



Introduction

This report is to fulfill the request from the DGS RFP to perform a “preliminary...structural conditions assessment report of the existing facility” and “report on the structural integrity of the building.”

Structural observations from the site visit on April 20, 2023 and May 2, 2023 are summarized in this report. Referenced photos are provided in Appendix A. Observations from this visit are limited to what was visible (elements not covered by finishes and not hidden) by flashlights at the time of our visit and observed from a structural view. Flashlights were utilized because power was not turned on for the building during our visit. Caution should be exercised when visiting the building as there are elements that are rusting.

Note that our structural visit is not an assessment of the safety of the existing building for visitors in its current condition. Ensuring safety of visitors should be provided by the Owner. In addition, assessment of the façade or exposed structure from an aesthetic, enclosure and/or thermal view is not included in the scope of this structural assessment.

Access to the building should be limited as the stair treads have been impacted by corrosion and are potentially unsafe. Where future visits are necessary, the Owner should stabilize the stairs or provide alternate means of access to the floors. Temporary power should be provided for lighting. Potentially dangerous items should be removed, including bird droppings and the dead raccoon at Level 2.

Existing Documents

- Base building architectural drawings, unknown date
- Addition drawings, dated 1932
- Stabilization drawings, dated 2016

Building Structure Overview

The original building was constructed in 1911 with one below-grade level, two-above grade levels, and outdoor terraces at Level 2. It is our understanding that the structure of this building is primarily multi-wythe brick bearing exterior and interior walls with select interior locations utilizing full-height steel columns. The floors are concrete and span to concrete encased steel beams. The roof structure appears to be a mix of wood and steel members. The outdoor terraces at Level 2 were roofed over in 1932. Stabilization work was performed in 2016 to provide a temporary roof and perform structural repairs of the roof structure. The existing flooring appears to consist of a wood floor over sleepers and cinder concrete fill atop the structural floor slab.

While a significant number of drawings have been provided, complete structural drawings/information of the existing conditions is not available and further investigation will be required (Appendix B). For example, the following information is not available from the existing drawings: floor loading, thickness of footings, steel connection information, reinforcement in floor slabs, and material strengths.

Exterior Observations

The exterior multi-wythe brick bearing wall will need to be repaired to address structural concerns. Examples of the items observed are as follows: cracked brick (Figure 1), mortar loss (Figure 2), organic growth (Figure 3 and 5), lintels covered in rust (Figure 3), and temporary repair/infills (Figure 4).

Interior Observations

This building has one below-grade and two-above grade levels (Figure 5). Additional investigation will be required to confirm the condition of structural steel and concrete encased steel beams.

Steel pan and stringer are typical for the stairs. In some locations, there is significant material loss of the pan due to corrosion (Figure 6). The stairs and rails will need to be replaced.

The exterior and below-grade foundation walls are multi-wythe brick bearing walls. A sump pump and pit appear to have been added but power was not working for the building during our visit. Signs of water infiltration are observable on the foundation walls and slab-on-grade.

The roof of the existing coal vault is composed of concrete slabs spanning to concrete encased steel beams. In most cases, the concrete encasement has detached from the beam soffit due to corrosion of the previously encased steel beam flange (Figure 7).

Elevated levels 1 and 2 are similarly composed of concrete slabs spanning to concrete encased steel beams, and in some cases, detachment of the concrete encasement from the beam soffit has similarly occurred.

Most exposed steel, including interior lintels (Figure 8 and 9), beams, and columns (Figure 10), have rusted surfaces.

A portion of the original, from prior to the 1932 addition, north exterior wall and gutter are observable (Figure 11). The visible roof structure is composed of wood framing spanning to steel posts/beams/girders. Visual assessment of the original roof/ceiling framing was not possible because the ceiling is still intact under that area of the building.

The extent of corrosion is such that both encased and exposed structural steel will need to be investigated and assessed. Encased structural steel will need to be sounded to identify potential for delamination of the concrete encasement. Corroded steel will need to be cleaned, replaced where section loss is significant, and concrete encasement replaced.

The building is not at an in-service condition and repairs will be required to address the structural concerns noted above.

Summary Points

1. The building is not at an in-service condition and repairs will be required to address structural concerns.
2. Complete existing structural information is not available and therefore an investigative survey will be required as outlined in Appendix B.
3. The exterior wall will require repair to address structural concerns such as cracked brick and mortar loss.
4. Steel stairs and rails will need to be replaced.
5. There is corrosion to both encased and exposed structural steel that will require assessment and repair/replacement.
6. Recommend a specialty waterproofing/envelope consultant be engaged to address and stop below-grade water infiltration.
7. Recommend a repair scope be approved to address and repair exterior wall and interior structure that will be kept as part of the new work.

Appendix A: Site Photos



Figure 1: Exterior Wall - Cracked brick



Figure 2: Exterior Wall – Mortar loss



Figure 3: Lintels supporting brick over northern entrance



Figure 4: Temporary repair/infills



Figure 5: View of building from SE



Figure 6: Corroded stair pans



Figure 7: Coal vault roof with exposed steel beam flange



Figure 8: Rusted lintel at entry to Coal Vault



Figure 9: Interview view of lintel over window

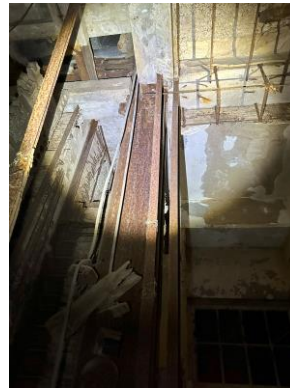


Figure 10: Interior steel column with rust



Figure 11: Roof structure

Appendix B: Outline of Proposed Investigation of Existing Structure and Materials

Existing architectural and structural drawings are not available for the building. Below is an outline of information that may be required for new structural work in the existing buildings.

1. Engage qualified Surveyor
2. Engage qualified Materials Testing Agency
3. Engage a consultant to create CAD drawings of the existing structure (laser scanning or similar)
 - a. Removal of finishes will be required to confirm structure in locations of work
4. Design information required for structural elements: survey location/elevation, size/thickness, reinforcement (size, spacing, location, grade), material strength, connections (weld size/length/location, bolt size/location/grade), visual condition assessment
 - a. Bearing Pressure
 - b. Foundations/Corbels
 - c. Concrete Columns/Beams/Slabs/Walls
 - d. Masonry Columns/Walls
 - e. Concrete encased Steel Columns/Beams
 - f. Steel Columns/Beams
 - g. Wood Columns/Joists/Beams
5. Non-Destructive Test Methods
 - a. Test Pits
 - b. GPR
 - c. Laser scanning
 - d. Survey
 - e. Flat jack
6. Destructive Test Methods
 - a. Concrete core drills
 - b. Field cut steel coupons
 - c. Field cut masonry prisms
 - d. Removal of finishes