



December 31, 2025

Dear Ms. Doe,

This retrofit has been custom designed to provide maximum protection for the least cost.

Please click on [This Video Link](#). It is part of your proposal. The first 16 minutes is background and the last few minutes address your house specifically.

It explains exactly why your retrofit has been designed as it is and what we plan to do.

I have also included this written proposal with graphics and links to specific web pages. We want you to know exactly what we plan on doing and what you can expect to receive for your money.

If everything looks good we need to come out and take photos for the EBB program. Don't sign the Terms and Signature Page until we do this. We also want to meet you.

The design and engineering basis of your retrofit is only available in the video.

.

Howard Cook

Howard Cook M.A.
Founder/Owner Bay Area Retrofit
Office-510-548-1111
Mobile-408-664-6355
Retrofitting Homes for 25 years and still counting



BACKGROUND INFORMATION FOR YOUR EARTHQUAKE (SEISMIC) RETROFIT

The type of hardware and retrofit methods required differ from house to house. What you see here may not be exactly what we do for your home. I personally train our technicians in seismic engineering principles so they know what to do and which hardware to use.

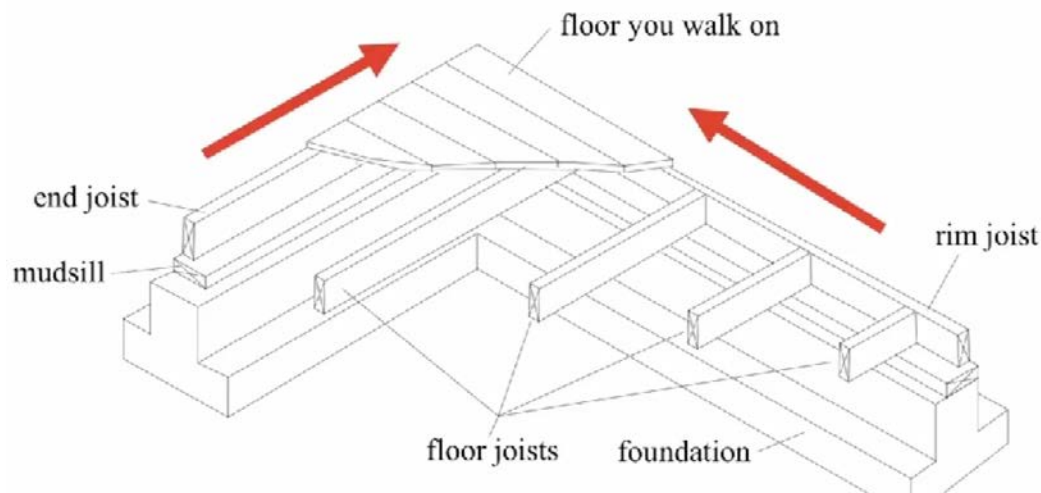


Diagram: Earthquake forces will try to push your floor (consisting of the mudsill and joists) off the foundation.

Bolt Mudsill to Foundation with Foundation Anchors

Please go [to this webpage and watch the video](#)

Because the distance between the foundation and the floor is only 6", drilling holes for bolts down from the top is not possible. Instead, we will bolt your house to the foundation from the side with foundation anchors. These bolt the side of your mudsill (the piece of wood on top of the foundation) to the concrete foundation. We use three different types of foundation anchors depending on what we find under your house.

