

July 18, 2024

4653 & 4659 3rd street, La Mesa, CA 91941

Dear Project owner:

Subject: Senate Bill #721 & 326- Structural Evaluation of existing exterior stairs at 4653 & 4659 3rd street, La Mesa, CA 91941

At your request "STRUCTIQ" performed a structural observation of existing exterior stairs located at 4653 & 4659 3rd street, La Mesa, CA 91941 in compliance with Senate Bill No. 721 & 326. Our structural evaluation was limited and based on visual observation of exposed elements, which might be hidden defects that are not exposed to be visually observed. Each building has two stairs, the building at 4659 3rd street has a north stair (see pictures 2 through 10), and a south stair (see pictures 11 through 18), the building at 4653 3rd street has also a north stair (see pictures 19 through 26), and a south stair (see pictures 27 through 37).

During our inspection, considering the temporary shoring installed at some of the stairs, we have found immediate hazards to the safety of the occupants which required emergency repairs as listed as follows:

- 1- On the south stair at 4659 3rd street, the stair railings on both sides and landing and walkway railings are wobbly and unsafe. The post anchorages are non-standard and some of them extensively corroded, or the landing concrete topping is cracked near the post anchorage, and some of the base anchorage is inadequate and loose. (Refer to Pictures 11 through 14, and 16 through 18).
- 2- On the north stair at 4653 3rd street, the west stair railing is wobbly and unsafe. Different types of non-standard stair railing post anchorage to the concrete treads and railing landing to cracked concrete topping have been observed. (Refer to Pictures 19, 22, and 23).
- 3- On the south stair at 4653 3rd street, the west stair railing is wobbly and unsafe. Different types of non-standard stair railing post anchorage to the concrete treads have been observed. (Refer to Pictures 27 and 28).

There are nonemergency repairs that are required as described in the body of this report as follows:

- 1- All the stair railings are made of steel railing, they are 35" high and use different post spacing about 4 feet and more up to 5 feet 6 inches using different type of non-standard anchorage to concrete treads. The landing railing is 42" high, post spacing varies from 4 feet 5 inches post spacing up to 5 feet 6 inches, different non-standard railing post anchorage have been used and on many of them, the landing concrete topping is cracked near the anchorage. The landing or walkway top rails connect to the stucco wall. The majority of railing post anchorage capacity to resist current code level loads are questionable. Per current California

residential building code (2022 version) the guardrail system shall be designed to resist a single concentrated load of 200 pound-force applied in any direction at any point on the guardrail or top rail to produce the maximum load effect on the element being considered and to transfer this load through the support to the structure. Also, the guardrail system shall be designed to resist 50 lb/ft (pound-force per linear foot) uniform load applied in any direction along the guardrail or top rail and to transfer this load through the supports to the structure. This load need not be assumed to act concurrently with a 200 lb concentrated load. It appears that the existing railings are not in code compliance and are not able to resist the abovementioned loads. All of stair and landing/walkway railings required to be redesigned and reconstructed per current codes or City or County standard stair railing details.

- 2- All of stair steel stringer connection to the landing structure are questionable as the stucco near the connections are cracked. The connections required to be exposed for further evaluation. Especially on the south stair at 4653 3rd street, the stair is settled on the west side approximately 1" relative to the east side of it. (see pictures 7, 16, 25, 30, and 32).

Following pages are some pictures indicating the deficiencies found out in the site:



Picture 1: The frontal view of the buildings at 4659 & 4653 3rd street on left and right respectively.



Picture 2: North stair at 4659 3rd street.



Picture 3: The stair railing is 35" high, post spacing varies with approximately 4 feet 2 inches post spacing on this picture.



Picture 4: Different non-standard post anchorage to the concrete treads and steel stringer



Picture 5: Non-standard post anchorage to the concrete treads or cracked concrete topping on landing.



Picture 6: Non-standard post anchorage to the cracked concrete topping on landing.



Picture 7: View of stair steel stringer connection to the landing's framing which is not exposed to be verified. Cracked stucco around the steel posts.



