Agenda Item #	Page #

D. Menard

TO:	**CHAIR AND MEMBERS LONDON ADVISORY COMMITTEE ON HERITAGE**
FROM:	**JOHN M. FLEMING MANAGING DIRECTOR, PLANNING AND CITY PLANNER**
SUBJECT:	**REQUEST FOR DEMOLITION SOUTHSIDE CONSTRUCTION MANAGEMENT LTD. 175/179/181 KING STREET WEDNESDAY, JUNE 8, 2016**

RECOMMENDATION

That, on the recommendation of the Managing Director, Planning & City Planner, with the advice of the Heritage Planner, with respect to the application under Section 42 (1) of the *Ontario Heritage Act* for a permit to demolish the building located at 175 /179/181 King Street in the Downtown London Heritage Conservation District that the Chief Building Officer be advised that Municipal Council **PERMIT** the demolition with the following conditions:

i) That, prior to any demolition, measured drawings of the exterior and photo documentation of the exterior and interior of the existing structure at 175/179/181 King Street **BE PROVIDED** by the applicant and submitted to Planning Services.
ii) That, prior to any demolition activity, a conservation plan satisfactory to the Chief Building Official **BE PROVIDED** by the applicant to ensure the protection of the building at 183 King Street; and
iii) That the applicant **BE REQUIRED** to post a bond or provide a certificate of insurance as a guarantee that the structure at 183 King is protected during the demolition process for the building at 175/175/179 King Street.

PREVIOUS REPORTS PERTINENT TO THIS MATTER

March 26, 2012: *Downtown London Heritage Conservation District Plan* Adoption

April 7, 2015: *Our Move Forward: London's Downtown Plan* Adoption

July 20, 2015: Report to PEC: *Potential for Applying the Heritage (HER) Zone to 183 King Street.*

BACKGROUND

The Property

The subject property is located on the south side of King Street east of Richmond Street. (Appendix 1) It lies within the Downtown London Heritage Conservation District. In the *Downtown London Heritage Conservation District Plan,* it is described as the former Thompson carriage factory, built c. 1870. Its character-defining elements noted in the District Plan identify these features:

- Painted brick with replacement windows in original openings
- Decorative brickwork around windows
- Former third storey now removed

Many of these heritage attributes are illustrated in photographs in Appendix 2. It is noted by

comparing these photos that the structure at 175-181 King Street has undergone changes over the years. These changes include two rear additions and substantial alterations to the front façade. Such alterations include the removal of an upper storey and modifications to the remaining King Street façade, particularly at the 1st floor (sidewalk) level, in order to accommodate various uses over time.

The *Downtown District Plan* classifies the property as H (Historic), and notes it is a *"structure built within the critical period between the 1830's -1980's".* The District plan states *"It is imperative that buildings with an "H" assignment are recognized as falling under the most stringent guidelines of the Plan based on the associated Ranking".*

Further, the Downtown District Plan ranks the subject property "B." Category B buildings are described as: "*Structure assessed as currently having any combination of the following attributes: 'Elements have been lost or replaced; store front replaced; retains original form and massing; retains some historical significance; does not relate to a streetscape; renovated using inappropriate materials or designs."* With respect to this building, the remaining elements would include both its historical significance and remaining architectural elements.

Request for Demolition of a Property in a Heritage Conservation District

The *Ontario Heritage Act* directs that no owner of property situated within a designated heritage conservation district is permitted to demolish the property unless a permit is obtained from the municipality to do so.

A request for the demolition of the subject property was submitted by the owner on March 29, 20160. Under s. 42 (4) of the *Act*, within 90 days after the notice of receipt is served on the applicant, Council may give the applicant:
(a) the permit applied for;
(b) notice that Council is refusing the application for the permit; or
(c) the permit applied for, with terms and conditions attached.

If Council fails to do any of the things mentioned in subsection (4) within the 90 days, Council shall be deemed to have given the applicant the permit applied for. If Council refuses the permit applied for or gives the permit with terms and conditions attached, the owner of the property may appeal to the Ontario Municipal Board within 30 days of receiving notice of refusal or a conditional permit.

The *Ontario Building Code* provides the ability of the Chief Building Official to order an unsafe building to be repaired, renovated or demolished for the purpose of removing an unsafe condition. The OBC considers a building to be unsafe if the building is:
-structurally inadequate or faulty for the purpose for which it is used; or
-in a condition that could be hazardous to the health or safety of persons in the normal use of the building, persons outside the building or persons whose access to the building has not been reasonably prevented.

Building Condition (Comments in this section are provided by the Building Division)

The Chief Building Official (CBO) issued an "Unsafe Building-Order to Make Safe" (US 796443) on May 20, 2015 with respect to the condition of the west and south brick walls. The Order to Make Safe required the previous owner, on or before June 15, 2015, to retain a professional engineer and prepare an assessment report on all exterior brick, including brick foundations. The Order also stated that a building permit was required for the repairs.

On August 12, 2015, noting that the Order was not complied with and as per the provisions of the Building Code Act, the CBO retained the services of Debbert Engineering Incorporated (DEi) to conduct an evaluation of the condition of the brick walls and prepare a report as to the

required remedial measures. On August 25, 2015 the Building Division received DEi's report; a copy is provided in Appendix 3.

Based on visual observations of the exterior of the building, the DEi report identified:

- *North elevation upper brick in fair to poor condition with signs of mortar deterioration and brick movement.*
- *West wall with severe mortar loss in several locations; outward movement of the parapet; large diagonal crack at the base of the wall near the southwest corner denoting movement of the rear wall.*
- *South elevation of significant concern; vertical crack (1/2" to 1-1/2" in width) extending the majority of the wall at the west end.*

The report recommended:

- *The installation of barriers to the south of the building preventing vehicle access for parking.*
- *Immediate bracing of the south wall.*
- *Removal of loose bricks along the west wall and restoration.*
- *Further investigation of damage to the interior of the building.*

Through its contractor, on September 11, 2015, the Building Division proceeded to install a metal security fence encompassing the south and west wall portions as to mitigate any hazards to the public from falling bricks.

On December 16, 2015 DEi conducted a visual assessment of the interior of the building in order to be able to produce wall shoring/rehabilitation options. A report was submitted to the Building Division on January 7, 2016 outlining temporary short term (approx. 5 yr.) measures. The measures identified were:

- *Installation of netting along the north wall to retain falling bricks.*
- *Removal of all loose bricks along west wall and rebuild. Install plywood across the deteriorated vertical joint (gap) to maintain the wall section.*
- *Removal of the west wall fire escape and install netting to contain the loose masonry.*
- *Placement of barriers at south wall to prevent vehicle parking.*
- *Replacement of missing bricks along the upper section of the south wall (approx. 400 units) and repair of vertical cracks.*
- *Installation of netting to retain the loose bricks of the west wall and anchorage of the wall to the roof and floor levels.*

On January 28, 2016, the current owner (Southside) submitted a structural engineering report for the condition of the building's brick parapets only. This report was prepared by VanBoxmeer & Stranges Ltd (dated January 27, 2016) and a copy is provided in Appendix 4.

On February 3, 2016 the Building Division received a second (follow up) report from Southside's engineer outlining the structural condition of the entire building. In the report, the engineer identifies:

- *Lack of anchorage of the wood ceiling joists to the north roof parapet rendering the parapet unstable.*
- *Lack of second floor assembly connection to the east masonry wall leaving the wall unable to provide lateral resistance in the north-south direction.*
- *Deteriorated masonry piers in the basement raising concerns related to their structural integrity.*
- *Foundation walls exhibit severe loss of mortar in the joints reducing their load bearing capacity.*
- *The west exterior wall has a significant bow.*

D. Menard

In the summary of this report, it is stated that the "the building has exceeded its useful life, is a public hazard and is beyond the point where it can be salvaged economically." The summary also states that "the structure is severely unstable."

On February 19, 2016 Building Division staff comprised of Peter Kokkoros, P.Eng. (Deputy Chief Building Official) and Sean McHugh, P.Eng. (Structural Building Engineer) accompanied by Gord Debbert, P.Eng (DEi) attended at 175-181 King Street and in the presence of the owner and the owner's engineer conducted both an internal and external visual review of the building. Mr. Debbert was retained by the Building Division to attend and also provide a structural condition review report.

DEi submitted the aforementioned review report to the Building Division on March 17, 2016. A copy is provided in Appendix 5. The DEi report identifies:

- *Deteriorated foundations and basement piers with a potential for partial and/or progressive collapse*
- *The provision of a new structural system to connect the floor assemblies to the east and west walls and extensive reinforcing of the walls to restore the bracing of the structure in the north-south direction.*
- *The south wall being in imminent danger of collapse*
- *Extensive dry-rot at the foundation/floor framing interface*

Both immediate and long term actions to be taken have been identified in the report. The long term actions recommend "…demolition of the entire building as restoration is impractical."

Based on the findings as outlined in the DEi report, the CBO issued a second "Unsafe Building-Order to Make Safe" (US 865120) on April 7, 2016 with a compliance date of April 14, 2016. The Order required the owner to: "Apply for and obtain a permit to demolish or repair the structure in compliance with the 2012 Ontario Building Code." To date, a permit has not been obtained by the owner.

