APPENDIX D

Seismic Risk Assessment

PARTNER
Engineering and Science, Inc.

SEISMIC RISK ASSESSMENT REPORT

Panorama Mall
8401 Van Nuys Boulevard
Los Angeles, California 91402

Report Date: July 23, 2015
Partner Project Number: 15-140920.1

Prepared for:

Primestor Development, Inc.
201 South Figueroa Street, Suite 300
Los Angeles, California 90012

Engineers who understand your business

July 23, 2015

Mr. David Abasta
Primestor Development, Inc.
201 South Figueroa Street, Suite 300
Los Angeles, California 90012

Subject: **Seismic Risk Assessment Report**
Panorama Mall
8401 Van Nuys Boulevard
Los Angeles, California 91402
Partner Project No. 15-140920.1

Dear Mr. Abasta:

Partner Engineering and Science, Inc. is pleased to provide the results of the seismic risk assessment (SRA) performed on the above-referenced property. At a minimum, this assessment was performed in general conformance with the scope and limitations as set forth by the ASTM E2026-07 Guide and E2557-07 Practice, and as specified in the agreed contract that initiated this work.

The purpose of this assessment is to provide a determination of the expected seismic performance of the buildings at the subject property. The SRA process includes assessment of the regional seismic ground motion hazard, the site soil and stability conditions, characterization of the building structural system(s), determination of building damageability (referred to as the PML), and a determination of building stability. Recommendations are provided, as applicable, for buildings with poor or unacceptable seismic performance.

This assessment was performed utilizing methods and procedures consistent with good commercial or customary practices designed to conform to acceptable industry standards. The independent conclusions represent Partner's best professional judgment based upon existing structural conditions and the information and data available to us during the course of this assignment.

We appreciate the opportunity to provide structural consulting services to Primestor Development, Inc. If you have any questions concerning this report, or if we can assist you in any other matter, please contact Misty Vazquez at (818) 337-1203.

Sincerely,

Partner Engineering and Science, Inc.

Jay Kumar, P.E. (C77601, CA)
Technical Director
Structural Engineering Group

Misty Vazquez
Relationship Manager

EXECUTIVE SUMMARY

Executive Summary

In accordance with the requirements of Primestor Development, Inc. (Client), Partner Engineering and Science, Inc. (Partner) has performed a seismic risk assessment (SRA), with Probable Maximum Loss (PML) determination, of the improvements located at 8401 Van Nuys Boulevard, Los Angeles, California 91402 (Subject Property).

ASTM E2026 and E2557 Seismic Due Diligence Report Summary	
Property Name	Panorama Mall
Property Address	8401 Van Nuys Boulevard, Los Angeles, California 91402
Report Title and Date	Seismic Risk Assessment Report with Probable Maximum Loss (PML), dated July 23, 2015
Field Inspector	Jay Kumar P.E.
Field Inspector License No.	C77601, California
Field Inspection Date	July 10, 2015
Report Reviewer	Jay Kumar, P.E.
Author License No.	C77601, California
Documents Reviewed:	*Refer to Section 2.3*
Methods to Determine Site Ground Motions and Site Stability	SeismiCat seismic risk assessment tool, using the 2010 USGS ground motion database, publicly available soils data and liquefaction hazards data. Site specific geotechnical report used if provided to Partner by Client.
PML Definition	Scenario Expected Loss (SEL) based on the 2010 USGS database, 475-year probabilistic ground motion (10% in 50-year chance of exceedance). Referred often to as SEL-475 or PML50
Analysis Methods/Procedures Used to Determine PML	A combination of the Thiel-Zsutty method, ATC-13-1, and the Code Oriented Damage Assessment (CODA) model developed by ImageCat in the SeismiCat tool. Losses are reported using the Thiel-Zsutty method within this report
Analysis Methods/Procedures Used to Determine Building Stability	2012 International Building Code, the Original Design Code, and the basic guidance and recommendations prescribed by ASCE 31-01 "Seismic Evaluation of Existing Buildings", Tier 1 Procedure
ASTM E2026 & E2557 Level of Investigation	Ground Motion G[1], Site Stability SS[1], Building Damageability BD[1]. Building Stability BS[1]
Deviations from ASTM Guide and Practice	*Refer to Section 1.3*

ASTM E2557 Summary Statement

Partner has performed a seismic risk assessment with probable maximum loss (PML) determination for earthquake due diligence assessment in conformance with the scope and limitations of ASTM Guide E2026 and Practice E2557 for a Level 1 assessment of the subject property at 8401 Van Nuys Boulevard, Los Angeles, California 91402. Any exceptions to, or deletions from, ASTM requirements are described in Section 1.3 of this report and are listed above. This PML evaluation for earthquake due diligence assessment has determined the PML for the subject property to be as follows:

Building(s)	*SEL-475*	*SUL-475*
Building Section A - 8401 Van Nuys Boulevard, Los Angeles,	13%	22%
Building Section B - 8401 Van Nuys Boulevard, Los Angeles,	13%	22%
Building Section C - 8401 Van Nuys Boulevard, Los Angeles,	16%	28%
Aggregate for the Subject Property	**14%**	**25%**

The PML is defined as the Scenario Expected Loss (SEL) based on the 2010 USGS database, 475-year probabilistic ground motion (10% in 50-year chance of exceedance). The site **meets** the site stability requirements and the buildings **meet** the building stability requirements as determined by the methods noted above.

The undersigned hereby acknowledges that the above referenced report is considered an engineering work product, and as such confirms that I am qualified by licensing and experience to conduct such review consistent with ASTM E2557 Section 6.4. Furthermore, the report was prepared by or under the direct supervision of the undersigned as specified by state laws or codes, including but not limited to the site visit, determination of building stability, and estimation of probable maximum loss. The information and opinions in the report are subject to the limitations and qualifications contained therein.

Jay Kumar, P.E.
Partner Engineering and Science, Inc.
C77601, California
Registered Professional Engineer (Civil)

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APPENDICES

The following report Figures and Appendices are attached at the end of this report.

Appendices

- Appendix A: Site Plan
- Appendix B: Site Photographs
- Appendix C: Soil and Fault Hazard Maps
- Appendix D: Modified Mercalli Intensity Scale
- Appendix E: Seismic Zone Map of the United States
- Appendix F: State Seismic Hazard Map
- Appendix G: Provider Qualifications (Resumes)

1.0 INTRODUCTION

1.1 Purpose

The purpose of this seismic risk assessment (SRA) is to evaluate the expected seismic performance of the subject site and buildings using a probabilistic seismic hazard and an industry recognized building damageability model and building stability evaluation methodology.

1.2 Scope of Work

This assessment was performed in general conformance with the scope and limitations as set forth by the following scopes of work, standards, and as specified in the agreed contract that initiated this work.

- ASTM E2026-07 "Standard Guide for Seismic Risk Assessment of Buildings"
- ASTM E2557-07 "Standard Practice for Probable Maximum Loss (PML) Evaluations for Earthquake Due-Diligence Assessments"

This assessment was performed utilizing methods and procedures consistent with good commercial or customary practices designed to conform to acceptable industry standards. The independent conclusions represent Partner's best professional judgment based upon existing conditions and the information and data available to us during the course of this assignment.

1.3 Deviation from ASTM E2026 / ASTM E2557

Deviations from the ASTM E2026-07 Guide and E2557-07 Practice are listed below. The deviations are part of the Partner standard operating procedures for this specific SRA, were specified in the Client's scope of work, or were due to limitations in staffing based on the required schedule for this engagement.

- The report was prepared in full conformance with the required scope and provider qualifications requirements of ASTM E2026 and E2557. No deviations are noted.

1.4 Descriptive Qualifiers

The following definitions and terminology are used in this report regarding the physical condition of the structural elements and the lateral load resisting system. Similar descriptive qualifiers are used with respect to the seismic hazards, site conditions, and expected seismic performance of the building(s).

Excellent	New or like new condition
Good	Well maintained, with no significant signs of distress or damage
Average	Acceptable condition; minor signs of corrosion or damage due to normal use and exposure to the elements
Fair	Marginally satisfactory; some signs of corrosion or damage that warrant remedial actions
Poor	Remedial action, repair and/or seismic retrofit recommended

Unless stated otherwise in this report, the physical condition of the structural elements is considered to be in good condition.

1.5 Limitations

The assessment performed by Partner is based upon the guidelines set forth by the ASTM Standard current to the issuance of this report and subject to the limitations stated therein. Our review of the subject property consisted of a visual assessment of the site, the building exteriors and interiors, and any visible structural elements. Any technical analyses made are based on the appearance of the improvements at the time of this assessment, a review of any available structural drawings or geotechnical reports, and the evaluator's experience with buildings of this structural configuration, constructed within the documented era.

Information regarding the subject property is obtained from a site walk-through survey, local government agency records review (if specifically requested in the contract), interviews and client-, tenant- or property owner-provided documents. No material sampling, invasive or destructive investigations, equipment or system testing was performed. The observations and related comments within this report are limited in nature and should not be inferred as a guarantee of future seismic performance.

1.6 User Reliance

Partner was engaged by Primestor Development, Inc. (Client), or their authorized representative, to perform this assessment. The engagement agreement specifically states the scope and purpose of the assessment, as well as the contractual obligations and limitations of both parties. This report and the information therein, are for the exclusive use of the Client. This report has no other purpose and may not be relied upon, or used, by any other person or entity without the written consent of Partner. Third parties that obtain this report, or the information therein, shall have no rights of recourse or recovery against Partner, its officers, employees, vendors, successors or assigns. Any such unauthorized user shall be responsible to protect, indemnify and hold Partner, the Client and their respective officers, employees, vendors, successors and assigns harmless from any and all claims, damages, losses, liabilities, expenses (including reasonable attorneys' fees) and costs attributable to such use. Unauthorized use of this report shall constitute acceptance of, and commitment to, these responsibilities, which shall be irrevocable and shall apply regardless of the cause of action or legal theory pled or asserted.

This report has been completed under specific Terms and Conditions relating to scope, relying parties, limitations of liability, indemnification, dispute resolution, and other factors relevant to any reliance on this report. Any parties relying on this report do so having accepted the Terms and Conditions for which this report was completed. A copy of Partner's standard Terms and Conditions can be found at http://www.partneresi.com/terms-and-conditions.php

2.0 STRUCTURAL SYSTEM REVIEW

2.1 General

Property Summary Data	
Property Name	Panorama Mall
Property Address	8401 Van Nuys Boulevard, Los Angeles, California 91402
Number of Buildings	One with three linked building sub-sections
Number of Stories	All single story with basement in Building Section-C
Building Square Footage	72,420 combined SF
Date of Construction	1956 & 1980
Construction Classification	SF_S: Structural Steel Frame

2.2 Site Observations

The site inspection was conducted by Jay Kumar P.E. on July 10, 2015. The investigation and review of the structural elements was limited to the structural elements that are visible without removal of the architectural finishes. No invasive investigation was performed as part of this inspection. Photos of the structural plans and subject property are provided in Appendix B.

2.3 Document Review

The following documents were requested, and if available, reviewed as part of this assessment. Information obtained from the documents is incorporated into the appropriate Sections of this report. If available, copies of the referenced documents are included in the appendices.

Documents	
Drawings For Building Sections A & B	Original Structural Drawings prepared by Alvin Geller & Associates, dated 10-12-1979 sheets S1-S11 (complete set)
	Original Architectural Drawings prepared by McLellan, Cruz, Gaylord, dated 10-10-1979
Drawings For Building-C	Original Structural Drawings prepared by Brandow Johnston, dated 11-9-1955
	Original Architectural Drawings prepared by Welton Beckett & Associates, dated 3-30-1955
Seismic Retrofit Drawings	N/A
Geotechnical Report	Not available
Prior SRA Reports	Not available

2.4 Codes and Jurisdiction

The review of the applicable building codes and jurisdiction having authority is summarized below:

Codes and Jurisdiction	
Original Design Code	Building Sections A & B 1976 Uniform Building Code (UBC) *(verified through drawing review)* Building Section-C 1955 Los Angeles Building Code (LABC) *(verified through drawing review)*
Current Code (National)	2012 International Building Code (IBC)
Current Code (State)	2013 California Building Code (CBC) which adopts the 2012 International Building Code (IBC) with amendments
Prior Seismic Retrofit Code (Based on historic permit and/or structural document review)	N/A
Mandatory Seismic Retrofit Upgrades and Ordinances	N/A
Jurisdiction	City of Los Angeles, California

2.5 Property Overview

The subject property consists of three building sections constructed in two phases. The more easterly building section was constructed in 1956 as a stand-alone retail shopping center. In 1979 the property was converted into a mall with the addition of building sections A & B and the interior connecting mall corridor. The property is adjoined to the south by an existing department store that was constructed prior to the subject properties under review.

2.6 Foundation System

The original Building Section C is founded on a combination of spread footings and deep pile foundation elements. The allowable soil pressure for spread footings was listed in the structural plans as 1500 psf. The plans indicate that the building is supported on groups of 16-inch diameter concrete piles that were drilled and poured. Piles extend below grade an average of 24-feet and are grouped as single, two, three, and four pile caps. The pile are grid tied together with 12-inch by 12-inch reinforced concrete tie beams. The basement floor is reinforced concrete slab on grade.

The Building Sections A & B are founded on a combination of spread footings and deep pile foundation elements. Each interior column appears to be supported over one 20-inch diameter drilled pile. The piles support continuous east west oriented interior widened strip footings. Cantilevered columns along the west side of the structure (at the mall side) are embedded into a reinforced concrete grade beam that is 20-inches wide and 30-inches deep. Pile caps that support the transverse braced frames to the interior of the buildings are also linked together with 14-inch by 14-inch reinforced concrete grade beams. Perimeter walls inline with the east west direction are founded on 16-inch wide by 24-inch deep grade beams in conjunction with 12-foot wide spread footings. These foundation elements are interconnected with a 4-inch thick slab on grade between the wide spread footings.

