



10027 YONGE STREET, RICHMOND HILL EXISTING CONDITIONS STUDY

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CONTENTS

EXECUTIVE SUMMARY	4
Overall Site Condition	5
Figure 1: Overall view of property from northwest looking southeast.....	5
Figure 2: Low point adjacent to north wall of original building.....	6
Figure 3: Broken and cracked concrete surfacing. Uneven settlement.....	6
Figure 4: Gap between asphalt and stone foundation at west wall.....	7
Figure 5: Gap between concrete surface and building. Disconnected downspout	7
Building Exterior	8
Front Porch	8
Figure 6: View front porch from the north. missing column, broken concrete at entrance....	9
Figure 7: South view of front porch. Concrete disintegrating.	9
Figure 8: Masonry pier at porch column. Peeling stucco, deterioration of brick and mortar.	10
.....	10
Figure 9: Deterioration of concrete at porch and curb adjacent to public sidewalk.	10
Roof	11
Figure 10: Pronounced sag at roof. Eaves trough bent.....	11
Figure 11: Pronounced sag at roof.	12
Rear 2nd Floor Exterior Exit Stair	12
Figure 12: 2nd floor non-conforming wood exit stair east elevation.....	12
Figure 13: Non-conforming wood exit stair bearing on broken concrete walk.....	13
Windows	13
Figure 14: Leaded glass window added at north and south elevation circa early 1900's.	14
Exposed wood sill rotted, plexi-glass fastened over window.....	14
Figure 15: Missing sill allowing water into wall	14
Exterior Masonry Walls	15
Figure 16: Spalling brick. Previous paint finish exposed by peeling stucco.	16
Figure 17: Spalling brick under stucco finish at base of exterior wall	17
Figure 18: Spalled brick and deteriorated mortar at base of exterior wall. Mortar has	17
completely disintegrated.	17
Figure 19: Spalled brick and mortar. Note porousness of brick face.....	18
Figure 20: Spalled brick.....	18
Figure 21: Mortar deteriorated. Remaining dust visible.....	19
Figure 22: Mortar disintegrated at top of foundation wall.....	19
Figure 23: Spalling and missing mortar at base of southeast corner of original building. Base	20
of wall has shifted to the south.	20
Figure 24: South wall of original building bowed outward.....	20
2 Storey Sunroom Addition	21
Figure 25: View of 2 storey sun room addition at southeast corner.	21
1960's 2 Storey Addition	22
Figure 26: 2 storey 1960's addition view from Yonge Street	22
Figure 27: 1960's 2 storey addition northeast elevation	22

Foundation	23
Figure 28: Exterior foundation at grade.....	24
Figure 29: Exterior foundation wall at crawl space.....	24
Figure 30: View from original basement through to east addition basement. Note abandoned oil tanks.....	25
Figure 31: Tapered concrete wall poured adjacent to east foundation wall of original building.....	25
Figure 32: Poured concrete wall adjacent to north foundation wall.....	26
Figure 33: Window at north foundation wall filled with concrete likely at time of 1960's addition.....	26
Figure 34: Evidence of stair along east wall removed at time of 1960's addition.....	27
Main Floor Structure	27
Figure 35: Floor joists under original building have been cut. Note temporary steel post and blocking to support weakened floor.....	28
Figure 36: Floor joists cut at stair opening.....	28
Conclusion	29
APPENDIX A	30
APPENDIX B	31

EXECUTIVE SUMMARY

Mahdi Moradi Jalal, Optimal Solution Inc. And Mohammadhossein Hosseindoust Foomani, Rasin Ltd., acting as agents for the Owner has engaged +VG Architects to assess the existing condition of the building currently located at 10027 Yonge Street, Richmond Hill, Ontario. This assessment is intended to provide a factual representation of the current state of the premises.

