement i.e. water, air, snow and ice. As reported later, a foot to three feet of water has flooded the entirety of the basement.

The basement walkout condition does not any reinforcements and is subjected to lateral earth forces that exceed the requirements of the OBC part 9 **(Figure. 4)**. This

condition is coupled with stone decay and segments of the wall coming apart where the structural integrity is further jeopardized.

Exterior south wall (**Figure. 5**) is not plumb and is swaying northwards. The slanted wall appears to be tilted more significantly than the remaining walls. This could mean local failure of the body diaphragm i.e. rotted plywood to transmit lateral loading of wind to the lateral resisting systems i.e. shear walls. This could also mean inadequacy of the connections local to that wall disrupting the load path and allowing for displacement. Another possibility is the structure is experiencing differential settlement of the soil due to inadequate bearing of the foundation.

Roof shingles are missing and damaged. There appears to be local rupture with holes in the roof allowing for water entry into the house (**Figure. 6**).

There are two chimneys, with the chimney located on the east side of the structure is slightly leaning towards the house and has lost a significant amount of grout between the solid load bearing bricks allowing for penetration and reducing the bearing support capacity of the chimney (**Figure. 7**).

3.1.3 Compliance

The building is not plumb and appears to be slightly leaning in towards itself with the south wall being the most prominent in its lean. Exterior solid load bearing brick façade shows large diagonal cracks and no evidence of a lintel support for the brick. Structural deformation (crushing of the bricks) allows for penetration into the home at each level. Foundation walls above grade are crumbling with stones that can be removed by hand. Gaps in the stone foundation wall allows for major water penetration, freezing and thawing.

In general, the exterior of the structure is in a very poor condition and is in **non compliance** of both the Ontario Building Code and the Occupational Health and Safety Act of Ontario.

3.2 Roof

3.2.1 Description

The roof is conventionally framed with a single-ply ridge beam and ceiling ties spaced at approximately 2 foot on centre. There is a low roof on the north-east side and an additional roof added on later on the south side of the building.

3.2.2 Observations

Exterior roof has shingles are missing and there are gaps in the roof allowing for water penetration.

Interior roof rafters, ceiling ties and sheathing is discoloured and shows sign of moisture, condensation and water leakage (**Figure. 8**). Evidence of leaking and mold is shown in the insulation which has changed colours from pink to black/brown. Recent renovation of the ceiling gypsum has sections of the ceiling collapsing (**Figure. 9**). It appears the additional weight of the water leakage being absorbed by the insulation caused the gypsum ceiling caused the fairly new ceiling to collapse (**Figure. 10**).

3.2.3 Compliance

Water leakage of the roof is apparent with the condensation and discolouring of the rafters, ceiling joists, sheathing and insulation. The molding of the insulation leads to toxic indoor air pollution and the additional weight of the water being absorbed by the insulation contributes to unsafe breathing conditions and structural stability of the ceiling. Further to this, the additional loading of water being absorbed by the insulation adds to larger lateral forces in an event of an earthquake and additional uncounted weight being loaded to load bearing studs and foundation.

In general, the exterior of the structure is in a very poor condition and is in **non compliance** of both the Ontario Building Code and the Occupational Health and Safety Act of Ontario.

3.3 Basement

3.3.1 Description

The basement is approximately 8 foot in height with stone exterior walls. Floor joists are encased in stone in some areas and ledger boards in others. The basement is flooded with 1to2 feet of water and moldy (**Figure. 11**).

3.3.2 Observations

Basement shows signs of major water penetration with 1to2 foot of water at the time of inspection. Gaps located at the foundation wall where stones have been dislodged and upheaving of the basement slab is allowing for rain water and ground water to penetrate through the basement.

Loadbearing walls have large openings that were made after the house was built for mechanical ducts. These openings range from 36 inches to 52 inches. The openings are made onto load bearing walls, disrupting the load paths. One of the load bearing walls located on the east wall of the basement has an opening of 36 inches and carries floor joists measuring 16.4 feet. The eastern load bearing wall running north and south has a 52-inch opening and carries load bearing exterior wall (**Figure. 12**). Load bearing walls also have loose stones due to the construction of openings for mechanical units.

Portions of the basement wall has large enough gaps to see through to the exterior (**Figure. 13**).

3.3.3 Compliance

The basement flooding through slab on grade and foundation walls contributes to the structural instability. Freezing and thawing of the water will further weaken the structure and may contribute to a fatal collapse. Load bearing walls with large openings are not structurally adequate to carry the loads.

In general, the basement of the structure is in a very poor condition and is in **non compliance** of both the Ontario Building Code and the Occupational Health and Safety Act of Ontario.

3.4 Ground Floor

3.4.1 Description

The ground floor bears on a conventional floor system with true dimensional lumber measuring 2x10 floor joists with sheathing on top.

3.4.2 Observations

Upon entry, a moldy smell is apparent and floor is uneven throughout the ground floor. Mold is systematic throughout on the floor, ceiling and walls (**Figure. 14**).

