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713 623 1827

December 11, 2023

This report summarizes the results of our structural assessment for a multi story property at 3400 Fannin St, Houston, TX 77004, USA. We are not able to identify the occupancy type of the building during the inspection.

Figure 1- Referenced front view of the property

Background:

BuildEng LLC is hired to evaluate the overall structural integrity of the building located at the referenced address.

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Findings-Structural Observations:

We visually inspected the property interior and exterior walls, ceiling, and the foundation.. We measured the maximum floor level differences using a laser level to investigate any foundation settlements. The inspection focus included but not limited to finding the presence of:

- Cracks on the interior and exterior walls and the ceiling
- Substantial floor level differences in the buildings
- Drainage concern around the foundation

During the site inspection, we used a laser leveler to measure the levelness of the floor (slab on grade).

Interior Observations:

- The maximum top of floor level elevation difference measured at this building is about **1" over 15' 0"**. This level of differential deflection is above acceptable tolerance which is L/240 (figure 3)
- There are multiple signs of water intrusion to the inside of the building resulting from broken windows and/or failed roofing. The extent of the damage in some areas has cause partial failure of the dry walls (figure 9 & 8)
- Instances of gap between the bottom of the wall and flooring can be observed. This may be indicating foundation issues or failure of framing or both (Figure 6)

Exterior Observations:

- There are several broken windows covered by Plywood which it increases the risk of water intrusion to the building (figure 2)
- There are instances of visible rotted fascia plate, soffit, and probably rafters/joists

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Discussion & Conclusion:

According to our observations, the referenced property is a vacant property which people may have been broken into from time to time. Several broken windows and installation of temporary plywood as a fix, has caused water intrusion to the building. Also the roofing of the building may have failed to avoid water intrusion to the building.

Water leaks and intrusion in an abandoned building can lead to severe structural damages due to several reasons: Rot and Decay: Wood is highly susceptible to moisture. When water penetrates through the building's exterior, it gets absorbed by the wood. This moisture creates an ideal environment for fungi, mold, and rot to thrive. Over time, this weakens the wood's structural integrity, causing it to become soft, spongy, and prone to breakage.

Expansion and Contraction: Fluctuations in temperature and moisture levels cause wood to expand and contract. Continuous exposure to water can make the wood swell, leading to warping, bending, and eventually, structural instability. As the wood dries, it may shrink, causing cracks and further compromising the building's stability.

Foundation and Support Damage: Water can seep into the foundation and support structures of the building, causing erosion and weakening the base. This compromises the building's ability to bear weight properly, potentially leading to shifts in the structure or even collapses in extreme cases.

Corrosion of Metal Components: Water leaks can also affect metal components like nails, screws, and support brackets. Exposure to moisture can cause these metal parts to rust and weaken, further jeopardizing the structural stability of the building.

Electrical and Fire Hazards: Water leaks can damage electrical systems in the building. This not only poses a risk of short circuits and fires but also exacerbates the deterioration of the structure due to increased moisture content.

Health Hazards: Moisture from water leaks encourages the growth of mold and mildew, which poses serious health risks to anyone exposed. These molds release spores that can cause respiratory problems and allergic reactions, making the building unsafe for occupancy.

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Furthermore other field observations like gaps between the wall and floor, high level of top floor elevation difference, failed sheathing and failed building envelope are all collectively indicating local or even total foundation and framing issues.

Recommendations:

Due to the extent of the probable damage to the framing we either recommend demolish the building or the repair process can include the below steps

1) Remove all interior and exterior sheathing and inspect the framing, replace all rotted and soft wood members under supervision of a professional engineer
2) Restore building envelope at the direction of a licensed engineer or qualified architect
3) Repair foundation under supervision of a licensed engineer

Ultimately, the decision to repair or demolish the referenced building relies on various factors including the extent of damage, structural safety, cost-effectiveness, and future use or redevelopment plans for the property.

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Appendix - Figures

Figure 2 - Broken Windows; increased potential for water intrusion and respectively higher chance of framing rot

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figure 3- There are instances of top floor elevation differential settlement exceeding L/240 which is beyond acceptable limits.

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Figure 4- Facia plate and soffit are visibly rotten, the joists/rafters may be damaged as well due to weather exposure

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Figure 5- Visible signs of water leak, Water leak impose high risk to longevity of structural framing and building envelope

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Figure 6- Gap between bottom of wall and flooring, this may indicate foundation issues (settlements). Framing may also be compromised

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Figure 7- Gaps around window openings may indicate framing issues

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Figure 8 - Visible Water Damage. It is expected the sheathing and framing to be exposed to water which could result damage to structural integrity

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Figure 9 - Dry Wall Spalling due to water leak

Figure 10- Failure of sheathing and framing most likely because of water intrusion. The framing is expected to be damaged severely at these areas

Figure 11- Visible partially rotted siding and failed building envelope

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Figure 12- Electrical panel has passed its useful life and some parts are missing

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Figure 13- Exposed electrical wiring imposes safety concerns

Figure 14- Electrical box found to be too close to ground which is not in conformance with the code

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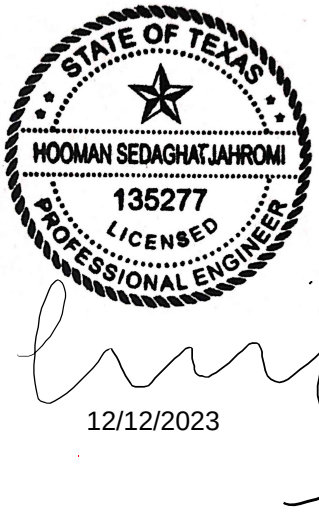
Best regards,

Inspector:

Monte Amini MSC



Reviewed by:

Hooman Sedaghatjahromi PE 12/12/2023