2.7 Gravity Load Resisting System

Gravity loads for Building Sections A & B (dead and live) are supported a structural steel space frame. The roof deck is comprised of corrugated 20 GA steel deck with 2.5 inches of reinforced light concrete fill (vermiculite concrete). The roof is supported on hot rolled wide flange steel beams that span to wide flange steel girders and built-up tapered steel girders. The horizontal roof framing is supported on a combination of tube-steel columns, wide flange and 8-inch diameter pipe columns.

Gravity loads for Building Section C (dead and live) are supported a structural steel space frame. The roof deck is typically a Corruform brand steel corrugated deck pan with 2.5 inches of reinforced lightweight concrete fill. The decking is typically supported on steel double-bar joists spaced at 36-inches oriented in the north south direction. The bar joists span to wide flange steel girders and built-up steel plate girders. These are in turn supported on wide flange steel columns and reinforced masonry walls. The ground floor flat concrete slabs are supported on distributed interior concrete columns with thickened column caps and column strips as well as reinforced concrete beams and girders. Interior load bearing partition walls (that demise tenant spaces) in the basement are also constructed with reinforced brick masonry that in some cases extends up to roof level to support primary steel framing. The concrete framing supporting the ground floor slab also extend out to the perimeter load bearing perimeter concrete basement walls and pilasters that share the wall.

2.8 Lateral Force Resisting System

The lateral force resisting system (LFRS) in Building Sections A & B are characterized as a dual system with concentric braced frames and cantilevered columns. In each Building Section of A & B the semi-rigid roof diaphragm is restrained laterally in the long direction by two separate steel brace frames (tube steel chevron braces) along the west elevation and by cantilevered wide flange columns along the east entrance side of the retail store fronts and the north and south building ends. These W12x58 cantilevered columns are embedded into a deep grade beams to enhance fixety at their bases, and the tops of the columns are rigidly attached to the adjoining tapered girder framing with W4x13 knee braces and large triangular stiffener/gusset plates at end conditions. The tapered girders transfer seismic forces to the upper raised roof deck sections with diagonal steel angle bracing between the upper and lower roof framing. In the narrow direction of these two building sections there are two additional lines of full height chevron brace frames (tube steel CBF) near fifth points across the diaphragm.

The lateral force resisting system (LFRS) in Building Section C is characterized as also characterized as a dual system with rigid steel frame cantilever steel frame elements and reinforced masonry shear walls. The semi-rigid roof diaphragm is restrained laterally by cantilevered wide flange columns that are fixed into the perimeter grade beams with their bases welded to flat plates embedded into the perimeter basement walls. The columns are fixed at their tops with W8x24 steel brace elements welded to the adjoining wide flange beams and plate girders (with flange stiffener plates at attachments). In the transverse direction of the building section the masonry walls are connected to the plate girders and wide flange beams with welded dowel bars. The shear walls also engage the concrete roof deck with #4 hook dowels at 18-inches. The ground floor slabs are restrained laterally by the perimeter concrete basement walls, as well as the reinforced brick masonry partition walls between tenant basements.

2.9 Design Review

The subject property has attributes that contribute both positively and negatively to the seismic performance of the structure. In general, lighter weight structures with regular configuration and a redundant and ductile LFRS will have more favorable performance than a building with limited redundancy and irregular shape due to horizontal and vertical setbacks.

2.9.1 Positive Structural Attributes

The building has the following positive structural and configuration attributes that contribute to favorable seismic performance:

- The foundations of all building sections appear to be robust for the building loads and may have been designed to potentially support additional floors.
- The buildings are single story without excessively heavy roof framing thereby reducing the force demands on the lateral force resisting systems.
- Complete lateral load paths were identified in all of the buildings that establish direct connectivity between the roof framing and the foundations.
- The cantilevered columns in Building Section C are highly redundant along the mall walkway line.
- In Building Sections A, B, & C there are at least two lines of shear resistance in each orthogonal direction.
- The lateral systems in Buildings A & B are highly redundant with four lines of resistance in the east west direction and good redundancy in the long direction of the building.
- The buildings have been subject to moderate ground motions from the 1994 Northridge earthquake. Based on the Shakemaps developed by the California Geological Survey the subject property experienced approximately 0.47g peak ground acceleration (PGA), a 1.20g 0.3 second Spectral Acceleration, and a 1.0 Second Spectral Acceleration of 0.68g. After the Northridge earthquake a mandatory inspection program was implemented by the Los Angeles Building Department for moment-resisting steel frame buildings within specific regions that experienced a site PGA of 0.20g or greater. No post Northridge damage inspection reports were provided for our review. The buildings were likely inspected but this information was not available for review. The accelerations listed above are considered to be in the range with 475 year event level accelerations 0.47/0.51=92%, 01.20g/1.12g=107%, 0.68g/0.66g=103% adjusted for site class D soil. The building has been shaken with ground peak ground accelerations similar in magnitude to the specified to 475 return period levels. Past performance, however, is not considered to be an accurate predictor of future resiliency or performance due the nearly infinite variety of ground motion frequencies that can occur. No evidence of prior "substantial damage" was observed, although this could not be verified.

- The buildings appear to be in good repair.
- These buildings are expected to remain stable and be damage resilient in a design basis earthquake.

2.9.2 Negative Structural Attributes

The building has the following negative structural and configuration attributes that contribute to unfavorable seismic performance:

- The interface between the two building groups is expected to have stiffness inconsistencies that are likely to cause elevated levels of non-structural damage at building interfaces.
- We were not able to access any prior damage inspection reports from the 1994 Northridge earthquake for direct comparisons and to assess prior repairs in response to a moderate earthquake. It is expected that the subject property suffered substantial non-structural damage and potentially light structural damage although none could be identified during the review of the buildings.
- Post-earthquake repair history and documentation of the repair history was not available.
- The gas feed lines on the roof deck are supported on wood riser blocks that do not penetrate the roof membrane. The lines are unbraced for more than 100-feet and could be prone to damage and rupture in strong ground shaking thereby increasing the potential for earthquake induced fire. Steps should be taken to establish improved anchorage and bracing of the gas feed lines.
- Bracing of roof top mechanical equipment was both good and poor. The heavy roof top equipment should be closely evaluated and properly secured to the roof deck and the roof framing with code approved attachments that can prevent separation and overturning of equipment.
- One of the roof parapets was heavily braced while another similar parapet was not. This may be evidence of prior damage and a localized repair response but this could not be verified.

3.0 SEISMIC HAZARD AND SITE STABILITY

3.1 Earthquake Ground Motion

The probabilistic seismic ground motions are determined for the subject property for the following:

- Quantify the 475-year probabilistic seismic ground motion for calculation of the seismic loss estimations provided in Section 4.2.
- Quantify the current Building Code design-basis seismic ground motions in comparison with the design-basis ground motions required by the Building Code in effect at the time of construction. The current Building Code design-basis seismic ground motion is utilized in the building stability assessment provided in Section 4.3.

Seismic ground motions were obtained from the 2010 United States Geological Survey (USGS) seismic hazard database. This seismic hazard database is reported through the SeismiCat seismic risk assessment tool utilized by Partner. Site Class B-C and Site Class D PGA and Spectral Acceleration (SA) values for the subject property are provided below for five typical return periods.

Site Class B-C

Return Period	***PGA (%g)***	***SA at 0.2 second (%g)***	***SA at 1.0 second (%g)***
10	3.5	7.8	2.4
72	18.1	42.2	13.1
475	**46.8**	116.2	34.4
975	61.2	155.6	45.8
2475	82.5	214.0	63.1

Site Class D

Return Period	***PGA (%g)***	***SA at 0.2 second (%g)***	***SA at 1.0 second (%g)***
10	5.3	12.0	5.3
72	23.1	51.2	26.9
475	51.0	111.6	65.9
975	63.6	140.3	85.4
2475	81.9	179.2	115.3

The 475-year probabilistic seismic hazard for the subject property is summarized below for Site Class B-C. Site specific soil adjustments are made in the loss estimation calculation as appropriate.

Return Period	***Ground Motion Parameter***
475-Year PGA (*10% probability of exceedance in 50-Years)*	**0.47g**
Instrument Intensity (*1 to 12*)	**9.5**
Modified Mercalli Intensity (MMI) (*I to XII*)	**X**

3.2 Regional Earthquake Faults and Seismic Activity

Several significant earthquakes have occurred in the greater Los Angeles region in recent history. Major quakes, including the 1933 Long Beach, 1971 San Fernando, 1987 Whittier and the 1994 Northridge, have caused significant damage to apartment buildings, parking structures, office buildings and major freeways. The lessons learned from the damage sustained due to these earthquakes and others have served, in part as the basis for the modern Building Code seismic design provisions.

The following table lists the active earthquake faults that could produce a damaging earthquake in the greater Los Angeles region. The faults located within approximately 50-mile radius are in listed order by distance to the subject property. The limiting magnitude (maximum earthquake potential) and fault type are provided. Table includes Fault Name, Faulting Type, Limiting Magnitude (i.e. Maximum Credible Earthquake), and the straight-line distance from the subject property to the closest point on the fault trace (in miles).

Earthquake Fault Trace	***Type***	***Limiting Magnitude***	***Distance***
Verdugo	RV	6.9	3.0
Sierra Madre (San Fernando)	RV	6.7	4.8
Sierra Madre Connected	RV	7.3	4.8
Santa Susana, alt 1	RV	6.9	7.0
Northridge	RV	6.9	7.0
Hollywood	SS	6.7	9.7
Sierra Madre	RV	7.2	9.7
San Gabriel	SS	7.3	9.8
Santa Monica Connected alt 1	SS	7.3	10.9
Santa Monica, alt 1	SS	6.6	10.9
Santa Monica Connected alt 2	SS	7.4	11.0
Santa Monica, alt 2	SS	6.8	11.0
Elysian Park (Upper)	RV	6.7	11.6

Earthquake Fault Trace	Type	Limiting Magnitude	Distance
Newport-Inglewood, alt 2	SS	7.2	12.9
Newport Inglewood Connected alt 1	SS	7.5	12.9
Newport Inglewood Connected alt 2	SS	7.5	12.9
Newport-Inglewood, alt 1	SS	7.2	12.9
Malibu Coast, alt 1	SS	6.7	14.2
Malibu Coast, alt 2	SS	7.0	14.2
Puente Hills	RV	7.1	14.3
Holser, alt 1	RV	6.8	14.4
Puente Hills (LA)	RV	7.0	14.8
Raymond	RV	6.8	14.8
Simi-Santa Rosa	SS	6.9	15.2
Anacapa-Dume, alt 2	RV	7.2	15.3
Palos Verdes	SS	7.3	18.6
Palos Verdes Connected	SS	7.7	18.6
Oak Ridge Connected	RV	7.4	19.7
Oak Ridge (Onshore)	RV	7.2	19.7
Anacapa-Dume, alt 1	RV	7.2	21.8
San Cayetano	RV	7.2	23.1
Clamshell-Sawpit	RV	6.7	26.0
Elsinore;W+GI+T+J+CM	SS	7.8	27.9
Elsinore;W+GI	SS	7.3	27.9
Elsinore;W	SS	7.0	27.9
Elsinore;W+GI+T	SS	7.5	27.9
Elsinore;W+GI+T+J	SS	7.8	27.9
Elsinore	SS	7.8	27.9
Puente Hills (Santa Fe Springs)	RV	6.7	28.2
S. San Andreas;CH+CC+BB+NM+SM	SS	7.9	28.4
S. San Andreas;SM+NSB	SS	7.4	28.4
S. San Andreas;BB+NM+SM	SS	7.6	28.4
S. San Andreas;NM+SM+NSB	SS	7.6	28.4

Earthquake Fault Trace	*Type*	*Limiting Magnitude*	*Distance*
S. San Andreas;SM+NSB+SSB	SS	7.6	28.4
S. San Andreas;CC+BB+NM+SM	SS	7.8	28.4
S. San Andreas;BB+NM+SM+NSB	SS	7.7	28.4
S. San Andreas;NM+SM+NSB+SSB	SS	7.7	28.4
S. San Andreas;SM+NSB+SSB+BG	SS	7.7	28.4
S. San Andreas;SM	SS	7.3	28.4
S. San Andreas	SS	8.2	28.4
S. San Andreas;NM+SM	SS	7.5	28.4
S. San Andreas;CC+BB+NM+SM+NSB	SS	7.9	28.4
S. San Andreas;BB+NM+SM+NSB+SSB	SS	7.8	28.4
S. San Andreas;NM+SM+NSB+SSB+BG	SS	7.8	28.4
S. San Andreas;SM+NSB+SSB+BG+CO	SS	7.8	28.4
S. San Andreas;PK+CH+CC+BB+NM+SM	SS	7.9	28.4
S. San Andreas;CH+CC+BB+NM+SM+NSB	SS	8.0	28.4
S. San Andreas;CC+BB+NM+SM+NSB+SSB	SS	7.9	28.4
S. San Andreas;BB+NM+SM+NSB+SSB+BG	SS	7.9	28.4
S. San Andreas;NM+SM+NSB+SSB+BG+CO	SS	7.9	28.4
S. San Andreas;PK+CH+CC+BB+NM+SM+NSB	SS	8.0	28.4
S. San Andreas;CH+CC+BB+NM+SM+NSB+SSB	SS	8.0	28.4
S. San Andreas;CC+BB+NM+SM+NSB+SSB+BG	SS	8.0	28.4
S. San Andreas;BB+NM+SM+NSB+SSB+BG+CO	SS	8.0	28.4
S. San Andreas;PK+CH+CC+BB+NM+SM+NSB+SSB	SS	8.0	28.4
S. San Andreas;CH+CC+BB+NM+SM+NSB+SSB+BG	SS	8.1	28.4
S. San Andreas;CC+BB+NM+SM+NSB+SSB+BG+CO	SS	8.1	28.4
S. San Andreas;PK+CH+CC+BB+NM+SM+NSB+SSB+BG	SS	8.1	28.4
S. San Andreas;CH+CC+BB+NM+SM+NSB+SSB+BG+CO	SS	8.2	28.4
S. San Andreas;PK+CH+CC+BB+NM+SM+NSB+SSB+BG+CO	SS	8.2	28.4
Puente Hills (Coyote Hills)	RV	6.9	32.6
S. San Andreas;NM	SS	6.9	32.8
S. San Andreas;CH+CC+BB+NM	SS	7.7	32.8