Small droppings are found everywhere from possible infestation or rodents. Bugs are found throughout the ground floor (**Figure. 15**).

3.4.3 Compliance

The unevenness of the floor suggests deflection of the floor joists and does not meet the OBC deflection standards of L/360. Droppings indicate a possible rodent

infestation. Bugs are systematically throughout the ground floor. Structural deficiency may be a result of rodents (chewing through structural members) or bugs (termites). It is suggested for a certified third-party to investigate for rodent and termite infestation due to suggestive evidence at hand. Musty conditions due to water leakage also weakens the structural integrity of the building and is not safe for breathing.

In general, the ground floor of the structure is in a poor condition and is in **non compliance** of both the Ontario Building Code and the Occupational Health and Safety Act of Ontario.

3.5 Second Floor

3.5.1 Description

The second floor has a stairway on the eastern side and is conventionally supported by stud walls and floor joists.

3.5.2 Observations

The second floor is uneven similar to second floor. In-addition the ceiling gypsum has collapsed in multiple locations. There is mold throughout the second floor on the walls, roof insulation, floors and walls (**Figure. 16**). Droppings and bug infestation is evident.

3.5.3 Compliance

The unevenness of the floor suggests deflection of the floor joists and does not meet the OBC deflection standards of L/360. Droppings indicate a possible rodent infestation. Bugs are systematically throughout the ground floor. Structural deficiency may be a result of rodents (chewing through structural members) or bugs (termites). It is suggested for a certified third-party to investigate for rodent and termite infestation due to suggestive evidence at hand. Musty conditions due to water leakage also weakens the structural integrity of the building and is not safe for breathing.

In general, the ground floor of the structure is in a poor condition and is in **non compliance** of both the Ontario Building Code and the Occupational Health and Safety Act of Ontario.

3.6 Extent of Repairs

We are in the opinion that, to make the building habitable, the dwelling will need to be reconstructed. The order of reconstruction starts with the excavation, foundations, above grade framing and finishes.

- **Excavation:** Excavation is necessary to facilitate foundation repair work of a new slab on grade and preparation work for foundations.
- **Foundations:** The foundations need to be completely reconstructed which includes new footings, foundation walls and new slab on grade. All foundations are to adhere to the requirements of the OBC.
- **Above-Grade Framing:** The above-grade framing will require new exterior walls, lintels, and load bearing solid brick. A new engineered floor joist system for ground and second floor. The roof will be required to be reconstructed with new trusses, sheathing and shingles.
- **Finishes:** The finishes must be reconstructed to include new insulation, vapour barriers, drywall, painting and finishing, all in accordance with the OBC requirements.

3.7 House Lift Condition for Transportation

Based on the structural condition as identified on this report, we are in the opinion that the dwelling would have to be shored and braced in its totality. This is necessary to withstand the centrifugal forces that will be applied to the structure during transportation.

Additional safety concerns are of the east chimney, north central chimney, exterior solid brick interlocking to existing structure and floor joists.

- **East Chimney:** The east chimney is projecting out of the structure and with lack of lateral interconnection with structure and deterioration of grout between bricks enhancing the likelihood of detaching from the structure (**Figure. 17**).
- **North Central Chimney:** The north central chimney appears to be tied to the structure of the building where the attachments of floors and roof to the chimney

make it unstable when introduced to vibrational forces when lifting and transporting combined with centrifugal forces (**Figure. 18**).

- **Exterior Solid Load Bearing Brick Interlocking:** An addition of front porch with roof rafters has been built adjacent to the primary structure with a cold joint, meaning there is no interlocking of bricks between the addition and primary structure. The north side also has an addition with cold joints (**Figure. 19**). These cold joints do not provide lateral stability and will likely detach when the structure is moved.
- **Floor Joists:** The floor joists have been cut, modified and drilled into for mechanical works reducing the structural capability of the floor system in-terms (**Figure. 20**). Floor joists appear to have been infested with termite as seen in some locations at the bottom of joist (**Figure. 21**). Termite infestation compromises all wooden elements in the structure, making it unsuitable for uplifting and transportation.

Transportation of the structure possess a hazard to the health and safety of the public. The extent of reconstruction and repair to bring the structure to a safe standard for transportation would be costly and may still pose a safety issue to the public.

4. Conclusion

The building structure at 11151 Weston Road does not provide an adequate envelope that meets OBC and OSHA standards. Due to the rampant water leakage, the structure is subject to molding and condensation throughout with 1 to 2 feet of water in the basement. The water damage contributes to the sagging of floors, ceilings and exterior walls.

The structure contains many structural unsafe conditions. The structure does not comply with the structural requirements of the Ontario Code. We are of the firm opinion that this structure is unsafe and not habitable.

The building envelope at 11151 Weston Road does not provide the protection necessary to prevent the development of mould, rot and corrosion, all of which are detrimental to an individual's health and is in strict contravention of both the Ontario Building Code and the Occupation Health and Safety Act. On this basis we conclude that the building is also not habitable.



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The dwelling is not suitable for transportation.

