Structural Observation Report

[redacted]

Prepared for: [redacted]

Inspection Date: 5/7/2022

Prepared By: Zoey Tham, #24GI00217600

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1. General Information

Client & Site Information

Client's Full Name: [redacted]

People Present: Only PE Home Inspection

Inspection Time: 10:30am-12:00pm

Building Type: Single Family Wood Log

Occupancy: Vacant

Climatic Conditions

Weather Condition: Rainy, about 55 degree F

Ground Condition: Wet

Rain in last three days: Yes

2. Disclaimer

This document is a report designed to assist a buyer, seller, or homeowner to evaluate the condition of a home, as well as its immediate surrounding areas, at a specific date and time.

The inspector conducts an evaluation of the home and permanently installed, readily accessible systems and components. All components that are not inspected should be fully evaluated and tested as needed by a qualified specialist prior to closing.

The inspection is limited in scope.
The inspection is not intended to be an exhaustive evaluation of a home, systems, or components. The inspector does not disassemble equipment, dismantle items, move furnishings or stored items, lift floor coverings, open walls, or disturb items that belong to the occupant(s). The inspector does not evaluate items that are inaccessible, concealed or underground. Therefore, the home or property may have issues that cannot be discovered by the inspector.

The inspection addresses visible and apparent conditions which exist at the date and time of the inspection.
The inspector endeavors to identify and accurately report on visible issues which affect the construction, and overall safety of the home. Conditions may change, perhaps dramatically, between the date and time of the inspection and the date and time of settlement and/or move-in.

The inspection report reflects the observations and opinions of the inspector.
Subsequent inspections or evaluations performed by other parties may yield different, and in some cases, contradictory findings. There can be several reasons for discrepancies in findings, including the interval between inspections, differences in the objectives or scope of each inspection, and background, training, and subjective opinions and experiences of the individuals performing an inspection.

The inspection does not eliminate all risks involved in a real estate transaction.
The inspection does not anticipate subsequent events or changes in performance of the home due to changes in use or occupancy. We recommend that you obtain information, which is available about the home and property, including seller's disclosures, previous inspection reports, engineering reports, building permits, remodeling permits, and reports delivered for or by municipal inspection departments, lenders, relocation companies, insurers, and appraisers. You should also attempt to determine whether repairs, renovation, remodeling, additions, or other such activities have occurred.

The inspection is not a code inspection.
The inspection may address issues which refer to a particular code, but the inspector does not conduct a code compliance inspection or code safety inspection and does not verify compliance with manufacturer's installation instructions for any system or component. We are not authorized to regulate or enforce code compliance and must instead operate under the reasonable presumption that the home is compliant with all code requirements. Please contact the relevant government authority or original equipment manufacturer for information related to construction, addition or remodeling permits, energy efficiency ratings, or other issues relating to code compliance

3. Evaluations and Recommendations

Evaluations and Recommendations

Based on our field observations, the structure located at [redacted], West Milford, NJ was lack of maintenance and had significant deterioration and damage in multiple critical structural elements. Improper connection installations were also observed between different structural elements. The noted connection deficiency, deterioration and damage have weakened the structural integrity and impacted the overall structural stability.

A. Significantly deteriorated vertical and horizontal logs with section loss

The vertical and horizontal logs in the structure are load bearing elements. Deterioration in the logs implies reduction in their load bearing capacity. The logs with severe section loss are compromised and have lost their ability to properly transfer load from the roof and floor to the foundation. For example, the deteriorated horizontal base log on top of the rubble foundation might no longer adequate to support the loads imposed from the vertical logs and could cause overall building settlement above the foundation.

The deterioration and section loss in the logs had also led to the failure of their nail/screw connections, as the nails and screws can no longer engage the logs with section loss.

The deteriorated logs and failed nail/screw connections had weakened the structural capacity and integrity. We recommend removal and replacement of all the deteriorated and damaged logs in the building.

B. Damaged and out of plumb wood posts

The wood posts are the major gravity load carrying members in the building. The observed damage in the base of the wood posts due to water and wood destroying insect implies reduction their load carrying capacity. Out of plumb wood posts imply improper wood post installation or lateral building movement. Further loading an out of plumb wood post would amplify the lateral displacement and could cause tipping or failure of the wood posts and the entire structure.

We recommend repair or replace the damaged wood posts, adjust all the out of plumb wood posts and installing additional lateral bracing between wood posts.