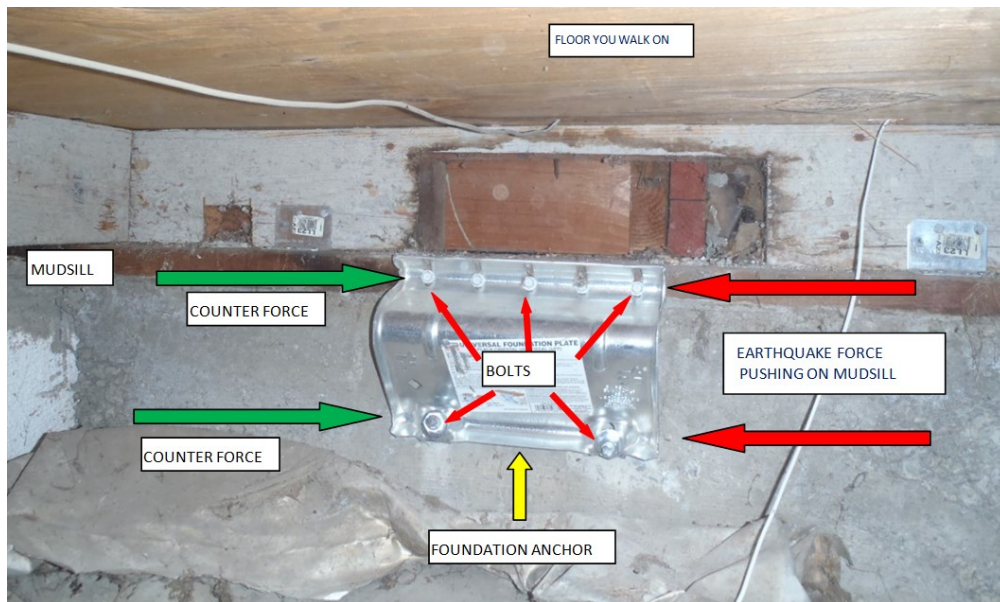


Photo: This is one type of foundation anchor called a URFP

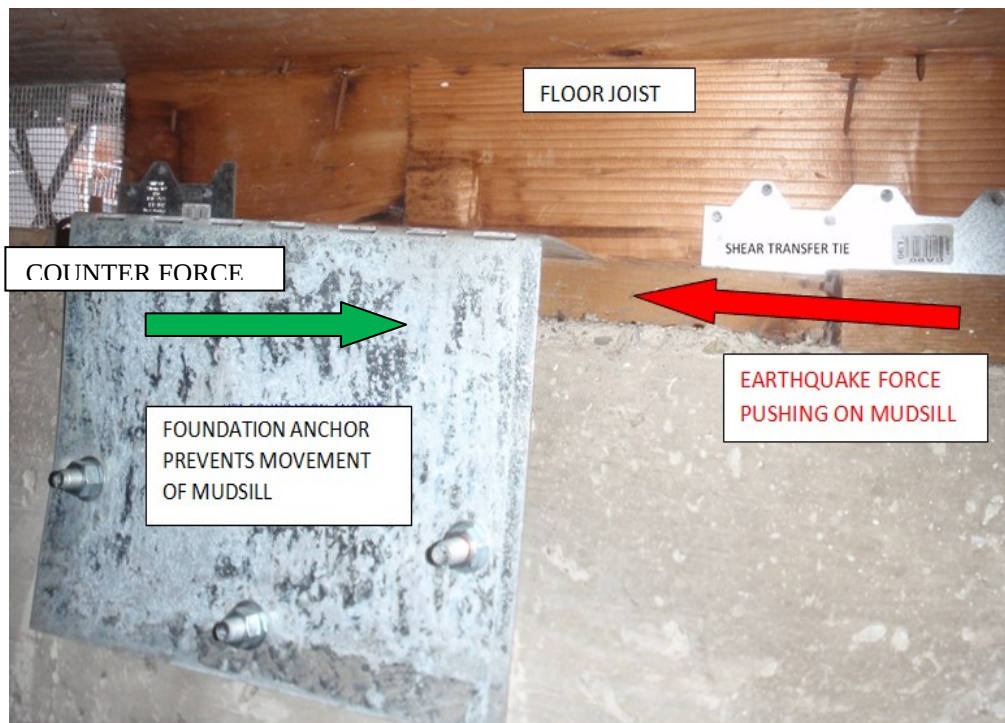


Photo: Another type of foundation anchor called an HFA8.

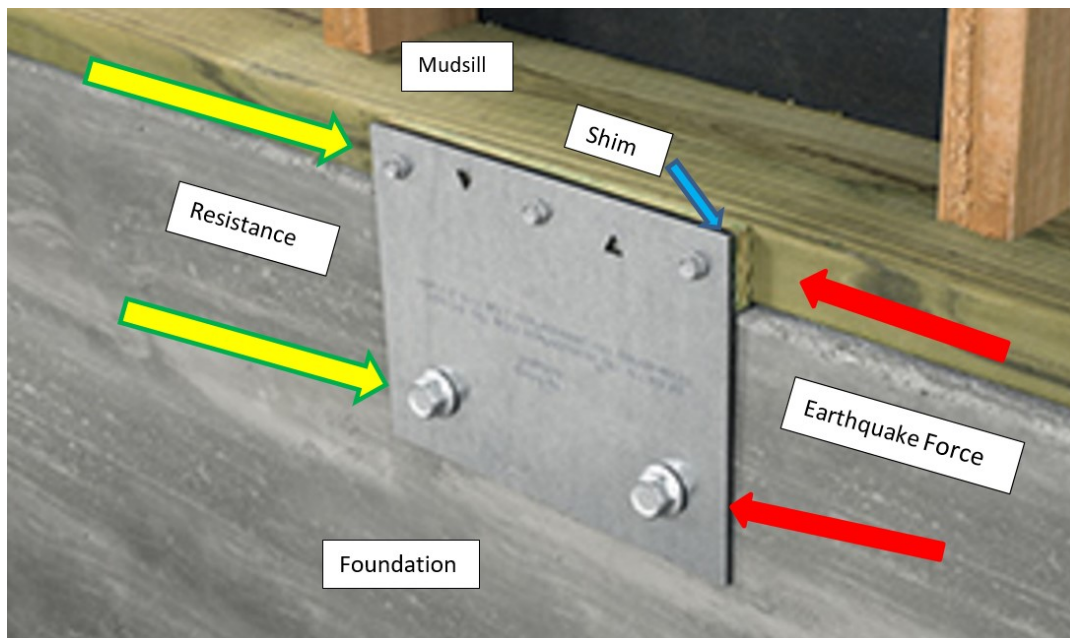


Photo: This is the only test foundation anchor for use with shims, which are necessary when the foundation and the mudsill are not flush.