Picture 8: Typical concrete treads bolted connection to the stair steel stringer



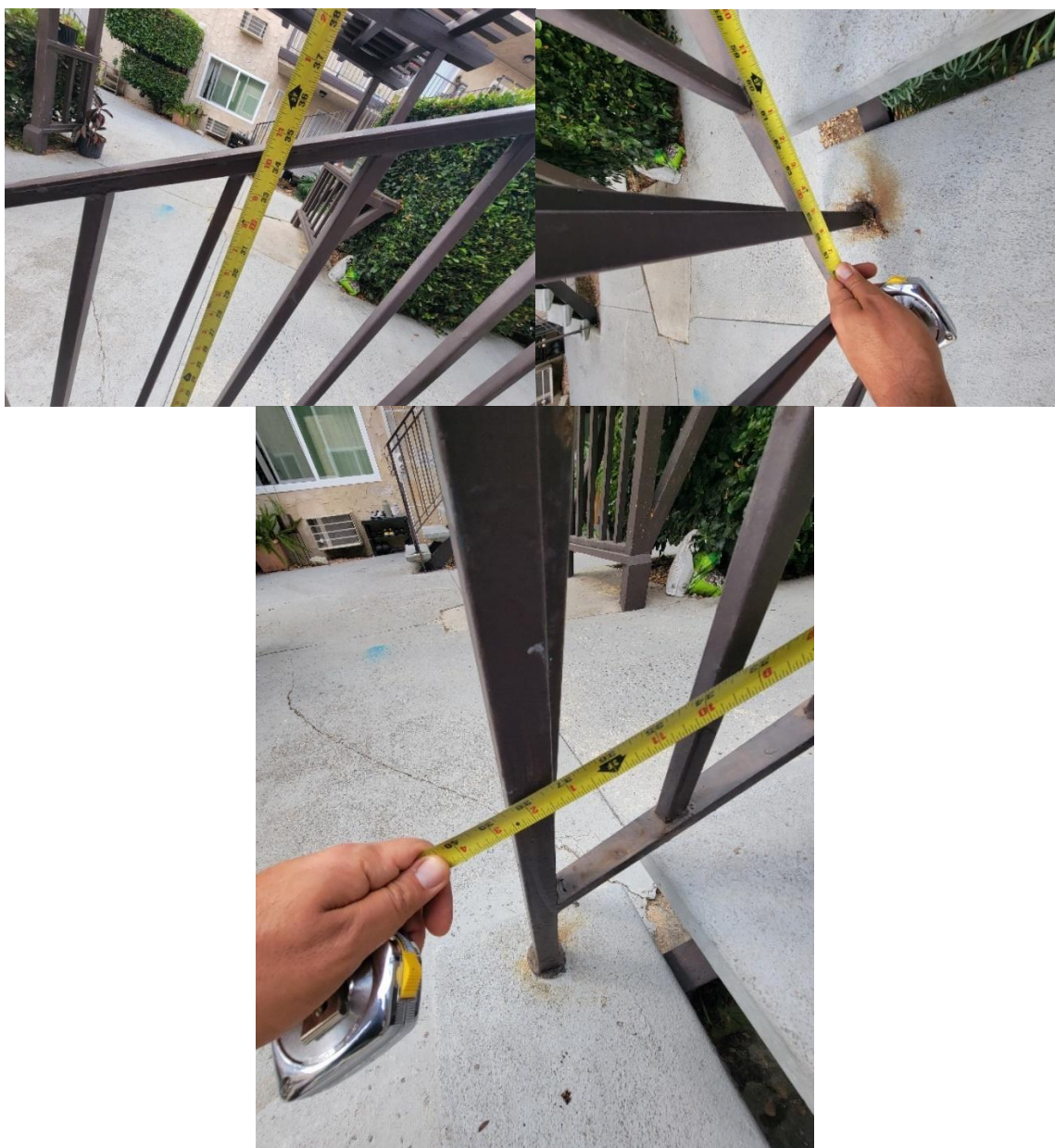
Picture 9: Steel stringers are channel measured 6" deep and 2" flange width.