The building was originally built circa 1860 by John Duncomb as a residence and place of business. The building was then purchased in 1881 by Lucy Nicholls. It was between this time and circa 1920 when the building underwent extensive changes. These changes included;

- the removal of the original staircase and a new stair built in the centre of the building
- extensive interior remodelling including wood trims
- circa 1920 covered front porch added
- 2 storey brick addition with basement
- 2 storey sun room

Later changes were made to the building in the 1960's and 1970's. It was also during this time that the exterior brick received its' first coat of paint. These included;

- 1960's 2 storey stone clad addition with cedar shake mansard roof
- Rear exterior stair to second floor of 1960's addition
- Extensive interior renovations made in 1970's when the current Owner purchased the building

It was also observed that one of the second floor windows on the south wall of the original building has been bricked in and the rear exterior door to the later 2 storey brick addition has been de-commissioned. It is not known when these two modifications were made.

Repair of the deficiencies noted in this report is likely not feasible in the case of the exterior masonry walls as a total reconstruction of these elements would be the only means to conclusively address their current condition. Due to the evidence found in our visual inspection, it is strongly recommended that the local Building Authority conduct their own review with respect to the impact on public safety and whether this building is structurally sound enough for continued public use.

This report contains the findings of a visual inspection of the existing building through non-destructive means to determine the existing physical condition of the building.

Overall Site Condition

The site is located at 10027 Yonge Street in Richmond Hill, Ontario. It is a 0.16ha parcel located on the east side of Yonge Street just north of Major Mackenzie Drive.

The property is completely hard-surfaces with a mixture of asphalt and concrete surfacing with little or no soft-surface or landscape areas to speak of. The asphalt surface is found to be in poor condition with excessive breaking and cracking throughout the property. The concrete surfacing is also found to be in poor condition with cracking and deterioration occurring throughout the majority of these areas. Hard surfacing at the main entrance to the building is broken and crumbling presenting a danger to pedestrian traffic.

The general topography has the property draining mainly to the south in conformance with the surrounding properties with some sloping away from the property along the east and west property lines. Generally the grade slopes away from the building at its' perimeter except for the area adjacent to the east wall of the 2 storey 1960's addition where the grade appears to be contributing to water collection. This condition has caused excessive deterioration of the hard-surfacing at this area. It was observed at the time of this review that all downspouts were terminating well above grade. This condition not only exposes the building face to excessive moisture but impedes the immediate directing of water away from the building at ground level.

Summary: removal and replacement of all exterior hard-surface areas, extension of all downspouts to ground level and directed away from the building.



Figure 1: Overall view of property from northwest looking southeast



Figure 2: Low point adjacent to north wall of original building



Figure 3: Broken and cracked concrete surfacing. Uneven settlement.



Figure 4: Gap between asphalt and stone foundation at west wall



Figure 5: Gap between concrete surface and building. Disconnected downspout

Building Exterior

Generally the exterior of the building was found to be in poor condition with many features of the building observed to be in a state of deterioration and disrepair.

Front Porch

The front porch which was a later addition to the original building is found to be in a state of decay. The wood fascia, soffit and trims at the roof eave show signs of rot and peeling paint. The wood columns also indicate signs of decay as well as peeling paint. The northern-most column along with its' masonry pier base has been removed. The masonry piers for the porch columns were previously covered with a stucco finish which is now peeling and cracking. The concrete pier caps at these locations were also previously stuccoed over. This finish has all but peeled away to reveal the eroded and porous surface of the concrete cap beneath. The brick masonry and mortar exposed at these piers by the shedding stucco finish is observed to be severely deteriorated and spalling. Severe disintegration was noted at the perimeter of the poured concrete porch. Fragments of which were falling onto the adjacent public sidewalk. An aluminium framed, glass enclosure has been installed under the existing porch roof and appears to be in fair condition. This enclosure is now the structural support for the porch roof. It was also observed that the porch is pulling away from the main building. This matter should be investigated further to ensure the roof is properly supported. It was noted that two existing window wells and two existing vents leading from the basement have been filled in with concrete by the current Owner. The flashing installed from the face of the gable end wall onto the porch roof is comprised of bent galvanized metal secured to the face of the brick with an asphaltic membrane over which is mechanically fastened to the face of the brick and caulked. Proper step flashing tied into the mortar joints of the brick should be used here.