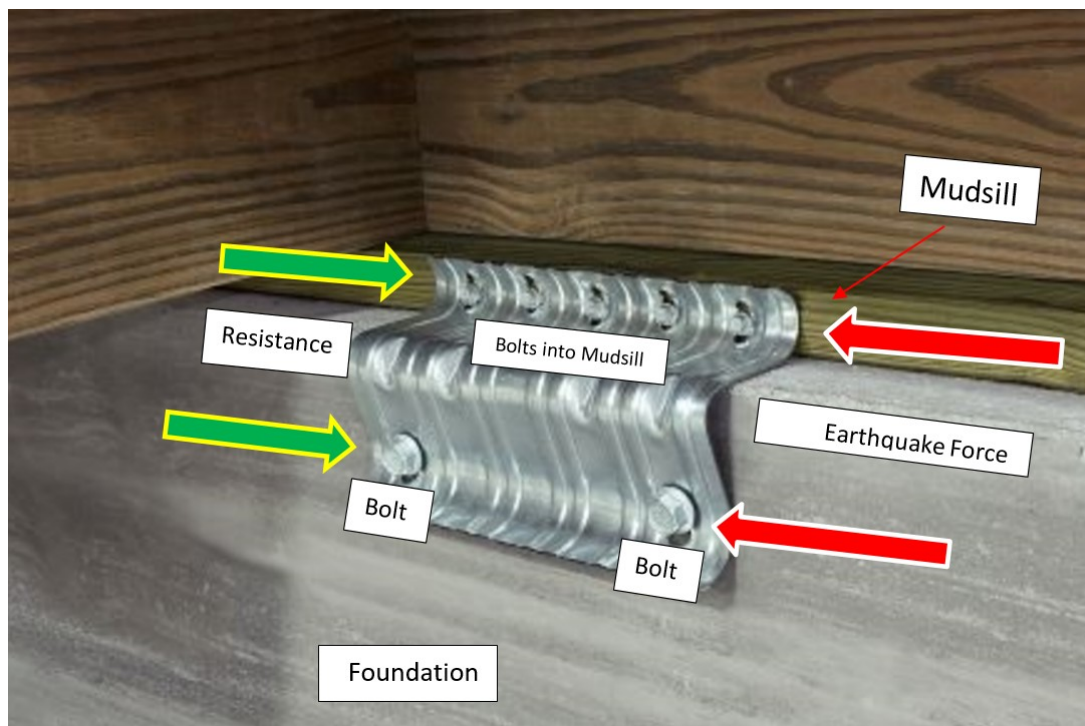


Photo: Another type of foundation used when we find certain framing conditions.

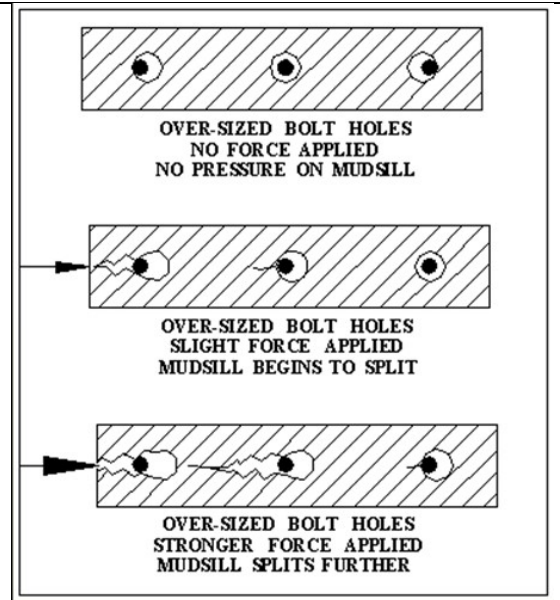
If your house is already bolted this section of the building code should be kept in mind.

[This video](#) discusses oversized bolt holes in the mudsill.

11.1.2.2 - "Bolt holes shall be a minimum of 1/32" to a maximum of 1/16' larger than the bolt diameter"



Hole in Mudsill is over ¼ inch in diameter. A gross violation of the building code



Damage Caused by Oversized Hole



This is the kind of damage that can occur when a house has oversized bolt holes. There is no repair for this. To be 100% safe from this kind of damage the house should be re-bolted with foundation anchors.