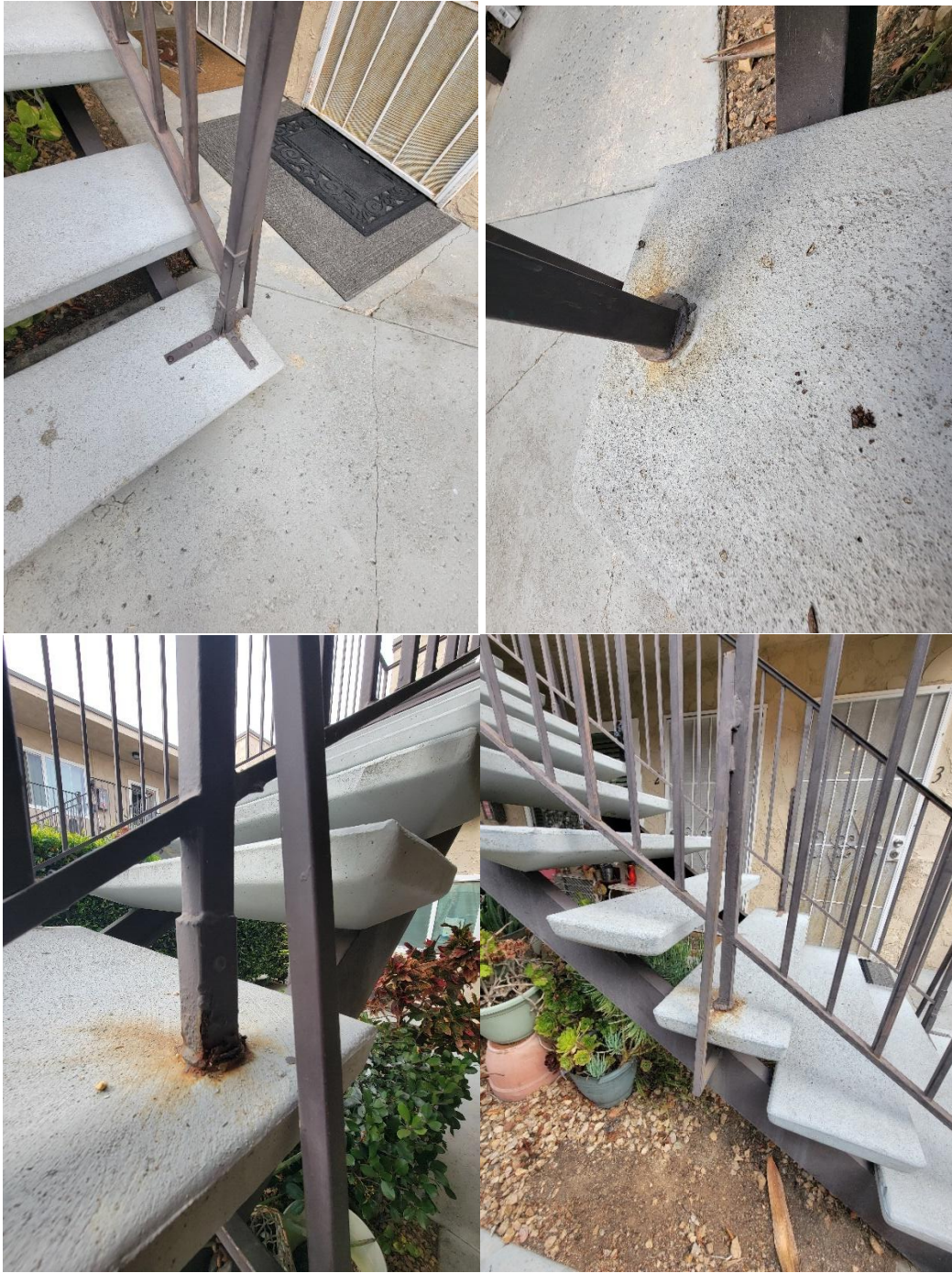
Picture 10: Typical steel stringer connection at the slab on grade



Picture 11: South stair at 4659 3rd street which all the stair railing and landing railings are wobbly and unsafe.



Picture 12: The stair railing is 35" high, post spacing varies with approximately 3 feet and 2 inches and 5 feet 5 inches post spacing on these pictures.



Picture 13: Different non-standard post anchorage to the concrete treads and steel stringer