Summary: The aluminium frame glass enclosure is the only sound portion of the porch and appears to be the structural support for the porch roof. It is noted that this enclosure is not designed for this purpose and is compromised by the loading of the porch. The condition of the remaining porch elements pose a hazard to pedestrian traffic as it is directly adjacent to the public sidewalk along Yonge Street.



Figure 6: View front porch from the north. missing column, broken concrete at entrance.



Figure 7: South view of front porch. Concrete disintegrating.



Figure 8: Masonry pier at porch column. Peeling stucco, deterioration of brick and mortar.



Figure 9: Deterioration of concrete at porch and curb adjacent to public sidewalk.

Roof

This is a gable roof with asphalt shingles and aluminium gutters and downspouts. The asphalt shingles have recently been replaced and are in fair condition. The roof shows a prominent sag in the sloped planes. This is likely due to;

- 1860's roof rafters exposed to ongoing variation in moisture content of the wood due to inadequate attic ventilation. Currently only two small vents on the north face of the roof.
- Periodic heavy snow loading will add to the sagging once the above mentioned condition exists.

There is also a sag in the ridge of the roof although less noticeable than in the sloped plane. This condition would also contribute to the more noticeable sag in the sloped plane of the roof. The sag is more prominent on the south facing plane of the roof than the north. The eaves trough along the south eave is severely sagging and bent.

Summary: A more thorough investigation of the roof structure should be conducted by a licensed Engineer. The sagging of the roof rafters applies a lateral load to the top of the exterior wall structure. The wall is not designed to manage this type of loading and the existing deteriorated condition of the north and south walls only compounds this concern.



Figure 10: Pronounced sag at roof. Eaves trough bent.



Figure 11: Pronounced sag at roof.

Rear 2nd Floor Exterior Exit Stair

This existing wood frame stair does not meet the current OBC requirements to be considered an exit stair. The wood is weathered and its' strength compromised. The handrails and guardrails do not meet the code requirement both for loading and climbability. The vertical support at mid-span is broken and is currently not supporting any load. The concrete surfacing supporting the stringers at grade level is broken and there is currently no support under the east stringer.



Figure 12: 2nd floor non-conforming wood exit stair east elevation



Figure 13: Non-conforming wood exit stair bearing on broken concrete walk

Windows

The majority of the windows have been replaced in the 1970's and 1980's with double pane windows which are found to be in satisfactory condition. The original wood casings appear to be intact and are found to be in fair condition requiring minor repair and re-finishing. The two leaded glass transom style windows on the north and south face of the building are not original to the building but were likely installed as part of the Lucy Nicholls renovations. These windows are single pane leaded glass with plexi-glass secured over top. The frames are unfinished wood which is decayed from exposure to the elements. It is understood that the only window original to the building is the demi-lune in the front gable end.

Summary: Although the windows have been replaced, the newest of these is 25 years old. It is recommended that all windows except for the demi-lune window in the front gable and the leaded glass transom style windows be replaced with new, insulated glass windows for improved energy efficiency. It is recommended that exterior "sull" sashes be installed over the demi-lune and transom windows described above.



Figure 14: Leaded glass window added at north and south elevation circa early 1900's. Exposed wood sill rotted, plexi-glass fastened over window.

