Guidance Manual for Volunteers

- The following slides provide a brief introduction to volunteers in the California Inventory Project (numbers refer to slide #s)

- Cities Where We Would Still Like a Survey 4
- What to Count 6
- Some Examples of What to Look for in terms of Older Concrete Buildings 12
- Some Suggestions from Two Cities 15
  - Alameda
  - Burlingame
- Entering Information Online 21
- Our Volunteers, Techniques & Estimates 24
Introduction

- Thank you for agreeing to volunteer for the California Inventory Project, which is a program of the Concrete Coalition. Background information on this program is available at www.concretecoalition.org
- Volunteers in California are developing estimates for cities in the 22 highest seismic risk counties of the number of pre-1980 concrete buildings. We want to get an approximate estimate of how many such buildings exist in the state, to help us understand the size of the problem.
- The next step will be determining which small subset of these buildings are truly vulnerable in an earthquake—PEER, one of the partners in the Concrete Coalition, has a major research grant to determine critical deficiencies for these buildings and to suggest possible fixes.
Cities Where we are Looking for Volunteers

- To sign up for a city, first check the website to see if a report already exists for the city. Then, send Marjorie Greene at EERI an email (mgreene@eeri.org) and let her know which city you would like to volunteer for.

- See Table 1 on the next page. We are currently looking for volunteers in cities in the right hand column. However, if you are interested in a different city, please let us know. We’d be happy to accommodate you.
## CONCRETE COALITION CALIFORNIA INVENTORY PROJECT PROGRESS AS OF NOVEMBER 2009

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>Volunteer Survey Complete</th>
<th>Survey Started or Soon to Start</th>
<th>Concrete Coalition Would like Survey</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alameda</td>
<td>Alameda</td>
<td>Hayward</td>
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<td>Albany</td>
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<td>Emeryville</td>
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<td>Oakland</td>
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<td>Piedmont</td>
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<td>Marin</td>
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<td>Novato</td>
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<td>San Rafael</td>
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<td>Mendocino</td>
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<td>Pacific Grove</td>
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<td>San Francisco</td>
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<td>San Luis Obispo</td>
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<td>South San Francisco</td>
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<td>Los Gatos</td>
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<td></td>
<td>Milpitas</td>
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<td>Santa Clara</td>
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<td>Santa Cruz</td>
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<td>Solano</td>
<td></td>
<td>Vallejo</td>
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<tr>
<td>Sonoma</td>
<td>Santa Rosa</td>
<td>Petaluma</td>
<td></td>
</tr>
</tbody>
</table>
What Concrete Coalition Volunteers Need to Count (next 5 slides)

- Prepared by Dave McCormick and David Bonowitz

If in doubt, count it and note that you have counted it.
<table>
<thead>
<tr>
<th>Concrete Building Types</th>
<th>Count Data</th>
<th>Optional – Other Databases Available&lt;sup&gt;1&lt;/sup&gt;</th>
<th>Do Not Count Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Buildings</td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>County Buildings</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>State Buildings</td>
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<td>X</td>
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</tr>
<tr>
<td>Post Offices</td>
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<td></td>
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<tr>
<td>County and State Courthouses</td>
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<td>X</td>
<td></td>
</tr>
<tr>
<td>Federal Office Buildings and Courthouses</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Hospitals Regulated by OSHPD</td>
<td></td>
<td>X</td>
<td></td>
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<tr>
<td>Utility-owned Bldgs. including Substations</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade K-12 Public Schools</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>UC and CSU</td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td>Community Colleges</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Schools and Colleges</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Military Bases and Facilities</td>
<td>X</td>
<td></td>
<td></td>
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</tbody>
</table>

<sup>1</sup> Volunteers must indicate if they counted these building types.
<table>
<thead>
<tr>
<th>Concrete Building Types</th>
<th>Count Data</th>
<th>Optional – Other Databases Available(^1)</th>
<th>Do Not Count Data</th>
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</thead>
<tbody>
<tr>
<td>Prisons</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Districts including Pump Stations and Buildings at Treatment Plants</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Churches</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Port Buildings</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regional, County and City Parks</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) Volunteers must indicate if they counted these building types.
<table>
<thead>
<tr>
<th>Concrete Building Types</th>
<th>Count Data</th>
<th>Optional – Other Databases Available</th>
<th>Do Not Count Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete Frame with Masonry Infill</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wood-frame Residential on Conc. Podium</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-story Cast-in-Place Concrete with Wood Roof (including walls with pilasters)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concrete Shear Wall with Steel Gravity Frame</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mixed Construction(^2)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tilt-ups</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Dual System with Concrete Shear Wall(^3)</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Parking Garages</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buildings Whose Concrete Elements are Limited to Fire Walls Between Sections</td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Buildings Whose Concrete Elements are Limited to Basement or Retaining Walls</td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

\(^2\) Includes horizontal additions of concrete as well as buildings with concrete lateral load systems in one direction only.