Earthquake Fault Trace	*Type*	*Limiting Magnitude*	*Distance*
S. San Andreas;BB+NM	SS	7.3	32.8
S. San Andreas;PK+CH+CC+BB+NM	SS	7.7	32.8
S. San Andreas;CC+BB+NM	SS	7.5	32.8
San Jose	SS	6.7	35.1
Santa Ynez (East)	SS	7.2	35.9
Santa Ynez Connected	SS	7.4	35.9
Ventura-Pitas Point	RV	7.0	40.4
Pitas Point Connected D2.1	RV	7.3	40.4
Cucamonga	RV	6.7	41.8
Chino, alt 2	SS	6.8	42.4
Chino, alt 1	SS	6.7	42.5
Mission Ridge-Arroyo Parida-Santa Ana	RV	6.9	44.3
San Joaquin Hills	RV	7.1	47.0
Oak Ridge (Offshore)	RV	7.0	47.2
S. San Andreas;CC+BB	SS	7.4	47.4
S. San Andreas;PK+CH+CC+BB	SS	7.6	47.4
S. San Andreas;BB	SS	7.1	47.4
S. San Andreas;CH+CC+BB	SS	7.6	47.4
Garlock;GC+GW	SS	7.6	48.0
Garlock;GW	SS	7.3	48.0
Garlock;GE+GC+GW	SS	7.7	48.0
Garlock	SS	7.7	48.0
Channel Islands Thrust	RV	7.3	48.6
Santa Cruz Island	SS	7.2	49.4
Red Mountain	RV	7.4	49.5

3.3 Site Soil Classification

The site soils were determined using publically available soils information and the site soil classifications specified by the 2012 IBC and ASCE 7-10. The geotechnical quality of the site soils will influence the ground shaking intensity experienced at the site. In general, softer soils tend to amplify earthquake ground motions and increase building structural damage, while buildings on stiff soils and rock subsurface tend to experience lower levels of damage when subjected to the same earthquake source.

The site soils are classified as follows:

ASCE 7-10 Site Classifications	
Site Class A (Hard Rock)	*Most Stable*
Site Class B (Rock)	
Site Class C (Very dense soil and soft rock)	
Site Class D (Stiff soil)	*Most Typical*
Site Class E (Soft clay soil)	
Site Class F (Soils requiring site-specific geotechnical investigation)	*Least Stable*
Subject Property Soil Classification	
Site Class D	

3.4 Surface Fault Rupture

A building founded directly over an active fault or within close proximity to the documented, active fault trace could be at risk of damage due to movement of the subsurface due to the fault rupture. The State of California acknowledged the risk of fault rupture to existing and future structures following the 1971 San Fernando earthquake. In response, the Alquist-Priolo Earthquake Fault Zoning Act was signed into California law on December 22, 1972 to mitigate the hazard of surface faulting to structures for human occupancy.

The act in its current form has three main provisions:

1. It directs the state's California Geological Survey agency (then known as the California Division of Mines and Geology) to compile detailed maps of the surface traces of known active faults. These maps include both the best known location where faults cut the surface and a buffer zone around the known trace(s);
2. It requires property owners (or their real estate agents) to formally and legally disclose that their property lies within the zones defined on those maps before selling the property; and
3. It prohibits new construction of houses within these zones unless a comprehensive geologic investigation shows that the fault does not pose a hazard to the proposed structure.

Based on our review of active regional earthquake faults and the hazard maps published by the California Geological Survey (CGS), the subject property **IS NOT** located within a documented Alquist-Priolo Special

Study Zone or at risk of damage due to surface fault rupture. This determination is based on the proximity of the subject property to documented earthquake fault traces and the current version of the CGS seismic hazard maps.

3.5 Liquefaction Susceptibility

Soil liquefaction describes a phenomenon whereby a saturated or partially saturated soil substantially loses strength and stiffness in response to an applied stress, usually earthquake shaking or other sudden change in stress condition, causing it to behave like a liquid. The phenomenon is most often observed in saturated, loose (low density or poorly compacted), sandy soils. This is because loose sand has a tendency to compress when a load is applied; dense sands by contrast tend to expand in volume. Soil liquefaction can result in a loss of bearing capacity and support of the foundation system, resulting in differential or global settlement of the building. This rapid settlement can result in increased damage levels beyond that estimated due to ground shaking alone.

Based on our review of the site soil conditions, and the publically available liquefaction hazard mapping, the site soils are classified as having **LOW** liquefaction susceptibility.

3.6 Landslide Susceptibility

Based on the relatively flat site topography and fully developed adjacent parcels, the risk of earthquake-induced landslide is classified as **LOW**.

3.7 Tsunami and Seiche

Based on the proximity of the subject property to large bodies of open water that could produce earthquake-induced waves of water due to tsunami seiche the risk of damage due to tsunami inundation is classified as **LOW**.

3.8 Site Stability Assessment

Based on our review of the site soil conditions, and secondary site stability hazards, the subject property is considered to have a **LOW** risk of soil failure when subjected to strong seismic ground shaking.

4.0 SEISMIC RISK ASSESSMENT OF STRUCTURAL SYSTEMS

4.1 General

Seismic loss estimations and a determination of building stability are provided for the subject property and improvements in the following sections. The damage models employed for the various facility classes are based upon historical building earthquake performance data and expert opinion, rather than upon specific information concerning the properties in question.

The loss estimations provided are based on damage to the building structure from strong ground shaking and (where relevant) liquefaction-induced settlements. Loss estimates do not include damage due to other hazards such as surface fault rupture, tsunami, seiche, seismically-induced landslide or earthquake-initiated fires.

The seismic performance of each property type may vary considerably, and all risk estimates involve uncertainty. Factors affecting the seismic performance include structural configuration, design force levels, seismic design details, dynamic characteristics, construction quality, condition and any preexisting damage, and local site conditions. These factors are generally beyond the scope of the baseline damage models, and require the involvement of experienced engineers and geologists to refine the estimates.

This report utilizes site condition data and building vulnerability data assembled and interpreted by the user, who is solely responsible for the data and for the use of the results obtained. Partner makes no representation regarding the accuracy of risk estimates produced for particular properties or sites. The user must evaluate the results and take responsibility for all engineering or business decisions made.

4.1.1 Building Damageability Method

Partner utilizes a number of peer-reviewed and published earthquake loss estimation methodologies to determine the PML for the subject property. The following methodologies and tools have been used in combination to provide the seismic loss estimation in Section 4.2

- The Thiel-Zsutty earthquake loss estimation methodology. The methodology was published originally in 1987 (Charles C. Thiel, Jr. and Theodore C. Zsutty, "Earthquake Spectra" Vol. 3, No. 4: Nov. 1987 titled Earthquake Characteristics and Damage Statistics) and has been updated through subsequent publications and peer-reviewed papers.
- ATC-13 "Earthquake Damage Evaluation Data for California" developed under a contract with the Federal Emergency Management Agency (FEMA). (Published 1985, 492 pages); and ATC-13-1 "Commentary on the Use of ATC-13 Earthquake Damage Evaluation Data for Probable Maximum Loss Studies of California Buildings" (Published 2002, 66 pages). ATC-13 provides loss estimation data for 78 classes of structures.
- The SeismiCat seismic risk assessment tool developed by ImageCat, Inc., Long Beach, California. The SeismiCat tool reports data utilized in this report, including ground motion hazard data (based on the 2010 USGS seismic hazard database), site soil classifications, fault mapping and rupture zones, and earthquake loss estimation calculations utilizing the Code Oriented Damage Assessment (CODA) model developed by ImageCat.

4.1.2 Building Stability Method

The determination of building stability utilizes the following codes and the framework outlined in the following standards:

- 2012 International Building Code (IBC) design-basis seismic ground motions, which reference the American Society of Civil Engineers (ASCE) standard ASCE 7-10
- ASCE 31-03 "Seismic Evaluation of Existing Buildings", Tier 1 evaluation procedures

4.1.3 Loss Estimation Terminology

ASTM E2026 and E2557 define Probable Maximum Loss (PML) as a general non-specific term, which has been historically used to characterize building damageability. A PML can be defined in a variety of probabilistic and deterministic approaches within the ASTM E2026 and E2557 standards. The following terminology is relevant for this evaluation:

- **Probable Loss (PL):** Earthquake loss to the building systems associated with specified earthquake events on specific fault(s) affecting the building.
- **Scenario Loss (SL):** Earthquake loss to the building systems associated with specified earthquake events (probabilistic return period or earthquake of specified size and location) on specific fault(s) affecting the building.
- **Scenario Expected Loss (SEL)**: Defined as the expected value of the Scenario Loss (SL) resulting from the specific earthquake ground motion of the earthquake scenario selected. In the SEL, the earthquake loss to a building would be represented by the average or mean amount of loss that a building is estimated to experience from a specified earth-quake ground motion. As the average loss, the SEL has an approximate 50% possibility of exceedance. For the purposes of this document, the SEL is defined as the expected or mean loss resulting from the damage experienced due to a 475-year return period earthquake. This from of the SEL is often referred to as the SEL-475. The SEL is also referred to as the PML50.
- **Scenario Upper Loss (SUL)**: Defined as the Scenario Loss (SL) that has a 10% probability of exceedance due to the specified earthquake ground motion of the scenario considered. It is also referred to as the 90% non-exceedance probability or the upper-bound loss. If 10 buildings of equivalent configuration and construction were subjected to the same earthquake ground shaking, the earthquake repair costs would be expected to exceed the SUL for only one of the ten buildings, or 10%. For all practical purposes the SUL will exceed the SEL for any given earthquake scenario. Similar to the SEL, the most common representation of the SUL is the SUL-475, associated with the 90% confidence loss estimation resulting from the damage experienced due to a 475-year return period earth-quake. The SUL is also referred to as the PML90.

4.2 Seismic Loss Estimation (PML)

The Probable Maximum Loss (PML) is defined as the Scenario Expected Loss (SEL) based on the 475-year probabilistic seismic ground motion as reported in the 2010 USGS seismic hazard database. The term is often referred to as the SEL-475 or PML50.

The Thiel-Zsutty (T-Z) method employs the following parameters and equation for determination of the SEL. The variables are discussed below. The SUL is determined using the BETA distribution function and the recommended baseline parameters documented in ATC-13-1. Partner modifies the BETA distribution parameters based on the uncertainty associated with this assessment.

T-Z Method Parameter	*Description*
Peak Ground Acceleration (PGA) **a**	Any level of ground acceleration can be used with this methodology depending on the requirements of the User. The Peak Ground Acceleration (PGA) is used within this assessment based on a probabilistic earthquake scenario with a 475-year reoccurrence. This PGA has a 10% probability of exceedance in 50-years.
Site Soil Coefficient **s**	This value is representative of the soil composition and Site Class at the subject property. In general, sites on firm soils and rock will tend to have less intense shaking than sites with soft soils when subjected to the equivalent seismic ground motion. The value is higher for soft soils with high ground water table, susceptible to liquefaction (1.56 to 1.95), moderate for firm soils with deeper ground water and low to moderate liquefaction susceptibility (1.25 to 1.56), and low for rock and very hard soils with no liquefaction susceptibility (0.8 to 1.25). Partner assigns an appropriate value for **s** based on soil and liquefaction data obtained from public sources and site specific geotechnical reports, if available.
Spectral Modification Parameter **m**	This value has a range of 0.5 to 2.0. The values are valid only for a site that is not subject to soils failure. The determination of this parameter generally requires a site-specific geotechnical investigation of the site and a dynamic analysis of the building to characterize the fundamental period. For structures founded on a site with the equivalent periods the value of m would be as high as 2.0. For structures founded on a site with vastly different periods the value of m can be as low a 0.5. Without any site specific information or dynamic analysis data the default value for m is 1.0
Building Vulnerability Parameter **b**	This value represents the relative damageability of the building. The value of b ranges from 0.11 for light gage metal bearing wall structures (best performing) to 1.25 for unreinforced masonry bearing wall structures with no seismic retrofit. Partner assigns the value for b based on the characterization of the lateral system, the design review, and professional judgment.

The Thiel-Zsutty method parameters for the subject property are summarized below.

$$\textbf{PML (SEL)} = 0.554\ (b\ m\ s)a^{0.630}$$

Thiel-Zsutty Method Calculation	*Coefficient*	*Value*
475-year Peak Ground Acceleration (PGA)	**a**	**0.47**
Site Soil Coefficient	**s**	**1.25**
Spectral Modification Parameter	**m**	**1.00**
Building Vulnerability Parameter(s)	**b**	
Building Section A - 8401 Van Nuys Boulevard, LA, Panorama Mall		**0.30**
Building Section B - 8401 Van Nuys Boulevard, LA, Panorama Mall		**0.30**
Building Section C - 8401 Van Nuys Boulevard, LA, Panorama Mall		**0.36**

The seismic loss estimation for the subject property is summarized below. The aggregate loss estimation for multiple buildings (if applicable) is calculated using a weighted average based on the size of the building (using gross or net square footage).

Building(s)	*SEL-475*	*SUL-475*
Building Section A - 8401 Van Nuys Boulevard, Los Angeles,	13%	22%
Building Section B - 8401 Van Nuys Boulevard, Los Angeles,	13%	22%
Building Section C - 8401 Van Nuys Boulevard, Los Angeles,	16%	28%
Aggregate for the Subject Property	**14%**	**25%**

4.3 Building Stability Assessment

A cursory building stability assessment was conducted in accordance with the ASTM Standard Guide E2026 and Standard Practice E2557. The stability assessment utilizes the 2012 IBC design-basis ground motions and the framework specified in the national standard, ASCE 31-03 "Seismic Evaluation of Existing Buildings", Tier 1 evaluation procedures. The Tier 1 procedure employs a series of checklists that target known seismic vulnerabilities of specific structural systems.