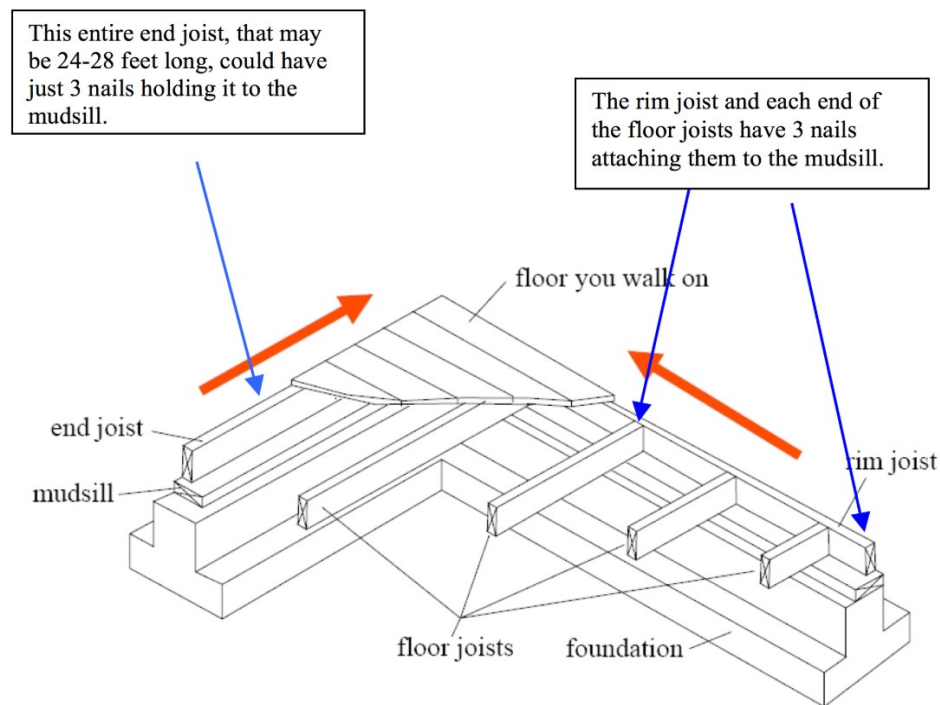
Contractors drill holes that are oversized so they can adjust the mudsill front to back or side to side during construction.

Attach Rim, End, and Floor Joists to Mudsill with Shear Transfer Ties

The building code in effect when your house had a very serious deficiency where an important connection attaching the floor framing to the foundation could be made with just three “8d common nails”, which is clearly insufficient.

TABLE 2304.9.1 FASTENING SCHEDULE		
CONNECTION	FASTENING ^{a, m}	LOCATION
1. Joist to sill or girder	3 - 8d common (2½" × 0.131") 3 - 3" × 0.131" nails 3 - 3" 14 gage staples	toenail

TABLE SHOWING HOW ONLY 3 NAILS CONNECTING THE JOISTS TO THE MUDSILL ARE CODE COMPLIANT



The floor joists can slide off the bolted mudsill during an earthquake. We will attach the joists to the mudsill with shear transfer ties. There are many different types of steel shear transfer ties; we commonly use the following 4 types.

[This webpage and video](#) discusses shear transfer ties.

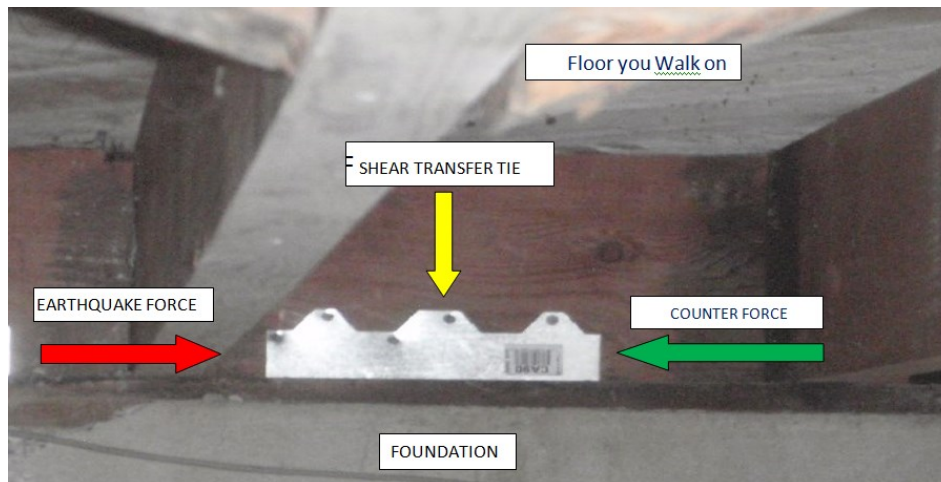


Photo: This is a shear transfer tie, which provides resistance against movement of the floor joist.