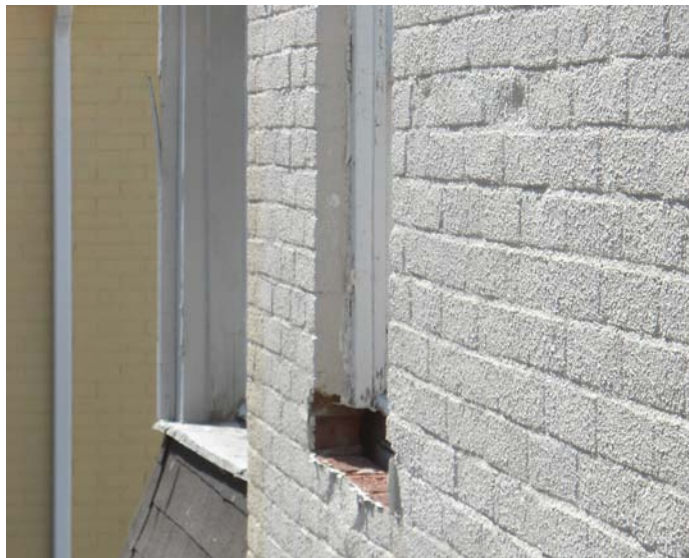


Figure 15: Missing sill allowing water into wall

Exterior Masonry Walls

The exterior walls are constructed of non-reinforced brick masonry bearing walls which have been covered with a stucco finish. The stucco finish is found to be peeling and cracking over the entire surface of the exterior face of the building. Where this finish has peeled off to expose the brick beneath, the condition of the brick and mortar are found to be in extremely poor condition. Spalling of the brick and deterioration of the mortar is evident over the entire building face. This is especially prevalent at the base of the wall.

As the installation of a vapour barrier was not an aspect of construction practices at the time this building was constructed, no vapour barrier is present. This allows the warm moist air inside the building to escape through the exterior walls and into the brick. The brick has had non-breathable finishes such as paint and stucco applied to the exterior surface as far back as the 1970's. These finishes do not allow the vapour inside the building to escape and therefore remains trapped within the brick. During freezing cycles this moisture freezes, expands and causes the brick to spall. The same is true of the mortar. Moisture trapped within the mortar expands and causes deterioration. The ongoing occurrence of this process causes both the brick and the mortar to become more and more porous which in turn makes it more susceptible to this destructive cycle. Another contributing factor would be the brick used in the construction of the building would likely have been "soft brick" which is more porous by nature than modern brick and therefore more prone to the effects of moisture infiltration and the freeze/thaw cycle described above.

The south wall exhibits a pronounced bow or bulge. Possible causes for this would be;

- Freeze/thaw cycles deteriorating and diminishing the bearing capacity of the brick and mortar.
- Deterioration of ties or lack of ties at second floor level which tie the exterior wall to the floor structure.
- Movement at the base of the wall has displaced the loading on the wall out of vertical plane
- Sagging of the roof structure has implied loads to the exterior wall for which it has not been designed.

The base of the wall at the southeast corner of the existing building shows major deterioration of the brick and mortar with mortar missing entirely from some joints. The wall at this location has shifted noticeably to the south at its' base.

The second floor window at the rear (east) wall is missing its' sill. This leaves the brick exposed to the elements and allows water to freely migrate into the wall. The exterior lapped sheathing behind the brick is exposed at this location and clearly shows a small cavity between the sheathing and the brick which is exposed to the elements.

Summary: As the exterior masonry wall of this building is the major above grade structural component, it is strongly recommended that a thorough structural analysis be performed by a licensed Engineer. The present condition of the brick and mortar which are visible indicate a widespread degradation of the exterior brick wythe. Visually noticeable movement has occurred at the south wall. The wall is noticeably bowed outward at the second floor level and the base of the wall at the southeast corner has noticeably shifted to the south. Structural connections at the roof, second floor and foundation should be thoroughly inspected as these are the points of lateral support for this wall. The movement of the wall suggests that the lateral support has been compromised at one or all of these points.



Figure 16: Spalling brick. Previous paint finish exposed by peeling stucco.



Figure 17: Spalling brick under stucco finish at base of exterior wall



Figure 18: Spalled brick and deteriorated mortar at base of exterior wall. Mortar has completely disintegrated.



Figure 19: Spalled brick and mortar. Note porousness of bric face.



Figure 20: Spalled brick



Figure 21: Mortar deteriorated. Remaining dust visible.



Figure 22: Mortar disintegrated at top of foundation wall



Figure 23: Spalling and missing mortar at base of southeast corner of original building. Base of wall has shifted to the south.



Figure 24: South wall of original building bowed outward.