Based on our assessment of the subject property it is expected that the buildings do not have any notable structural vulnerabilities that would lead us to believe they would experience structural instability when subjected to a design-basis seismic ground motion.

4.4 Recommendations

Seismic strengthening of the building structures is not recommended based on the acceptable building damageability and building stability determination.

5.0 CERTIFICATION OF PROVIDER

Partner's work was undertaken in a professional manner. Our objective is to perform our work with care, exercising the customary skill and competence of consulting professionals in the relevant disciplines. The conclusions presented in this report are professional opinions based solely upon visual observations of the site and vicinity and our interpretation of the provided information and documents reviewed. The opinions and recommendations presented herein apply to existing and reasonably foreseeable site conditions. We cannot act as insurers, and no expressed or implied representation or warrant is included or intended in our report, except that our work was performed, within the limits prescribed by our clients, with the customary thoroughness and competence of our profession at the time and place the services were rendered.

1. The report was prepared in a manner consistent with generally accepted industry practices and standards.
2. All information is true and correct, to the best of the undersigned's knowledge, and reflects the consultant's best professional opinion and judgment.
3. The information in this report is for the sole use of Primestor Development, Inc. and cannot be reproduced or copied without written authorization from Partner Engineering and Science, Inc.

Prepared By:

Jay Kumar, P.E. (CA C77601)
Technical Director
Structural Engineering Group

6.0 GLOSSARY OF TERMS

Term	Definition
Acceleration	The rate of change of velocity. As applied to strong ground motions, the rate of change of earthquake shaking velocity of a reference point. Commonly expressed as a fraction or percentage of the acceleration due to gravity (g), wherein g = 980 centimeters per second squared.
Active Fault	An earthquake fault that is considered to be likely to undergo renewed movement within a period of concern to humans. Faults are commonly considered to be active if they have moved one or more times in the last 10,000-11,000 years, but they may also be considered potentially active when assessing the hazard for some applications even if movement has occurred in the last 500,000 years. See fault.
Alluvium	A soil type consisting of loosely compacted gravel, sand, silt, or clay deposited by streams.
Amplification	An increase in seismic wave amplitude as the waves propagate through certain soils, in sedimentary basins, or in certain topographic configurations (e.g. along ridge lines).
Alquist-Priolo (A-P) Special Studies Zone	More recently known as Earthquake Fault Zone (EFZ). In California, these are defined areas surrounding active faults, as defined by the State Geologist, within which it is necessary to perform fault location studies in order to construct buildings for human occupancy. Buildings for human occupancy may not be constructed within 50 feet of the identified fault rupture trace. Details of the regulations are presented in Special Publication 42, published by the California Geological Survey (CGS).
Average Annual Loss	The long-term loss rate per year due to hazards, calculated as the probabilistic loss contribution of all events.
Business Interruption (BI) Loss	Economic loss associated with loss of function of a commercial enterprise.
Damage	Physical disruption of a structure or equipment item, such as cracking in walls or overturning of equipment.
Hazard	A natural physical manifestation of the earthquake peril, such as ground shaking, soil liquefaction, surface fault rupture, landslide or other ground failures, tsunami, seiche. These hazards can cause damage to man-made structures.
Liquefaction	A ground failure phenomenon in which loose, granular soils below the water table lose shear strength when subjected to many cycles of strong ground shaking.

Term	Definition
Magnitude (M)	Magnitude (M) is the most widely used measure of the size of an earthquake. Magnitude scales are logarithmic, found by taking the common logarithm (base 10) of the largest ground motion recorded at the arrival of the type of seismic wave being measured and correcting for the distance to the earthquake's epicenter. A typical seismogram will display separate arrival times for P-waves or compressional waves, and the slower S-waves or shear waves. The difference in arrival times for P- and S-waves indicates site-to-source distance. The logarithmic scale means that an increase in magnitude by one unit corresponds to a tenfold increase in measured wave amplitude. Moreover, the energy released by an earthquake increases by a factor of about 30 for each unit increase in magnitude.
Peak Horizontal Acceleration (PHA) ***and*** **Peak Ground Acceleration (PGA)**	An instrumental measure of earthquake ground motion intensity, normally taken from a triaxial earthquake accelerogram. The horizontal of the randomly-oriented component maxima may be combined to give a 'geometric mean', or simply taken as the maximum value recorded from the horizontally-oriented axes. The time history may also be processed to instantaneous vectorial maximum value, or rotated to fault-parallel and fault-perpendicular directions. PHA may also be referred to as PGA (peak ground acceleration).
Probable Loss	A level of building damage from earthquake, expressed as a fraction of the building replacement value, having a stated probability of exceedance within a given exposure period. Alternatively, a level of earthquake damage having a stated return period. Probable Loss is found by considering all levels of earthquake hazard that may occur for the site in question, the building damage associated with each hazard level, and the variability of building damage within each hazard state.
Probable Maximum Loss	A term used in the past to characterize the risk of earthquake damage to buildings. Care must be used to avoid ambiguity in definition [ASTM E 2026-07]. PML50 is a term sometimes used interchangeably with Scenario Expected Loss (SEL), and PML90 is sometimes used interchangeably with Scenario Upper Loss (SUL).
Probability of Exceedance	In the context of these risk reports, this is the probability that a specified level of damage will be surpassed within the exposure period (related to building life or term of investment), given the site's seismic environment and the property's seismic vulnerability. Using a Poissonian model, the probability of exceedance and exposure period are related to the average return interval of the loss. For example, a loss level that has a 10% chance of exceedance in a 30-year exposure period may be described as having a 285-year average recurrence interval. A loss level that has a 10% chance of exceedance in a 50-year exposure period has a 475-year average recurrence interval.
Risk	The chance or probability that some undesirable outcome, such as injury, damage or loss, will occur during a specified exposure period.

Term	Definition
Scenario Loss	A level of building damage from earthquake, expressed as a fraction of the building replacement value, associated with a stated earthquake hazard scenario. In our reports, probabilistic seismic hazards are used, and the stated scenario is based on the level of ground shaking that has a 10% chance of being exceeded in the exposure period specified by the user. Scenario Loss is further specified as the mean loss (Scenario Expected Loss or SEL) or the 90% nonexceedance loss (Scenario Upper Loss or SUL) for the stated hazard.
Vulnerability	The susceptibility of a building, equipment item or component to damage or loss from a specific hazard.
Tsunami	Seismic seawave

[end of report]

APPENDIX A: SITE PLAN

Aerial photos are obtained from public sources that may not be current. For reference only.	Site North is Up

APPENDIX B: SITE PHOTOS

1. West elevation signage at west entrance

2. West elevation abutment to two-story building (Walmart)

3. West elevation and single-story construction

4. West elevation and brick veneer

5. East elevation at abutment to Walmart

6. East elevation and east entrance

7. Abutment to the Walmart building

8. Roof view of abutment to the Walmart building

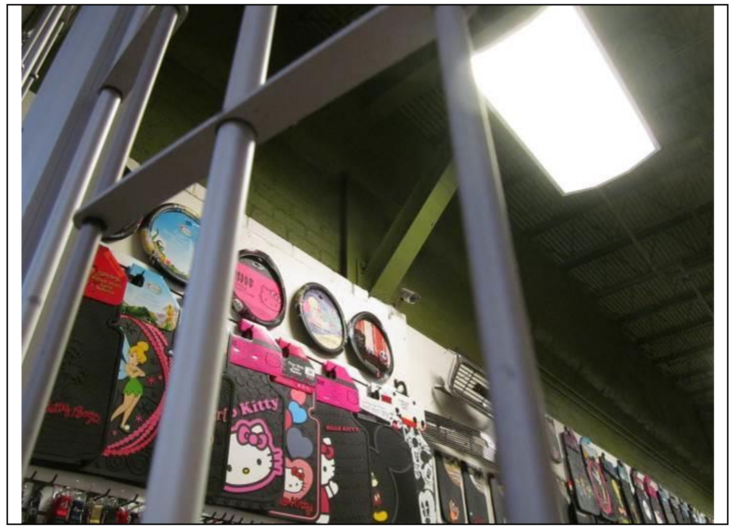
9. Mall interior

10. Mall interior and row shops

11. Linkage between the older building section and the newer wings A & B

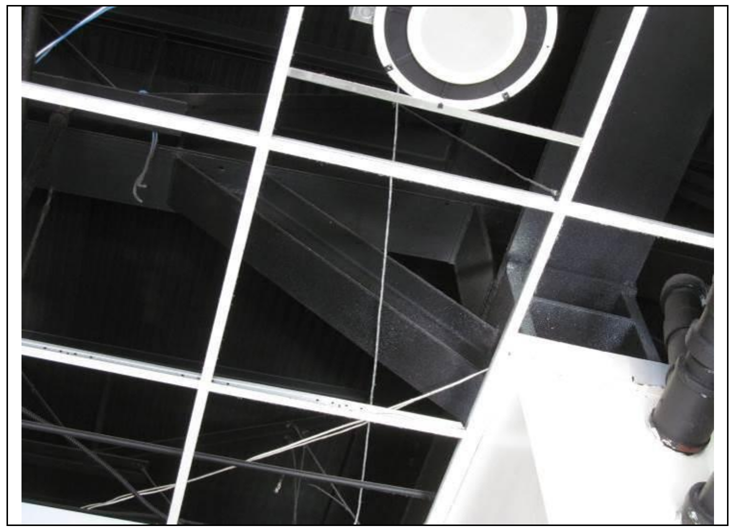
12. Roof framing in Building-C 1955

13. Steel roof framing and corrugated steel deck roof



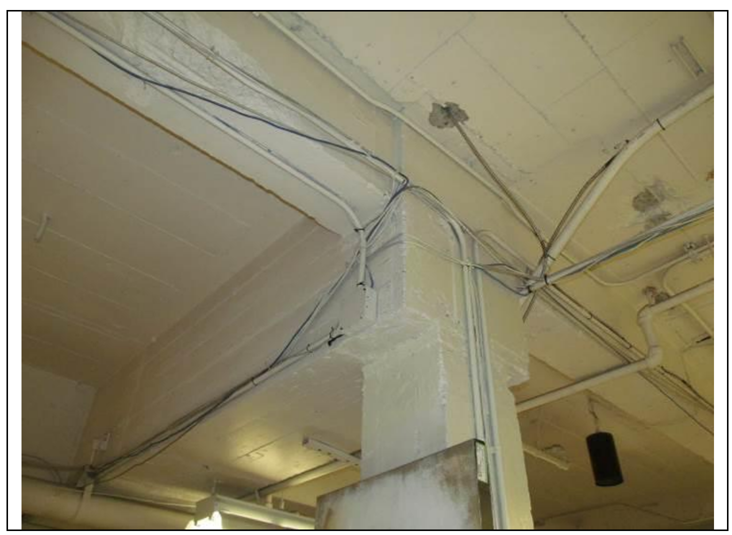
14. Knee bracing in Building-C 1955

15. Building-C Curacao



16. Steel frame and knee bracing in Curacao

17. Steel framing and knee bracing in Curacao



18. Concrete framing in basement of Curacao

19. Roof deck over Building Sections A & B and gas lines

20. Continuously unbraced gas feed lines

21. Continuously unbraced gas feed lines

22. Continuously unbraced gas feed lines

23. Equipment anchorage varies in quality

24. Solar system anchorage against sliding


25. Braced parapet


26. Unbraced parapet


27. Equipment anchorage lacking


28. Acceptable equipment anchorage straps


29. Four-inch fire suppression lines braced


30. Equipment anchorage with sheet metal

31. Steel roof framing in Buildings A & B 1979

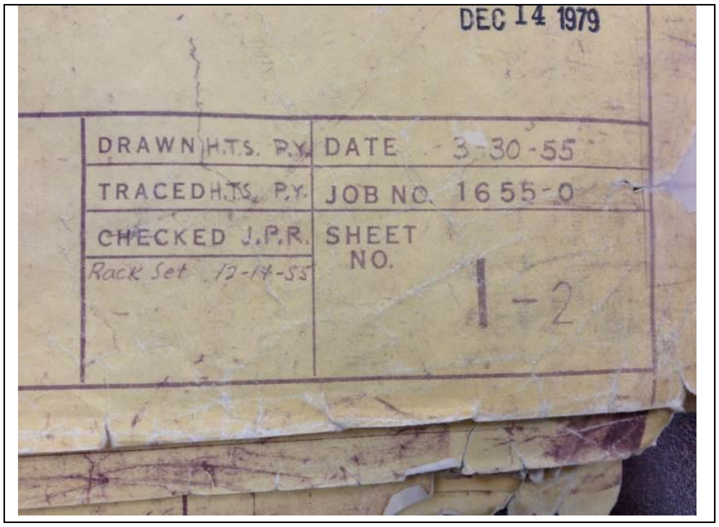
32. Tapered steel girder beams in Buildings A & B 1979

33. Exposed steel beam with fire safing scraped off of underside of flange

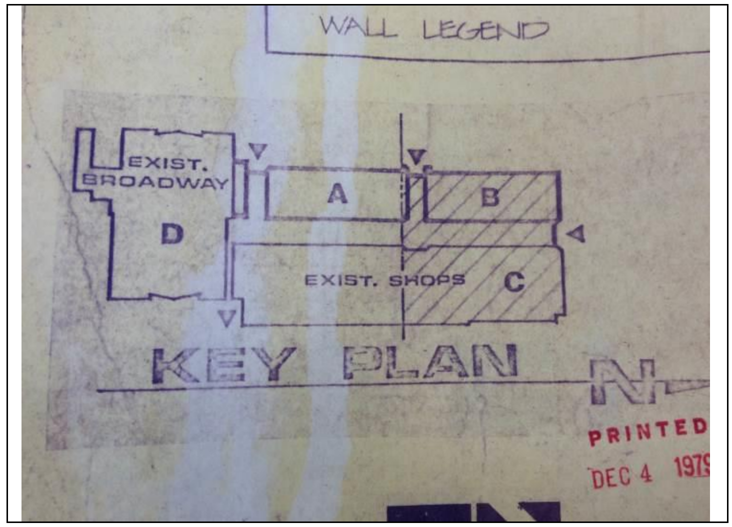
34. Linkage framing between old and newer construction