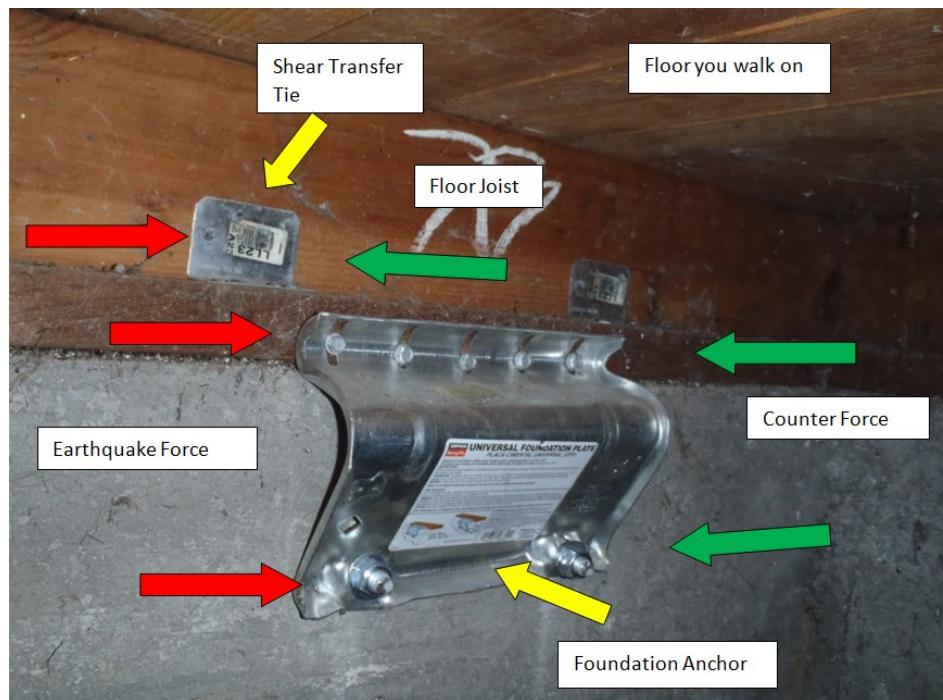
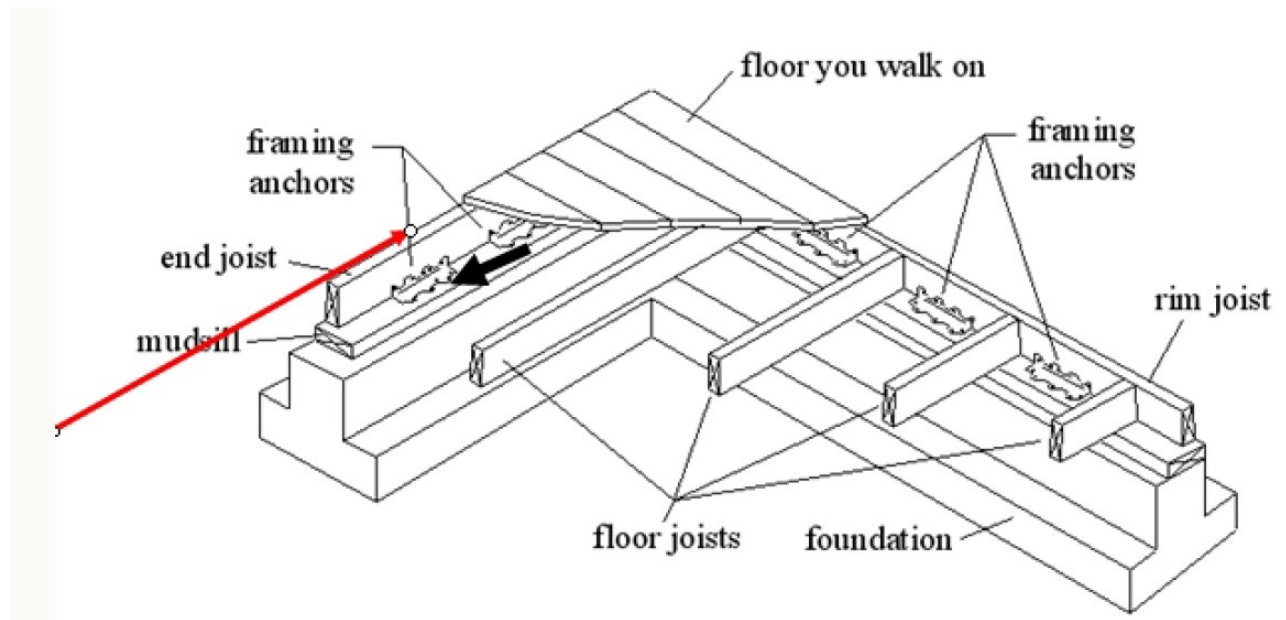


Photo: The earthquake exerts force that will cause the floor to slide on top of the mudsill. Shear transfer ties prevent this movement.