2 Storey Sunroom Addition

Believed to be constructed as part of the 2 storey adjacent brick addition, this is a 2 storey wood frame construction with wood frame single pane windows. Originally constructed with wood shingles where the later added asphalt shingles exist today. More recent renovations have now covered most of the 2 storey construction with prefinished metal siding. Only the 2nd floor east facing windows remain uncovered. Aside from the sloped floors this appendage appears to be in fair condition with only minor repairs and finishing required. The sloped floors are inherent of its' original use as a porch although today this area is used as interior floor area.



Figure 25: View of 2 storey sun room addition at southeast corner.

1960's 2 Storey Addition

This is a 2 storey wood frame appendage added to the north face of the original building and rear addition. The exterior finish is stone veneer on the first floor and shingled mansard roof on the second floor. Although the style of this adjunct is contrary to the original building it found to be in fair condition with only minor repair and finishing suggested.



Figure 26: 2 storey 1960's addition view from Yonge Street



Figure 27: 1960's 2 storey addition northeast elevation

Foundation

The basement is a partial basement which extends beneath the central portion of the original building and is a full basement under the 2 storey brick addition to the west. The remainder of the footprint is comprised of shallow crawl spaces. The foundation of the original building and rear addition are of rubble stone construction with a parged interior face. Portions of this foundation wall show efflorescence while localized areas of mortar have deteriorated, leaving breaches in the mortar joints. There are two interior brick masonry bearing walls running east/west beneath the original building and are found to be in fair condition. The majority of the interior face of the foundation has a parged coating. The upper portion of the north foundation wall of the original building is of brick construction. A later poured concrete wall has been constructed adjacent to the north and east foundation of the original structure. The poured concrete wall adjacent to the east foundation wall of the original building is a tapered monolithic pour approximately 4'-0" thick at the base and 2'-0" thick at the top. It is supposed that this was poured to hold the foundation in place while the basement was being excavated for the 2 storey brick addition to the east. Evidence of moisture on the face of the foundation wall was observed at the southeast corner of the rear 2 storey addition.

Summary: The breaches in the mortar of the rubble stone walls cause concern as to the bearing capacity of the foundation wall. These areas are largely located along the top of the foundation wall and pose cause for concern as the deterioration of the mortar has greatly compromised the bearing capacity of the foundation wall.



Figure 28: Exterior foundation at grade



Figure 29: Exterior foundation wall at crawl space



Figure 30: View from original basement through to east addition basement. Note abandoned oil tanks.



Figure 31: Tapered concrete wall poured adjacent to east foundation wall of original building



Figure 32: Poured concrete wall adjacent to north foundation wall



Figure 33: Window at north foundation wall filled with concrete likely at time of 1960's addition



Figure 34: Evidence of stair along east wall removed at time of 1960's addition

Main Floor Structure

The supporting structure for the main floor is of wood frame construction as viewed from within the basement and adjacent crawl spaces. The wood members are in sound condition with no evidence of rot or deterioration. It was found however that a large number of floor joists have been cut and notched to allow passage of piping, etc. with no offsetting reinforcement of these members. The strength of these members has been greatly compromised by these alterations. One floor joist at the northeast corner of the 2 storey addition basement was completely severed with no compensating reinforcement provided.

Summary: It is strongly recommended that a licensed Engineer be retained to perform a complete analysis of the floor structure and provide the required reinforcement measures to be taken.



Figure 35: Floor joists under original building have been cut. Note temporary steel post and blocking to support weakened floor.



Figure 36: Floor joists cut at stair opening

Conclusion

The following is based on the supposition that the building in question is intended to be used in its' current capacity as a Group D occupancy.

The building located at 10027 Yonge Street, Richmond Hill is found to have some considerable structural areas of concern which are recommended to be addressed immediately should this building continue to function in its' current capacity.

A complete and thorough structural analysis is recommended for the roof structure, first and second floor structure, exterior masonry walls and foundations. Considerable degradation was found particularly within the exterior masonry walls, however was also apparent at the roof structure and foundations as well. Repair of the deficiencies noted in this report is likely not feasible in the case of the exterior masonry walls as a total reconstruction of these elements would be the only means to conclusively address their current condition.