\(^3\) Do not need to make exceptional efforts to verify whether a building has a dual system or not, but if you know, don’t count it.
<table>
<thead>
<tr>
<th>Concrete Building Types</th>
<th>Count Data</th>
<th>Optional – Other Databases Available</th>
<th>Do Not Count Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retrofitted Buildings(^4)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abandoned Buildings</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buildings in Areas Scheduled for Redevelopment</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Building-like Nonbuilding Structures(^5)</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nonbuilding-like Nonbuilding Structures(^6)</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Concrete Structures Supported on Piers or Wharfs over Water</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buildings used for Storage – No Occupancy</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Do not include concrete block buildings without concrete walls.

\(^4\) Obtain approximate retrofit date is possible.
\(^5\) Includes campanile, substation and pumping stations.
\(^6\) Includes silos, tanks, bridges, canopies, covered walkways and monuments.
## Reminder - Ultimate Goal

<table>
<thead>
<tr>
<th>Your City</th>
<th>ESTIMATE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
<td>ESTIMATE</td>
</tr>
<tr>
<td><strong>Total Number of Buildings</strong></td>
<td>Possible Source: Assessors’ Data</td>
</tr>
<tr>
<td><strong>Total Number of Concrete Buildings</strong></td>
<td>± 10 –20 %</td>
</tr>
<tr>
<td><strong>Pre-1980 Buildings</strong></td>
<td>Possible Source: Assessors’ Data</td>
</tr>
<tr>
<td><strong>Pre-1980 Concrete Buildings</strong></td>
<td>± 10 –20 %</td>
</tr>
</tbody>
</table>

A range is ok—Also provide some documentation on how you arrived at your estimate—you can write a few sentences on the same page where you enter your contact information (see below for how to enter information online)
Tips to Identify Concrete Buildings

- Walk behind the building – fewer architectural finishes
  - Look for form boards
- Look inside
- Look for elevated floor/cripple wall – probably wood
  - Vents
- Knock on wall
- Differentiate from tilt-ups
- Look for retrofits more typical of URM
Tilt-ups – Not Included in Count

Look for joints or plasters
Looks like brick in front

Concrete in the back
Help from Various Cities

- At the beginning of this project there were a number of presentations made from “pilot cities”, with ideas for how to approach developing these estimates. These presentations are available at: [http://www.concretecoalition.org/?page_id=291](http://www.concretecoalition.org/?page_id=291)

- On the next few pages, there are some tips from the City of Alameda (led by Dave McCormick), and Burlingame (led by Karl Telleen)
Tips from Alameda Survey

- “Walk” the City (bike ride actually)
  - Focus in commercial districts and where larger buildings are located
    - Used knowledge of City
    - Alternate approach would be to use Google
- Contact Building Official and ask for help
  - Assessor data
  - Zoning map
  - Sanborn maps
- Visit library
- Iterate until satisfied
### Data Sheet Used

1538 Webster/Alameda Pizza +

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No. of Stories</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>Irregularities</strong></td>
<td>Open front</td>
</tr>
<tr>
<td><strong>Occupancy</strong></td>
<td>Commercial</td>
</tr>
<tr>
<td><strong>Adjacency</strong></td>
<td>One side</td>
</tr>
<tr>
<td><strong>Condition</strong></td>
<td>No deterioration observed</td>
</tr>
<tr>
<td><strong>Comments</strong></td>
<td>Verified concrete</td>
</tr>
<tr>
<td></td>
<td>Brick veneer</td>
</tr>
<tr>
<td></td>
<td>Parapet bracing</td>
</tr>
<tr>
<td>Burlingame, CA</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>Use Google Earth to define city limits</td>
<td></td>
</tr>
<tr>
<td>Use Google Earth satellite image to visually identify areas of possible concrete buildings (i.e. exclude areas that are clearly wood single-family homes)</td>
<td></td>
</tr>
<tr>
<td>Print out satellite images of identified areas for field work</td>
<td></td>
</tr>
<tr>
<td>Drive through identified areas and determine typical use and construction types for each area; circle buildings that appear to be pre-1980 concrete (mark X on buildings that appear to be post-1980 concrete)</td>
<td></td>
</tr>
<tr>
<td>Estimate percentage of buildings in each area that are pre-1980 concrete (and post-1980 concrete)</td>
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</tr>
<tr>
<td>Use Google Earth satellite image to count total number of buildings in identified areas; calculate numbers of concrete buildings in each area by multiplying total number of buildings by percentage concrete</td>
<td></td>
</tr>
<tr>
<td>Estimate total number of buildings in uncounted areas (single-family residential) based on City of Burlingame web site data</td>
<td></td>
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<tr>
<td>Sum totals</td>
<td></td>
</tr>
</tbody>
</table>
Areas and locations of possible concrete buildings
(based on scanning in Google Earth for non-single-family-home-looking roofs)
## Tips from Burlingame Survey