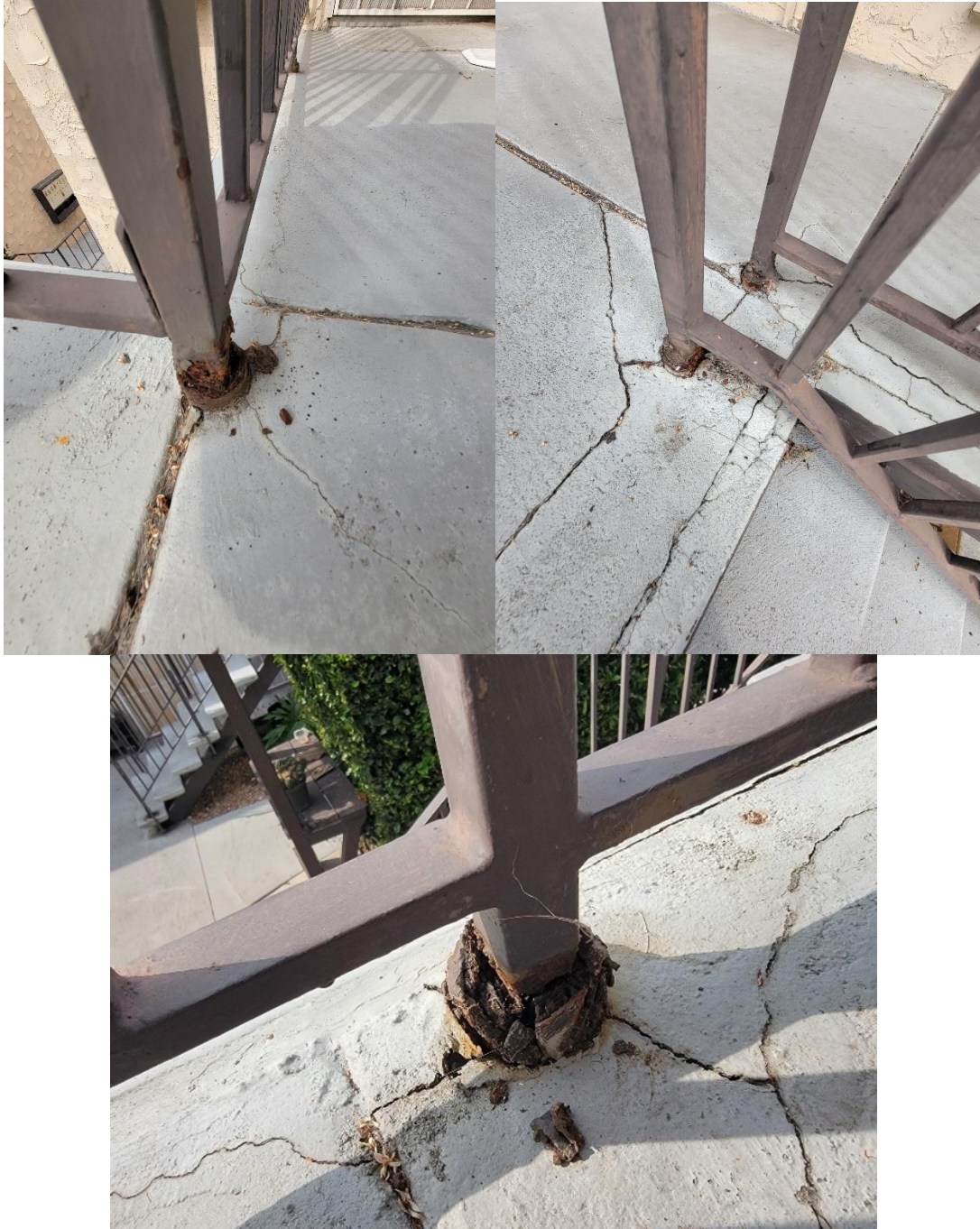
Picture 14: Different non-standard post anchorage to the concrete treads and steel stringer



Picture 15: Typical steel tube post measured 3" outer diameter.



Picture 16: View of landing railing which is wobbly and unsafe



Picture 17: View of landing railing posts anchorage showing corroded post base post and anchorage to the cracked concrete topping which the railing is wobbly and unsafe