35. Main mall

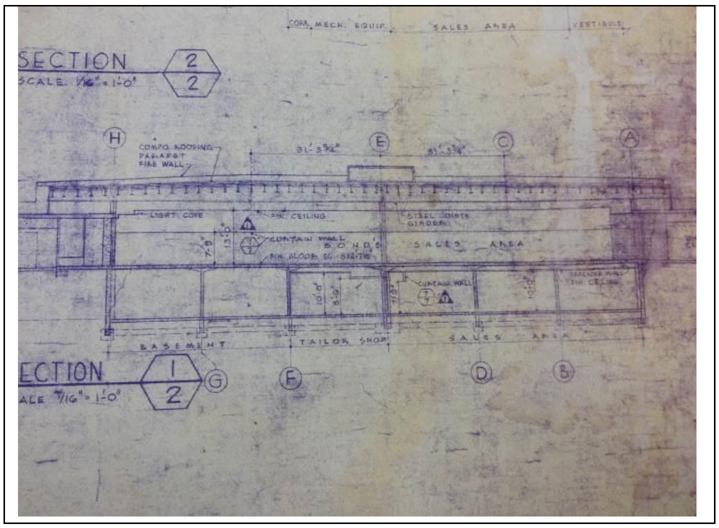
36. Building separation at transition to Walmart



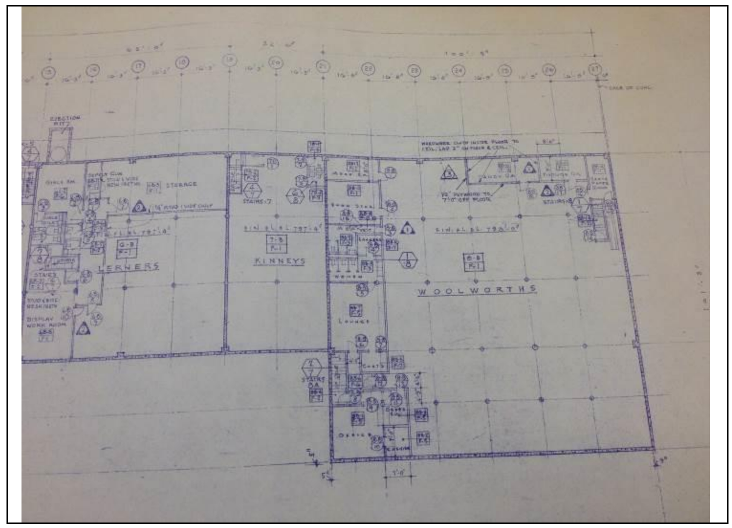
37. Original architectural / structural plans 1955 Building-C



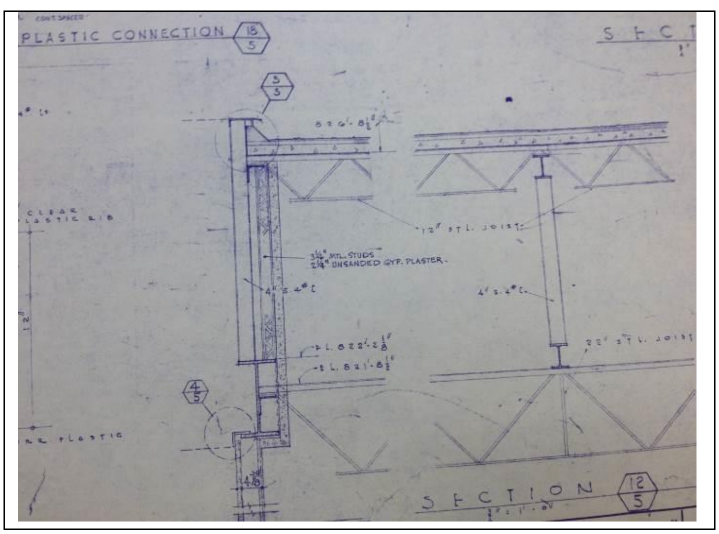
38. Key plan borrowed from later construction in 1979. Buildings A, B, & C are included. D is the Walmart and is excluded.



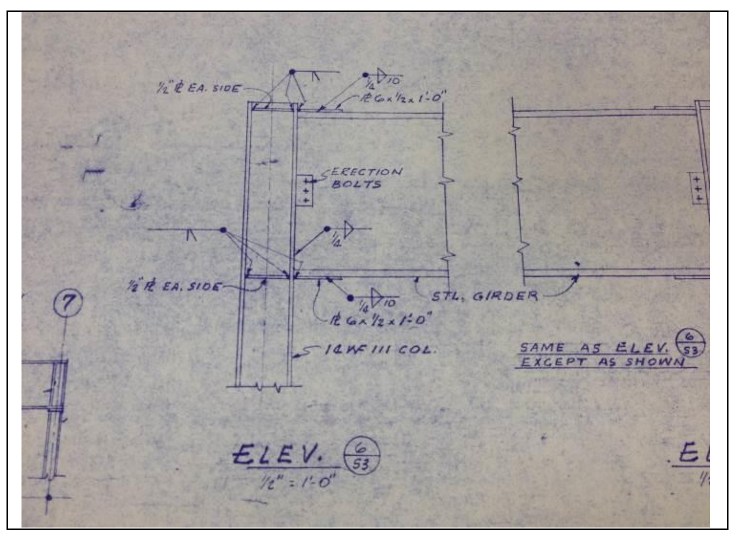
39. Section through Building -C



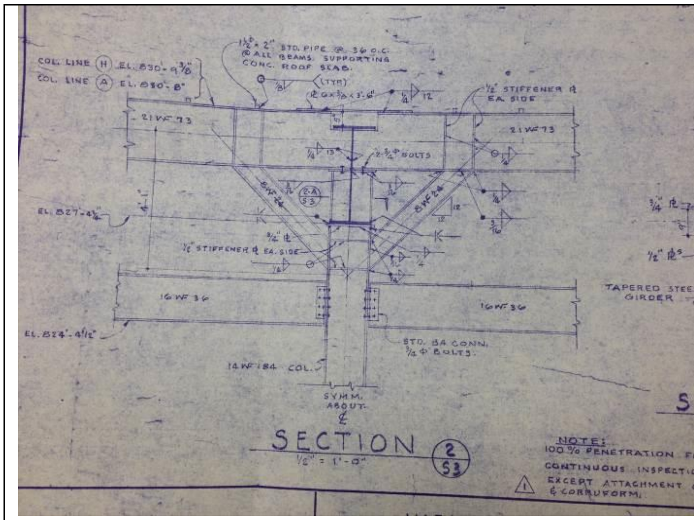
40. Basement plan of Building-C



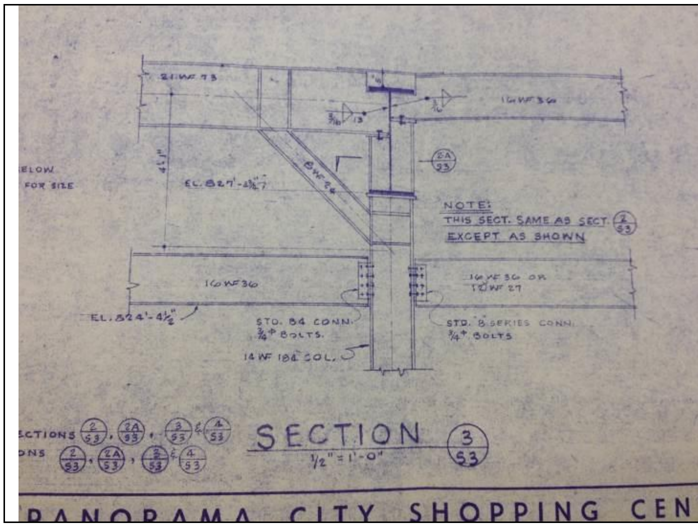
41. Wall section of roof framing system of Building-C



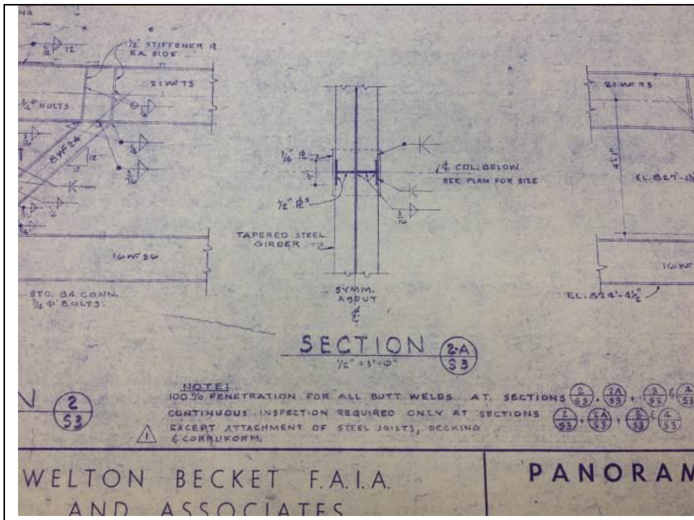
42. Welded moment resisting frame connections



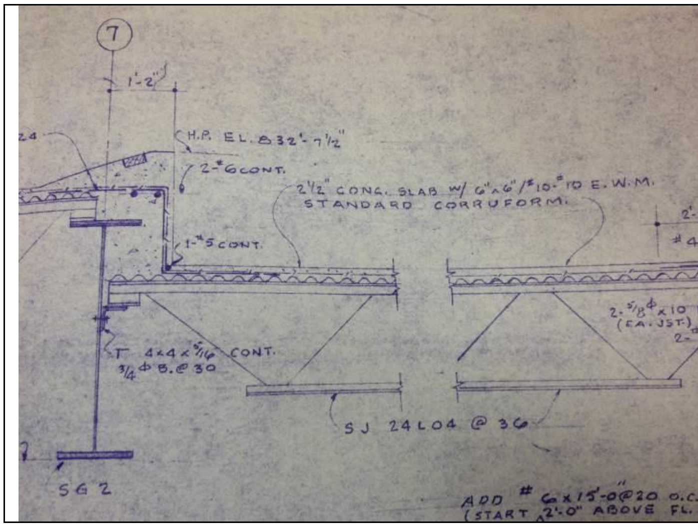
43. “rigid” knee braced connections with flange stiffener plates



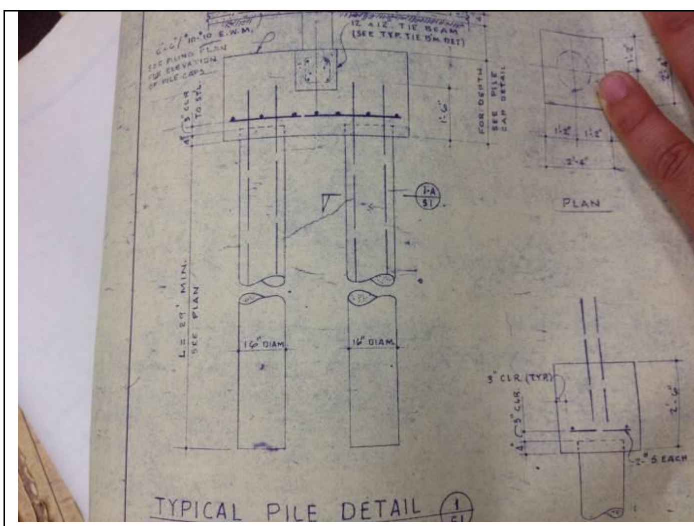
44. Rigid steel connections at roof



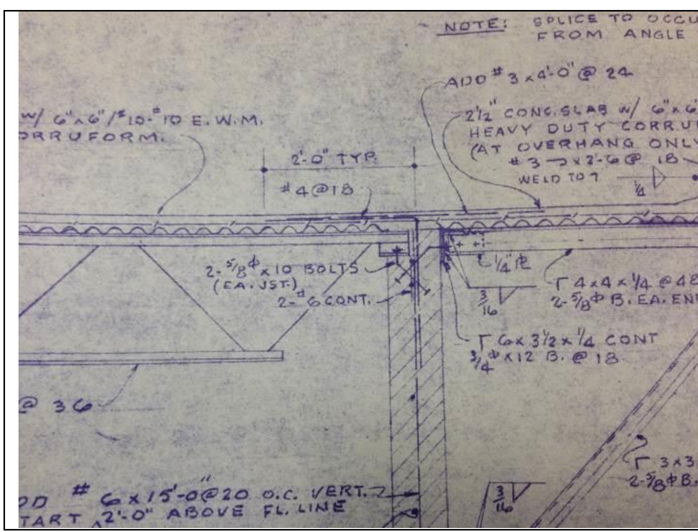
45. Steel framing and detailing in Building-C