In conclusion, the Building Division has in its possession two engineering reports, prepared by separate engineering firms. The reports indicate that the building is unsafe, impractical to restore, and severely structurally unstable.

PLANNING HISTORY

The *Provincial Policy Statement (2014)* 2.6.1 directs that "significant built heritage resources and significant cultural heritage landscapes shall be conserved". Properties included in the Downtown HCD are considered to be significant within this context. "Conserved" is defined in the *Provincial Policy Statement (2014)* as "the identification, protection, use and/or management of built heritage resources in a manner that ensures their cultural heritage value or interest is retained under the *Ontario Heritage Act".*

The Downtown Vision in *Our Move Forward: London's Downtown Plan* is: London's face to the world. A vibrant destination. A unique neighbourhood. "Heritage" is one of the nine Values that underpin this vision. *"As the birthplace of the city, the downtown is rich in cultural heritage; this heritage sets the downtown apart from other neighbourhoods. When planning for new development, integration with the existing heritage will be a foremost consideration."* An explicit policy tied to this Value [as well as "Sustainability"] is to *"encourage the reuse of historic buildings and their materials to reduce the requirement for new materials."*

London's *Official Plan* policy 13.2.3 states that *"where heritage buildings are designated under the Ontario Heritage Act, no alteration, removal or demolition shall be undertaken which would adversely affect the reason(s) for designation except in accordance with the Ontario Heritage*

Act." Also, policy 13.3.2 requires that *"after a Heritage Conservation District has been designated by Council the erection, alteration, demolition, or removal of buildings or structures within the District shall be subject to the provisions of the Ontario Heritage Act and any secondary plan which takes the form of a Heritage Conservation District Plan."*

In referencing demolition, the *Downtown London Heritage Conservation District Plan* establishes in policy 4.6 that *"The goal of a heritage conservation district is to preserve and protect the heritage assets within the short term and over the long term. Demolition of buildings within a heritage district is strongly discouraged. However, it is recognized that there are situations where demolition may be necessary such as partial destruction due to fire or other catastrophic events, severe structural instability, and occasionally redevelopment that is in keeping with appropriate City policies*."

183 King Street- HER Zone

The request for the demolition of 175-181 King Street is closely related to a similar request by the same owner for the abutting property at 183 King Street in 2015. In June, 2015, Municipal Council refused to permit the demolition of the property at 183 King Street. At the time of the preparation of this report, the refusal to allow demolition has been appealed to the Ontario Municipal Board and, as of the preparation of this report, no date has been set for that hearing. Municipal Council also directed staff to report back to the Planning and Environment Committee with respect to the potential of a zoning by-law amendment to apply the HER Zone to that portion of the lands at 175-183 King Street that encompasses the significant heritage property attributes, recognizing that the rear additions to the buildings at these addresses may not be necessary to retain, and their removal may be appropriate to allow for future development.

At its meeting on January 16, 2016, Municipal Council enacted By-law Z-1-162449 to add the HER Zone to the front portion of the properties at 175-183 King Street. Following the 20 day appeal period, with no objections being filed, the by-law came into force and effect on February 25, 2016. In the staff report to the PEC, it was noted that the property at 175-179-181 King Street was specifically to be included in the HER zone as it appeared that there may have been a party wall between the building at 175-181 King Street and the building at 183 King Street. It may be possible that a demolition of the building at 175-181 King Street has the potential to impact the structure at 183 King Street. Both properties and buildings are within the Heritage Conservation District and make up a part of the heritage streetscape on King Street.

In determining both the appropriateness for the application of the HER Zone and the approximate limits for such a zone, staff had previously requested a Heritage Impact Statement to identify the significant heritage attributes of both properties. The consultant, ERA, identified the following with respect to the building at 175-181 King Street:

- The placement, setback, and orientation of the building on the south side of King St.;
- The scale, form and massing of the two-storey building with a rectangular-shaped plan under the flat roof line;
- The brick cladding;
- The first floor has been altered but original heritage fabric may exist beneath the existing facade. Future alterations to the first floor should take this into account;
- The King Street facade characterized by the pairing of the second-storey row of windows with detailed brick work arches with keystones and modified Doric pilasters separating each window and a lower storey which retains elements of its original storefront/character showroom.

These attributes are within the HER Zone applied by Municipal Council in January, 2016.

The Nature of the HER Zone

The application of the HER Zone regulates buildings, structures and lands that have been

designated under the *Ontario Heritage Act*. It permits uses that are identified in the accompanying compound zone which, with respect to 175-181 King Street, is a Holding Downtown Area Special Provision (h-3.DA1(6).350. Specifically, the HER Zone regulates that no additions shall be constructed in the front yard or exterior side yard and, further, if a building or structure that is designated under the *Ontario Heritage Act* is demolished, destroyed, damaged or removed, the new building or structure to occupy the lot must be of the same height, volume, floor area, general form, mass and external design as the original building or structure.

At this time, the applicant has not provided information as to any proposed redevelopment for the subject site, nor the 183 King Street property. The application of the HER zone will allow for future discussions related to the appropriateness of any proposed form of redevelopment.

ANALYSIS

City policy, specifically the creation of a Downtown Heritage Conservation District, adopted under the *Ontario Heritage Act*, as summarized in the excerpts above, clearly demonstrate strong direction to ensure that heritage designated properties downtown are protected. They are retained and enhanced as often as possible for the contributions they make in building a city core that retains a strong sense of place and unique identity for London.

The property at 175-181 King Street is located within street wall of buildings that continues to the west, turning the corners north and south along Richmond Street. This condition defines the scale and volume of that street segment, making it an important contextual reference for the evaluation of how future development proposals may “repair the gaps” that the vacant properties further east present.

When heritage designated buildings are demolished, and especially when there are no approved plans for re-building on those sites, the physical density, social intensity, and economic diversity necessary for a vibrant downtown are weakened.

Notwithstanding the above, it is recognized that the building at 175-181 King Street has been significantly altered over its lifetime, in particular with the removal of its upper storey and the alterations to the front façade including the repainting of the masonry. While it retains heritage character, the present structure has been recognized in the Downtown HCD Plan as having less significance than its adjacent neighbour at 183 King Street, rated “A.”. The former Fraser House at 183 King Street retains more of its original architectural features. It is acknowledged that the ERA report supports the inclusion of 175-181 King Street property in the proposed HER zone as it currently exists.

The *Ontario Heritage Act* does not invoke the physical condition of a property as a reason for its heritage designation or its demolition. The *Ontario Building Code Act* treats the *Ontario Heritage Act* as “applicable law” to be considered by the Chief Building Official in matters related to the issuance of demolition permits. At this time, the Chief Building Official has not indicated that there is an immediate condition *“that could be hazardous to the health or safety of persons in the normal use of the building, persons outside the building or persons whose access to the building has not been reasonably prevented.”*

In *The Downtown District Plan,* Section 4.6 recognizes that there are situations where demolition may be necessary, such as partial destruction due to fire or other catastrophic events, severe structural instability and, occasionally, redevelopment that is in keeping with appropriate City policies.

The application of the HER zone to the front portion of both structures, 175-181 King and 183 King regulates that, if a building or structure that is designated under the *Ontario Heritage Act* is demolished, destroyed, damaged or removed, the new building or structure to occupy the lot must

be of the same height, volume, floor area, general form, mass and external design as the original building or structure. Both the Downtown HCD Plan and the provisions of the HER zone allude to the potential for the demolition of a designated heritage property.

The engineering reports related to the condition of the structure at 175-181 King Street provide substantial evidence of structural instability. Initially, when the building's condition was brought to the attention of staff, attention was focused upon the rear (south) and side (west) walls as the deteriorated masonry condition was visibly evident there. The removal of the rear portions of the building had been anticipated in the HER zone which was to apply to approximately the first third of both 175-181 King and 183 King Street thereby allowing for the removal of later additions, including structurally flawed portions of 175-181 King Street.

The most recent reports from both consultant groups also identify a wider range of structural issues, including conditions that apply to the front façade. These reports come to a common conclusion, that restoration of the building, in whole or in part, is impractical economically. On the basis of this information, the structural issues identified constitute severe structural instability, and justify the removal of the building as this is one of the conditions identified in the Downtown HCD Plan as justification for demolition.

Structurally, the available evidence suggests that the two buildings are not mutually dependent upon each other. In the event that Council permits the demolition of 175-181 King Street, assurance that its removal is not expected to impact negatively the building at 183 King should be provided to the satisfaction of the Chief Building Official.

CONCLUSION

The Downtown Heritage Conservation District Plan allows for the removal of properties with severe structural instability. This is the case with the building at 175-181 King Street. Permission to demolish the building as requested by the applicant is recommended, subject to certain conditions - the provision by the applicant of measured drawings of the exterior and photo documentation, and assurances that the removal of this building is not expected to impact the structural stability of the building at 183 King Street through a conservation plan satisfactory to the Chief Building Official.

Planning Services acknowledges with thanks the assistance contributed by staff in Development & Compliance Services and Legal Services in the preparation of this report.

