

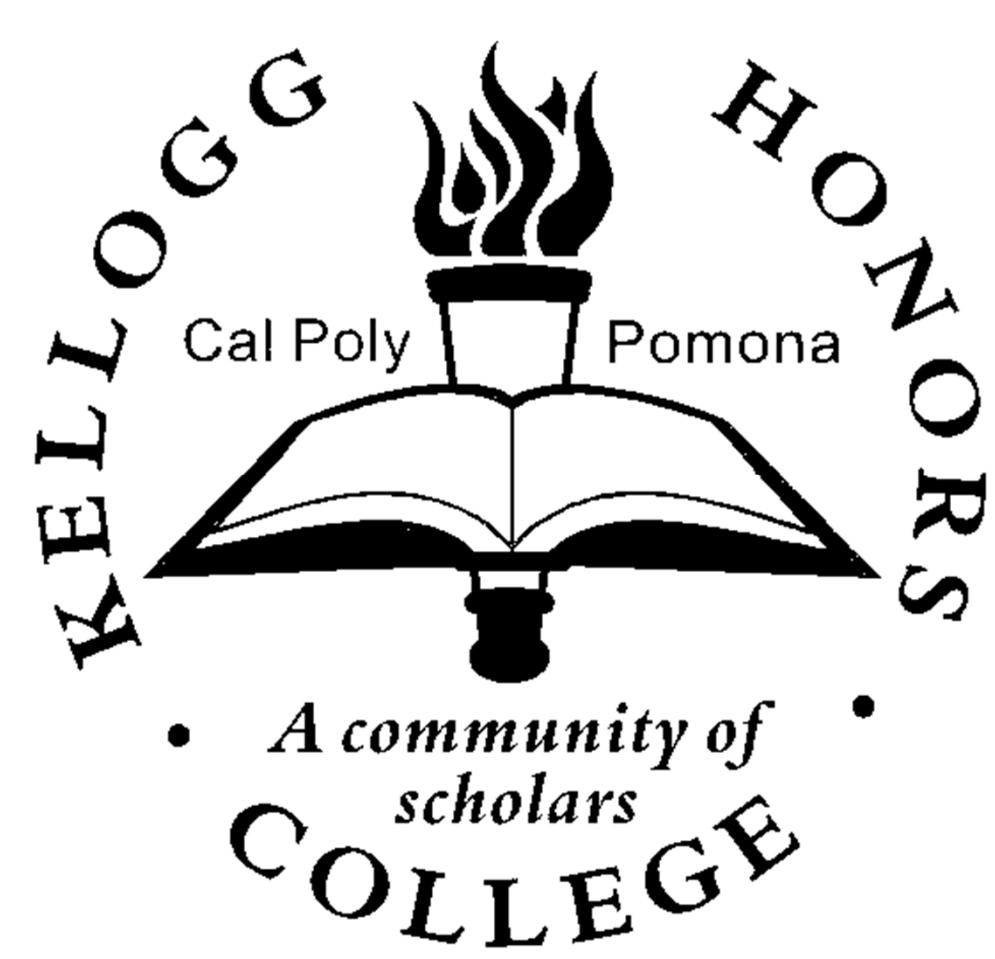
Evaluation of Buildings and Retaining Walls

for

Pre-Earthquake Investigations Eduardo Jose Vega, Civil Engineering

Kellogg Honors College Convocation 2013

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□ Background and Purpose □

Current Situation:

- Rush to collect data after an earthquake
- Lack of synchronization, collaboration, and cohesion in efforts
- Need for streamlined procedure and central database
- Need for pre-earthquake references of structures of performance analyses
- Lack of understanding of effects of seismic earth pressures on retaining walls

Purpose:

- To assess current earthquake data storage system
- To develop evaluation criteria and procedure for pre-earthquake investigations of buildings and retaining walls
- To conduct pre-earthquake investigations for reference for future seismic performance analyses

