NABIH YOUSSEF ASSOCIATES
STRUCTURAL ENGINEERS

May 27, 2016

Mr. Geno St. John, III
Senior Leasing Specialist
UCLA Real Estate
10920 Wilshire Boulevard, Suite 810
Los Angeles, CA 90024

Re: University of California Seismic Rating for 1149 South Hill Street, Los Angeles

Dear Geno:

Nabih Youssef Associates (NYA) have performed an Independent Review of the 11-story office building located at 1149 South Hill Street in Los Angeles. The review consisted of a site visit to observe the existing condition of the exposed structural elements, identification of potential falling hazards that pose a significant life or safety risk to occupants, a review of structural drawings and an ASCE 41-13 Tier 2 evaluation, including dynamic analyses.

Description:

The building is rectangular-shaped in-plan with overall dimensions of approximately 149'-0" by 169'-0". The building has 11 stories above grade and two levels below-grade. The building was completed in 1965 and likely designed to the 1958 edition of the Uniform Building Code.

A bridge building connects the 1149 South Hill building to the 32-story 1150 South Olive building. The seismic separation between buildings varies over the height of the building and is 8" at the 11th floor. A pedestrian bridge connects the 1149 South Hill building to the Public Works building at 212 West 12th Street. A 3" seismic joint separates the building and the bridge. There is also an adjacent 2-story auditorium building to the north with a separation joint of unknown width.

The roof and 11th floor are constructed of 4½" light weight concrete slabs spanning to wide flange steel beams and girders. The typical floor are constructed of metal deck with 2½" light weight concrete fill spanning to wide flange steel beams and girders. The steel beams and girders are supported by wide flange steel columns that are spliced at every other floor and are continuous to the foundation. The foundation system consists of shallow concrete spread footings supporting columns and walls. Concrete piles support the south retaining wall.

The lateral-force-resisting system consists of the metal deck and concrete fill roof and floors acting as structural diaphragms to transfer seismic inertial forces to the distributed steel moment frames, where each frame bay in both directions of the building is a moment frame. The moment frames have partially restrained double split-tee connections along the strong axis of the columns and bolted flange plate connections along the weak axis of the columns.

The building was subjected to ground motion during the 1994 Northridge Earthquake. Recorded ground motion near the site indicates peak ground acceleration of 0.14g. There are no reports of damage to the building from the earthquake.

Observation:

A site visit was performed by Owen Hata of NYA on May 9, 2016, to observe the condition and characteristics of the building. Observations were limited to visible areas of the structure. The building structure appeared to be in general conformance with the original structural drawings, no significant

structural alteration was observed. The building generally appeared to be in good condition and there were no obvious signs of structural distress.

Mechanical and electrical equipment were observed to be generally anchored and piping systems generally braced. The curtain wall system of the building consists of an aluminum mullion system with laminated glass. There is canopy at the ground floor along the Hill Street elevation that is cantilevered from the building. No falling hazards were observed on the exterior of the building.

Evaluation:

The building is located on a flat site and is not susceptible to landslide. The site is not located within an Alquist-Priolo Earthquake fault zone – a geologic zone where surface rupture may occur. The site is not located in an area recognized by the State of California where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacement. In addition, USGS regional liquefaction hazard maps indicate that the site is located in a region of low susceptibility to liquefaction.

An ASCE 41-13 Tier 2 assessment was performed assuming a site soil classification D. Table 1 provides the design spectral acceleration at short period and one second period for BSE-1E and BSE-2E.

Table 1 – Design Spectral Acceleration Values for BSE-1E and BSE-2E

Hazard Level	S_{XS} (g)	S_{X1} (g)
BSE-1E	0.956	0.528
BSE-2E	1.667	0.862

A three-dimensional computer model of the building was developed using the structural analysis software ETABS, developed by Computers & Structures, Inc.

The model included all elements that significantly contribute to the lateral force resistance of the building, roof and floor diaphragms, steel moment frames and basement concrete walls. The roof and floor diaphragms were modeled as rigid. The partially restrained double split-tee connections were modeled using rotational springs at the beam-to-column joints as per ASCE 41-13. Figure 1 shows a plot of the ETABS model.

The seismic performance of the building was evaluated using the methodology of ASCE/SEI 41-13, Seismic Evaluation and Retrofit of Existing Buildings, which provide guidelines for relating engineering limit states to expected damage/performance. The building was analyzed using the linear dynamic procedure, where modal spectral analysis using elastic response spectra are not modified to account for anticipated nonlinear response. The procedure produces displacements that approximate the anticipated maximum displacements. However, the calculated internal forces exceed the anticipated maximum internal forces. Thus, forces are evaluated using acceptance criteria that include modification factors (m-factors).

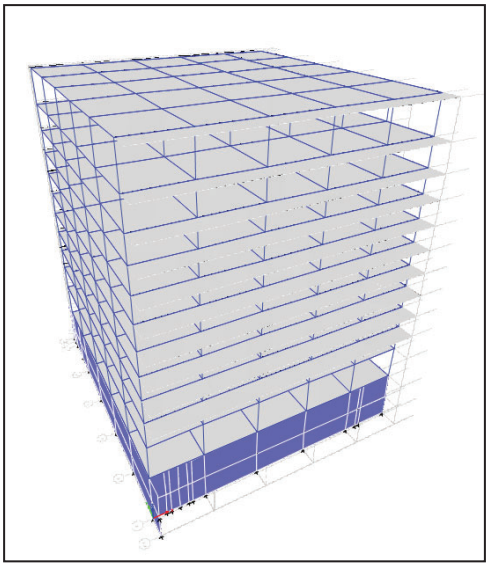

Figure 1 – ETABS Model

The results indicate that some connections (approximately 5% in either direction) are overstressed at the life safety and

collapse prevention performance levels. However, the average demand-to-capacity ratios of the connections are less than 0.5 at the life safety and collapse prevention performance levels. In addition, three columns at the 11th floor and four columns at the 10th floor were overstressed at the life safety and collapse prevention performance levels. Given that every frame bay participates in resisting lateral forces, there is adequate reserve capacity and redundancy to provide acceptable performance.

The results of the analysis also indicate that the provided seismic joints separating the 1149 South Hill building from the adjacent buildings and pedestrian bridge are not adequate. However, the floors and roof of the adjacent buildings and pedestrian bridge are vertically aligned with the floors of the 1149 South Hill building, thus any potential impact/pounding during an earthquake will result in localized damage to the floor slabs.

The building has a complete and redundant load path to transfer seismic forces to the foundations.

Conclusion:

Based on observations made during our site visit and the results of the ASCE 41-13 Tier 2 assessment, the expected earthquake performance of the building corresponds to the University of California seismic rating of "IV" ("Fair").

Sincerely,

NABIH YOUSSEF & ASSOCIATES

Nabih Youssef, S.E.
Principal

Enclosure

References:

Structural drawings for Occidental Center, Brandow & Johnston, August 15, 1962.

Seismic Hazard Zone Report for the Hollywood 7.5-Minute Quadrangle, Los Angeles County, CA, prepared by State of California, Department of Conservation Division of Mines and Geology, Report No. 26, 1998.

State of California Seismic Hazard Zone, Hollywood Quadrangle, March 25, 1999.

University of California Seismic Safety Policy, September 15, 2014.

Photo 1 – Bridge Building

Photo 2 – Pedestrian Bridge

Photo 3 – Typical Steel Framing

Photo 4 – Typical Beam to Column Connection

Photo 5 – Emergency Generator

Photo 6 – Bracing of Piping System