### Data

<table>
<thead>
<tr>
<th>Burlingame buildings</th>
<th>Pre-1980 concrete</th>
<th>Post-1980 concrete</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area 1:</td>
<td>60 (45%)</td>
<td>20 (15%)</td>
<td>130</td>
</tr>
<tr>
<td>Area 2:</td>
<td>40 (30%)</td>
<td>13 (10%)</td>
<td>130</td>
</tr>
<tr>
<td>Area 3:</td>
<td>3 (12%)</td>
<td>1 (4%)</td>
<td>25</td>
</tr>
<tr>
<td>Area 4:</td>
<td>15 (20%)</td>
<td>1 (1%)</td>
<td>75</td>
</tr>
<tr>
<td>Area 5:</td>
<td>0</td>
<td>0</td>
<td>calc’d with other res.</td>
</tr>
<tr>
<td>Area 6:</td>
<td>18 (45%)</td>
<td>2 (5%)</td>
<td>40</td>
</tr>
<tr>
<td>Area 7:</td>
<td>2 (2%)</td>
<td>0</td>
<td>120</td>
</tr>
<tr>
<td>Area 8:</td>
<td>80 (40%)</td>
<td>20 (10%)</td>
<td>200</td>
</tr>
<tr>
<td>Area 9:</td>
<td>1 (4%)</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>Area 10:</td>
<td>4 (45%)</td>
<td>1 (10%)</td>
<td>9</td>
</tr>
<tr>
<td>Area 11:</td>
<td>5 (60%)</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Other areas:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single-family res.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total:</td>
<td>240 (3%)</td>
<td>60 (1%)</td>
<td>7500</td>
</tr>
</tbody>
</table>
Entering Your Information Online

- Once you have compiled basic information, you are ready to enter it online.
- Go to
  [http://www.concretecoalition.org/?page_id=260&page=login](http://www.concretecoalition.org/?page_id=260&page=login) (Or [www.concretecoalition.org](http://www.concretecoalition.org) and then click on CA Inventory Project and volunteer log-in page)
- User ID is name of city, all one word, lowercase
- Password is eeri123
- Once you are logged in, select Create New Report
- TO NEXT PAGE--
You should read the Introduction tab, and fill out three other tabs:

- Your information (contact information for the report authors)
- The Community Risk Profile Summary for your jurisdiction (same questions as on other side of this sheet)
- Contacts in the jurisdiction
- All other tabs are meant only to provide suggestions for how you might think about the problem in your community. [Our pilot cities used these questions and we decided through that process that most of these questions should be made supplemental only.]

Dave McCormick of SGH and SEAONC is the volunteer coordinator for Northern California.
Thank you for agreeing to volunteer with our inventory project. This project is developing estimates of the numbers of pre-1980 concrete buildings in California. Volunteers are being asked to provide estimates for the following questions:

**Community Risk Profile Summary**

<table>
<thead>
<tr>
<th>County:</th>
<th>Alameda</th>
</tr>
</thead>
<tbody>
<tr>
<td>City/Town:</td>
<td>Alameda</td>
</tr>
</tbody>
</table>

**Data Sources (select all that apply)**

- Counts & Surveys: Discussion with Building official
- Plans and Histories: Zoning maps
- Field Work: Selected sample areas
- Google Earth: Google Earth (if possible, attach kmlz file)

**Total number of buildings**

- Single Family Residences: 
- Multi-Family Residences: 
- Other Private Buildings: 
- City Buildings: 

**AND / OR**

- Total number of pre-1980 buildings: 
- Total Square Footage: 
- Total Number of Pre-1980 Concrete Buildings: 
- Total Square Footage of Pre-1980 Concrete Buildings: 

**Attach File(s):**

1. 

Concrete Coalition will provide counts for public schools, CSUs, UC campuses, OSHPD-regulated hospitals, and State of CA buildings.

These answers will help us understand how you arrived at your estimates.

Please attach files that will help us understand how you derived your estimates, and could be helpful if more detailed analyses are needed. Could include scanned notes, KMZ files, maps, etc.
Range of techniques used by volunteers, as of August 2009

<table>
<thead>
<tr>
<th>Sanborn Maps</th>
<th>Zoning Maps</th>
<th>Google Earth</th>
<th>Street Surveying</th>
<th>Building Officials</th>
<th>Tax Assessor's Data</th>
<th>Internet</th>
<th>Library Research</th>
<th>Engineering Firm Archives</th>
<th>Other Online Databases</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alameda</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
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<td></td>
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<tr>
<td>Alhambra</td>
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<td>Emeryville</td>
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## Summary Data from Northern California Volunteer Cities as of Oct 09

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## Our Northern CA Volunteers to Date

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## Our Northern CA Volunteers to Date

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</table>
If you have questions, any of the following folks can help:

Craig Comartin, Project Director: ccomartin@comartin.net
Dave McCormick, volunteer coordinator: DLMcCormick@sgh.com
David Bonowitz, data curator (integrating our data with the statewide databases): dbonowitz@att.net
Marjorie Greene, EERI staff: mgreene@eeri.org