Agenda Item #	Page #

D. Menard

PREPARED BY:	SUBMITTED BY
DON MENARD **HERITAGE PLANNER** **URBAN REGENERATION**	**JIM YANCHULA, MCIP, RPP** **MANAGER, URBAN REGENERATION**

RECOMMENDED BY:
JOHN M. FLEMING, MCIP, RPP **MANAGING DIRECTOR, PLANNING AND CITY PLANNER**

2016-05-27
Attach: Appendix 1- Location Map; Appendix 2- Photos; Appendix 3-Debbert Report August 25, 2015; Appendix 4-VanBoxmeer & Stranges Report, January 29, 2016; Appendix 5-Debbert Report, March 17, 2016.

Y:\Shared\policy\HERITAGE\Demolition\King Street, 175-181\LACH May 11, 2016.docx

APPENDIX 1: Location Map – 175-181 King Street

D. Menard

D. Menard

Appendix 2: Photos -175-181 King Street

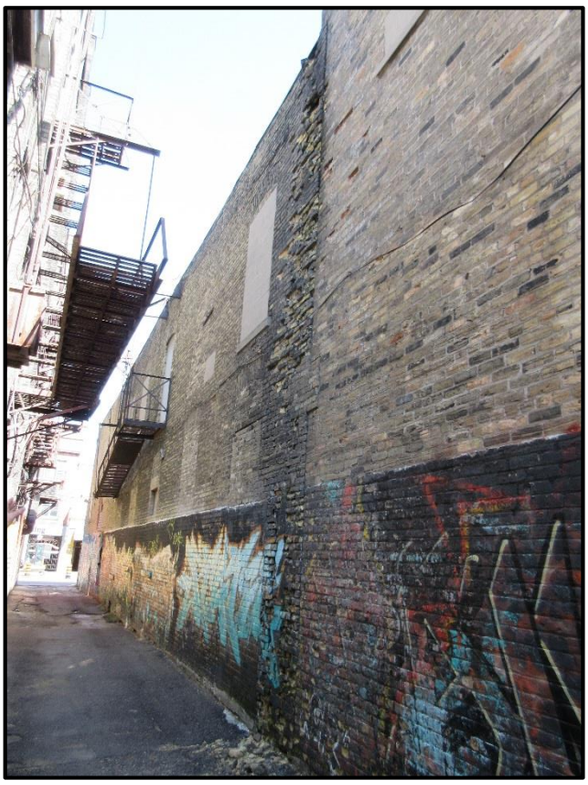
Contemporary (staff)

Historic – Thompson & Sons Carriage MFG. c.1900- (Museum London)

D. Menard

Appendix 2 Continued: Photos – 175-179 King Street –Rear- South Facade

West Façade-looking towards King Street



D. Menard

Appendix 3: Debbert Report –August 25, 2015

debbert engineering inc.

27 Buttermere Road
London, Ontario N6G 4L1
Telephone: (519) 668-2022
Facsimile: (519) 668-2067
www.debberteng.com

Project: 15-061 August 25, 2015

Doug Carlson
Property Standards Officer
City of London Property Standards
300 Dufferin Avenue
London, ON N6B 1Z2

Structural Review of 179 King Street, London

On August 13th and 17th, we visited the above-noted building to conduct a visual review and offer an opinion as to its structural condition and identify any deterioration that may be considered a hazard to the public or neighbouring landowners and occupants. Our review was visual in nature and consisted of observations of the north, south and west exterior walls of the building only. The east wall is constructed integrally with the adjacent (east) building and could not be observed from the exterior. No destructive testing was done and no drawings of the existing building were available for review. Access to an adjacent building permitted us to observe the roof areas and the parapet areas of the building in question more closely.

Observations

The building fronts on King Street (Photograph 1) and was two storeys in height at the front (north elevation) and three storeys at the rear (Photograph 2). There were three distinct sections of the building characterized by differences in the brick type and placement pattern (Photograph 3). This difference in construction indicated that the original building had two additions onto the original two-storey building. Based on the exterior brick pattern and the estimated age of the building, we are of the opinion that the exterior walls are two or three-wythe brick bearing walls with timber frame floor and roof systems. Typically for buildings of this era, structural steel beams support the timber floor system over the larger interior spans. We observed one such beam through the front window of the building.

North Elevation

The main floor façade on the north elevation consisted of two large window openings and two doorway entrances, with painted bricks and timber vertical siding on upper portion of this storey. The east window opening was covered with painted plywood. The brick at this elevation is in fair to good condition (Photograph 4), with the exception of some deterioration at the base of the wall (Photograph 5). The upper storey brick was in fair to poor condition with signs of mortar deterioration and brick movement (Photographs 6 & 7). It appears that the façade has been sand blasted prior to painting, based on the pitting and wear of the surface of the brick. A metal ledge flashing appeared to be corroded in numerous locations.

D. Menard

West Elevation

The west elevation was adjacent to an alleyway and was also experiencing mortar joint deterioration and step cracking of the brick masonry (Photograph 8) in more than 15% of the wall area. Severe mortar loss of between ¾" depth and complete mortar loss was observed in several locations (Photograph 9). The vertical joint between the two-storey and three storey portion of the building was in very poor condition (Photograph 10) with severe mortar loss and loose and missing masonry units. This joint had the most extreme deterioration of the west wall and represented a falling brick hazard. The west parapet was in worse condition that the general wall area, with outward movement in two locations (Photographs 11 & 12). At grade, there were several areas that had total mortar loss and missing bricks (Photographs 13 & 14). Shallow, horizontal grooves and scrapes in the masonry were observed towards the rear of the west alleyway. These were likely due to vehicles scraping against the wall as they moved down the alleyway. In terms of the condition of each section of building, the original (north) portion of the building at the joint between it and the first (middle) addition and the parapet areas were in the worst condition. The first (middle) addition was in fair condition with only a few brick 'popouts' (Photograph 15). Retrofitted plates (Photograph 16) were observed on the exterior of this portion of the addition, which suggest that tying back of the floor system was done at some point to prevent the outward movement of the masonry bearing walls. A distinct masonry joint was observed between the rear (south) and middle additions (Photograph 17). The rear addition (south) was in the worst condition (Photograph 18), with a wide and large diagonal step crack at the base of the wall near the south-west corner of the building, denoting movement of the rear wall. A window at the top storey was broken (Photograph 19), permitting water and snow to enter the building. A hatch in the roof was also observed to be missing (Photograph 20), permitting direct water and snow ingress.

South Elevation

The south wall was in the worst condition of the entire building. A very wide vertical crack, varying from 0.5" to 1.5" in width, extended for almost the full height of the threestorey building at the west end of the south wall (Photograph 21). Almost continuous timber lintels, exposed to the elements were observed on the south wall at the third and second floor levels (Photographs 22, 23 & 24). This caused a discontinuity, or hingepoint, in the vertical span of the south masonry wall. A large door opening at the third floor level of the south wall (Photograph 25) was filled in with timber sheathing, however gaps in the materials were present. Given the materials and quality of construction, we expect that this door would permit considerable water ingress. A similar infill was present at the first floor level, however this was done with siding and in a more workmanlike manner. We observed an active parking area immediately adjacent to the south wall.

D. Menard

Discussion and Conclusions

Based on our observations we have formed the following opinions:

1) The brick masonry of the north façade requires rehabilitation in the form of selective repointing and masonry unit replacement on the second floor area. Currently, there is potential for a limited number of bricks to become dislodged and fall to the public right-of-way (i.e. sidewalk or roadway). This hazard is limited to the upper storey at present, however localized brick rehabilitation at the base of the wall is also required.

2) The brick masonry of the west façade requires immediate rehabilitation in the form of selective repointing and masonry unit replacement at the vertical joint between the original building and the first (middle) addition. This location represents and immediate hazard to persons or property in the alleyway immediately west of the building. Repair of the large crack towards the south end of the wall is also an immediate concern as it likely associated with the deterioration and movement of the south wall. Localized brick rehabilitation at the base of the west wall is also required.

4) The brick masonry of the south wall is in extremely poor condition and requires immediate repair or shoring. In our opinion, there is potential for the partial collapse of this wall, therefore time is of the essence in addressing this issue.

5) The recommendations following this section are provided to address the immediate public hazards related to the exterior masonry. The open roof hatch provides access to trespassers, squatters and vandals, which may have resulted in further, as yet unidentified, structural damage to the building interior. This roof hatch opening, the broken window and the poorly sealed rear door have permitted water ingress which may have also caused interior structural damage. Interior damage has not been assessed as part of this report.

Recommendations

Based on our observations, we recommend the following:

1) Immediate notification and removal of vehicles to the south of the building is recommended. Barriers should be placed in order to prevent vehicles and persons from entering this area.

D. Menard

2) The roof hatch should be closed immediately to prevent trespassers from entering the building and putting themselves at risk.

3) The south wall should be braced immediately. In order to design the bracing, the structure on the interior of the building in this area should be reviewed. The temporary bracing/shoring should be designed by a Professional Engineer licensed in the Province of Ontario.

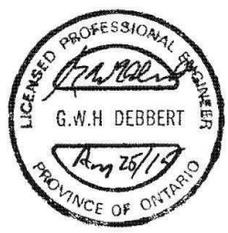
D. Menard

4) The loose bricks on the west wall at the joint between the original building and the first (middle) addition should be removed and the wall section restored. This work, although immediately necessary, is a second priority to the work required on the south wall. Access to this area will likely be required via a scissor lift or other elevated platform devices.
5) While the elevated platform is on site for the west wall, a closer examination of the north wall should be conducted and selective masonry replacement should be done for all loose masonry units.
6) Further investigation of damage to the building interior is recommended.