Due to the evidence found in our visual inspection, it is strongly recommended that the local Building Authority conduct their own review with respect to the impact on public safety and whether this building is structurally sound enough for continued public use.

As the scope of work presumed to be required to address the concerns noted in this report will carry a significant financial commitment, it is recommended that a cost consultant be retained to evaluate the expenditure required to complete the works. The Owner can then assess the financial impact of such an undertaking in their considerations for the future of this property. Should the associated costs be deemed too excessive by the Owner to consider further investment in this structure, a consideration might be made to incorporate the existing structure within a new development on the property. This consideration presents the opportunity to resuscitate the relevance of further investment into such a building.

APPENDIX A

ENGINEERING REPORT

Engineering Report

Structural Deficiencies Based on Visual Review
of 10027 Yonge Street – Richmond Hill
Part of Existing Conditions Study

for

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Project 11-1892
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Engineering Report

Structural Deficiencies Based on a Visual Review of 10027 Yonge Street – Richmond Hill Part of Existing Conditions Study

Introduction

On October 7, 2011 Andy Truax, P. Eng. of Truax Engineering Ltd. met with Travis Forrest of +VG Architects at the above noted property. A later visit was conducted on October 12, 2011 by Andy Truax and a member of his staff for further review of the structure. The purpose of the meetings was to determine if there were any apparent structural concerns or deficiencies based on a visual review only.

Detailed Description

Refer to the +VG Architects report to which this report is appended. For reference the front of the building faces west to Yonge St.

Structural Findings

A) Exterior Load Bearing Brick Walls at Original Building

At the north, east, and west walls there is a varying degree of spalled brick and it does not appear to be wide spread.

The south wall is bowed outward and it has significant deterioration at the outer brick wythe. At numerous locations the mortar was a powder and flowed readily from the joints and there was a considerable quantity of spalled brick. There were numerous cracks in the brick and in some locations the brick was loose and could be pulled out by hand.

If the inner wythes are of a similar condition, in addition to the bowed wall, we would consider the wall unsafe in particular when subjected to lateral loading such as wind or earthquake.

B) Roof of Original Building

There is a noticeable sag in the roof structure and this should be further investigated structurally.

C) Ground Floor of Original Building

From the basement the floor joists were observed to have numerous defects. Some of the joists were cracked, some notched, and some twisted. There were also joists that were spliced and supported on storage shelving units. This framing should be further reviewed to determine if it complies with the current building code.

D) 2nd Floor of Main Building

A large section of load bearing wall was removed and wood beams and post were added. It is uncertain as to whether a proper structural analysis was carried out.

E) Front Porch at West Side of Main Building

A support post has been removed and at this location the porch roof is supported by the glazing framing. The remaining post supports are badly deteriorated. The porch also appears to be leaning outward from the main building wall.

We believe the porch in its current condition is unsafe.

Conclusions

1. The structure is unsafe at locations.
2. A full structural review of the structure is warranted.

Summary

Based on our visual review it is our opinion that the structure may be unsafe for human occupancy and that the local Building Authority should conduct a further review with respect to the impact on public safety as soon as possible.



APPENDIX B

To: +VG ARCHITECTS

While normally I give any structure older than 100 years the benefit of doubt, in this case I'd have a hard time recommending any investment to restore it. First, it's a simple vernacular structure with no exterior heritage elements or charm apart from a demi-lune window in the front gable. Second, the brickwork is in poor shape because of a slurry coating applied to it that probably has trapped moisture within and will

be very difficult to remove without substantial damage to the skin of the bricks. Third, the south wall has a visible 'bow' in it that betrays

more serious problems with the structure; quite possibly it would have to be taken down and rebuilt. And fourth, I think the distance between the building and the core of the downtown, its gateway location approaching the downtown from the south, and its underutilization of the

site commends a redevelopment of the property with a well-designed new building, possibly incorporating the small building next door and the empty lot on the corner.

Please feel free to use this opinion as you choose.

Sincerely,
Stephen Otto