



## Community Development Department

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### Foundation Work Information

***The following items must be provided and/or shown on the three sets of plans that are submitted.***

This handout can be used for new foundation work, repair to existing foundation, and foundation earthquake retrofit. This is a comprehensive (but not complete) list of items to be shown on plans. All other code compliance items will be reviewed at time of plan check and during construction by the field inspectors.

1. Provide a completed and signed permit application
2. Provide three (3) sets of plans showing proposed work
3. Provide scale on all plan sheets
4. Provide project address on all plan sheets
5. Provide wet signature of person responsible for plans on all plan sheets
6. Provide floor/foundation plan showing:
  - a. Shape of floor/foundation
  - b. Location of all work
  - c. Provide references to details, i.e. detail bubbles
  - d. Location and size of foundation vents
  - e. Location and size of underfloor access
  - f. Provide positive drainage for underfloor area. Foundation walls shall have a 3-inch (minimum) diameter through wall pipe to conduct underfloor water to the outside of the building. Grade level in underfloor areas shall not be lower than exterior grade unless adequate drainage to a positive outfall is provided. Where any water will collect in the underfloor area, an approved drainage system shall be provided.
7. Provide a perimeter foundation detail showing:
  - a. Shape of foundation and stem wall
  - b. Depth of foundation below grade
  - c. Depth of footing
  - d. Width of foundation
  - e. Width of stem wall
  - f. Height of stem wall above grade
  - g. Location and size of rebar
  - h. Size and spacing of anchor bolts. Show embedment depth
  - i. Clearance between earth and wood
  - j. Detail pony/cripple wall
  - k. Grade and species of all lumber
8. Provide an interior foundation/pier detail showing:
  - a. Concrete footing required to support load. Typically 16"x16"x8" deep when used in a 4"x6" grid and supporting only one floor
  - b. Precast pier block (typical) or post base
  - c. Foundation grade redwood or pressure treated Douglas fir post. Specify size of post and connections to girder and foundation

- d. Dimension height of girder and floor joist above earth. Provide a minimum clearance of 12" to the girder and 18" to the floor joist
9. Show/detail all additional work, i.e. stairs, porch, decks, girders, joist, plumbing, mechanical and electrical work
10. Show all new exterior finish material, if any, or add note to plans "All exterior wall finish material to match the existing."
11. If the new foundation will raise the height of the house, show new height of the house. A note can be added to the plans stating, "Height of house to remain the same," or "Height of house to be raised \_\_\_\_\_ inches."
12. If the work you propose to do is "Earthquake Retrofit," the Building Division recommends that you access the Association of Bay Area Governments (ABAG) website, located at [www.abag.ca.gov](http://www.abag.ca.gov) for information and a standard plan set for residential seismic retrofitting.
13. All construction shall conform to the 2010 California Building Code based on the 2009 International Building Code (IBC), 2010 California Mechanical Code based on the 2009 Uniform Mechanical Code (UMC), 2010 California Plumbing Code based on the 2009 Uniform Plumbing Code (UPC) by I.A.P.M.O. and the 2010 California Electrical Code based on the 2008 National Electrical Code (NEC)



# Standard Plan Set for Residential Seismic Retrofitting

## What Is the Plan Set?

This plan set is a "blueprint" version of a prescriptive ("cookbook") standard for strengthening homes to better withstand earthquake shaking. When approved by the local building official, the plan set may be used to strengthen older homes without the need for costly site-specific plans and design calculations. This plan set provides a low-cost method to help improve an older home's chances of surviving an earthquake.

## Why Is the Plan Set Needed?

ABAG concluded that most homeowners are not retrofitting - and those that retrofit are not doing all the work needed to significantly change the likelihood that their homes will be habitable following future earthquakes. One of the problems that homeowners mentioned in an ABAG survey was that they did not know what to do. This plan set is a tool to help homeowners know what needs to be done. They can use the plan set to get bids from contractors, or, if experienced, can do the work themselves.

**DOWNLOAD Standard Plan Set A - Large Sheets for Seismic Retrofit of Single-Family Wood-Frame Homes**

**NOTE - ABAG's Executive Board adopted the 2008 version of this plan set on Sept. 18, 2008. Therefore, the files on this page have been updated.**

These sheets are difficult to view on a computer screen, but are suitable for providing to your city or county building department to obtain a building permit.

[Standard Plan Set A](#) - an Adobe Acrobat PDF file - 24" x 36" - but legible on 11" x 17"

[Model Resolution](#) for Adoption by Cities and Counties

**MORE** Frequently Asked Questions

**Why 24" x 36" and how do I print these large sheets? And how many of these sheets do I need to submit to my building department?**

The plan set is two sheets, each of which is 24" x 36." This size is standard for plans required by city and county building departments for permits. You can view the plan set on your computer. However, most people don't have the capability of printing these large sheets. You can email them to your local copy shop or download them to a CD and take them to your local copy shop to make copies. However, they are legible when printed on 11" x 18" paper.

In addition, we are working with city and county building departments to make the plans available at their counters.

**Berkeley, El Cerrito, Hayward, Livermore, Newark, Oakland, and San Leandro** have these plan sets available at the counters of their building departments.

The plan set states that the applicant for a permit should submit two copies of the plan set to the building department. Some cities and counties may have different requirements. **Be sure and check with your local building department to confirm that this is the correct number of plan sets required.**

**Who developed the plan set?**

The plan set was developed by a committee representing the East Bay, Peninsula, and Monterey Bay chapters of the International Code Council (ICC), along with representatives from the Association of Bay Area Governments (ABAG) Earthquake Program, the Structural Engineers Association of Northern California (SEAONC) Existing Buildings, Seismology and Structural Standards Committees, the California Building Officials (CALBO) Seismic Safety and Emergency Preparedness Committees, the Earthquake Engineering Research Institute (EERI) Northern California Chapter, and building contractors specializing in home retrofit.

**Why does the plan set allow use of either 1/2 inch or 5/8 inch bolts, while the 2008 code only discusses the use of 5/8 inch bolts?**

The plans intentionally allow the use of EITHER 1/2" or 5/8" bolts. The calculations in the plan set table were run for both types of bolts. Because the 1/2" bolts are smaller in diameter, more of these bolts are required than if 5/8" bolts are used. Both should be acceptable for use for an engineered design, which this is. While 5/8" bolts are a default value for conventional new construction, the use of 1/2" bolts is actually preferred by many as the demand on an existing foundation and mudsill at the specific point where the bolt enters the mudsill and foundation is actually a bit less.

**Is it a mistake, or does the plan set require use of 3 x 3 x 0.25 inch washers, while the 2008 code requires use of 3 x 3 x 0.229 inch washers?**

Either thickness of washers is acceptable. The key is that they should be 3" by 3" rectangular washers, not the thin round ones usually present in existing older homes.

**The plan set allows the use of expansion anchors, but most people don't have copies of the ICC ES report for detailed information on how many might be**

Those developing the plan set had access to the ICC ES report on expansion anchors. The calculations for how many anchors are required has, therefore, already been performed.

required. Is this an issue?

Has ABAG itself acted in support of the plan set?

Yes, ABAG's Executive Board passed a **resolution** at its December 2004 meeting in support of the original version of this plan set. A second **resolution**, adopted at its September 2008 meeting in support of the 2008 version of the revised plan set, was passed in support of the revised version of this plan set.



**ABAG, the Association of Bay Area Governments, is the regional planning and services agency for the nine-county San Francisco Bay Area.**

**This page was last updated 5/19/08 by jbp.**