

September 11, 2013

Leong Family Dentistry
420 Peninsula Ave.
San Mateo, CA

Attention: Mr. Roland Leong

13-139

Subject: Structural Review of Existing Building
420 Peninsula Ave, San Mateo, CA

Peoples Associates was requested to provide a letter identifying items not consistent with the existing building code per requirements of City of San Mateo. PASE conducted a site visit on September 6, 2013 to review the existing building construction. We understand existing drawings for the building are not available. This letter is based on our site observations, knowledge of building construction and informal calculations.

Description of Building

The existing building is a one-story structure constructed in the 1920's that is approximately 3,400 square feet. There is a basement under a portion of the building on the west side.

We understand Leong Family Dentistry bought the building in 2004. Renovations to the building were done in 2006. Based on renovation drawings provide by JGA Architects, most of the existing interior walls were removed and approximately 1/3 of the building was renovated to create the space occupied by Leong Family Dentistry and the remainder is unoccupied.

As part of the renovations, some of the exterior windows on the South and West Elevations were relocated and others were just replaced. We noted during our site visit that the windows at the West Elevation don't match the JGA drawings. The West Elevation in the JGA drawings shows 4 windows and there currently exists 5 windows.

In addition to the architectural renovations in 2006, framing was added under the roof structure to supplement the support of the roof. We understand from Mr. Leong that this work was done to add additional support as the roof was sagging. This work exposed some of the existing wall and roof structure allowing us to observe the existing construction.

Based on our observations made during our site visit, we were able to observe exposed areas of the original roof and wall framing and some of the first floor framing. The first floor framing was observed through crawl space access on the South and East of the building.

The first floor is approximately 4 feet above the grade and the height from the first floor to the roof is approximately 20 feet. The roof framing consists of 1x8 horizontal spaced sheathing over 2x8 rafters at 16 inches on centers with 2x8 ceiling joists supporting 1" plaster on metal lath. Exterior walls are constructed of stucco with 1x8 horizontal sheathing on 2x4 studs with 1

inch plaster on metal lath on the interior of the wall. Interior walls are 2x4 studs with gypsum board on each face. The raised first floor consists of 1x decking over 2x6 joists at 16” on center that are supported by 4x6 beams. The beams are supported on posts spaced approximately 6 feet on center. It should be noted that there is a line of beams and posts against the perimeter concrete stem wall. The line beams at the perimeter stem wall did not allow us to observe the existing anchorage of the wood framing to the concrete stem wall.

An approximately 11” thick concrete stem wall occurs around the perimeter of the building and crosses the interior space each direction. Note there are openings in the exterior stem wall not shown on the JGA drawings.

Structural Observations

During our site visit, we observed the interior and exterior of the building along with portions of the crawl space. As we walked around the building we observed areas that indicated previous repairs to stucco had occurred. The repairs were observed on the East, West and South elevations. The repairs were primarily at the corners of the windows and extended from the windows at a diagonal. There was also evidence of a horizontal repair at the bottom of the windows at the East Elevation. Cracks in the stucco were observed over the two of the windows at the North (front) Elevation.

Some of the roof framing and wall framing was exposed due to the added framing to support the roof. We did not observe any indications of water damage or deterioration to the exposed framing at the roof, walls or first floor. We also did not observe any staining to the existing plaster ceiling or interior walls.

During our review of the crawl space, we noted that there were openings in the stem walls that do not appear to be original. We did not observe any indications of reinforcement in the stem wall. We also observed hairline cracks in the stem wall. Also as part of our observations, we observed Simpson Strong-Tie ‘FJA’ hardware was added at approximately 54 inches on centers around the perimeter of the building. These are bolted to the existing concrete stem wall and nailed to the wood joists. The crawl space was dry at the time of our site visit and did not observe any indications of ponding water.

Conclusions

The lack of observed damage or deterioration to the original or newer framing indicates that both are in good condition and appear to be sound. Additionally, the exterior walls being supported directly on the concrete stem wall is better than similar construction with short wood framed walls (i.e. cripple walls).

The ‘FJA’ clips are an indication that some seismic retrofitting of the building has occurred in the past. However these clips are designed mainly for uplift (vertical forces) and not for lateral (horizontal forces along the wall line). Therefore, we would also expect to observe additional hardware that would improve the transfer of the horizontal forces. It is unlikely there were additional anchor bolts added to the wood framing on top of the concrete wall due to lack of accessibility because of the perimeter wood beam.

Though we did not produce formal calculations for review, Peoples Associates did perform

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some informal calculations to understand the forces being imposed on the walls and roof diaphragm to compare to the capacity of the existing walls and roof diaphragm. Note our calculations are based on the current building code (2010 California Building Code) and ASCE 31. These codes are referenced in the California Existing Building Code as viable codes for review of an existing building. Based on these calculations, the load on the existing exterior walls during a code level earthquake would be significantly higher than the capacity of the existing horizontal siding. The load on the roof diaphragm (1x8 spaced decking) is also significantly higher than the capacity of the existing spaced decking. These calculations indicate retrofit of the existing structure with sheathing on the walls and roof along with the addition of an interior shear wall would be warranted to improve the seismic performance of the structure. Additionally tiedowns adjacent to each window would be warranted based on the magnitude of the design level forces indicated above. The size of the existing footing below the stem wall is not known so we could not confirm its adequacy. However based on the structure's age and earthquake forces above, we have concerns that the size may not be sufficient and should be determined if retrofits are made to the building in the future. The building will resist some level of seismic activity but we have not performed an in-depth analysis to determine the level.

If you have any questions, please feel free to contact us.

Regards,



Michael R. Keaster, S.E.
Project Manager