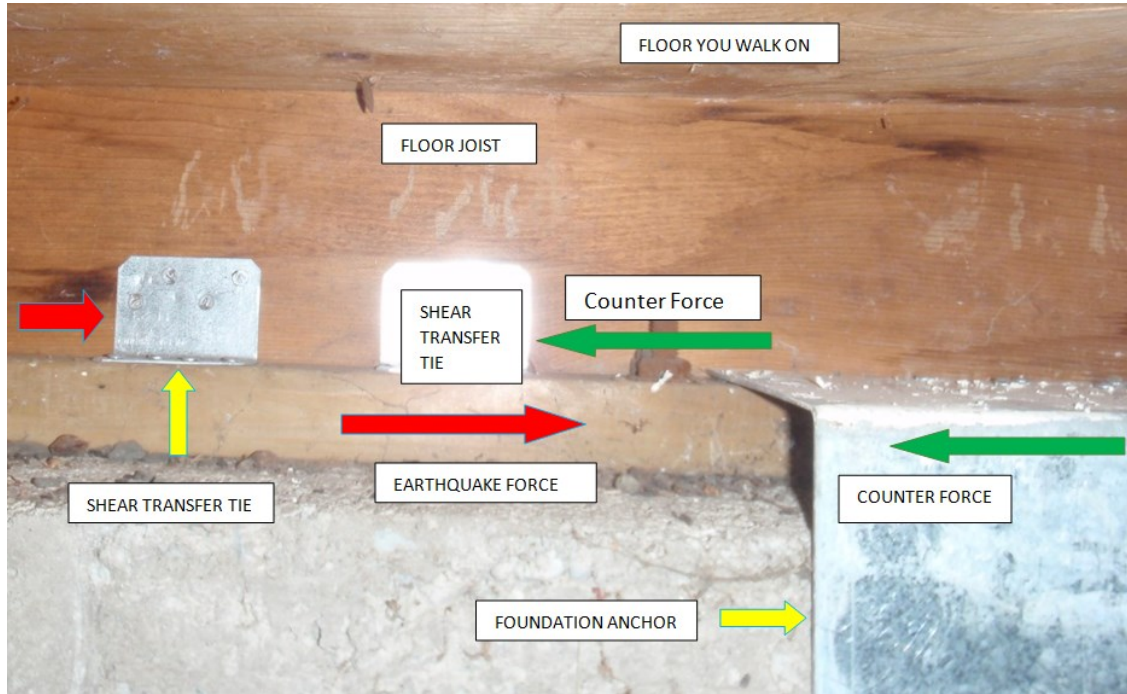


Photo: How the whole system works (described below).

- The earthquake exerts force (**red arrows**) on the shear transfer ties.
- The Shear Transfer Tie is nailed both to the floor joist and to the mudsill.
- When the shear transfer ties push on the mudsill, the mudsill pushes on the top of the foundation anchor. Because the bottom of the foundation anchor is bolted to the foundation, thereby resisting the sliding motion.

Side bolt mudsills.

The floor needs to attach to the foundation, but sometimes-standard hardware will not work. If needed, bolt new mudsills made of special lumber that will not split to the side of the foundation and connect this to the floor with either steel or wood. See below.

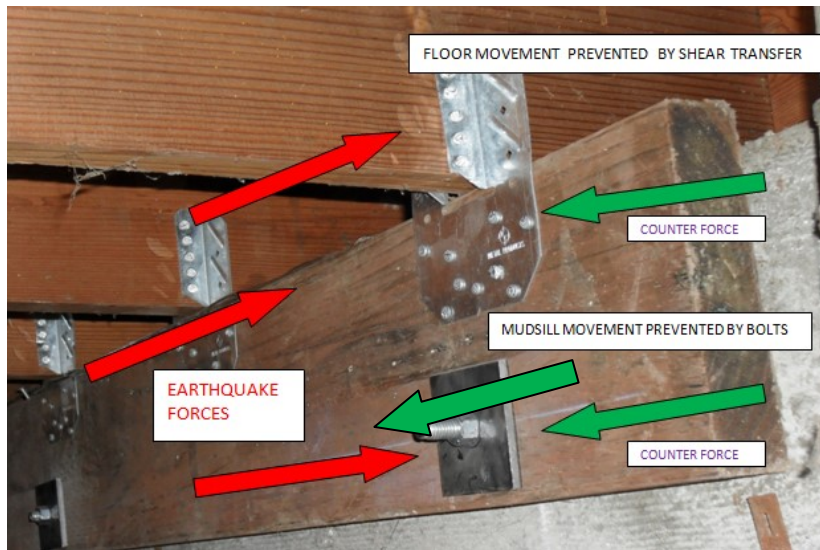


Photo: Earthquake force pushes on floor, into the shear transfer ties, into the mudsill, into the bolts, and into the side of the foundation

