VII. Summary of Rehabilitation Report

In 2013, the current landlord, MO Shattuck, LLC purchased the building and discovered the building had serious seismic vulnerability with a PML (probably maximum loss) in the high 40s/ low 50s.. Because of the urgency summarized below, the ownership immediately pursued plans for a seismic retrofit. As a result, the ownership is requesting that cost spent on the recent renovation be included in the Maintenance Renovation Budget for the Mills Act contract. In absence of the seismic renovations, a major earthquake could have destroyed the building and the landmark attributes in perpetuity. Fortunately, now the building is seismically upgraded and preserved for the future.

In addition to the seismic renovation of this three-story historic commercial structure, the renovation also included accessibility, waterproofing, mechanical, electrical, and plumbing system upgrades, limited interior suite modifications, and restoration and repainting of exterior historic components. At the ground level, improvements include exterior storefront replacement and new suite entrances. The intent is to maintain distinct identities for both the historic context and the modern renovations, while ensuring that the more contemporary, at grade improvements are in harmony with the historic fabric of the building.

The total renovation cost approximately $3,318,181.00.

Seismic Findings and Recommendations

The property is located in a seismically active region and impacted by 7 different faults. This risk is exacerbated by the fact that the building is free standing on 3 sides and constructed with partially reinforced concrete. MO Shattuck, LLC engaged a local structural engineer Ingraham-Dejesse Associates (IDA) to perform a seismic review of the building. Below are is a summary of the findings and recommendations from IDA to bring the buildings in compliance with the ASCE life safety provisions. See attached building plans which include details for the seismic work.

1. The diaphragm at the 2nd floor and roof levels do not have sufficient out-of-plane connections to the existing concrete walls. Recommendation: Nail a new 2x6 member to existing roof and floor joists at 48" oc. Install a new HDU holdown to each doubled joist. Drill and epoxy anchor bolts into concrete wall. See attached plans.

2. The diaphragm at the 1st floor, 2nd floor and roof levels do not have sufficient in-plane connections to transfer seismic shear from the diaphragm to the shear wall. Recommendation: Drill and epoxy new anchor bolts at 24" along perimeter wall and interior concrete wall. See attached plans.

3. It is likely that the interior mezzanine is inadequately braced to the building. We understand that the final architectural design may or may not include this mezzanine or

pieces of it. Recommendation: Once design is complete, the mezzanine should be evaluated.

4. The number of lines of shear walls in each principal direction is not equal to or greater than 2. The sides fronting the streets are open and do not provide sufficient lateral resistance. Recommendation: Steel braced frames or moment frames with foundations should be added over the full height of the building at multiple locations. During construction, we learned that the concrete very weak on the façade of the University side of the building. The concrete was so weak that dowels could not be epoxied into the new shear wall per plan, which resulted in constructing a new curtain wall. This was extremely costly, but was necessary to preserve the north elevation.

5. The roof diaphragm is discontinuous due to the mansard detailing. Recommendation: Diaphragm continuity should be provided during mitigation measures, such as sheathing the underside of the ceiling joists in the attic.

6. There are no continuous cross ties between diaphragm chords. Recommendation: Add straps to provide a sub-diaphragm system that will mitigate the diaphragm span deficiency. Assume 50 straps at each level (roof, 2nd floor, 1st floor) at locations to be determined.

7. The stairwell from the first floor to the second floor creates a hole directly adjacent to the south shear wall, which interrupts the connection of the diaphragm to the shear wall. Recommendation: Add a collector within the second floor to transfer diaphragm forces into the wall beyond the stair well. Additionally, this wall is un-braced for the clear height from first floor to roof. Recommendation: This wall should be reinforced to prevent out of plane failures. See attached plans.

8. The roof consists of a straight sheathed wood diaphragm with a span ratio of just over 2. Straight sheathed diaphragms with large span to depth ratios tend to be flexible during large earthquake, causing damage to attached elements. In this building, the diaphragm ratio is just over 2, therefore this deficiency is not critical to mitigate at this time. Recommendation: Add plywood to the roof over the straight sheathing during any future reroofing.