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14 September 2015

Sarah Zorn
Planning and Economic Development
25 West Fourth Street, Ste. 1100
St. Paul, MN 55102

Project No.: 15539.00
Re: Structural Condition Review of the building at 767 4th St. E.

Dear Sarah:

We visited the existing house at 767 4th St. E. on Tuesday, August 25th, 2015. The purpose of our visit was to form an opinion of the building condition and to identify any areas of damage, deterioration, or deficiency and to assist the owner in planning the future of the house. The following is a summary of our observations and opinions:

Scope
This report concerns only the structural frame and elements that are an integral part of the load resisting system for the building. We did not observe and report on the building electrical systems, mechanical systems, fire protection, egress, and life safety compliance with the building code.

Our review concerned the basement level and the foundation walls that could be observed directly within that space, any visible roof systems, any visible wall structures, and any visible beams or joists. Observations that were performed are considered a cursory "walk-through" of the building. The performance of the structural system and framing elements was judged by visual observation only. This work should not be considered a detailed investigation of the building or of specific elements of the building framing system. During our walk through no finishes were removed to expose structural systems.

Calculations were not performed on the total building system nor were the apparent load capacities of the floor or roof determined as a part of this report.

Qualifications of the Personnel
Joe Cain P.E. is the author of this report, the lead investigator, and the Structural Engineer of Record (SER). Joe has 30 years of experience in the field of structural engineering and has performed condition reviews as the SER on numerous buildings that are similar to the subject building. Travis Stanley E.I.T. has aided in the observation work, analysis, and research and has contributed to the preparation of the report.

Methods of Investigation
The method of investigation was by casual observation and was limited to those structural elements that were exposed to view. However, much of the structural system was covered by finish material, in which case the performance of the finish material was assumed to reflect the performance of the structural elements to which the finish material was attached. No attempt was made to perform an exhaustive investigation of all structural elements. No finish material was removed or damaged to expose the underlying structural elements. No existing as built documents were available for our use. Nor were we made aware of any previous reports related to the structural condition of the building or investigation of building elements.

Building Description
The building is a two story house with a full basement. The original structure was constructed on or about 1895. There was an addition to the building in the northwest section sometime after its construction. The roof is constructed with hand framed lumber joists which are supported on wood stud bearing walls at the building perimeter.

The foundation walls that could be observed were constructed with rubble limestone masonry below grade in the original section of the house. The foundation walls of the addition that could be observed appeared to be concrete masonry units. The first floor is supported at the interior of the basement level with heavy timber beams, supported on timber columns that extend to the basement floor and shoring columns. The basement floor areas that were not covered were observed to be concrete slab on grade. It is assumed that the building walls and interior columns rest on spread footings.

Observed Conditions
In general, the structural elements of the building framing and foundation were judged to be in poor condition. There were conditions of deterioration or damage noted in the observations and will be described below in more detail.

The retaining walls around the house are tipping and need to be replaced. The retaining wall at the front of the house is shown in Picture 1. The retaining wall on the eastern side of the house, between the house and the driveway of the adjacent property, is also in poor condition. Picture 2 is taken along the wall, from the street and shows the top of the wall as it has deflected. There is a tree that is growing between the retaining wall at the driveway and the wall at the stairs. The tree is likely a main cause of the current condition of the walls. Picture 3 gives a different perspective on the wall. The deflection of the wall can be seen farther back and the tree is more easily visible.

Picture 1 – Front Retaining Wall

Picture 2 – East Retaining Wall

Picture 3 – East Retaining Wall with Tree

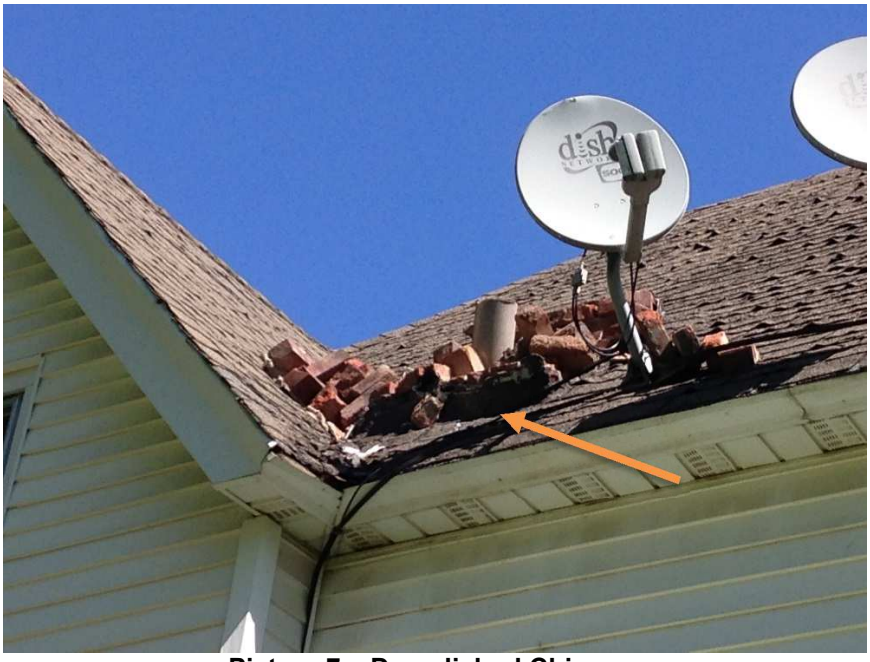
The front porch has deteriorated. Rot of the deck can be seen in Picture 4 and damage to the column can be seen in Picture 5. The porch slopes away from the building at an unusual angle. Picture 5 also shows the slope of the porch. It is likely that there is more damage to the porch that is unseen.