Should you require further assistance on this project, or if you have questions, please do not hesitate to contact the undersigned at your convenience. Thank you for the opportunity to be of assistance.

Yours Truly,
Debbert Engineering Inc.

Gordon W. Debbert, P. Eng.
President

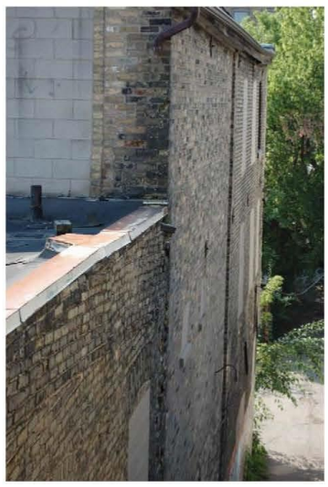


D. Menard

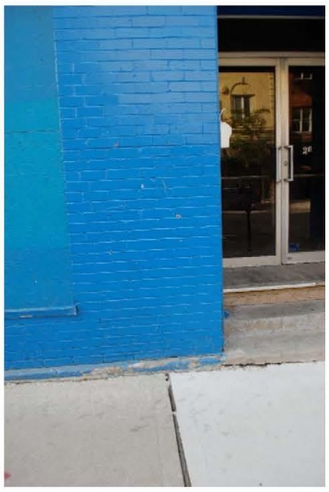
Photograph 1: North elevation fronting on King Street.

Photograph 2: South Elevation; three storeys in height.

D. Menard



Photograph 3: West wall showing the main building (Two storey), the middle section (three storey) and the rear addition (three storey).



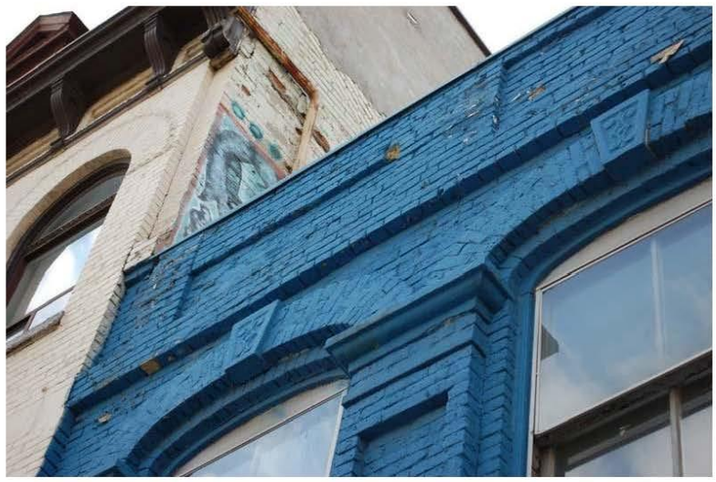
Photograph 4: Painted brick on north elevation is in good condition.

D. Menard

Photograph 5: Brick deterioration at the base of pier on the north elevation. Loss of mortar.

Photograph 6: North elevation near the middle of the wall. Outward brick movement and mortar deterioration at the parapet level.

D. Menard

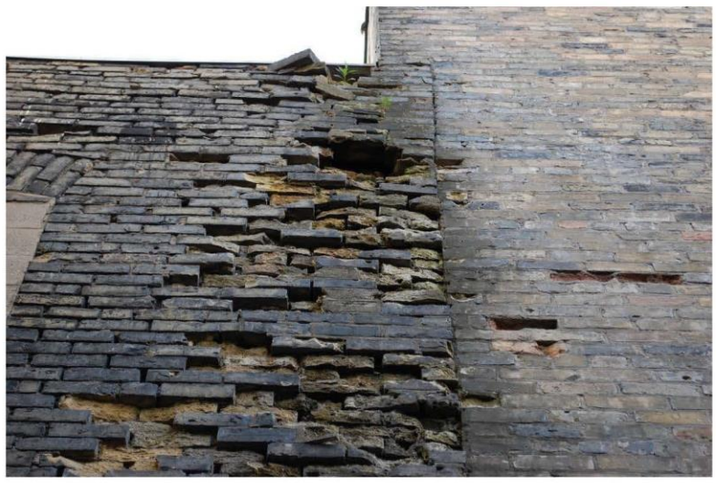


Photograph 7: Mortar and brick deterioration at the parapet level.

Photograph 8: Blocked-in window openings, mortar deterioration and severe cracking in the west elevation.

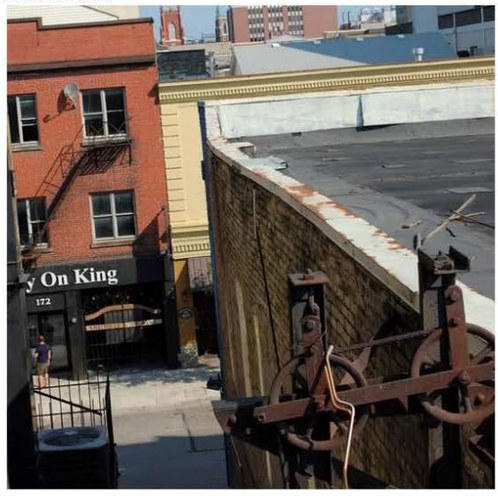
D. Menard

Photograph 9: Mortar loss above the doorway lintel on the west elevation.



D. Menard

Photograph 10: Masonry at the joint between the two and three storey sections was in extremely poor condition. Note the bricks 'ready to fall' near the top of the wall, plus missing and shifting bricks were observed.



Photograph 11: Outward movement of the parapet on the west elevation.

D. Menard

Photograph 12: Parapet deterioration at the anchor for the fire escape.

Photograph 13: Mortar deterioration and missing brick units at grade.

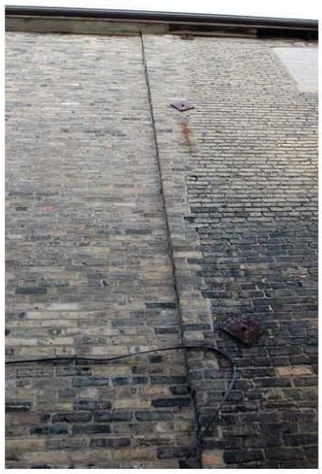
D. Menard

Photograph 14: Missing brick units and missing mortar at grade.

Photograph 15: Middle addition with a few brick pop-outs.

D. Menard

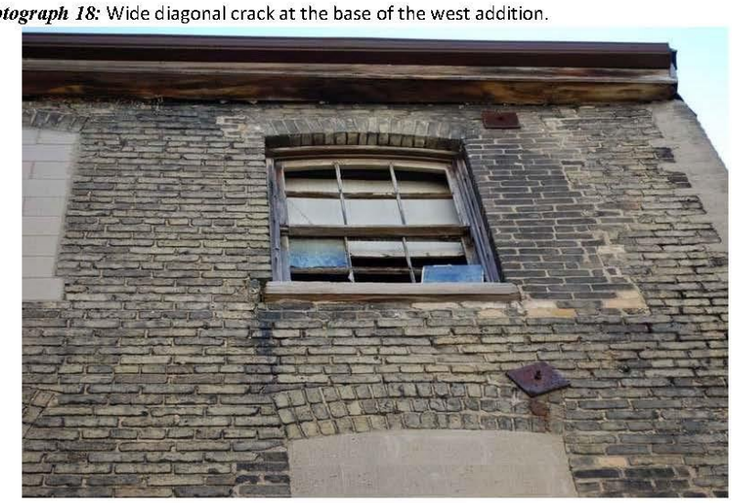
Photograph 16: Tie-back plates on the exterior of the middle addition to connect the floor and wall system.



Photograph 17: Joint between the middle and rear (south) addition.

D. Menard

Photograph 18: Wide diagonal crack at the base of the west addition.



Photograph 19: Broken window at the third floor of the south end of the west wall.

D. Menard

Photograph 20: Open roof hatch in the second storey of the original building.

Photograph 21: Movement and wide vertical cracking of the south wall.

D. Menard

Photograph 22: South wall, third floor at the west end.

Photograph 23: South wall, third floor at the midpoint.

D. Menard

Photograph 24: South wall, third floor at the east end.

Photograph 25: South Elevation.

D. Menard

Appendix 4: VanBoxmeer & Stranges Ltd. Report, January 29, 2016

VanBoxmeer & Stranges Ltd.

458 Queens Ave
London, Ontario
N6B 1X9
P: (519) 433-4661
F: (519) 433-6420
vbands@vbands.com

4600 Montrose Road
Niagara Falls, Ontario
L2H 1K3
P: (905) 357-2030
F: (905) 357-7183
al@vbands.com

STRUCTURAL ENGINEERS

January 29, 2016
VB&S Project: **15109**

Southside Group
75 Blackfriars Street
London, Ontario
N6H 1K8
Attn: Mr. Vito Frijia, President

Structural Opinion for
175-181 King Street
London, Ontario

Dear Mr. Frijia:

This letter serves to summarize our structural review of the building at 175-181 King Street in London, Ontario, and to provide a professional opinion on the structural integrity of the building.