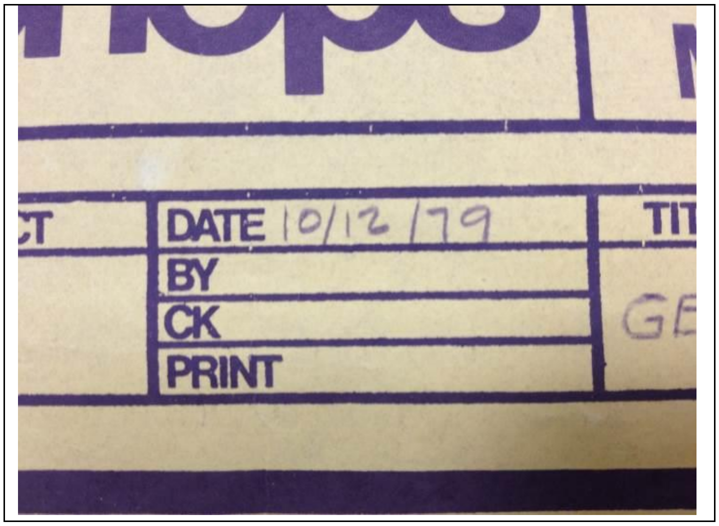
46. Roof framing and decking Building-C



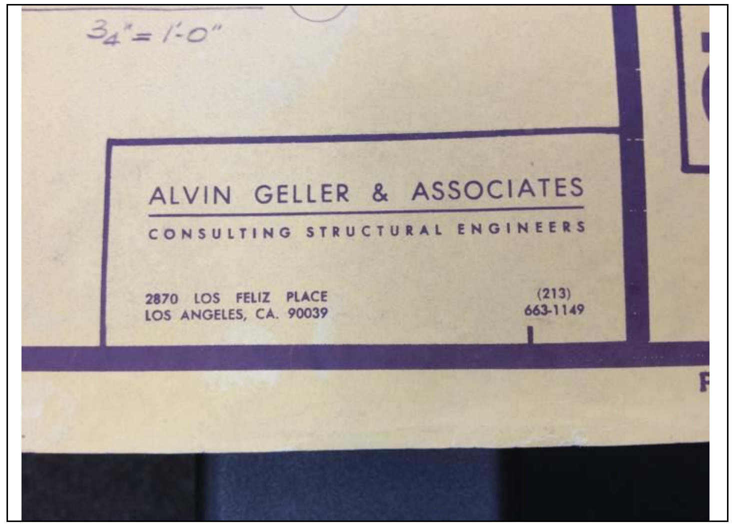
47. Pile foundation and pile caps



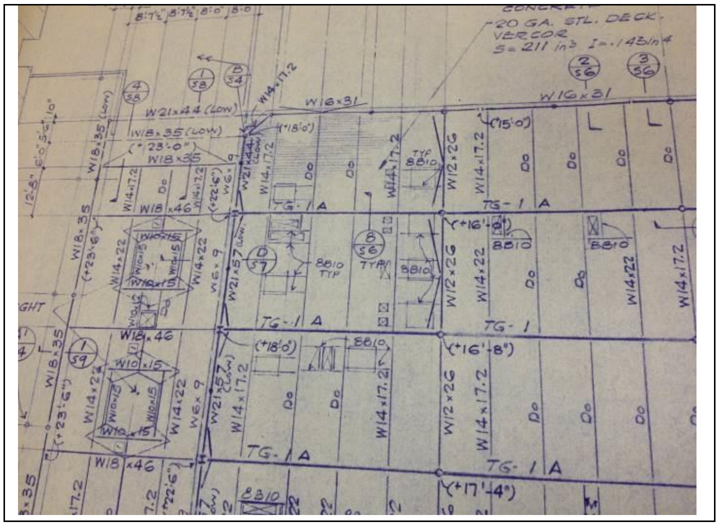
48. Connection detailing into concrete walls



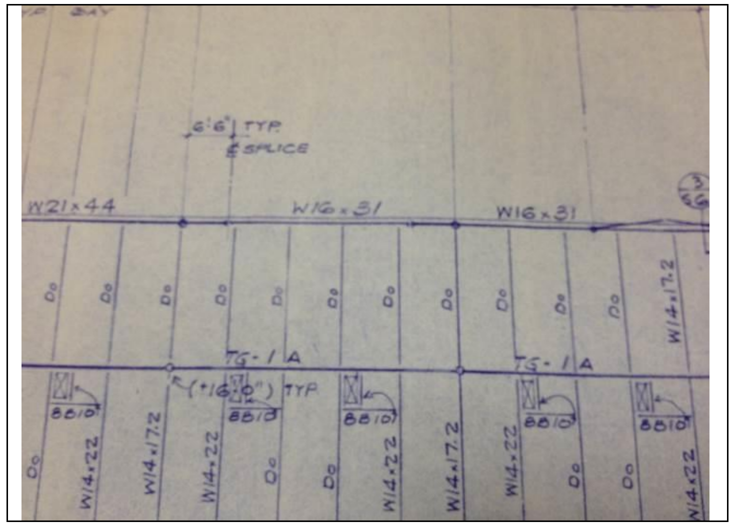
49. Buildings A & B



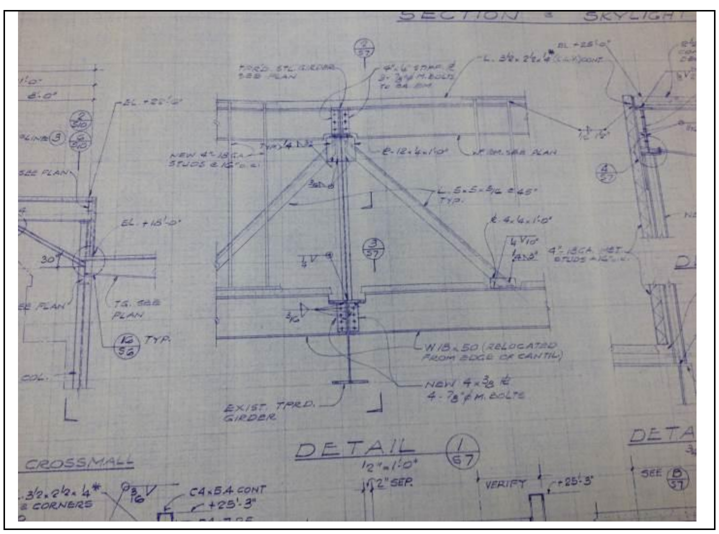
50. Structural Engineer for buildings A & B



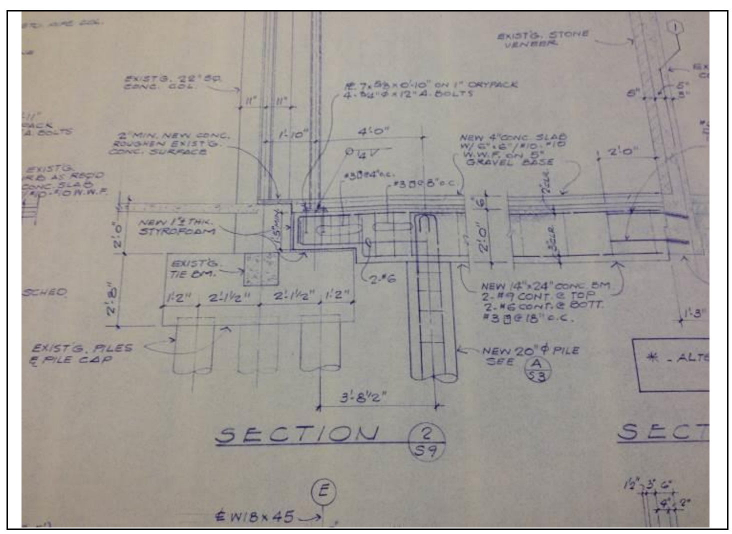
51. Steel roof framing



52. Steel framing and bracing

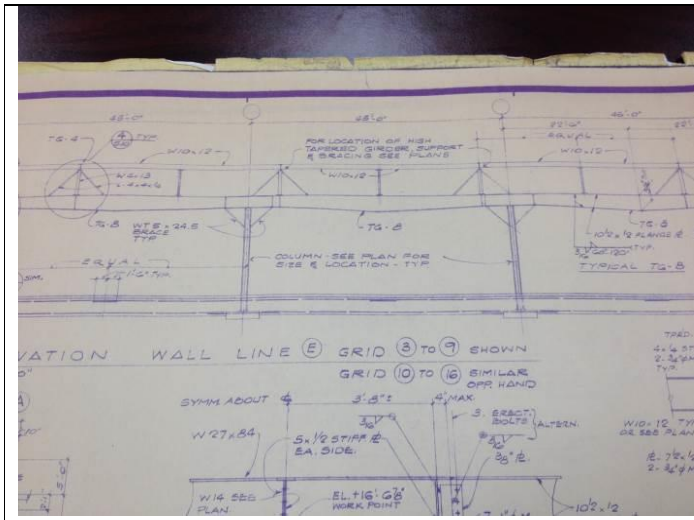


53. Upper roof framing is braced for lateral transfer

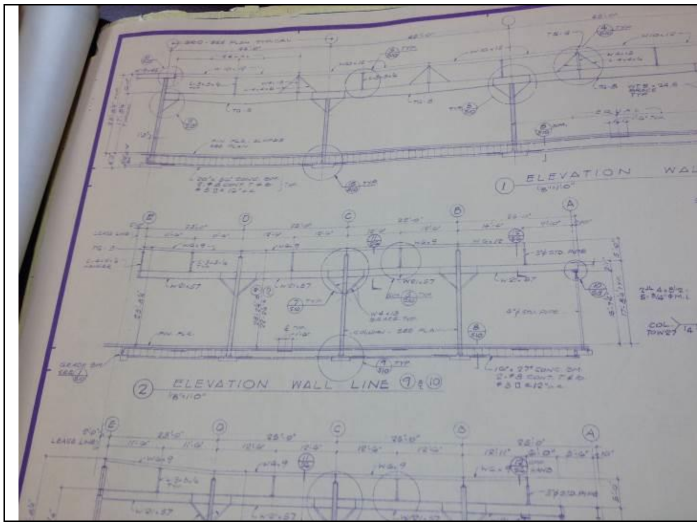


54. Pile foundations

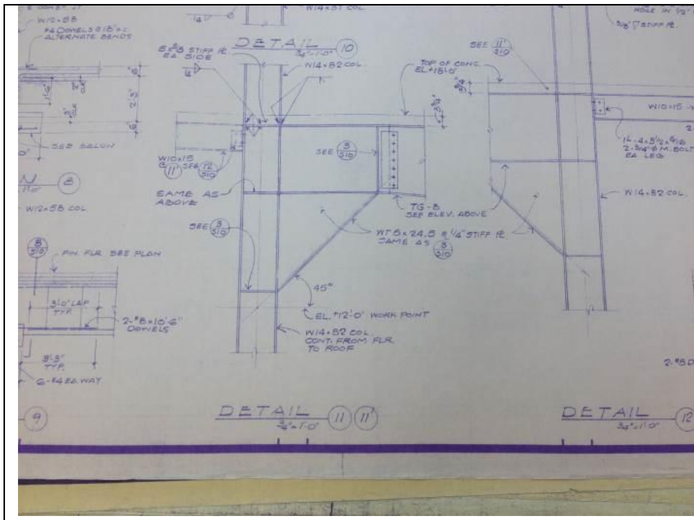
PARTNER



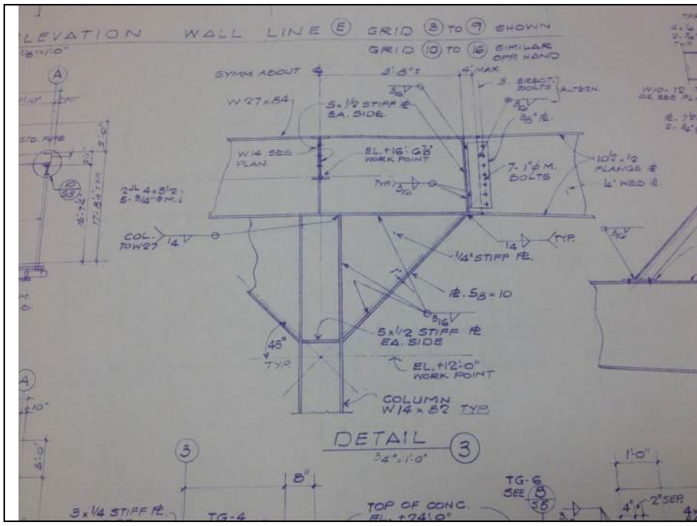
55. Fixed column tops with gusset plates Buildings A & B



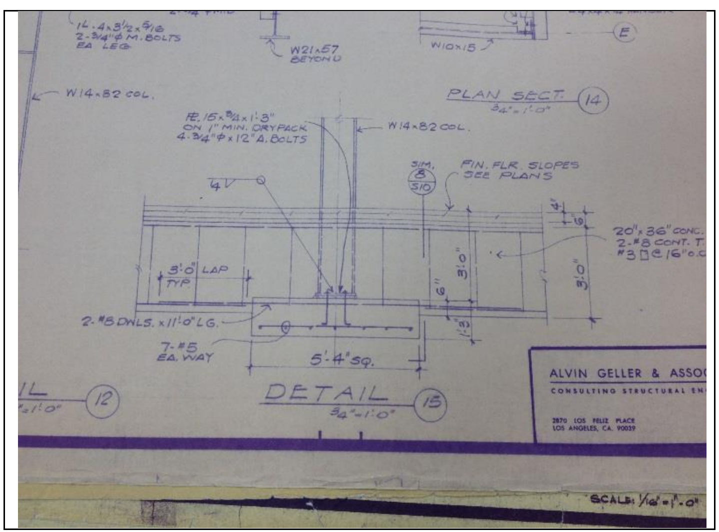
56. LFRS system lines with fixed gusset connections



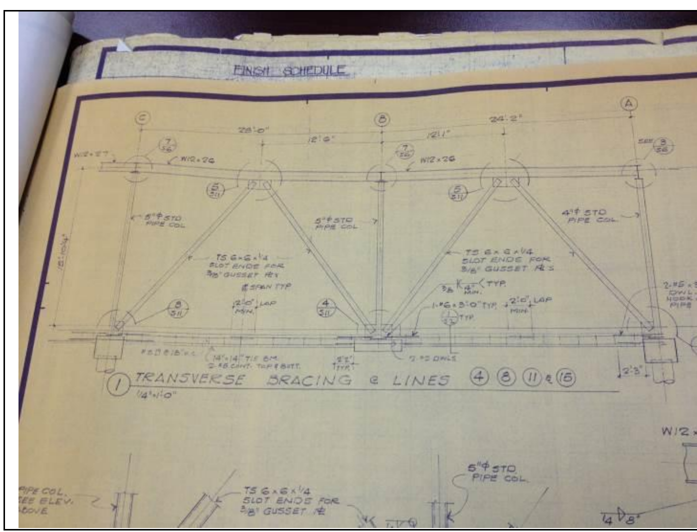
57. Gusset plate beam to column connections