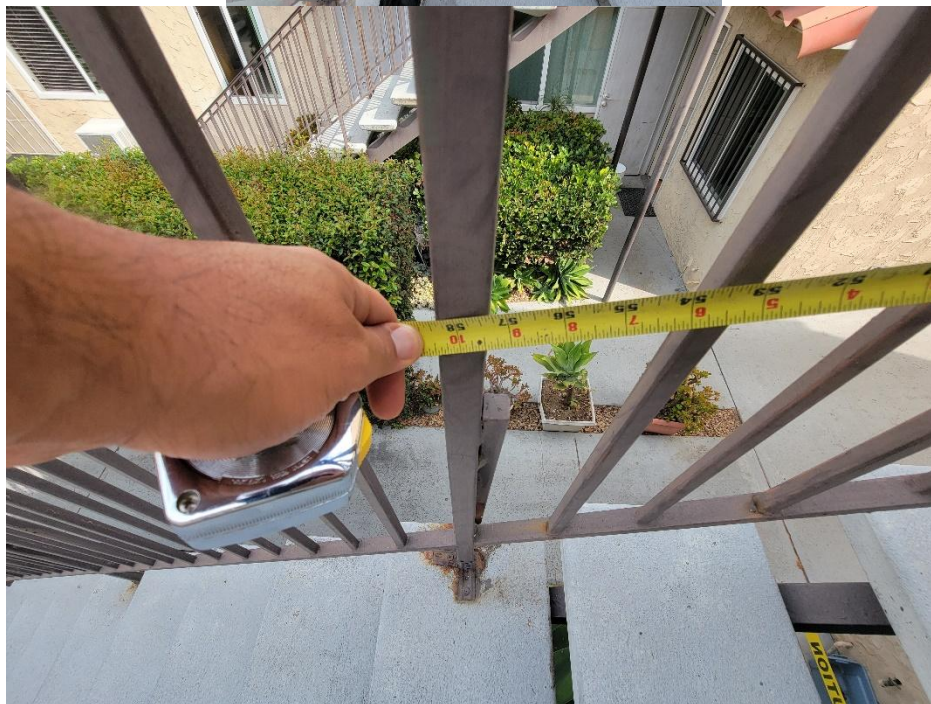
Picture 18: View of stair and landing railing posts anchorage showing corroded post base post and anchorage to the cracked concrete topping which the railing is wobbly and unsafe



Picture 19: North stair at 4653 3rd street which the left (west) stair railings is wobbly and unsafe.



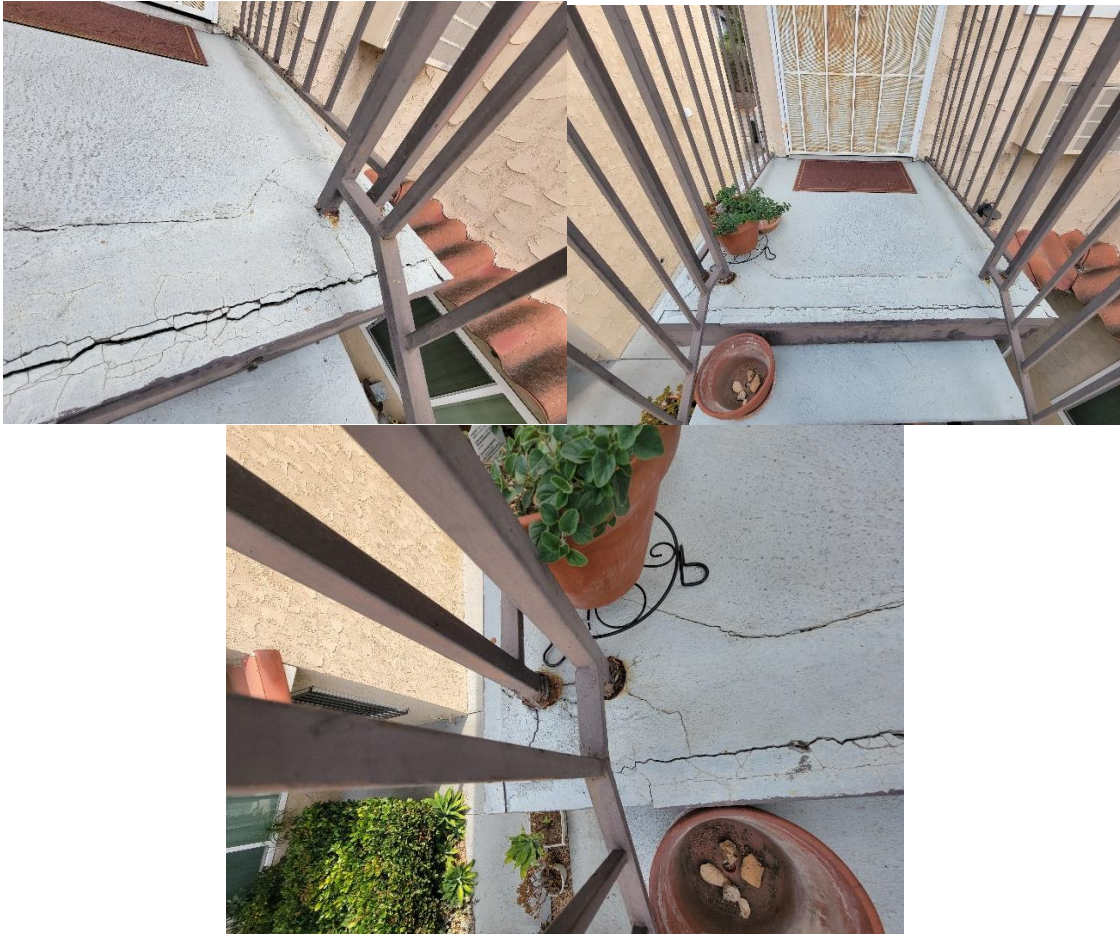
Picture 20: View of north stair at 4653 3rd street which has been temporarily shored.



