

Address of Project: 227/229, 231/233, 235/237 St-Patrick, Ottawa, ON

Prepared for: Brian Dagenais

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File No.: 23-137

Re: Evaluation of Existing Structures at 227/229, 231/233, 235/237 St-Patrick, Ottawa, ON.

The undersigned was engaged to provide a structural assessment regarding the structural condition of the multi-tenant buildings, at the above referenced addresses. Note that the performed assessment was strictly visual, and as such destructive investigations such as opening walls or floors was not completed at this time.

1.0 General characteristics of home:

- 1.1. Buildings are three storey multi-tenant rentals.
- 1.2. Original home structures were built in approximately 1870.
- 1.3. Framing consists of wood frame construction typical of the era (true two-by members), with the roof framing consisting of stick framing.
- 1.4. Foundations for 227/229 and 235/237 St-Patrick consists of stone and limestone mortar, and include a basement. Foundations for 231/233 St-Patrick consists of reinforced concrete, with no basement.
- 1.5. Additions, including elevated deck structures, have been added over time. Date of these works are unknown but do appear to not be recent.
- 1.6. Temporary supports have been added to the existing structures. Date of these works are also unknown.

2.0 227/229 St-Patrick - Observations from Assessment:

2.1. Basement:

- 2.1.1. Condition of overall framing (main floor supporting) within the basement is very poor. Given the age of the home, and subsequently the age of the lumber, several areas are displaying signs of rot (refer to Photo 1).
- 2.1.2. Floor joists framing is very inconsistent throughout, with several containing excessive holes and notching for conduits and services added over the years (refer to Photo 2).
- 2.1.3. Modifications to the floor joists have also resulted in some joists being completely unsupported at one end (refer to Photo 2).
- 2.1.4. A single 6" steel I-beam has been added to support a section of the joists.
- 2.1.5. Teleposts have been added throughout the basement in order to support the joists that are sagging and that have been cut/notched. Teleposts are bearing on the slab below, and given their placement would have been added by the previous owner without specific engineering (refer to Photo 3).

2.2. Main Floor

- 2.2.1. Within the main floor the ceiling is sloped in several locations, with certain locations being finished while taking the slope into account (refer to Photo 4). This is an indication of issues with the second floor supporting framing, as well as issues with the overall structural stability of the home. Localised issues may include rot due to water damage, excessively cut or notched joists, rusting of nails connecting members, pulling away of members. Homes from this era were strictly tied together with nailing, as opposed to hangers and more rigid fasteners that are used today. As such, separation of members is not uncommon of homes of this era.
- 2.2.2. Walls within the main floor consists of lathe and plaster, with the plaster clearly degrading in an

area that was exposed (refer to Photo 5).

2.3. Second Floor

- 2.3.1. Within the second floor, the floors are sloped in several locations, which was expected given the sloping of the ceilings below.
- 2.3.2. Further, the ceiling above is also sloped in several locations within this floor. This is again an indication of issues with the third floor supporting framing above, as well as issues with the overall structural stability of the home (see 2.2.1 for potential causes).
- 2.3.3. At the floors, black mold could also be observed.

2.4. Third Floor

- 2.4.1. Within the third floor, the floors are sloped in several locations, which was again expected given the sloping of the ceilings below.

2.5. Stairs Between Floors

- 2.5.1. Stairs between floors were observed to be slanted. This is expected given the condition of the floor framing that supports the stairs.

2.6. Roof Framing

- 2.6.1. The main roof line was observed to be sagging along its ridge, towards the middle of the ridge, from both ends. This likely indicates that water has damaged a portion of the roof framing, or that fastening of members and/or members themselves has degraded over time.
- 2.6.2. Low roof at the rear of the property is sloping towards the north-east.

2.7. Rear Addition Structure

- 2.7.1. A rear addition structure is attached to 229 St-Patrick, and is estimated to be 120 years old.
- 2.7.2. This rear structure is severely degraded with its south-west facing exterior wall leaning by up to 6 degrees (refer to Photo 6). As such, floors within the addition structure are severely sloped.
- 2.7.3. Black mold could also be observed throughout.
- 2.7.4. Currently this structure is unoccupied, and cannot be occupied in its current state as it poses a risk to occupant life-safety.

3.0 231/233 St-Patrick - Observations from Assessment:

Note that this structure does not have a basement and that the main apartments from the street side were not accessible at the time of the visit. Rear apartments were accessible.

3.1. Rear Building Overhang

- 3.1.1. At the rear of the building a portion of the second-floor overhangs beyond the main floor wall. Teleposts have been added to support this overhang, which indicates it was likely sagging and required corrective measures. This would be consistent with the condition of the framing observed at 235/237 St-Patrick (refer to Photo 7).