58. Cantilevered columns with fixed gusset plate braced beam connections



59. Fixed base cantilevered columns



60. Transverse brace frames

APPENDIX C: SOIL AND FAULT HAZARD MAPS

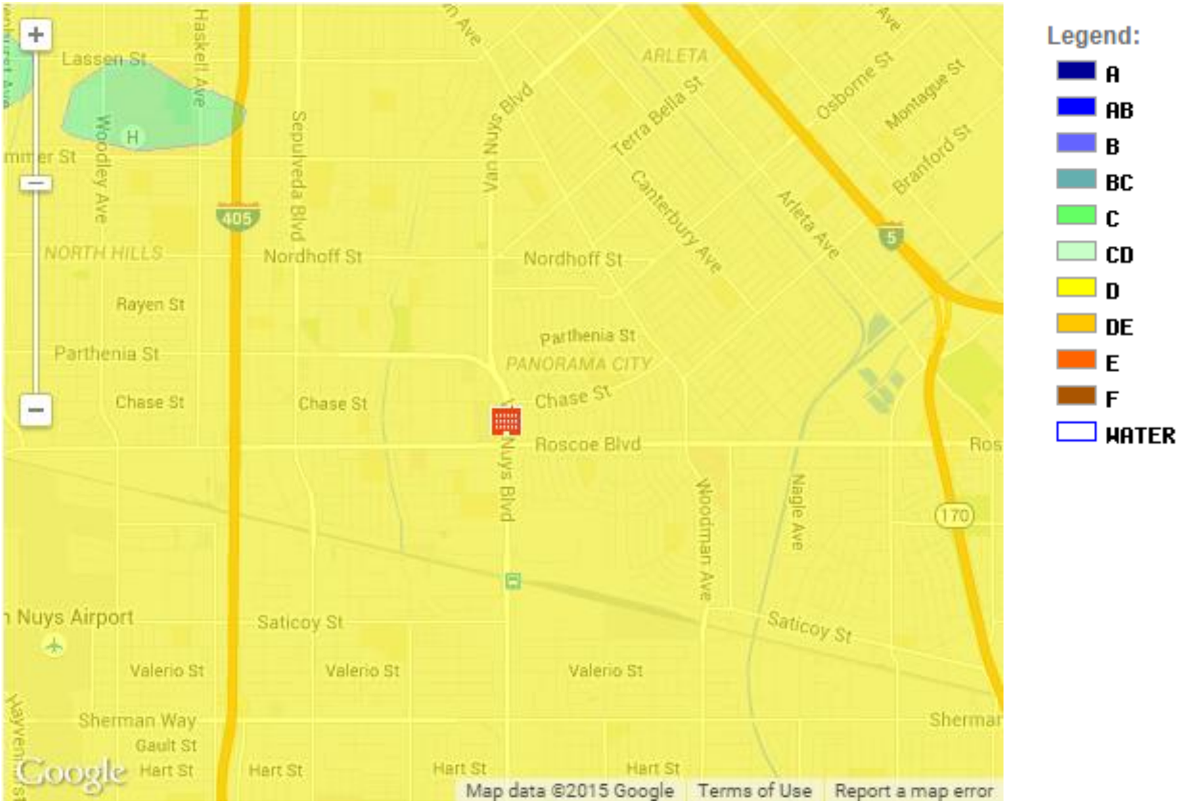


Figure 1 – Soil composition map

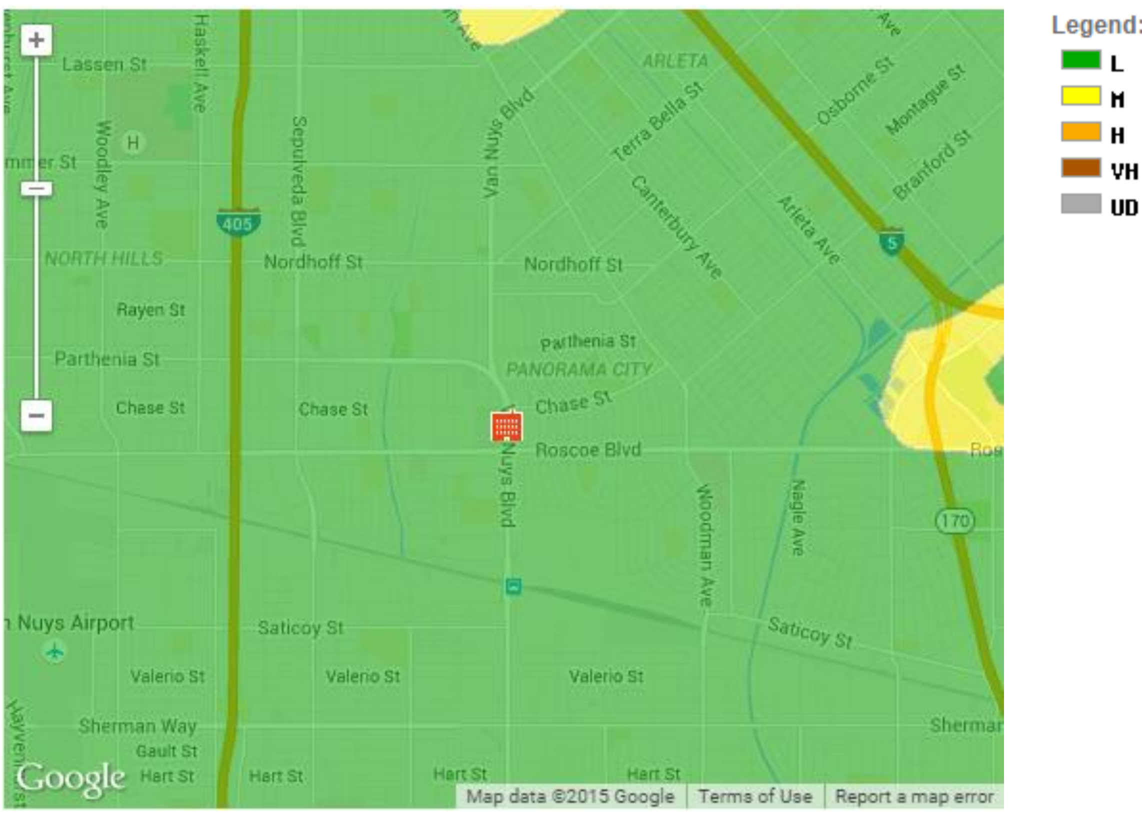


Figure 2 – Soil liquefaction map

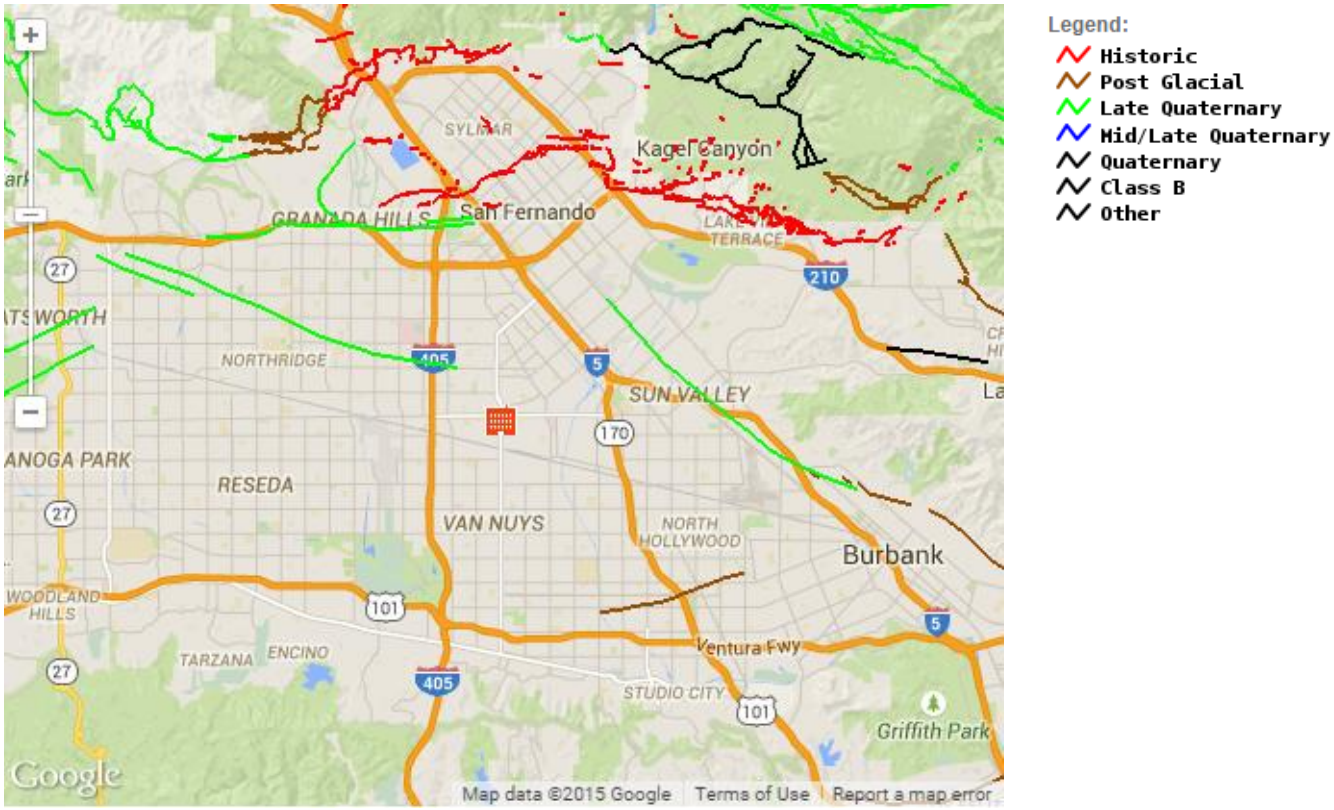


Figure 3 – Earthquake fault map

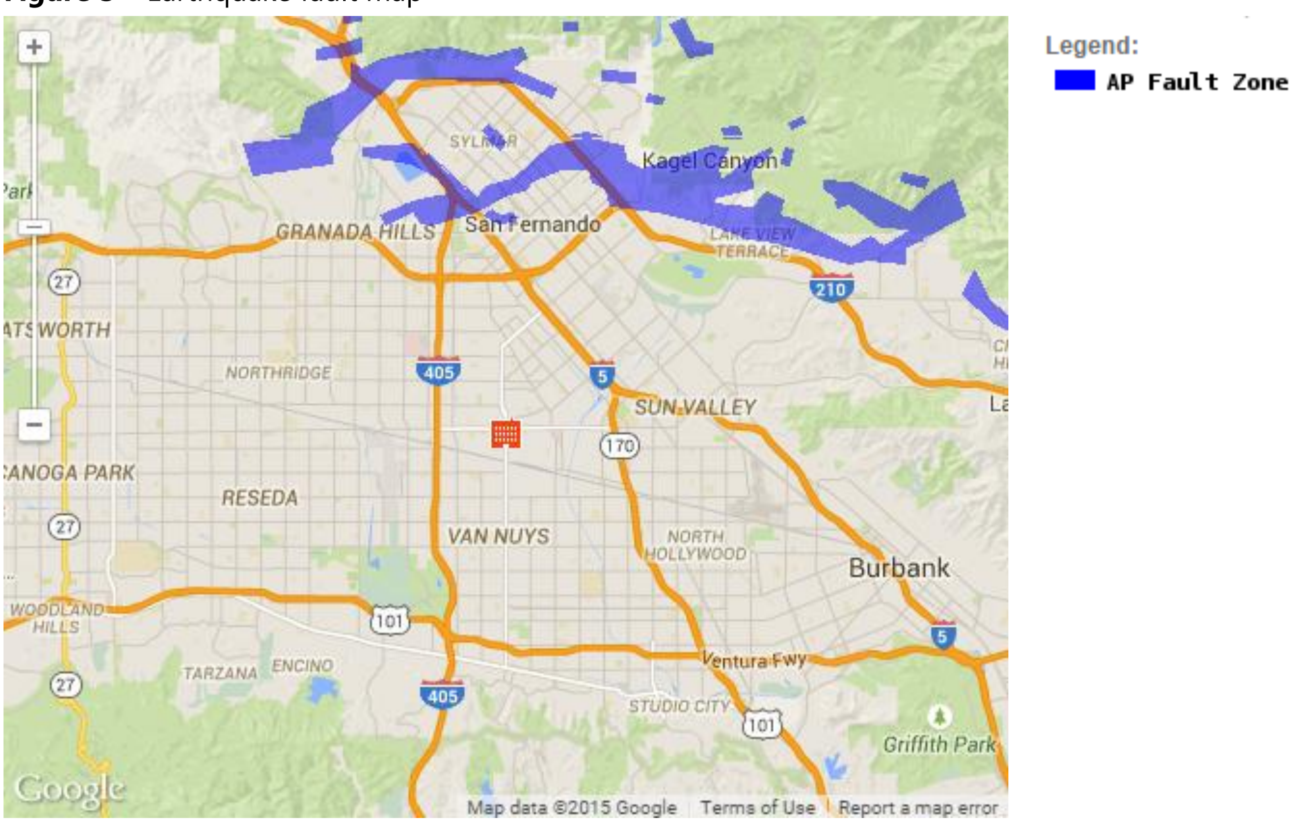
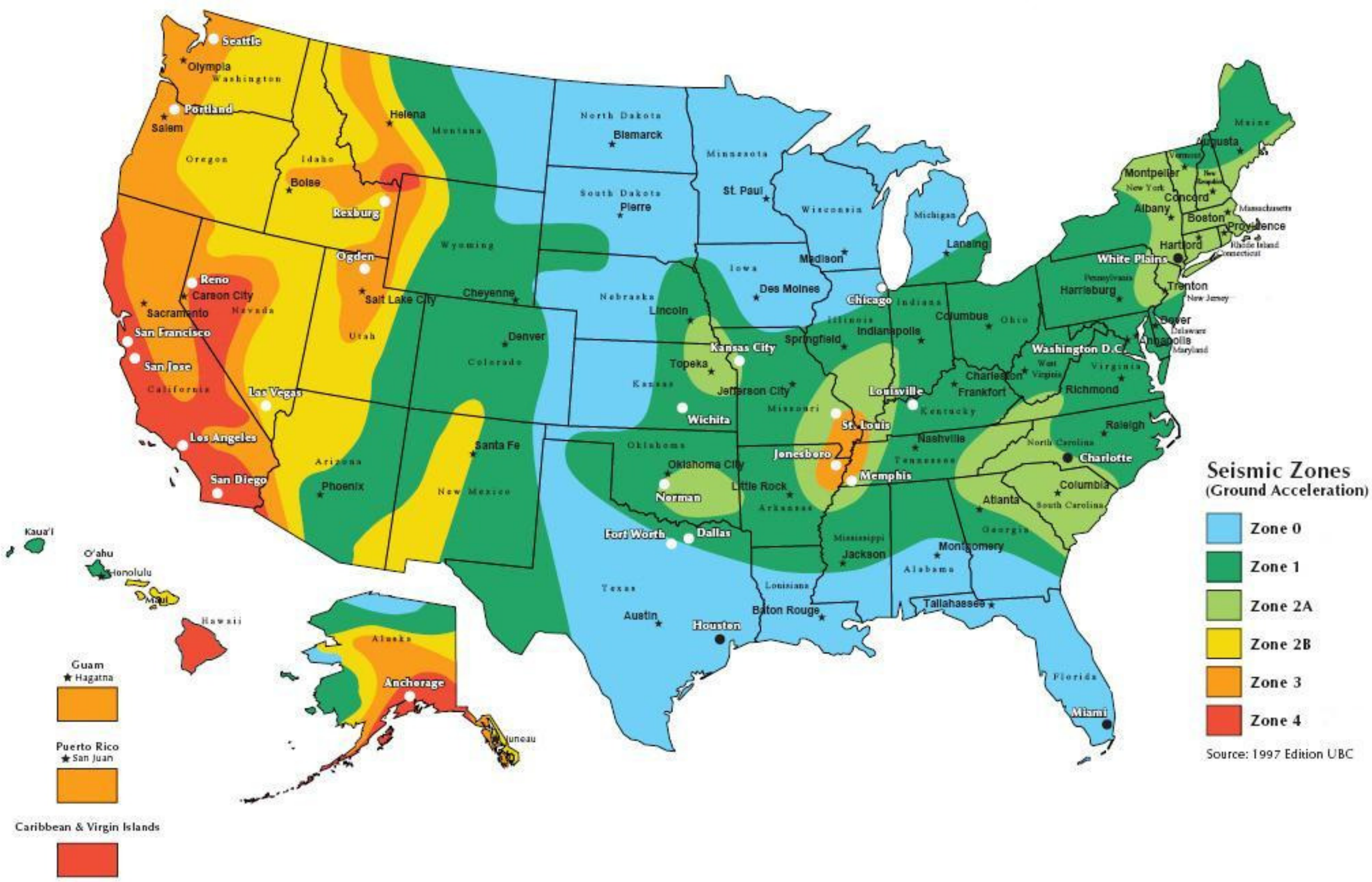