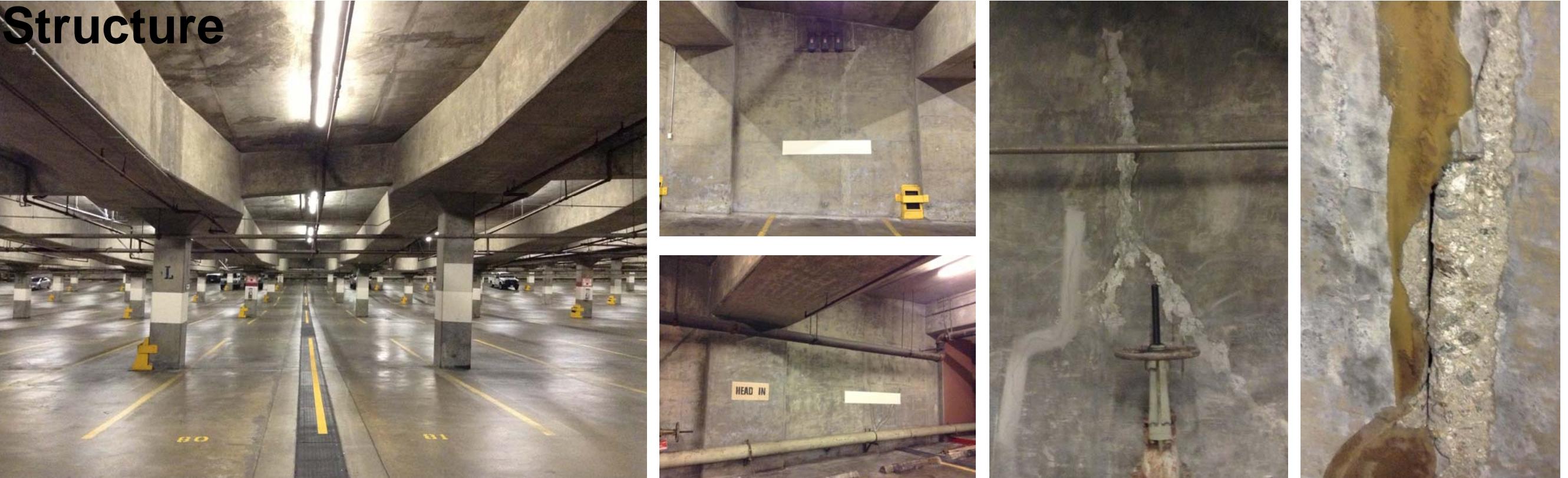
□ Investigations Summary □

Investigations Over Summer 2013



1. Great Western Savings
2. Berkeley Parking Structure
3. San Francisco PUC
4. Berkeley City Hall
5. Berkeley Police Department
6. Hearst Mining Building
7. Hayward City Hall

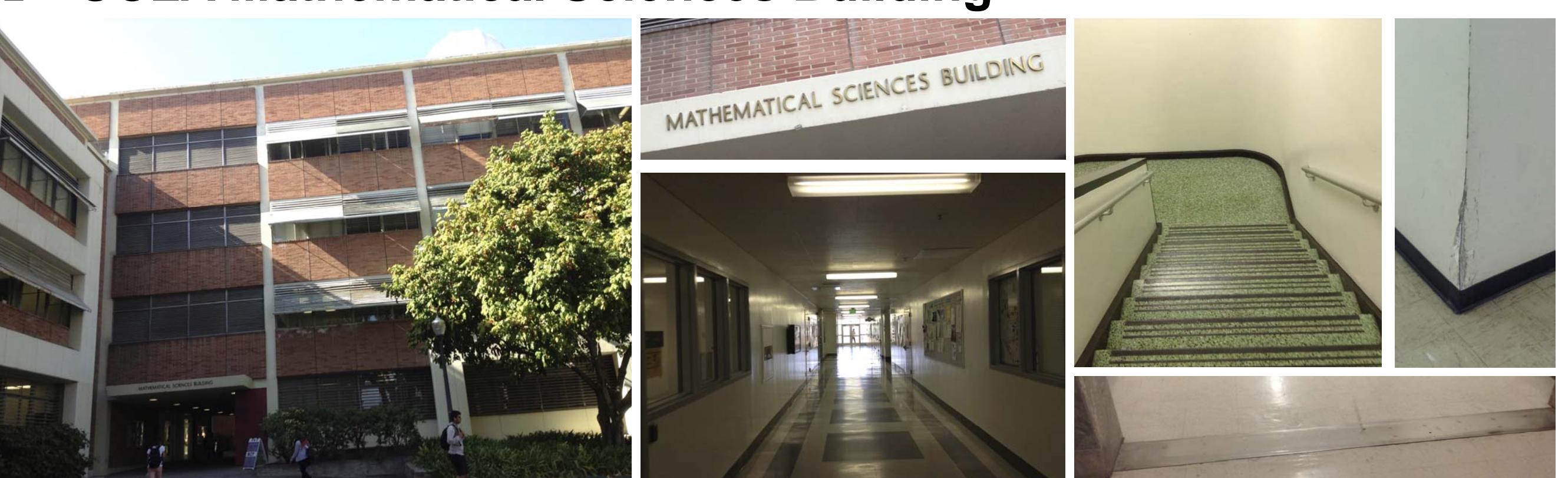
□ Downtown Los Angeles Courthouse Parking Structure



Location: Downtown Los Angeles
Coordinates: 34.0544 N, 118.244 W
Instrumentation: None
Closest Active Fault: Raymond Fault
Distance to Fault: 4.4 miles

Function: Underground Parking Structure
Liquefaction Hazard: None
Material: Concrete
Wall Type: Subterranean basement walls

□ UCLA Mathematical Sciences Building



Location: UCLA Campus, Westwood, Los Angeles
Coordinates: 34.0694 N, 118.443 W
Instrumentation: CGS - CSMIP Station 24231
Closest Active Fault: Rose Canyon Fault
Distance to Fault: 1.3 miles

□ Conclusions □

Results/Current State of SPO

- Completed pre-earthquake investigations for various buildings and retaining walls
- Created reference for use in future seismic performance analyses
- Developed usable archive for storage and organization that will help facilitate use of data in future studies
- SPO still in pre-beta form but still usable to those with access to the database
- Plans to further develop SPO to be available for full academic use in progress

Future Work/Potential Use

- Pre-earthquake references can be used to better understand seismic performance of structures in the event of a significant ground motion.
- The effects of seismic earth pressures on subterranean basement walls can be better understood in future studies using the data from the investigations.

□ Acknowledgements □

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□ References □

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