3.2. Roof Framing

- 3.2.1. Roof rafters at the rear of the building (east side) appear to be displaying signs of rot.

3.3. Rear Elevated Deck/Exit

- 3.3.1. At the back of the structure, an elevated deck has been added to the second floor, with an exit stair to the ground. Deck is supported by a single wood column, and an added telepost. This deck is not built to code, and lacks overall structural stability. In its present state the stairs/deck should not be used, and would be required to be re-built (refer to Photo 8).

3.4. Building Envelope and Foundation Wall

- 3.4.1. Within several locations where siding has been pulled back, rot of the wood framing for the

exterior walls could be observed (refer to Photo 9).

- 3.4.2. Within the foundation wall, severe cracking could be observed in several locations (refer to Photo 10).

4.0 235/237 St-Patrick - Observations from Assessment:

Note that only the basement was accessible at the time of the visit.

4.1. Basement:

- 4.1.1. Condition of overall framing (main floor supporting) was similar to that observed at 227/229 St-Patrick (refer to Photo 11 & 12).
- 4.1.2. Given the age of the home, and subsequently the age of the lumber, several areas are displaying signs of rot.
- 4.1.3. Floor joists framing is very inconsistent throughout, with several containing excessive holes and notching for conduits and services added over the years (refer to Photo).
- 4.1.4. Modifications to the floor joists have also resulted in some joists being completely unsupported at one end.
- 4.1.5. Teleposts have been added throughout the basement in order to support the joists that are sagging and that have been cut/notched. Teleposts are bearing on the slab below, and given their placement would have been added by the previous owner without specific engineering.

4.2. Building Envelope

- 4.2.1. Within several locations where siding has been pulled back, rot of the wood framing for the exterior walls could be observed.

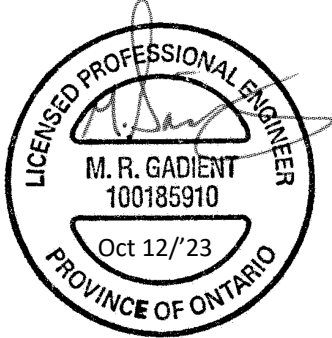
5.0 Conclusions & Recommendations

- 5.1. Due to the condition of the framing that could be observed through a visual inspection, it is the opinion of the undersigned that as walls and floors are further opened, additional deficiencies will be observed. At this present time, the main floor within both 227/229 & 235/237 St-Patrick would require near complete reframing due to the current state of the floor joists. The rear addition building at 229 St-Patrick is no longer structurally sound and would be required to be demolished and rebuilt. Rear elevated deck/exit at 231 St-Patrick would also be required to be demolished and rebuilt. Given the condition of the sections of exterior walls that could be observed, re-framing of significant portions of the exterior walls would also likely be required. Further, given the observable slope within the roof of 227/229 St-Patrick, this area would also likely need to be reframed, or at minimum repaired. Exterior wall cladding will also require repair or replacement, and foundation walls will require repairs at crack locations.
- 5.2. Given the state of the structures that could be observed, repairs would be extensive as well as costly, and would in the end likely entail essentially re-building most of the three buildings from the inside out. As such, it is my professional opinion that the three buildings be demolished. Rebuilding will result in lower costs and provide a structure that is structurally sound and meets today's building codes, something that the current buildings severely lack. New structures would be built to today's building code, and would therefore yield a better performing end product, as opposed to attempting to repair ~150 years old existing buildings. This would also be of benefit to the end users (renters), as new structures would upgrade the units to modern living conditions in line with today's standards outlined in the Ontario Building Code.

Should you have any questions or concerns please do not hesitate to contact the undersigned,

Yours truly,

Gadient Structural Engineering Ltd.



Mathieu Gadient, P.Eng.

APPENDIX A – REFERENCE PHOTOS



Photo 1 – Rotting Basement Joists (227/229)



Photo 2 – Unsupported/Notched Joist (227/229)



Photo 3 – Added Teleposts (227/229)



Photo 3 – Sagging Floor Joists Above (227/229)

APPENDIX A – REFERENCE PHOTOS



Photo 5 – Plaster Degradation (227/229)



Photo 6 – Addition Leaning (231/233)



Photo 7 – Added Teleposts @ Overhang (231/233)



Photo 8 – Rear Elevated Deck (231/233)

APPENDIX A – REFERENCE PHOTOS



Photo 9 – Rotting of Wall Lumber (231/233)



Photo 10 – Foundation Wall Cracking (231/233)



Photo 11 - Basement Framing Reinforcing (235/237)



Photo 12 – Notched Joists (235/237)