Figure 4 – Alquist-Priolo Special Study Zone Map

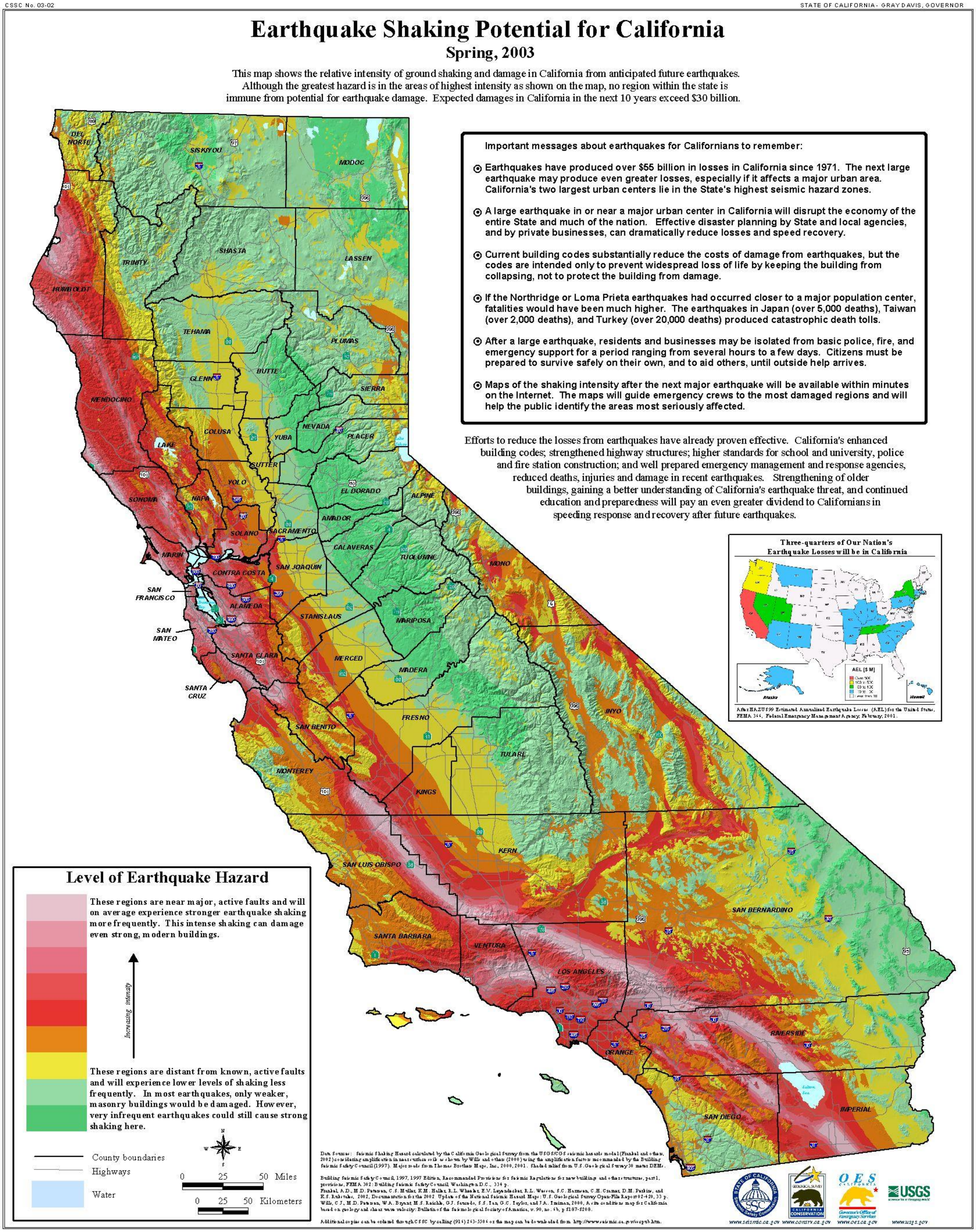
APPENDIX D: MODIFIED MERCALLI INTENSITY SCALE

Modified Mercalli Intensity (MMI) Scale (1931 Abridged)	
Intensity	**Description**
I	Not felt except by a very few under especially favorable circumstances
II	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing
III	Felt noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration likes passing of truck. Duration estimated
IV	During the day felt by many, felt outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make creaking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably
V	Felt by nearly everyone; many awakened. Some dishes, windows, etc. broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop
VI	Felt by all; many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight
VII	Everybody runs outdoors. Damage negligible in buildings of ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimney, factory stacks, columns, monuments, and walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Disturbs persons driving motor cars
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; damage great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipe lines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly
XII	Damage total. Waves seen on ground surfaces. Lines of sight and level distorted. Objects thrown upward into the air

APPENDIX E: SEISMIC ZONE MAP OF THE US


Seismic Zones
(Ground Acceleration)
Zone 0
Zone 1
Zone 2A
Zone 2B
Zone 3
Zone 4
Source: 1997 Edition UBC
Guam
Hagatna
Puerto Rico
San Juan
Caribbean & Virgin Islands
Kaua'i
O'ahu
Honolulu
Hawaii
Alaska
Anchorage
Juneau
Seattle
Olympia
Washington
Portland
Salem
Oregon
Idaho
Boise
Rexburg
Helena
Montana
Wyoming
Cheyenne
Ogden
Salt Lake City
Utah
Reno
Carson City
Sacramento
Nevada
San Francisco
San Jose
California
Las Vegas
Los Angeles
San Diego
Arizona
Phoenix
Denver
Colorado
Santa Fe
New Mexico
North Dakota
Bismarck
South Dakota
Pierre
Nebraska
Lincoln
Kansas
Topeka
Kansas City
Wichita
Oklahoma
Oklahoma City
Norman
Texas
Fort Worth
Dallas
Austin
Houston
Minnesota
St. Paul
Iowa
Des Moines
Missouri
Jefferson City
St. Louis
Arkansas
Little Rock
Jonesboro
Memphis
Louisiana
Baton Rouge
Wisconsin
Madison
Michigan
Lansing
Chicago
Illinois
Springfield
Indiana
Indianapolis
Ohio
Columbus
Kentucky
Louisville
Frankfort
Tennessee
Nashville
Mississippi
Jackson
Alabama
Montgomery
Georgia
Atlanta
Florida
Tallahassee
Miami
South Carolina
Columbia
North Carolina
Charlotte
Raleigh
Virginia
Richmond
Charleston
Washington D.C.
Pennsylvania
Harrisburg
New York
Albany
White Plains
Trenton
Montpelier
Concord
Augusta
Maine
Boston
Providence
Hartford

APPENDIX F: STATE SEISMIC HAZARD MAP



Source: California Geological Survey and Seismic Safety Commission

APPENDIX F: SEISMIC HAZARD MAP OF CALIFORNIA

PARTNER

APPENDIX G: PROVIDER QUALIFICATIONS

Jay Kumar, P.E.

Project Manager
Structural Engineering Group

PARTNER
Engineering and Science, Inc.

Education
B.S. Civil Engineering, San Jose State University

Registrations
Registered Professional Engineer (Civil)
CA77601, TX111203, OR87038, CT29020, MD41879, NJ24GE05101600

Professional Affiliations
Member, American Society of Civil Engineers (ASCE)

Summary of Professional Experience
Mr. Kumar has over 8 years of experience with a variety of structural engineering, seismic design and construction management projects. He has significant experience with the design and construction of high-rise buildings in the Los Angeles Metro Area and San Francisco Bay Area. Mr. Kumar has conducted numerous structural forensics investigations, structural/seismic analysis of buildings and building components, and performed litigation support for expert witness testimony covering a wide range of property types.

Mr. Kumar was most recently engineer-of-record for thousands of US-based projects, responsible for structural engineering design/analysis and risk management for an industry leading solar company. This work guided the implementation of thousands of photovoltaic solar installations on commercial, military and residential rooftops in markets across the United States.

Previously, Jay performed structural forensics investigations and analysis for expert witness testimony in a wide variety of construction related lawsuits and defenses in the San Francisco Bay Area.

As a Project Manager with Willis Construction Inc., Mr. Kumar oversaw the design, manufacture and installation of pre-cast concrete exterior wall systems for high-rise buildings across California. Mr. Kumar helped develop and implement cladding connection systems designed to accommodate anticipated seismic movements & drift of steel and concrete high-rise structures. This work frequently involved full scale destructive testing of multi-trade building envelopes to examine and enhance system performance and safety.

Finally, Mr. Kumar’s diversity and understanding of residential & commercial construction is a major contribution to Partner Engineering and Science’s Structural Engineering Group throughout the United States.

License Search for Professional Engineers and Land Surveyors

Licensee Name:	KUMAR JAY NEVIN
License Type:	CIVIL ENGINEER
License Number:	77601
License Status:	CLEAR Definition
Expiration Date:	June 30, 2015
Address:	3507 WEST 25TH STREET
City:	LOS ANGELES
State:	CA
Zip:	90018
County:	LOS ANGELES
Actions:	No

Public Record Action(s)

This information is updated Monday through Friday - Last updated: MAY-21-2014

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Misty Vazquez, PE

Principal, National Client Manager,
Senior Project Manager

Education

M.S. Civil-Environmental Engineering, California State University, Fullerton
B.S. Environmental Engineering, University of California, Riverside
Coursework in Legal and Regulatory Framework for Environmental Management,
University of California, Irvine
Coursework in Mold Inspection

Registrations

Professional Engineer, Colorado
Engineer-In-Training (EIT), California
State of California Registered Environmental Assessor (program canceled in July 2012)
LEED Green Associate (GA) Accredited Professional, United States Green Building Council
AHERA Certified Building Inspector for Asbestos

Training

OSHA 40-hour HAZWOPER, Operations Level Health and Safety Training
OSHA 10-hour Construction Safety Training
Trained/Certified - Hazardous Waste in California, US Department of Transportation Hazardous Materials Transportation, and USEPA Hazardous/Toxic Waste Management (LION)

Summary of Professional Experience

Ms. Vazquez is an environmental engineer with more than 15 years of experience in the environmental and engineering service industries. She has significant experience in the field of environmental due diligence, site assessment, remediation, and regulatory compliance. She provides environmental support to clients nationwide during the acquisition, disposition, development, and on-going management and operation of commercial, industrial, and multi-family residential properties.

She has considerable experience in Phase I and Phase II Environmental Site Assessments (ESAs) of commercial, agricultural, and industrial properties and projects involving water quality, soil quality, and regulatory compliance including hazardous and solid waste site characterization and remediation; remediation system design, installation, and operation; tank removals; asbestos surveys; lead-based paint surveys; radon Studies; mold assessments; lead-in-water sampling and analysis; and technical reporting.

She has been involved with feasibility and treatability studies associated with several remediation projects including soil and groundwater treatment systems, UST/LUST closures, and management of construction soils generated during redevelopment of agricultural and industrial properties.

Finally, Ms. Vazquez's diversity across residential, industrial, and commercial environments is a major contribution to Partner Engineering and Science's national team.