C. Improper connections between structural elements

Based on our field observations, the header joists are typically bearing on top of the wood post section. This type of connection appears to be not able to provide adequate lateral support to the wood posts to prevent lateral movement. In

addition, multiple header joists were not proper connected to the load bearing logs. One of the headers joist was not even supported at one end. These inadequate and defected connections could led to building lateral movement and connection failure.

We recommend installing new support at the unsupported end of the specific header joist, reinforcing the connections between the header joists and the logs and installing lateral bracing between wood posts as mentioned above.

D. Laterally displaced/bulging rear wall

The bulging rear wall could be a result of building lateral movement and settlement. Based on our field observation, the soil elevation at the front side of the building is higher than the soil elevation at the back side of the building. The higher soil at the front side of the building would impose lateral load toward the rear side of the building. The building could have moved laterally when under lateral load and the deteriorated structural members and improper structural connection could not provide the adequate support.

We recommend demolition and reconstruction of the building rear wall.

E. Water damaged roof structure

Active water leakage from the roof and water ponding on the 1st floor were observed near the front of the building. Water damaged roof sheathing and rafters implies weakened roof structure.

We recommend removing and reinstalling the damaged roof elements and install new roofing system to prevent roof structural failure and future leak.

In conclusion, based on our limited field observations, the structural integrity of the building located at [redacted], West Milford, NJ has been significantly weakened and it is not safe to occupy. We recommend performing extensive repairs per our preliminary recommendations above or performing a full demolition and reconstruction of the building. The repair or construction details should be designed and prepared by a licensed structural engineer.

4. Structural Components

Descriptions

Lowest Level Configuration: Basement

Foundation Material: Rubble stone foundation

Visible Floor Structure: Wood joists

Visible Wall Construction: Vertical and horizontal log

Visible Roof Framing: Rafters

Observations

Our observations were visual in nature and not testing was conducted. The key observations include the followings.

Observation #1: The rear wall of the building appeared to be bulging outward with an approximate measured slope of 2 inch per foot. Some of the vertical logs were not properly bearing on the base horizontal log.

Observation #2: The horizontal logs in the rear wall were significantly rotted with large cavity inside the log. Some of the logs have large horizontal split.

Observation #3: Multiple nail/screw connections in the log wall were observed to be failed.

Observation #4: Multiple vertical logs at the side face of the building near the basement entrance door were significantly rotted at the bottom. The horizontal base wood sill was also severely deteriorated. A hole was observed at the bottom of the vertical logs.

Observation #5: A large vertical crack (approximately ½” wide) was observed in the rubble stone foundation wall at the left side of the building.

Observation #6: Multiple wood posts in the basement were observed to be out of plumb.

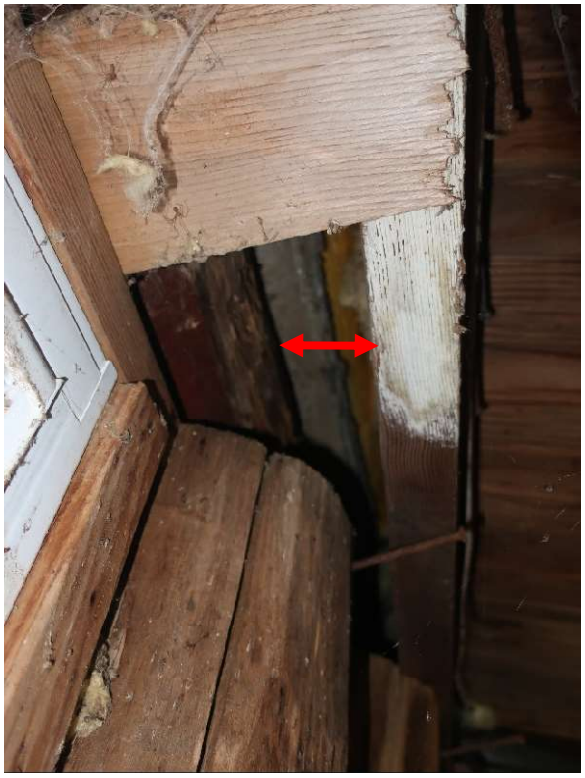
Observation #7: Some of the wood posts appeared to be damaged by wood destroy insect.

Observation #8: The bottom of one of the wood posts appeared to have significant damage due to moisture/water.

Observation #9: One of the 1st floor header beams appeared to have no end support.

Observation #10: Improper connections between structural elements were observed in multiple locations.

Observation #11: Header joist was not properly supported/connected due to rear wall bulging.



Observation #12: Some of the 1st floor and roof wood planks and roof rafters were damaged by water.