Picture 21: The stair railing is 36" high, post spacing varies with approximately 4 feet 10 inches post spacing on this picture.



Picture 22: Different non-standard stair railing post anchorage to the concrete treads and railing landing to cracked concrete topping.



Picture 23: Different non-standard railing post anchorage to the landing's cracked concrete topping.



Picture 24: Typical steel tube post measured 3" outer diameter.



Picture 25: View of stair steel stringer connection to the landing's framing which is not exposed to be verified. Temporary shoring has been constructed. Cracked stucco along the stair connection observed.



Picture 26: View of temporary shoring including 4x4 posts, block footing, bolted connection to the steel stringers.



Picture 27: South stair at 4653 3rd street which the right (west) stair railings is wobbly and unsafe.



Picture 28: The stair railing is 36" high, post spacing varies with approximately 5 feet 3 inches post spacing on this picture.



Picture 29: The landing railing is 42" high, post spacing varies with approximately 4 feet 5 inches post spacing on this picture.



Picture 30: View of stair steel stringer connection to the landing's framing which is not exposed to be verified. Temporary shoring has been constructed. Cracked stucco along the stair connection observed.



Picture 31: View of temporary shoring including 4x4 beam and posts, and concrete block footing.



Picture 32: Stair is settled on the west side approximately 1"



Picture 33: Landing is level, and the posts are vertically aligned “plumb”



Picture 34: Views of landing and walkway



Picture 35: Different non-standard railing post anchorage to the landing's cracked concrete topping.



Picture 36: Different non-standard railing post anchorage to the landing's cracked concrete topping.



Picture 37: View of the landing railing anchorage to exterior stucco wall

Recommendations:

The following recommendations are not to be considered a specific design, but guidelines related to find out the foundation/building structural integrity and prevent more structural damage to the house. Refer to SB#721 for more information on emergency repair for immediate hazards to the safety of occupant and non- emergency repair deadlines and requirements. Note that the repair or retrofit to the abovementioned issues within this report required permit from the local building official (local enforcement agency could be City or County depending on the authority having jurisdiction).

All of stair steel stringer connection to the landing structure required to be exposed for further evaluation.

To replace the proper guard railing system to comply with the current code, the existing stair and landing/walkway condition shall be verified by reviewing the record drawings when available or removing the topping concrete to measure the concrete thickness and locate the buried framing below and evaluating any possible hidden wood deterioration on joist/beams or corrosion on steel framing under the concrete topping. Note that removing, replacing, and repairing any possible dry rotted wood or corroded steel framing might be required. When the thickness of concrete topping is not adequate for future post anchorage, other methods of anchorage such as anchor to wood framing/ blocking or steel framing below should be investigated. When as-built information of framing is available, the new railing configuration and anchorage design comply with current codes that should be conducted and designed by a professional engineer.

Special Notice:

The opinions and comments provided in this report are based on observations of the apparent performance of the inspected building. These performance standards are informed by the engineer's experience and professional studies. However, opinions related to compliance with specifications, legal requirements, or building codes are expressly excluded from our agreement to conduct this observation. This exclusion extends to the method and detailing of the foundation, which could not be fully assessed during the inspection.

It's important to note that this report does not provide a warranty regarding the future performance, lifespan, or need for repairs of the building or its foundation. Additionally, assumptions about these factors should not be made as a result of the engineer's observations.

Furthermore, evaluating the structure's capability to withstand applied loads, such as wind and seismic loads, requires a review of the as-built drawings and separate assessment. This evaluation is not included in this report and should be conducted separately for a comprehensive understanding of the structure's resilience.

Sincerely,

STRUCTIQ



Shahram Adabi, PE
License# C81489