

Concrete Coalition Phase II: Concrete Building Performance Record

Instructions: This form is for use in collecting data for phase two of the Concrete Coalition project: Developing a Global Database of Concrete Buildings Damaged in Earthquakes. For more information about how to use this form, see the sample form or view the demo at: <http://concretecoalition.org>.

Record ID:

Building Name:

Prepared By:

Section 1: Basic Building Information



Elevation view of 215 Fremont Street, post retrofit. (Louie International, 2011)

Country:		
State/Province:		
City:		
Latitude:		
Longitude:		
Street Address:		
Occupancy:		
Height:		Ft, m
Number of Stories:		
Number of Stories below ground:		
Size:		gsf, sqm
Year Built:		
Original Code:		
Modification:		
Year Modified:		
Code of Modification:		

Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

Building Name:

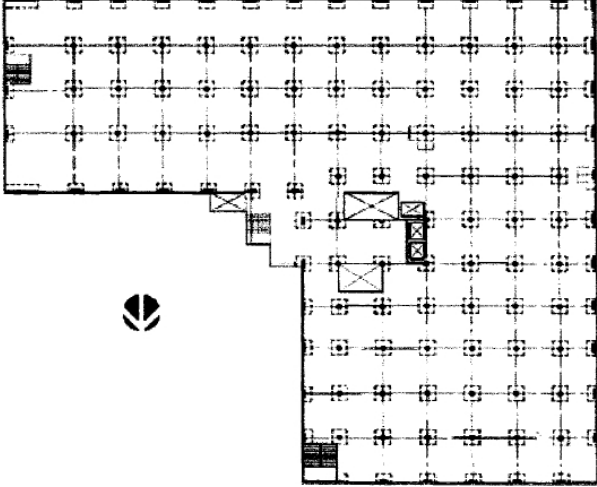
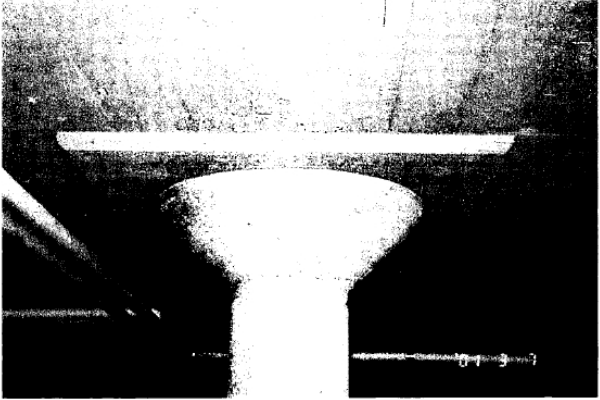
Prepared By:

Section 1: Basic Building Information-(Continued)

Lateral Load System:	
Other Lateral Load System:	
Vertical Load System:	
Other Vertical Load System:	
Foundation:	
Building Description:	

Supplemental Basic Information:

Paste in building plans, engineering drawings or sketches

	
<p>Typical floor plan of pre-retrofit structure. (Amin et al., 2002)</p>	<p>Typical interior column capital. (Amin et al., 2002)</p>
<p>Insert image here</p>	<p>Insert image here</p>
<p>Type image caption here:</p>	<p>Type image caption here:</p>

Concrete Coalition Phase II: Concrete Building Performance Record

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Building Name:

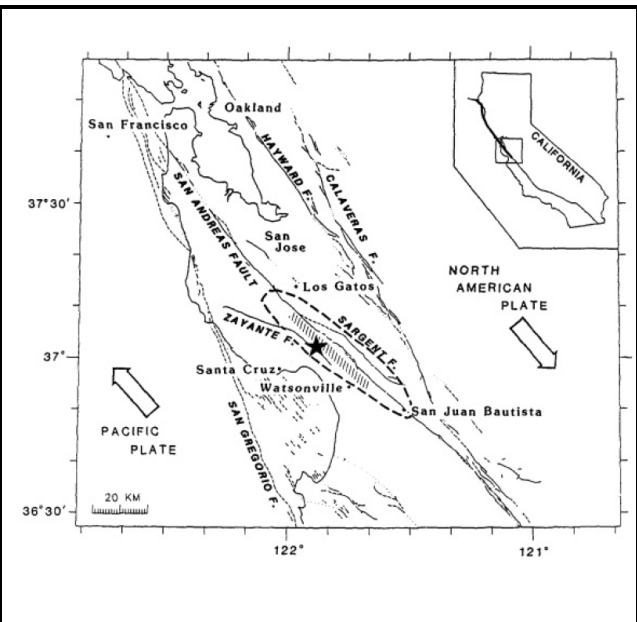
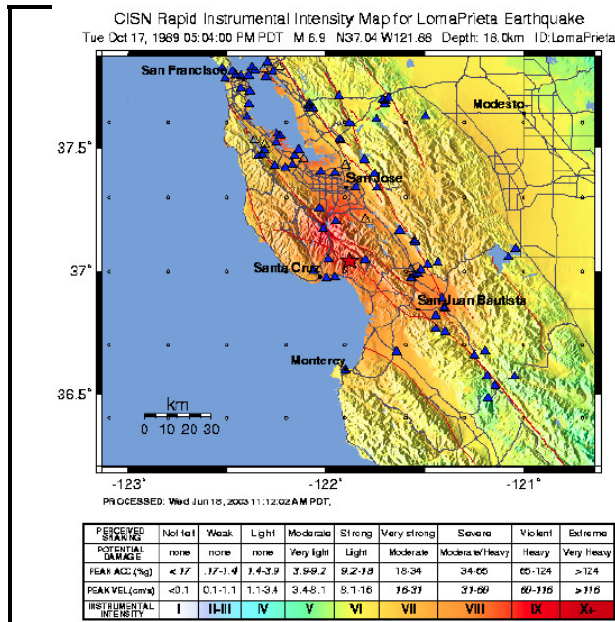
Prepared By:

Section 2: Earthquake Information

Earthquake Date:			
Moment Magnitude:			
Epicentral Distance (km):			
Local Intensity:		Intensity Scale:	
Site Description:			
PGA (max horizontal):			
PGA (vertical):			
SaT:			
Ground Motion Recording Stations:			
Distance to Station (km):			
Station Latitude:			
Station Longitude:			
Ground Motion Summary:			

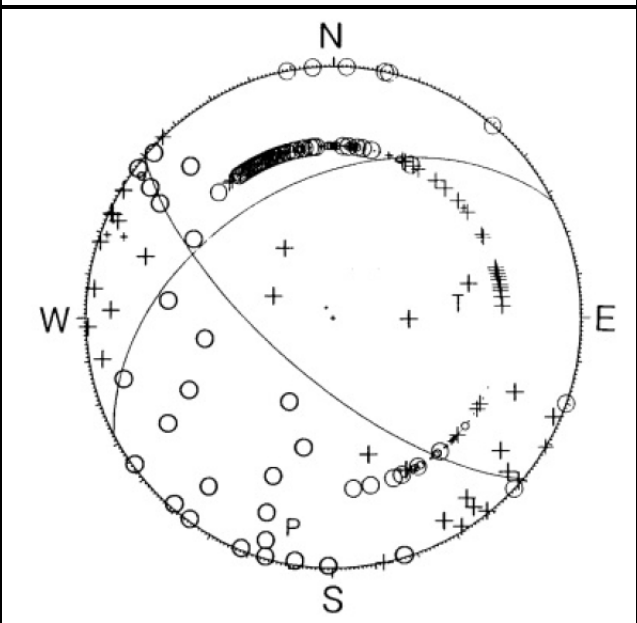
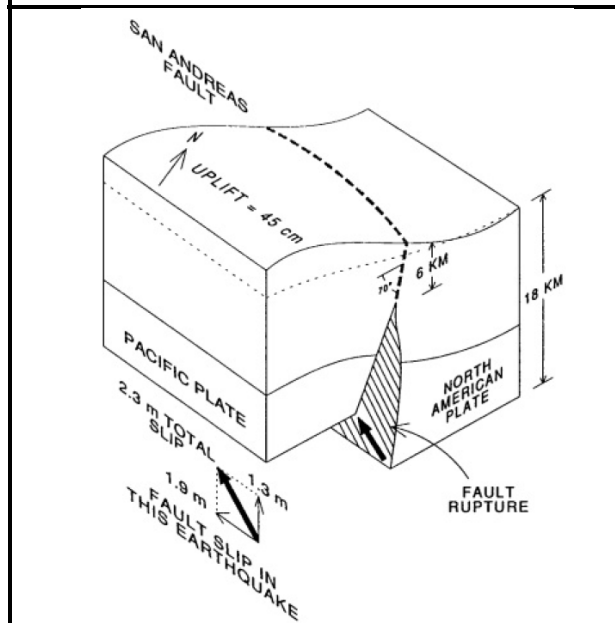
Additional Ground Motion Information:

Paste in earthquake maps, spectra, or figures involving the ground motion at the building site



Shaking intensity for Loma Prieta earthquake. (USGS, 2009)

Map of the San Francisco Bay area showing the location of the major faults (light lines) in the San Andreas fault system. The zone of aftershocks (heavy broken line) extends from Lexington Reservoir, near Los Gatos, to Pajaro Gap, near San Juan Bautista. Hatchures indicate surface projection of the rupture plane inferred from postseismic geodetic observations. Location of the main shock epicenter (star) on the southwest edge of the aftershock zone is a result of its projection onto the surface from a depth of 18 km on a southwest-dipping fault plane. (Borcherdt et al., 1990)



Schematic diagram showing the inferred motion on the San Andreas fault. (Borcherdt, 1990)

Lower hemisphere plot of fault-plane solution for the Loma Prieta main shock, using 267 stations. Circles and pluses indicate dilatational and compressional arrivals, respectively. (Borcherdt, 1990)

Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

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Prepared By:

Section 3: Damage Information

Performance Summary:	
Damage State Description:	
Summary of Causes of Damage:	

Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

Building Name:

Prepared By:

Section 4: Observed Design and Construction Characteristics-Construction Quality

Notes	Contribution to Observed Damage				
	<u>Unlikely</u>	<u>Possible</u>	<u>Likely</u>	<u>Unknown</u>	<u>N/A</u>
Materials					
Concrete					
Reinforcing steel					
Execution					
Conveyance/ placement of concrete					
Rebar					
Field variance with design documents					
Other Factors					
Please Specify:					

Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

Building Name:

Prepared By:

Section 4: Observed Design and Construction Characteristics-Configuration

	Notes	Contribution to Observed Damage				
		<u>Unlikely</u>	<u>Possible</u>	<u>Likely</u>	<u>Unknown</u>	<u>N/A</u>
Plan Irregularities						
Torsion						
Perimeter boundary						
Diaphragm						
Out-of-plane offsets in lateral resisting system						
Non-orthogonal systems						

Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

Building Name:

Prepared By:

Section 4: Observed Design and Construction Characteristics-Configuration-(Continued)

	Notes	Contribution to Observed Damage				
		<u>Unlikely</u>	<u>Possible</u>	<u>Likely</u>	<u>Unknown</u>	<u>N/A</u>
Vertical Irregularities						
Soft Story						
Weak story						
Mass distribution						
Geometric variability of lateral resisting system						
In-plane discontinuity of lateral resisting system						
Setbacks						
Change in stiffness						
Other Factors						
Please Specify:						

Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

Building Name:

Prepared By:

Section 4: Observed Design and Construction Characteristics-Lateral Load Resisting System-General

	Notes	Contribution to Observed Damage				
		<u>Unlikely</u>	<u>Possible</u>	<u>Likely</u>	<u>Unknown</u>	<u>N/A</u>
Strength						
Overall lack of strength						
Stiffness						
Extreme Flexibility						
Load Path						
Collectors/Struts						
Anchorage of nonstructural elements						
Out-of-plane capacity of walls						
Diaphragm chords						
Diaphragm openings						
Other Factors						
Please Specify:						

Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

Building Name:

Prepared By:

Section 4: Observed Design and Construction Characteristics-Lateral Load Resisting System-Frames

	Notes	Contribution to Observed Damage				
		<u>Unlikely</u>	<u>Possible</u>	<u>Likely</u>	<u>Unknown</u>	<u>N/A</u>
Columns						
Shear strength						
Flexural strength						
Axial load ratio ($P/A_c/f_c'$)						
“Vertical” load columns drift capacity						
Interference of frame action by infill						
Beams						
Strength relative to columns						
Shear controlled behavior						
Continuity of longitudinal reinforcing						
Loss of vertical capacity						

Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

Building Name:

Prepared By:

Section 4: Observed Design and Construction Characteristics-Lateral Load Resisting System-Frames-Continued

	Notes	Contribution to Observed Damage				
		<u>Unlikely</u>	<u>Possible</u>	<u>Likely</u>	<u>Unknown</u>	<u>N/A</u>
Beams –(continued)						
Interference of frame action by infill						
Joints						
Interior						
Exterior						
Corner						
Other Factors						
Please Specify:						

Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

Building Name:

Prepared By:

Section 4: Observed Design and Construction Characteristics-Lateral Load Resisting System-Shear Walls

Notes	Contribution to Observed Damage				
	<u>Unlikely</u>	<u>Possible</u>	<u>Likely</u>	<u>Unknown</u>	<u>N/A</u>
Shear					
Diagonal tension/compression					
Sliding shear					
Flexure/shear					
Flexure					
Compression zone buckling capacity					
Boundary reinforcing fracture/buckling					
Discontinuity of wall					
Boundary Reinforcing at openings					
Other Factors					
Please Specify:					

Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

Building Name:

Prepared By:

Section 4: Observed Design and Construction Characteristics-Lateral Load Resisting System-Infills

	Notes	Contribution to Observed Damage				
		<u>Unlikely</u>	<u>Possible</u>	<u>Likely</u>	<u>Unknown</u>	<u>N/A</u>
Unreinforced						
Interference with frame action						
Out-of-plane						
Attachment to framing						
Other Factors						
Please Specify:						

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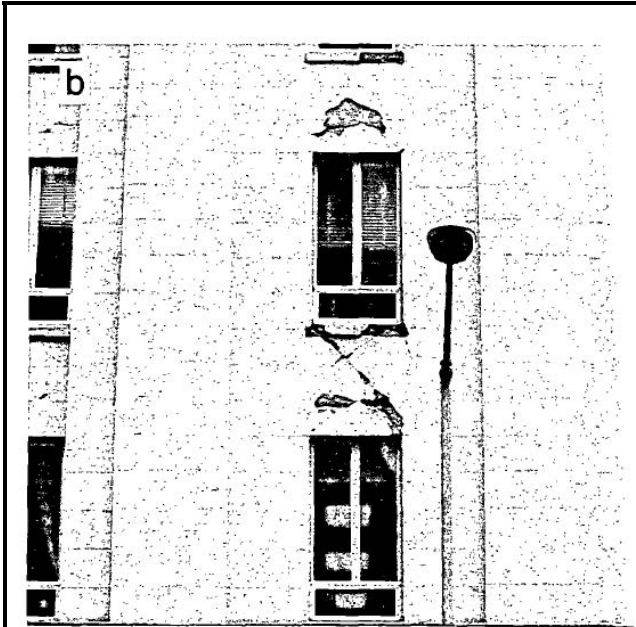
Prepared By:

Section 4: Observed Design and Construction Characteristics-Lateral Load Resisting System-Other

Notes	Contribution to Observed Damage				
	<u>Unlikely</u>	<u>Possible</u>	<u>Likely</u>	<u>Unknown</u>	<u>N/A</u>
Foundations					
Liquefaction					
Pile/pier tension capacity					
Spread footing capacity					
Other:					
Please Specify:					
Miscellaneous					
Pounding					
Surface Rupture					
Other:					
Please Specify:					

Illustrations of damage:

Paste in drawings, sketches or photos of building damage



Close-up view of damage to spandrel.
(Lew, 1990)



Cracking in exterior spandrels. (Schmid, 1991)

Insert image here

Insert image here

Type image caption here:

Type image caption here:

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Building Name:

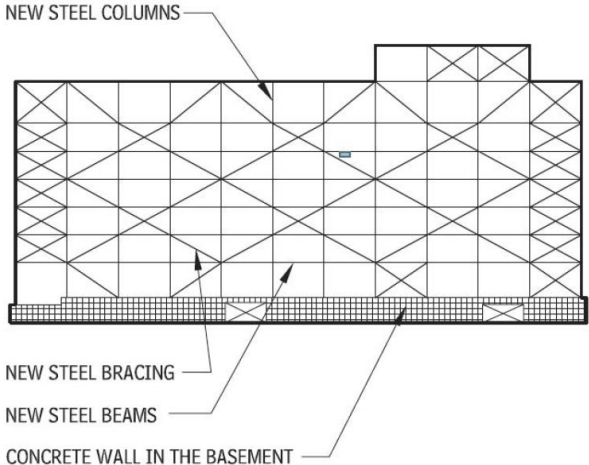
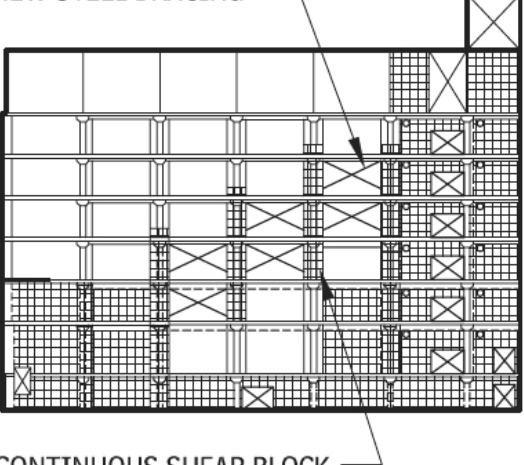
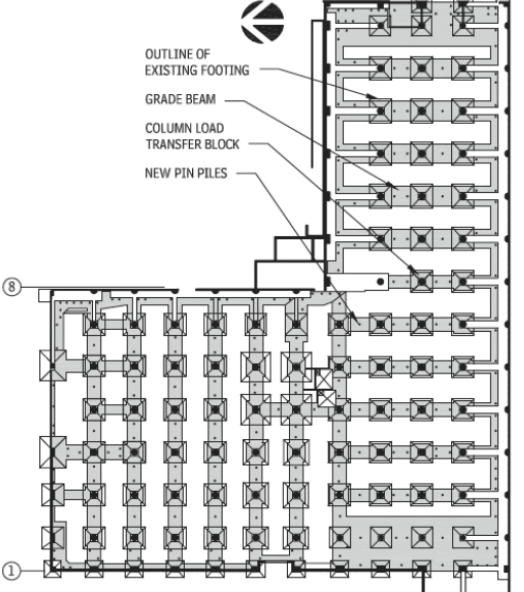
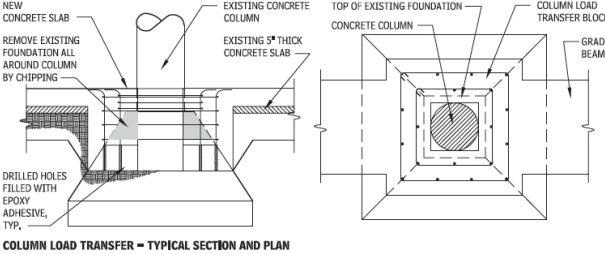
Prepared By:

Section 4: Repair and Retrofit Information

Type of retrofit or repair:	
Other:	
Performance Level:	
Hazard Level:	
Code:	
Other:	
Lateral Analysis:	
Other:	
Design Strategy:	
Retrofit Summary:	

Illustrations of Repair or Retrofit:

Paste in drawings, sketches or photos of building repair or retrofit

 <p>NEW STEEL COLUMNS</p> <p>NEW STEEL BRACING</p> <p>NEW STEEL BEAMS</p> <p>CONCRETE WALL IN THE BASEMENT</p> <p>ELEVATION ON LINE 1</p>	 <p>NEW STEEL BRACING</p> <p>CONTINUOUS SHEAR BLOCK</p> <p>ELEVATION ON LINE 8</p>
<p>Lateral bracing for retrofit scheme at Line 1. (AGS, 2006)</p>	<p>Lateral bracing for retrofit scheme at Line 8. (AGS, 2006)</p>
 <p>OUTLINE OF EXISTING FOOTING</p> <p>GRADE BEAM</p> <p>COLUMN LOAD TRANSFER BLOCK</p> <p>NEW PIN PILES</p>	 <p>NEW CONCRETE SLAB</p> <p>REMOVE EXISTING FOUNDATION ALL AROUND COLUMN BY CHIPPING</p> <p>EXISTING CONCRETE COLUMN</p> <p>EXISTING 5" THICK CONCRETE SLAB</p> <p>TOP OF EXISTING FOUNDATION</p> <p>CONCRETE COLUMN</p> <p>COLUMN LOAD TRANSFER BLOCK</p> <p>GRADE BEAM</p> <p>DRILLED HOLES FILLED WITH EPOXY ADHESIVE, TYP.</p> <p>COLUMN LOAD TRANSFER - TYPICAL SECTION AND PLAN</p>
<p>Foundation plan for retrofit scheme. (AGS, 2006)</p>	<p>The transfer blocks, typically 11 ft-0 in. by 11 ft-0 in., were constructed by chipping away the existing footings around the columns to allow for the installation of vertical dowels embedded into the grade beams. The column loads are transferred to the grade beams by these dowels, which tie all columns together. (AGS, 2006)</p>

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Prepared By:

Additional Notes:

Section 1	
Section 2	
Section 3	
Section 4	

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Building Name:

Prepared By:

Appendix 1: Supplemental Basic Information

File Location	
File Caption	
File Location	
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File Caption	
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Prepared By:

Appendix 2: Additional Ground Motion Location

File Location	
File Caption	
File Location	
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File Location	
File Caption	
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Prepared By:

Appendix 3: Illustrations of Damage

File Location	
File Caption	
File Location	
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Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

Building Name:

Prepared By:

Appendix 4: Illustrations of Repair/Retrofit

File Location	
File Caption	
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Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

Building Name:

Prepared By:

Appendix 5: References

Citation	
Link to Purchase	
File Location	
Citation	
Link to Purchase	
File Location	
Citation	
Link to Purchase	
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Citation	
Link to Purchase	
File Location	
Citation	
Link to Purchase	
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Concrete Coalition Phase II: Concrete Building Performance Record

Record ID:

Building Name:

Prepared By:

Appendix 5: References-(Continued)

Citation	
Link to Purchase	
File Location	
Citation	
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File Location	
Citation	
Link to Purchase	
File Location	
Citation	
Link to Purchase	
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Citation	
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