

# Lopez Engineering, Inc.

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January 31, 2019  
Revised April 9, 2019

Job No. 19-0030

Paul Miller  
1021 Harding Ave.  
Rochester Hills, MI 48307

Re: Historic House Fire Report  
1021 Harding Ave.  
Rochester Hills, MI 48307

This is a follow-up letter from a site meeting between Paul Miller, the son of the home owner, and Thomas J. Mickus of Lopez Engineering. The historic building in concern is a 2 story wood framed and brick structure. The purpose of the meeting was for Lopez Engineering to investigate the structural integrity of the entire building and report our findings to you. The inspection was performed on January 9, 2019.

## Findings

Upon the arrival to the premises the outside of the structure, the roof, the main floor and the second floor was observed. The inside of the house which was severely damaged by the fire and smoke as well as homeowner neglect contributed to the difficulty of this inspection. Lighting was not provided at the time of the inspection. Thus, a low powered flashlight was used during the inspection.

The outside of the house was viewed first by walking around it's perimeter at ground level. The snow covered roof appeared have severe fire damage. Many times roof distress or sags point to internal structural problems which was not evident due to the fire damage. The exterior walls were primarily covered with brick. Most of the windows or doors were found broken or boarded up.

The roof was viewed with a flashlight on the second floor. The rafters above the second floor were found to be 2x6's spanning 12 ft. spaced approximately at 16 inches on center. The ends of the rafters were found to be embedded in masonry at the exterior walls. Daylight was visible through the severely fire charred roof. The bathroom, front bedroom, left bedroom and rear bedroom all had severely charred house hold debris on the floor. Thus it was unfeasible to evaluate the overloaded and water damaged second floor. Next, the interior walls were severely damaged by the fire and/or smoke but they protected the structural integrity of the supporting masonry. While some of the masonry was damaged by partial roof collapse during the fire, most of the masonry appeared in fair shape.

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The first floor was inspected next. Again, heavy fire charred *belongings* were found scattered throughout the rooms. The first floor rooms include: the kitchen, dining room, living room and the den. While the fire charred the interior walls and ceiling little damage was evident, neither the second floor wood framing above nor the exterior masonry wall appeared fire damaged.

### Analysis

The following materials were referenced when writing this report: The 2015 Michigan Residential Building Code, the Steel Construction Manual 13<sup>th</sup> edition, Minimum Design Loads for Buildings and Other Structures (ASCE 7-10), and The National Design Specifications (2011), The Building Code Requirements for Structural Concrete (ACI 318-11), Building Code Requirement and Specification for Masonry Structures and Evaluation and Repair of Concrete Structures by the Department U.S Army Corps of Engineers (1995).

### Conclusions

We conclude that the wood infrastructure was damaged by the fire. Mainly, the roof needs to be completely replaced and the first and second floor diaphragms need to be re-evaluated after they are scrapped clean of all fire debris and the debris is disposed. Portions of the supporting masonry walls need to be re-built, but the majority of the masonry walls appear structurally sound. We further conclude that the structure could be salvaged with mainly the interior non-structural elements being disposed.

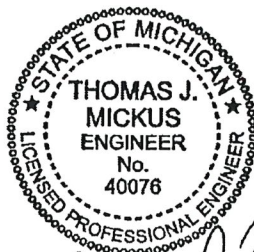
### Recommended Procedure

1. Seek insurance for the structure in its given state now and during the renovation process until the house is occupied or the house is sold.
2. Secure all entrances into the structure by a lockable means.
3. Seek a licensed architect to create a set of renovation drawings. Building appurtenances such as internal finishing's, electrical wiring and plumbing need to be updated to the current code.
4. Seek permission from the city to temporarily shore the roof and remove and discard vast amounts of all items including smoke damaged belongings and construction materials.
5. Submit plans developed by the licensed architect to the city for a building permit.
6. Once the building permit is obtained, restore the fire damaged roof to equal or better condition.
7. Complete demolition of fire compromised interior finishing's and all other items cited in the remodeling plans.
8. Complete the installation of new materials seeking any re-inspection needed by our office should additional structural issues arise.
9. Complete site cleanup.

If you have any additional comments, please feel free to call.

Very Truly Yours,

Thomas J. Mickus, P.E.



*Thomas J. Mickus*

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