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

Project No.: 15536.00
Re: Structural Condition Review of the building at 275 Bates Ave.

Dear Sarah:

We visited the existing house at 275 Bates Ave. 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. It was constructed on or about 1900. 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. The first floor is supported at the interior of the basement level with heavy timber beams, supported on timber columns and steel shoring columns that extend to the basement floor. 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 front porch slab that is assumed to rest directly on grade has settled approximately 1". Picture 1 shows the displacement of a slab joint. The most likely cause of this settlement is water intrusion of the soil below the slab. Picture 2 shows the same slab from a different angle. Runoff along the foundation walls will continue to cause deterioration and may result in freeze thaw damage.



Picture 1 – Front Slab Settlement



Picture 2 – Front Slab Settlement

Some of the floors of the building were observed to slope. Picture 3 shows the underside of a floor that has sloped and Picture 4 shows a gap that was created from the movement that caused the floor to slope.



Picture 3 – Underside of Uneven Floor



Picture 4 – Gap Due to Sloping

Water damage was observed throughout the building. The ceiling of the second floor was observed to have water stains along with mold and peeling paint. Picture 5 shows the damage of the water to the ceiling of the second floor. Directly above the damaged area is the roof. It is likely that there is damage to the roof which is allowing water to enter the home. We were unable to observe the roof in its entirety. Picture 6 shows the underside of a ceiling system that is rotting. This is likely due to water infiltration and can be assumed to be found throughout the house. Wood rot was also found in the basement. Many of the joists had rot at each of its ends, where it connected to the foundation walls and where it connected to the center beam.



Picture 5 – Water Damage on Second Floor Ceiling



Picture 6 – Deterioration of Ceiling System

The foundation walls were observed to be crumbling, cracking, and bulging from inside the basement. Pictures 7 and 8 show portions of the walls that are deteriorating. In the basement there are a number of shoring columns that are holding up the beams of the first floor. The shoring columns are rusted and some of them are bent. Picture 9 shows two such shoring columns.



Picture 7 – Crumbling and Cracking of Foundation Walls



Picture 8 – Crumbling and Cracking of Foundation Walls



Picture 9 – Shoring Columns Supporting a Beam

We observed the retaining wall at the exterior of the house to be out of plumb. The wall itself is sturdy, as evidenced by the lack of cracking or breaking, but its foundation has rotated. Pictures 10 and 11 show the wall out of plumb.



Picture 10 – Retaining Wall Out of Plumb



Picture 11 – Retaining Wall Out of Plumb

The stucco on the exterior of the house was observed to be deteriorating. Although the stucco is not critical to the structural integrity of the building, the crumbling stucco suggests that water deterioration and/or movement has occurred in the foundation. Picture 12 shows the deterioration of the stucco and Picture 13 shows the stucco bulging, likely due to water. The stucco was observed to be deteriorating in multiple places along the exterior of the house.



Picture 12 – Stucco Deterioration



Picture 13 – Stucco Bulging Out

The roof and exterior walls, as observed from the outside, appeared to be in good condition. The roof was flat and there were no obvious problems. The exterior walls appeared to be plumb. Picture 14 shows one such roof and wall.



Picture 14 – House Roof and Exterior Wall

Summary

The residence at 275 Bates Ave. is in generally poor condition. As stated above, we made no attempt to remove finish material. Our analysis is 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 very 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, E.I.T.



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, P.E.

09/14/2015

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