We further conclude that the non-compliance with the Ontario Building Codes, and the Ontario Occupational Health and Safety Acts overrides any historical and cultural value that this dwelling is said to contain. We recommend, that this house undergo demolition because of its inhabitable condition.

If you have any questions, please do not hesitate to contact us.

Regards

Yours truly,

Harold Hunter, B. Eng, EIT
SOSCIA Professional Engineers Inc.

Reviewed by:
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Appendix



Figure 1: Evidence of Fire Damage impacting a ledger board carrying joists along basement foundation wall



Figure 2: Diagonal cracking at high stress points (windows)



Figure 3: Load bearing foundation wall stones falling apart creating unsafe structural conditions and subject's basement to water leakage.



Figure 4: Walkout basement unreinforced wall subjected to lateral soil loading with soil beneath the slab addition on the south east corner of structure



Figure 5: Left most walls are not vertically plumb and is leaning in towards itself



Figure 6: Roof shingles missing areas experiencing local rupturing

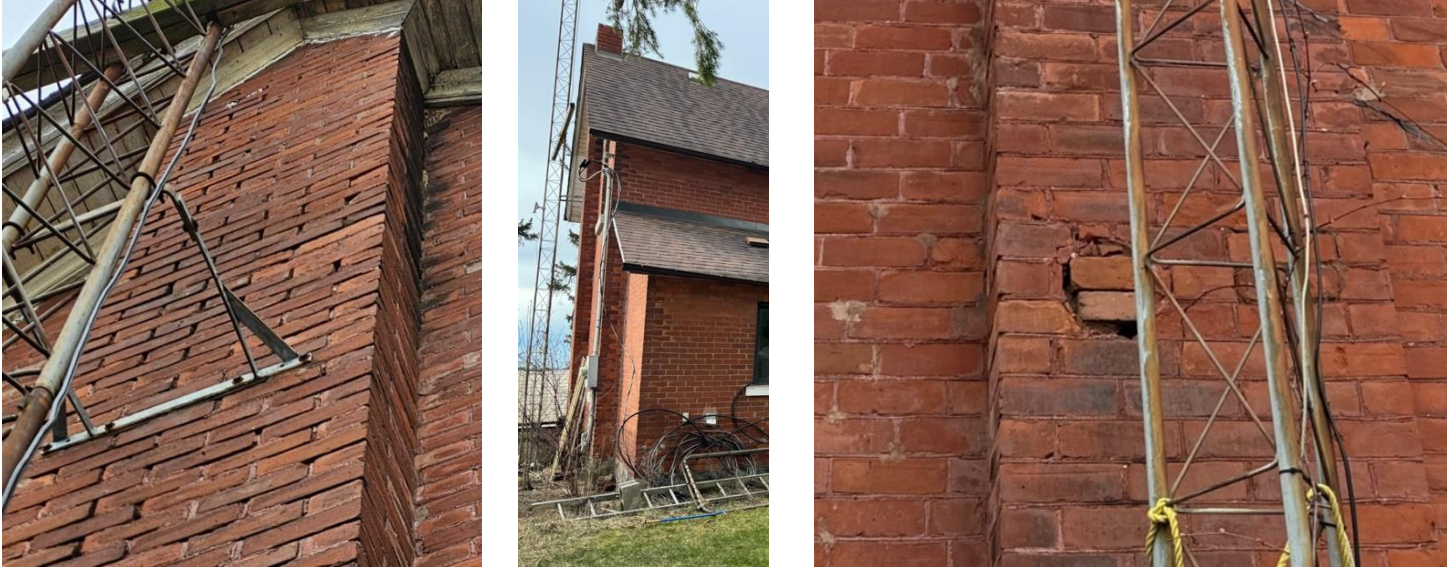


Figure 7: Chimney grouting between bricks eroded away with chimneys appearing to lean in-towards itself.



Figure 8: Roof sheathing appear wet and discoloured due to water penetration (left) ceiling joist and bridging member is discoloured due to water exposure (right)



Figure 9: Discolouring of insulation from pink to brownish yellow and molding



Figure 10: Ceiling collapsed due to possible excessive water wait from roof leakage.



Figure. 11: Basement water leakage 1 to 2 feet high upon inspection.



Figure. 12: Load bearing walls with large openings and is structurally unsafe with exterior load bearing walls and joists spanning up to 16.5 feet bearing on walls.



Figure 13: Gaps through to exterior in basement walls



Figure. 14: Mold in vents, walls and ceiling throughout ground floor.



Figure. 15: Droppings and bug infestation on ground floor.



Figure. 16: Water damage/mold on the second-floor ceiling with fairly recent ceiling gypsum due to water leakage from roof.



Figure. 17: East Chimney projected chimney with lack of interlocking and grouting to primary structure.



Figure 18: North Central Chimney appears to be connected to roof, second and ground floor.



Figure 19: Addition of north exterior solid brick walls with cold joint connections to primary structure (left two photos). Addition of exterior walls at the south with cold joint connections to primary structure (right two photos).



Figure 20: Floor joists cut, drilled and modified for mechanical works



Figure 21: Bottom of floor joists appear to have termite markings.