On January 26, 2016, both Gary VanBoxmeer and I were asked to visit the site and meet with you and Albert Frijia. While on site we were asked to provide an opinion on the structural integrity of the building. After our review I subsequently visited the site on Jan 27/16, with Albert for further review and to take photos of the building.

Below is a series of photos and a description of the location within the building and the structural deficiencies that we have discovered.

See attached **Photo No. 01**, viewing towards the south at the north face of the parapet. This photo shows the brick parapet has shifted since its construction and the mortar joints have failed. By visual inspection, we estimate 30% of the parapet has failed. Of note in the photo is a branch growing out of the mortar and pushing the brick out towards the street. A Google Street View of the building also shows the same branch in the photo. A history of the Google Street View shows the sapling has been rooted in the wall since at least 2012. The failure in the block parapet system is allowing accumulation of a growing medium and moisture to allow the sapling to thrive.

See attached **Photo No. 02**. This photo shows some of the bricks in the parapet have delaminated. The pieces of delaminated brick are prevented from falling from the adhesion of the painted wall. The concern is that these pieces of brick and mortar will fall and injure a pedestrian.

See attached **Photo No. 03**. The ceiling joists, below the roof, appear to be framing into the masonry wall. The sloped roof joists however, appear to stop short of the inside face of the parapet. We have a few concerns regarding the construction of the front wall/parapet as constructed and the condition of the parapet, they are as follows:

1) We believe there to be lack of anchorage of the ceiling joists to the masonry. Without this anchorage, the joists do not provide the lateral resistance required to prevent the wall/parapet from being "pulled" (by wind loads) out onto the sidewalk below.

2) Given that the mortar joints have failed, we have concern that water has infiltrated the masonry and the ends of the joists have rotted. This would only compound the concerns of Item (1) above. We would like to continue further investigation into this matter.

3) With the ceiling joists providing the line of "lateral restraint", the cantilevered parapet exceeds the minimum cantilever height allowed by current Code. This is a concern given the state of the existing parapet.

D. Menard

See attached **Photo No. 04.** There is no mechanical connection between the second floor subfloor and the east masonry wall. This connection is required between the masonry and the sub-floor structure to provide lateral restraint to the building. Without this mechanism, the wall is not able to provide the lateral resistance required to stabilize the building in the North-South direction.

See attached **Photos No. 05 and 06**. The two photos capture the top of the same masonry pier in the basement of the building. The comparison of the photos shows the difference in the top of the pier before and after some of the bricks were removed by hand. There were many piers throughout the building where the masonry was loose and could be taken out with little effort. Visible at the top right corners of each of photos **05 & 06**, is the exposed base plate of the main floor steel columns. These base plates are exhibiting severe corrosion. Combined, these matters raise serious concern as to the entire structural integrity of the piers located in the basement.

See attached **Photo No. 07**. The photo is taken in the basement of the building. Nearly every wall observed showed signs of severe mortar loss in the joints. The loss of mortar severely reduces the capacity of the wall since its original state. The lengths of exterior basement walls that are backfilled with soil should be shored as the lateral loads from the fill could potentially collapse the walls.

See attached **Photo No. 08**. The wood joists in this photo have deteriorated where the joist end bears on to the masonry wall. There has been a previous attempt to reinforce the ends of the damaged joists and to provide additional support to the joist ends. It is estimated that approximately 50% of the joist ends have been compromised to an unacceptable level of deterioration.

See attached **Photo No. 09**. Although it is not easily translated in this photo, the west wall of the structure has a severe bow towards the alley. It was not measured during our review; however, the total horizontal displacement appears exceeds the minimum tolerance of H/500 for inter-storey drift permitted for a new building.

See attached **Photo No. 10**. The brick foundation at the northwest corner of building is exposed. The bricks and mortar are crumbling due to weathering over the years. As noted in **Photo No. 07**, the exposed exterior foundation walls are deteriorating similar to the interior basement walls. Should the extent of exterior masonry deterioration mirror the interior basement walls, the possibility of collapse would increase.

See attached **Photo No. 11**. There is a rigid steel frame that supports the gravity loads of a previous addition that occurs approximately 2/3 of the distance south between the front façade and the southernmost exterior wall of the building. Although this frame appears to have the capacity to provide lateral stability in the vicinity of the frame, we do not believe that this frame and the wood floor diaphragm have the capacity to provide lateral stability to the front portion of the structure.

Summary

It is our professional opinion that this building has exceeded its useful life, is a public hazard and is beyond the point where it can be salvaged economically. We believe the work is so extensive that the building is irremediable. It appears that nearly every section of exposed masonry wall contained bricks that are either spalling, cracked/deteriorated, contains mortar joints that require extensive amounts of repointing, or the wall is experiencing excessive amounts of movement.

D. Menard

STRUCTURAL ENGINEERS

15109
175-181 King Street
London, Ontario

The structure is severely unstable. The possibility of instability previously was noted in the VB&S report dated February 05, 2015. At the time of the report, VB&S did not have access to the structure at 175 King. It was presumed that 175 King was being laterally supported by 183 King. It was noted that if 183 King was to be demolished, temporary provisions would have to be made to laterally brace 175 King. After review of 175 King, it is apparent that there is no appreciable mechanism at the north end of 175 King tying this building to 183 King.

Please don't hesitate to call our office should you have any questions or concerns.

Regards,
VanBoxmeer & Stranges Engineering Ltd.

LICENSED PROFESSIONAL ENGINEER R. A. STRANGES JAN 29 16 PROVINCE OF ONTARIO

Rick Stranges, P.Eng.
Vice-President

LICENSED PROFESSIONAL ENGINEER G. VAN BOXMEER Jan 29 16 PROVINCE OF ONTARIO

Gary VanBoxmeer, P.Eng.
President

Encl: Photo No 01 – 10 Inclusive

D. Menard

Photo No. 01: Masonry Parapet with Rooted Sapling

Photo No. 02: Delaminating Masonry Parapet

D. Menard

Photo No. 03: Ceiling/Roof Joists at North Parapet

Photo No. 04: Floor Diaphragm Separated from Shear Wall

D. Menard

Photo No. 05 & 06: Crumbling Masonry Pier

Photo No. 07: Basement Wall with Severe loss of Mortar

D. Menard

Photo No. 08: Deteriorated Wood Joists

Photo No. 09: Bow out in West Wall

D. Menard

Photo No. 10: Deteriorating Foundation Wall

Photo No. 11: Rigid Frame Supporting Masonry Wall

D. Menard

Appendix 5: Debbert Report –March 17, 2016

debbert engineering inc.

27 Buttermere Road
London, Ontario N6G 4L1
Telephone: (519) 668-2022
Facsimile: (519) 668-2067
www.debberteng.com

Project: 16-007 March 17, 2016

Sean McHugh
Manager - Property Standards and
Structural Building Engineer
City of London Property Standards
300 Dufferin Avenue
London, ON N6B 1Z2

Structural Review of 175-181 King Street, London

In 2015, Debbert Engineering Inc. conducted a visual review of the above-noted building to provide an opinion as to its structural condition and identify any deterioration that may be considered a hazard to the public. Our mandate at that time was to focus on exterior elements on the north, west and south sides of the building that may become dislodged and fall onto neighbouring properties and public sidewalks and roadways. Our comments and recommendations were related to property standards and the basic safety of the areas around the building.

On February 19, 2016, we were asked to attend the site with you, to review the interior of the building and provide more detailed comments on the overall building condition. We performed this review with you, the Deputy Chief Building Official, the new building owner, Mr. Vito Frijia (Southside Group) and his Consulting Engineer, Rick Stranges of VanBoxmeer and Stranges Ltd. (VB &S). We were permitted to review a letter report, prepared by VB & S for Southside Group, which offered their opinion regarding the condition of this building. The owner and Mr. Stranges were informed of our role to provide an objective, third-party opinion at the onset of this review.

Methodology and Scope of Work

Our review was visual only, focusing on the condition of the overall building structural systems and if these systems may, or may not, be compromised by the deterioration of component members and their connections. It is not a 'member by member' cataloguing of deficiencies, as this is not necessary to provide an opinion regarding overall structural adequacy. Detailed structural analysis and comparison to current Ontario Building Code loading requirements is not part of this report. No destructive testing was done to determine precise, in-situ material strengths and no drawings of the existing building were available for review. Repair solutions and cost estimations are not included in our scope of work.

Photographs of specific building elements and areas were taken to demonstrate overall conditions and specific deficiencies. Some of the photographs and basic building descriptions from our initial report are reiterated in this report.

D. Menard

Repair solutions and cost estimations are not included in our scope of work. However, we will offer opinions regarding the viability of repairing particular structural elements which invariably implies that the cost to repair exceeds the cost of constructing/replacing that particular structural element in its entirety. Recommendations for immediate and long term actions are offered, based on our assessment.

Observations

The building fronts on King Street (Photograph 1) and is two storeys in height at the front (north elevation) and three storeys at the rear (Photograph 2). The building has three distinct sections characterized by differences in the brick type and placement pattern (Photographs 3 and 4). This difference in construction indicates that the original building had two additions onto the original two-storey building.

