127 W. Gilman Street - January 30, 2014 Kyle Bunnow – City of Madison Housing Inspection Supervisor, P.E.

Scope of Work

This assessment consists of a general review of the building foundation, wood structural supporting members, and interior building conditions. The exterior of the building, as well as any electrical, HVAC, or plumbing systems, were not considered.

Foundation

The building foundation consists of sandstone and mortar construction. In several locations along the north, east, and west walls, the original foundation has collapsed or is severely compromised. Figure 1 depicts the foundation collapse along the east wall that is evident throughout the structure.



Figure 1 - Collapsed Foundation along East Wall

A secondary brick retaining wall was constructed to reinforce or repair previous collapse along the north, northeast, and northwest portions of the foundation. The secondary brick retaining wall has also failed at the north and northeast areas of the structure as shown in Figures 2.



Figure 2 - Northeast Corner of Foundation with Collapsed Secondary Retaining Wall



Figure 3 - Collapsed Secondary Retaining Wall along North End

A portion of the original stone foundation along the East sidewall has collapsed and is severely damaged. Additional sections of the East foundation exhibit significant bowing and movement in the wall. As shown in Figure 4, bowing along the East foundation is so significant that it has resulted in the fracture of a supporting wood column.



Figure 4 - East Foundation Wall Bowing Excessively and Fracture of a Wood Column

Areas of the foundation that have not collapsed show prominent deterioration and erosion of the mortar. Tuckpointing repairs have been attempted in several areas along the foundation wall, but are inadequate. Deterioration of the mortar, in areas particularly along the upper edges of the foundation, is so significant that moisture continually infiltrates the foundation further increasing the rate of

deterioration. Figures 5 and 6 depict areas of deterioration and moisture infiltration throughout the foundation wall.



Figure 5 - Deteriorated and Missing Mortar



Figure 6 - Moisture Infiltration at the Upper Foundation

In total, the foundation system is severely compromised and beyond the reasonable expectation for repair. A completely new foundation would be required to provide adequate support to the structure.

Wood Structural Supporting Members

Examination of the wood structural members, including the rim joists, floor joists, and supporting columns, revealed rotted, crushed, or compromised wood on a large scale. Wood rot along the building rim joist as shown in Figure 7 is a particular concern. Areas of rot along the rim joist allowed for the infiltration of moisture in several locations.



Figure 7 - Rotted Rim Joist



Figure 8 – Additional Example of Rotted Wood in Basement

Floor joists observed throughout the building show consistent evidence of dry rot. Figure 9 depicts the dry rot observed throughout the flooring system.



Figure 9 - Floor Joist with Dry Rot

In total, the wood structural supporting members have deteriorated beyond the reasonable expectation for repair. All rotted and compromised wood should be removed and replaced; this encompasses the entire rim joist system an all floor joists and supporting members.

General Interior Conditions

The flooring surface throughout the main level is inconsistent and deviates several inches in various locations. The deviation and unevenness in the flooring is likely caused by the earlier outlined deterioration and decomposition of the foundation, rim joists and floor joists. Figure 10 shows an area of structure where the main floor level has sunk as a result of inadequate support from the floor joists.



Figure 10 - Unevenness and Settling of the Flooring because of Inadequate Support

Most walls and ceilings on the main levels of the building exhibit significant damage caused by deterioration of the support members of the structure. Figures 11 and 12 show areas of ceiling collapse and sagging that are representative of several areas in the building.



Figure 11 - Ceiling Collapse and Wall Damage on the Main Level



Figure 12 - Sagging In the Ceiling

The second and third levels of the structure exhibit similar cracks, damage, unevenness, and collapse as outlined on the main level. Water damage is also prevalent in portions of the building as a result of a hole that exposes the interior of the structure to additional moisture, shown in Figure 13.



Figure 13 - Hole in the West Side of the Building

Review of the attic shows the trusses and roof supporting members have been compromised as a result of fire damage , shown in Figure 14.



Figure 14 - Fire Damaged Trusses and Roof System

In total, damage to the building interior is significant. A new roofing system is likely needed to restore the roof to its designed capacity. General repair would likely include the complete rebuilding of the flooring, walls, and ceilings throughout the building. Though outside the scope of this report, it should also be stated that it is reasonable to conclude the total replacement of the building electrical, plumbing and HVAC, is also needed.

Conclusion

The foundation at 127 W. Gilman Street has eroded and shifted so significantly that total replacement of the foundation would be required. The demise of the foundation has in turn accelerated additional deterioration of the supporting wood members through increased exposure to moisture and the shifting of structural loads to compensate for such action. Rot, crushing, and deflection of the wood members throughout the building is so prevalent that it is not feasible to expect a repair can be accomplished without the complete deconstruction and replacement of the building support members. In total, the damage and deterioration of the structure at 127 W. Gilman Street is so significant that it is not reasonable to expect that the building can either be repaired or moved; rather, the building would need to be completely deconstructed and replaced with new materials to be returned to a functional state.