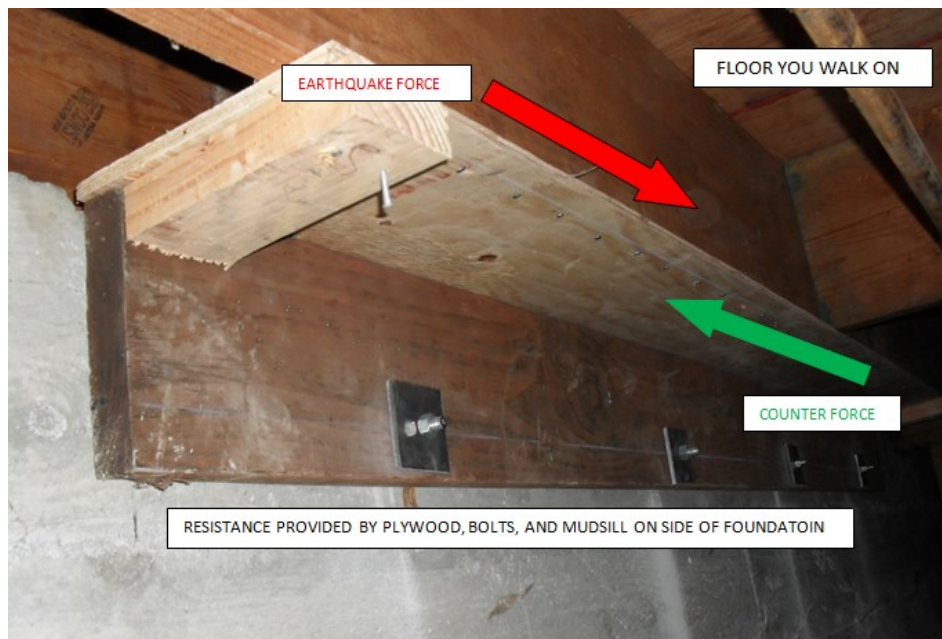
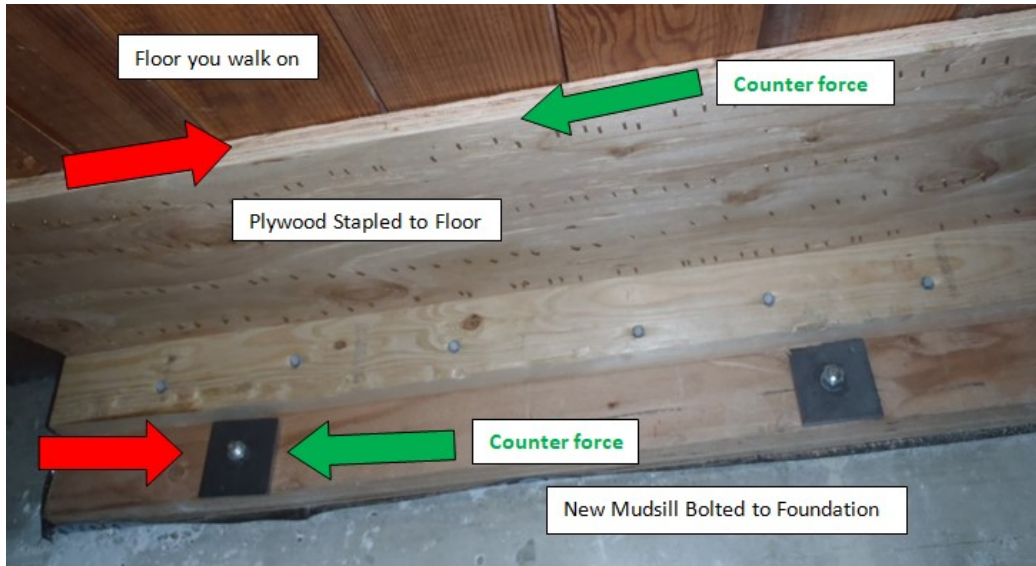


Photo: Plywood is nailed along the top edge of the mudsill. Earthquake force is transferred into the plywood, into the top edge of the mudsill, and then into the bolts.