Foundations

Brick masonry foundations were observed in the partial basement area and on the exterior of the building at grade (Photographs 5, 6, 7 and 8). The exterior brick masonry at grade had severe mortar loss in more than 60% of the areas observed plus missing, loose and cracked masonry units. On the interior of the partial basement areas, severe mortar loss was observed in all of the walls and was most pronounced near the base of the walls where the lateral soil pressures are the most critical (Photographs 9 and 10). Masonry piers supporting structural steel columns were observed in the basement (Photograph 9). The top of the brick piers exhibited severe mortar deterioration and bricks could be removed by hand (Photograph 11). Two of the brick piers in the basement were observed to be in fair condition. The two block piers were also in fair condition. The remaining piers were all in poor condition as previously described.

Approximate measurements taken from the timber stairway leading to the partial basement, indicated that east portion of the main floor framing was above a crawlspace. The condition of the underside of the floor framing in this area could not be observed, and no venting of that crawlspace was observed. Venting of crawlspaces is required in the Ontario Building Code in order to reduce the potential for condensation and water accumulation which leads to wood rot.

The rear portion of the partial basement was also a low height area (Photograph 12), but with limited access from the partial basement. The floor height in this area varied and was not easily accessible, therefore our observations were made from the partial basement area.

In general, the foundation walls were in very poor condition with substantial mortar loss at the high tensile stress sections of the interior wall face. Significant inward movement of the wall not observed which was unusual given the advanced state of deterioration of the foundation walls. We cannot review the exterior, below grade portions of the foundation walls, as they are hidden from view. However their condition is expected to be as poor as or worse than that of the interior surfaces, given the greater exposure to moisture and freeze-thaw cycles.

D. Menard

North Elevation

The main floor façade on the north elevation consisted of two large openings and two doorway entrances, with painted brick piers and timber vertical siding on upper portion of this storey. The east opening was covered with painted plywood, whereas the west opening was a clear glass paneled garage door (Photograph 13). The brick at the ground level was a different variety than all other brick in the building structure. This newer brick on the first floor elevation of the north wall is in fair to good condition (Photograph 14). The upper storey brick was in poor condition with only some areas in fair condition. Even when viewed from grade level, the mortar loss and deterioration was evident in the majority of this original brick façade (Photographs 15 & 16). It appears that the façade has been sand blasted prior to painting, based on the pitting and wear of the surface of the brick. We suspect that once the paint is removed, a majority of the brick and mortar bonds will be compromised. A metal ledge flashing appeared to be corroded in numerous locations. The masonry joints on the interior of the north wall were also in poor condition.

West Elevation

The west elevation was adjacent to an alleyway and was also experiencing mortar joint deterioration and step cracking of the brick masonry (Photograph 17) in more than 25% of the wall area. Severe mortar loss of between ¾" depth and complete mortar loss was observed in several locations (Photograph 18). The vertical joint between the two-storey and three storey portion of the building was in very poor condition (Photograph 19) with severe mortar loss and loose and missing masonry units. This joint had the most extreme deterioration of the west wall and represented a falling brick hazard. The west parapet was in worse condition that the general wall area, with outward movement in two locations (Photographs 20 & 21). At grade, there were several areas that had total mortar loss and missing bricks (Photographs 22). Shallow, horizontal grooves and scrapes in the masonry were observed towards the rear of the west alleyway. These were likely due to vehicles scraping against the wall as they moved down the alleyway. In terms of the condition of each section of building, the original (north) portion of the building at the joint between it and the first (middle) addition and the parapet areas were in the worst condition. The first (middle) addition was in fair condition with several brick 'pop-outs' (Photograph 23). Retrofitted plates (Photograph 24) were observed on the exterior of this portion of the addition, which later proved to represent retrofit tie-rods installed to retrain the walls from moving outwards relative to the floor and roof system. A distinct masonry joint was observed between the rear (south) and middle additions. The rear addition (south) is in the worst condition (Photograph 25), with a wide and large diagonal step crack at the base of the wall near the south-west corner of the building, denoting movement of the rear wall. A window at the top storey was broken (Photograph 26), permitting water and snow to enter the building. A hatch in the roof was also missing (Photograph 27), permitting direct water and snow ingress. Deterioration of the mortar joints was also observed on the interior surface of the west wall. Several timber lintels supporting masonry, were charred, indicating previous fires. In several locations, timber strapping was observed in the horizontal joints spaced at approximately 20" vertical on centre), causing a discontinuity

D. Menard

in the wall. This strapping was typically used to affix lathe and plaster finishes to the interior of the wall. From a structural perspective, however, they significantly decrease the wall's capacity to accept lateral bending loads due to wind action.

South Elevation

The south wall was in the worst condition of the entire building. A very wide vertical crack, varying from 0.5" to 1.5" in width, extended for almost the full height of the three-storey building at the west end of the south wall (Photograph 28). Almost continuous timber lintels, exposed to the elements were observed on the south wall at the third and second floor levels (Photographs 29, 30 & 31). This causes a discontinuity, or hinge-point, in the vertical span of the south masonry wall. A large door opening at the third floor level of the south wall (Photograph 32) was filled in with timber sheathing, however gaps in the materials were present. Given the materials and quality of construction, we expect that this door would permit considerable water ingress. A similar infill was present at the first floor level, however this was done with siding and in a more workmanlike manner.

East Elevation

The east wall is a common masonry wall with the adjacent building, which is typical construction for this era. The condition of the interior face of this wall above the main floor framing was also in poor condition, similar to that of the west wall. Below the main floor framing, the wall was not exposed to view and we do not know its condition.

North Wall – South Addition

The exterior portion of the north wall of the south addition extends from the high roof level (Photographs 33 & 34) down to the top of the first floor level (Photograph 35), where it is supported on a structural steel frame. This provides an open area on the main floor from the front of the building (north face), to the rear of the building (Photograph 36). This wall was not original to the building as it was constructed of hollow concrete block and it is supported on bolted and welded structural steel. The condition of this wall was generally good, as was the steel frame.

Roof and Floor Systems

South Additions

The high roof at the rear of the building (south additions) consisted of three spans of timber joists oriented in the east-west direction (Photograph 37). The east and west loadbearing brick masonry walls support the outer joist spans and two lines of built-up timber beams and timber columns support the joists on the interior (Photograph 38). The south end of the built-up timber beams bear on the south brick masonry wall. Staining and deteriorated ceiling finishes indicated that extensive leaking had occurred on the upper roof. Dry rot of wood was observed in several locations. Continuous threaded rods were observed in four locations that spanned from the east to west walls, to restrain the walls from 'spreading'.

D. Menard

This arrangement is typically used to retro-fit structures of this configuration, when the connection between the timber floor system and load bearing wall is suspect. The overall condition of the roof system was poor. A direct connection of the timber joists to the bricks was not evident, however a friction connection between the timber plate and masonry was typical of this era. By today's standards, this type of connection is not acceptable.

The framing arrangement of the second and third floor systems of the south additions was similar to that of the roof system (Photograph 39 & 40). The south end of the built-up timber beams bear on the south brick masonry wall and a threaded steel rod and exterior plate assembly attached to the timber beams restrain the masonry wall from moving outwards (Photograph 41). The timber framing could not be examined due to the drywall coverings, other than specific test openings that were made by others prior to our visit. These openings revealed tie rods similar to those at the roof level. Charring of the beam members was also observed, indicating that there was a fire in this area sometime in the past. From the third floor location, we could see the top of the floor framing (Photograph 42) had areas of missing sheathing and a 'trap door' for moving materials between these two levels. The condition of the main floor framing of this addition will be discussed in conjunction with that of the other additions, as they are all similar.

Original Two Storey Section

The roof system in the two storey area consists of roof joists plus a ceiling joist system below (Photograph 43). This provides roof slopes for the upper joists while maintaining a flat ceiling on the interior. At the top of the west wall where the large outward deflection of the parapet was observed, the roof and ceiling framing does not appear to be positively connected in the masonry wall (Photograph 44). The timber joists are supported on riveted steel beams and columns (Photograph 45). Columns were located immediately adjacent to the east and west walls, therefore the beam loads do not transfer to these walls. One side of the column flanges immediately adjacent to the masonry walls had holes punched in them. We assume these were to provide anchors between the steel columns and the brick walls. However no anchors were present. The steel beams terminated at the wall, however small brackets could be seen penetrating the brick walls (Photograph 46). Without performing destructive testing we cannot confirm any connection between the structural steel supporting the floor systems and the brick walls. It is likely that at least a friction connection exists between these two elements.

From the underside of the second floor level, one could see a gap between the floor sheathing and the east brick masonry wall (Photograph 47). Therefore, no significant continuous connection between the floor system and the wall system was observed. The condition of the second floor sheathing was poor due to water exposure, with severe buckling of the timber floor finishes (Photograph 48). Water staining of the roof (Photograph 49 & 50) and second floor (Photograph 51) joists was observed in numerous locations.

The main floor framing at the exterior foundation walls showed dry rot at the joist bearing pockets (Photograph 52). This condition was typical in the basement area.

D. Menard

Discussion

After reviewing the interior of the building, and based on our observations we have formed the following opinions:

1) The lower portion of the north façade which includes the brick piers, garage door window, aluminum curtain wall doors and timber siding were not part of the original building and are generally in fair condition. However the foundations supporting this wall and the west wall were in poor condition, which compromises the structural integrity of the north wall. Specifically, the decreased amount of mortar in the joints decreases the wall thickness and hence it's bending capacity to resist the lateral soil pressures. Also the deteriorated mortar joints reduce the wall's ability to accept vertical loading. In our opinion, there is a potential for the soil pressures to push the foundation wall inwards in some areas, causing a localized collapse of the foundation and areas above.