Picture 4 – Front Porch Deterioration

Picture 5 – Front Porch Deterioration and Slope

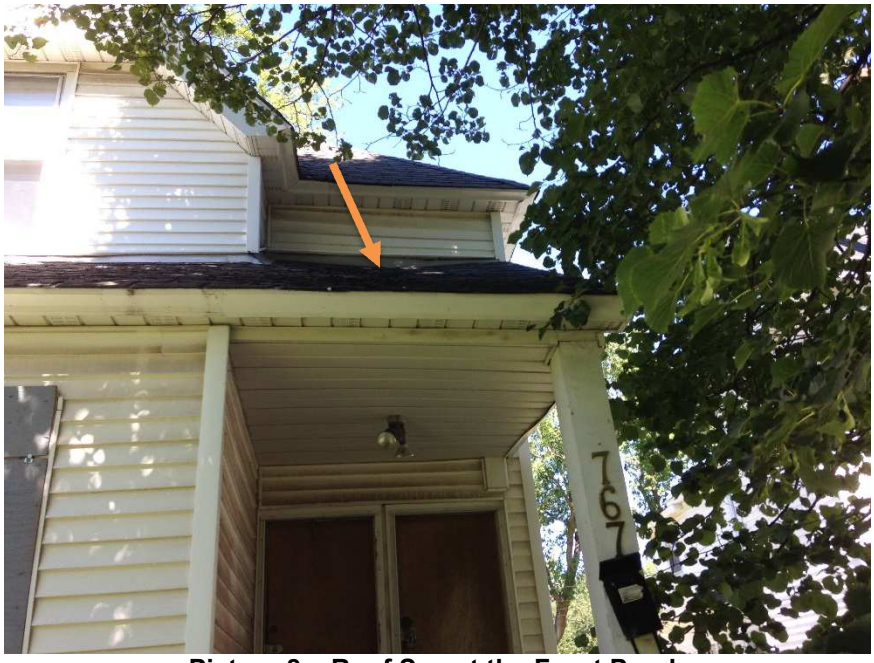
The chimney that extends above the southern roof of the house has been demolished. There is brick debris on the roof of the building and around the property. Picture 6 shows the existing chimney extending above the roof and the rubble scattered around it. Picture 7 gives a close up view of the damage.

Picture 6 – Demolished Chimney



Picture 7 – Demolished Chimney

The roofs of the house are in poor condition. Sagging was observed on the roof above the front porch and on the roof at the western side of the house. Picture 8 shows the front porch and Picture 9 shows the west roof. Rot and deterioration were observed as well. The back roof shows signs of rot as well. Picture 10 shows some of the damage to the building. Picture 11 shows the roof as seen from the inside. There are obvious holes through the roof and water damage. Many of the house's shingles are damaged or are missing as well. It is likely that there are multiple places in all of the house's roofs that are damaged and are allowing water in.



Picture 8 – Roof Sag at the Front Porch

Picture 9 – Roof Sag on the West Side

Picture 10 – Rot At Back Roof

Picture 11 – Rot Through Roof

The foundation walls, as observed from outside the house, are also in poor condition. The original limestone foundation walls are deteriorating. Debris from the deterioration of the walls can be found all along the house. Picture 12 shows one such instance. In it, the wall has broken away and has exposed some of the wall's interior. Picture 13 shows a separate instance. More debris and broken foundation wall can be seen. The foundation of the addition on the north side of the house appears to have been installed without mortar between the units. Mortar typically helps a foundation resist loads and keep water out. Picture 14 shows some of the masonry units and the lack of mortar between them.

Picture 12 – Foundation Deterioration

Picture 13 – Foundation Deterioration

Picture 14 – No Mortar Between CMU Units

In the basement we observed a column that had shifted off of its footing. The column as well as the footing both need to be replaced. Picture 15 shows the base of the column as well as the footing.

Picture 15 – Basement Column and Footing

Water damage was found throughout the house. As noted above, there are likely holes in the roof which is allowing water to enter the house. It is also likely that the damage inside the house allows for the water to get to each room and each level. Picture 16 shows water damage that has been done to a column within the house. The finish has deteriorated and it is likely that the column itself has been affected by the water. Picture 17 shows a ceiling within the house that has been damaged. Picture 18 shows mold that is in the basement which covers the foundation walls. The mold that is in the basement is extensive and is damaging the framing.

Picture 16 – Water Damage to Column

Picture 17 –Damage to Ceiling

Picture 18 – Mold in Basement

Summary
The residence at 767 4th St. E. is in generally poor condition. As stated above, we made no attempt to remove finish material. Our opinions are based on what was in plain sight. The problems that were seen are likely more extensive than what we observed but were covered with finish materials. In addition to what was previously listed, there could be more issues that we could not observe. Repairs are possible, but it would likely be relatively costly. A more thorough structural review would be required in order to give details for the repair of any specific structural system.

Limiting Conditions:
The opinions and recommendations contained in this report are based on a cursory observation of the building. No attempt was made to perform an exhaustive investigation of all conditions and building elements. It is possible that conditions exist that cannot be discovered or judged as a result of this limited nature of investigation. The work provided in the preparation of the report concerns the structural system only and is not intended to address mechanical, electrical or plumbing systems, fire protection or handicap accessibility. The owner is encouraged to discuss these items with a building official and other design professionals for guidance and recommendations.

If you have any questions concerning the above, please do not hesitate to contact us.

Sincerely
Mattson Macdonald Young, Inc.

Travis Stanley

Travis Stanley, E.I.T.

Joe Cain

Joe Cain, P.E.

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

Joe Cain

Joe Cain, P.E.

09/14/2015 MN Reg. No. 40119