2) The upper portion of the north wall brick masonry was severely deteriorated on the inside as well as the outside (previously observed). There is a potential for bricks to become dislodged from the second storey area at any time and land on the sidewalk below causing injury or damage to persons or property. Restoration of the structural integrity of this wall would require near or complete dismantling of sections of this wall, and replacement of approximately 25% of the masonry units.

3) The east and west walls lack adequate connection to the floor and roof framing. Lateral restraint (i.e. in the east-west direction) of these walls has likely been through friction connection to the structural steel at the structural steel frames and some incidental timber to brick friction connections. This type of connection cannot be relied upon from a structural analysis viewpoint, although it does provide marginal load transfer. This lack of lateral (out-of–plane) bracing in combination with the extensive mortar loss and joint cracks creates a potential for bricks to become dislodged from the building and fall onto pedestrians, vehicles or property. Access to the east wall is limited and we were able to view only the interior surfaces, which were similar in configuration and condition to the west wall.

4) In a properly designed and constructed building the lateral loads (i.e. in the north south direction) are transferred into the floor and roof diaphragms and into the east and west walls through the connection between the floor and the brick. In the current building this load transfer is minimal, mostly through the steel to brick friction connections. Therefore, the overall stability of the structure in the north south direction is suspect.

   With respect to the east-west direction, the hollow concrete block wall, that is not original to the building, is in fairly good condition, and is likely providing the

D. Menard

majority of lateral bracing second and third stories. The north wall is almost certainly unreinforced and has numerous large openings, particularly on the main floor. The transfer of 'in plane' shear loads from one brick course to the one below is minimal due to the poor condition and reduced area of the mortar bed. This condition in combination with a poor load transfer from the floor and roof diaphragm to the wall, significantly reduces the capability of the north wall to act as a shear wall. Similarly, the south wall the horizontal joints at the timber lintels and horizontal mortar bed cracks does not permit significant load transfer. Therefore the south wall does not provide significant shear resistance to the east-west loads.

To summarize, the lack of significant shear load transfer to the shear walls can result in 'racking' of the structure, excessive deflections and partial collapse. These partial collapses could lead to progressive collapses, where whole sections of the building collapse.

5) The brick masonry of the south wall is in extremely poor condition with many continuous and large joints and cracks in both the vertical and horizontal directions. The wall plates at the end of the large timber beams provide the majority of lateral (out-of-plane) restraint to the wall. In our opinion, significant wind gusts could cause sections of this wall to fail, depositing bricks south of the building. This too could lead to a progressive collapse of the entire south wall of the building.

6) With respect to the condition of the timber floor and roof joists, dry rot was observed at the timber joist to masonry wall interface in numerous locations. Water leaks into the building have destroyed timber flooring and likely significantly reduced the sub floor capacity in these leak areas. Walking on the floor did not feel 'springy' or 'live', however no calculations were made to determine the floor or roof load capacity. We did not walk on all areas, therefore there is a potential for soft spots in the sheathing or joists due to water damage to cause ones foot to break through softened floor sheathing.

Conclusions

Referring to our *Methodology and Scope of Work*, we offer our opinion as to the viability to repair various structural elements. Our use of the term 'impractical' with respect to the restoration of any given element of the structure is primarily based on what percentage of the original element can be retained. For example, if 50% of a wall needs to be dismantled and rebuilt in order to maintain its structural integrity, we consider that to be equivalent to demolishing the wall and building a new wall. In some cases, the entire wall may have to be dismantled in order to restore 25% of the wall if the means to keep the remaining wall in place by shoring or other means is too complex and expensive to warrant retaining this portion of the wall. Therefore, although our percentage of deterioration may vary, the methodology of restoration may be the criteria that makes restoration 'impractical'. Other practicality considerations include the likelihood of obtaining replacement materials such as masonry units that are similar in size, appearance and strength.

D. Menard

1) The foundations and basement piers are deteriorated to the point of potential partial and/or progressive collapse. The degree of interior deterioration observed is sufficient to consider complete replacement of the foundations. We expect that the exterior of the foundation walls and those portions of the walls not observed are equally deteriorated. We consider the restoration of the foundation walls to be impractical due to the severity of the deterioration and the complexity and extent of shoring required to support the walls and floor systems which the foundations support.

2) The east and west masonry walls require 100% repointing at grade level and at least 50% repointing above grade. A new system of connecting the floor systems to these walls is required to restore the bracing of the overall structure in the north-south direction. Extensive reinforcement of the walls may be required for them to accept the lateral loads and transmit them to the foundations. We consider restoration of these walls to be impractical due to the extensive nature of the deterioration, the ability to source suitable replacement brick and the extensive reinforcement required to create functional and properly braced shear walls.

3) The south wall is in imminent danger of collapse. The current construction with numerous joints and penetrations makes restoration impractical.

4) The dry rot observed at the foundation/floor framing interface was extensive and would require examination of all joists to determine quantities for reinforcement of joist bearings. Engineering calculation of the floor joist and steel beam & column capacities will be required to determine if they are adequate for any future proposed use. Areas of water penetration have caused damage to joists and they will require further, more detailed assessment. Even if these elements are shown to be adequate with reinforcement, maintaining the integrity of this steel and timber structural system, while replacing foundations and shear walls is a complex undertaking. Consequently, it would be more practical to demolish these systems and replace them.

Recommendations

Based on the foregoing, we recommend the following:

Immediate Actions to be taken:

1) Immediate notification and removal of vehicles to the south of the building is recommended. Barriers should be placed in order to prevent vehicles and persons from entering this area.
2) The south wall should be braced immediately.
3) Scaffolding is present at the north face of the building and should remain in place.
4) Access to the west alleyway should be closed, or scaffolding installed to protect vehicles and pedestrians from falling bricks.
   Alternatively, if action can be taken immediately, the loose bricks on the west wall at the joint between the original building and the first (middle) addition should be removed and the wall section restored. The fire-escape and attachments should be

D. Menard

removed and the parapet wall should be braced in the location of the large outward deflection.

Long term Actions:

1) We recommend demolition of the entire building as restoration is impractical.

We trust that the foregoing meets your needs at this time, however, should you require further assistance on this project, or if you have questions, please do not hesitate to contact the undersigned at your convenience. Thank you for the opportunity to be of assistance.

Yours Truly,
Debbert Engineering Inc.

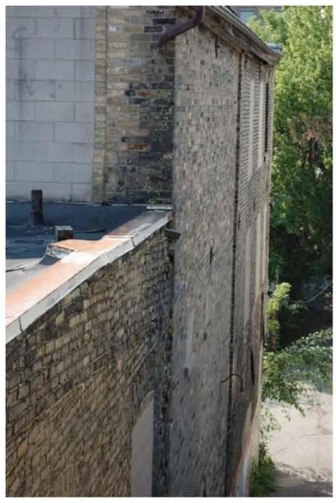
Gordon W. Debbert, P. Eng.
President

D. Menard

Photograph 1: North elevation fronting on King Street.

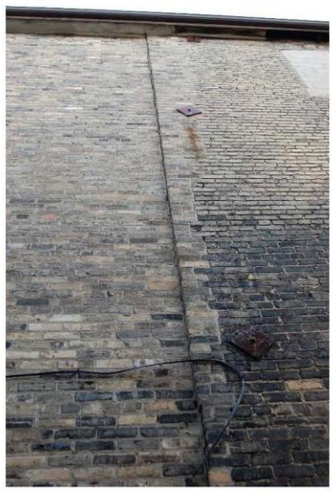
Photograph 2: South Elevation; three storeys in height.

D. Menard



Photograph 3: West wall showing the main building (Two storey), the middle section (three storey) and the rear addition (three storey).

D. Menard



Photograph 4: Joint between the two three-storey building sections.

Photograph 5: Brick deterioration at the base of pier on the north elevation. Loss of mortar.

D. Menard

Photograph 6: Basement foundation wall with missing mortar. This type of deterioration was observed in all foundation walls in selected areas.

Photograph 7: Exterior foundation wall at grade at the west wall. Note the missing mortar and loose bricks.

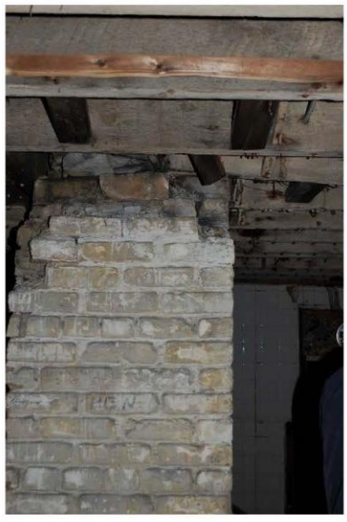
D. Menard

Photograph 8: Foundation wall at south elevation. Plant root and water deterioration of the mortar joints and brick units.

Photograph 9: Partial basement with mortar deterioration in exterior walls and masonry piers (both block and brick masonry).

D. Menard

Photograph 10: Deterioration of the mortar joints in the west basement walls was more pronounced at the base of the wall.



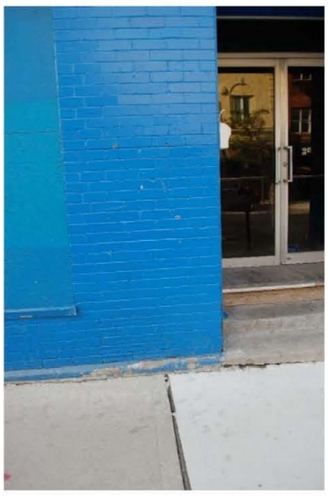
Photograph 11: Masonry piers with deteriorated mortar at the top of pier.

D. Menard

Photograph 12: Access door (lower left) to south crawlspace with pier beyond.

Photograph 13: 'Garage Door' windows in the north building face fronting on King Street.

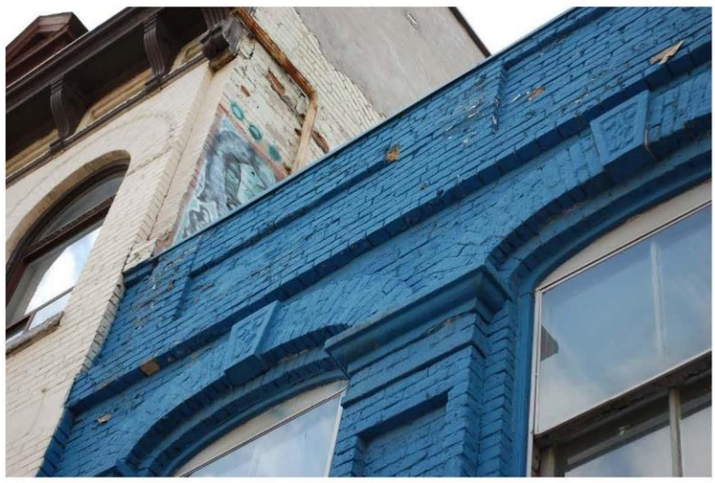
D. Menard



Photograph 14: Painted brick piers (not original to the building) on north elevation is in fairly good condition.

D. Menard

Photograph 15: North elevation near the middle of the wall. Outward brick movement and mortar deterioration at the parapet level. 'Tree' growing out of masonry indicating the presence of growing medium and ample water.



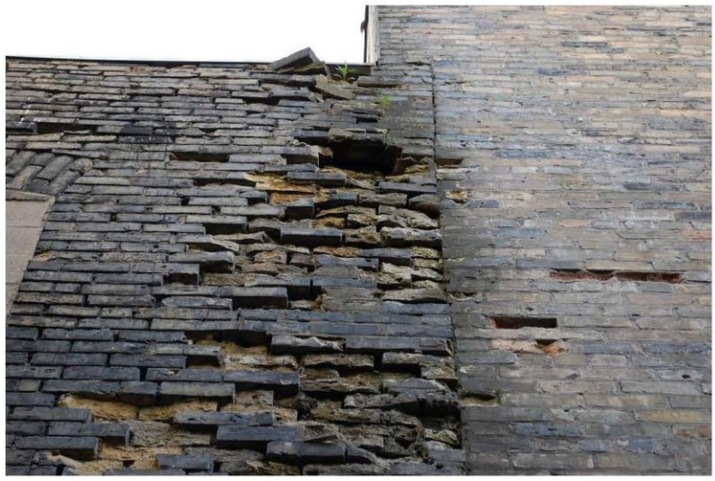
Photograph 16: Mortar and brick deterioration at the parapet level.

D. Menard

Photograph 17: Blocked-in window openings, mortar deterioration and severe cracking in the west elevation.

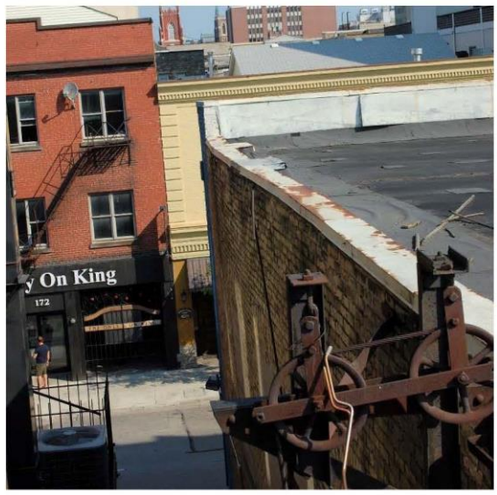
D. Menard

Photograph 18: Mortar loss above the doorway lintel on the west elevation.



Photograph 19: Masonry at the joint between the two and three storey sections was in extremely poor condition. Note the bricks 'ready to fall' near the top of the wall, plus missing and shifting bricks were observed.

D. Menard



Photograph 20: Outward movement of the parapet on the west elevation.

Photograph 21: Parapet deterioration at the anchor for the fire escape.

D. Menard

Photograph 22: Mortar deterioration and missing brick units at grade.

Photograph 23: Middle addition with a several brick pop-outs.

D. Menard

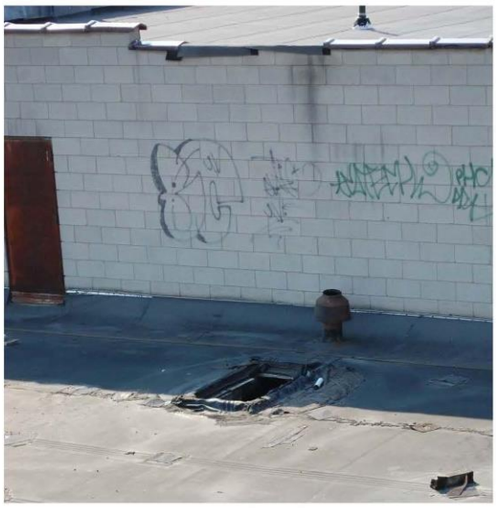
Photograph 24: Tie-back plates on the exterior of the middle addition to connect the floor and wall system.

D. Menard

Photograph 25: Wide diagonal crack at the base of the west addition.

Photograph 26: Broken window at the third floor of the south end of the west wall.

D. Menard



Photograph 27: Open roof hatch in the second storey of the original building.

D. Menard

Photograph 28: Movement and wide vertical cracking of the south wall.

D. Menard

Photograph 29: South wall, third floor at the west end.

Photograph 30: South wall, third floor at the midpoint.

D. Menard

Photograph 31: South wall, third floor at the east end.

Photograph 32: South Elevation.

D. Menard

Photograph 33: North wall of south addition. Hollow concrete block capped with clay tile capping.

Photograph 34: North wall of south addition from the interior.

D. Menard

Photograph 35: Hollow Concrete block wall at the second floor level.

Photograph 36: Main floor level- open from front to rear of the building.

D. Menard

Photograph 37: Interior of the South wall below the roof level.

Photograph 38: Timber beams and columns at upper roof level, south addition. Note the tie rods.

D. Menard

Photograph 39: Interior of the south wall at the second floor level. Note the two bulkheads concealing timber beams. Timber joists span in the east-west direction.

Photograph 40: Timber framing of the main floor was similar to that of the roof system.

D. Menard

Photograph 41: Rod assembly with exterior wall plate to restrain the masonry wall.

D. Menard

Photograph 42: Second floor framing as viewed from the third level of the south addition.

Photograph 43: Ceiling and Roof joists spanning between structural steel beams and columns. Joists were parallel to the east and west walls.

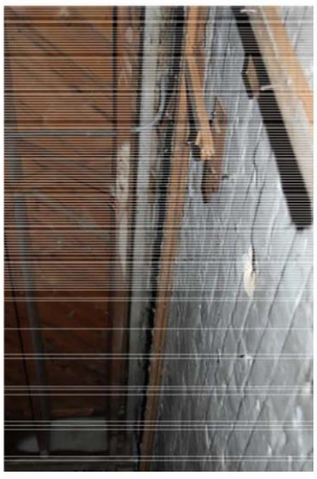
D. Menard

Photograph 44: Approximately 1" +/- movement of sheathing away from wall. No positive connection between roof framing and masonry.

D. Menard

Photograph 45: Timber joist and steel framing supported the roof.

Photograph 46: Potential friction connection between the steel and the brick wall.



D. Menard

Photograph 47: Gap between the second floor framing and the east wall. No shear connection between these elements.

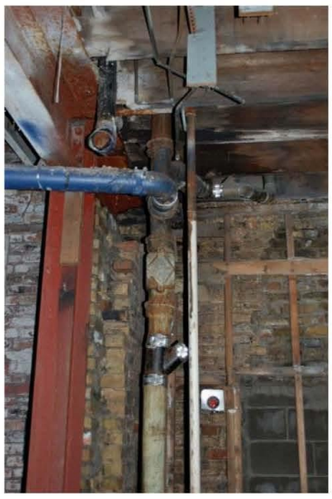
Photograph 48: Poor floor sheathing condition with buckling flooring.

D. Menard

Photograph 49: Water staining of second floor joists (and main floor joists) due to roof leaks.

D. Menard

Photograph 50: Water staining of second floor joists due to roof leaks.



Photograph 51: Water staining of roof joists near roof drain stack.

D. Menard

Photograph 52: Water staining and dry rot in main floor joists at the west wall.