Side Bolt Mudsill with Shear Wall Nailed to the Floor

***Photo:** Piece of plywood is nailed along the top edge of the bolted mudsill which is stapled to the floor. Floor moves/pushes on plywood/plywood pushes on mudsill/l and mudsill pushes against bolts...*

Attached addition to main house with Floor to Floor Connectors

IMPORTANT:

I HIGHLY recommend you come and look at the work yourself while our crew is there so they can explain what they did and why they did it. No one cares about your house more than you do The City building inspector is not going to crawl under your house.

The Value of Building Permits

This [webpage and video](#) discusses the building department permit process.

Smoke and Carbon Monoxide Detectors

***As of July 1, 2011 California State law REQUIRES both smoke detectors and carbon monoxide detectors installed in your home.

You will need one smoke detector inside each bedroom, in the hallway outside the bedrooms, on each additional floor in a common area, and in the basement. You will also need a carbon monoxide detector installed outside each sleeping area in the immediate vicinity of the bedrooms, on each additional story, and in the basement. If they are missing, please install them or the Building Department will not give final approval of your retrofit.

If fire safety is a concern of yours, one common approach is to install a gas shut off valve. We have found the company Quake Prepare at QuakePrepare.com to be a reliable and cost-effective company.

Terms and Signature Page

* If you would like to proceed, please fill out this Terms and Signature Page and input the dollar amount, and send to howard@bayarearetrofit.com,

* To complete the permit process, I may need to meet the inspector for the final inspection so he/she can look at the required smoke detectors. I understand I will need to be home available for an hour before and after slated inspection time (if known), or possibly for entire work day (8a-5p) if unknown.

Initial

* If unexpected problems arise such as dry rot, termite damage, etc are exposed during the course of the work I understand such repair work will need to be done before we can complete our job. This work can be done by us or others under a separate contract. Our rate is \$100 an hour.

Initial

* I will remove personal property from work areas.

Initial

* I understand the type of hardware, quantities, linear footage of new mudsill and plywood etc may vary slightly depending on existing site conditions

Initial

Payment:

Payment of \$6,970 due upon completion of work. Invoices not paid within 7 days of receipt of invoice are deemed past due and will accrue fees at rate of 2% per month. \$3,000 balance to be paid directly to contractor by the EBB.

Acceptance:

The specifications, prices, and conditions outlined in this proposal are satisfactory. I have read and understand the information above, initialed where listed, and hereby accept this proposal.

\$ 9,970 total cost includes building permit and permit processing.

Signature _____ Date _____

Print Name _____ E-mail _____

JOBSITE _____

Address _____

Phone _____

Professional Highlights

[Vice Chair](#) of a seismic retrofit building code committee.

Co-author of [Standard Plan A](#) used by the California Earthquake Authority as well as building departments all over the Bay Area.

Course Instructor: [“Principles and Practice of Earthquake Retrofitting”](#) 2014 presented by the Association of Bay Area Governments.

Author of article [“Seismic Retrofit for Cripple Walls”](#); The Journal of Light Construction. April 2006.

Featured expert [“The Hayward Fault. Predictable Peril.”](#) KQED, Channel 9.

Contributing Contractor [“California Works to Prepare for the Big One”](#), PBS News Hour. This is a compilation of both the "The Hayward Fault. Predictable Peril" and the NewsHour documentaries.

Featured Expert in the ["S.F. Homeowners Need To Be Ready"](#) in the S.F. Chronicle

Source for this article in the [New York Times](#)

Guest Lecturer [“Retrofit Principles and Practice for the Home Inspection Industry”](#) Sponsored by the Golden Gate Chapter of the American Society of Home Inspectors.

Keynote speaker [“The Preservation of Historical Wood-Framed Buildings”](#) Sponsored by The City of Victoria Heritage Foundation in British Columbia.

Mayoral Appointee to the Berkeley Disaster Commission as a [seismic retrofit expert](#).

Guest Lecturer: [“Retrofit Principles and Practice for the Canadian Home Inspection Industry,”](#) sponsored by the Canadian Association of Home and Property Inspectors.

Primary source for an article in the [The Mercury News](#) on Soft Story Retrofitting.

Featured contractor in ["The Danger Beneath"](#) in the East Bay Express

Residential Damage Inspector, FEMA. 1989-1994.

Member Associations

- [Earthquake Engineering Research Institute](#)
- [Structural Engineers Association of Northern California](#)

Publications by Bay Area Retrofit

- Co-Author with Wendy Allen, Engineer for Simpson Strong Tie, [“Mudsill Anchorage Systems in Cripple Wall Retrofits”](#), 2007.
- Co-Author and currently updating Bay Area's Retrofit Guidelines: [“Standard Plan A, Residential Seismic Strengthening Plan”](#), The International Code Council, 2005.
- [“Homeowner’s Guide to Seismic Retrofitting.”](#)
- Many other publications are available in the [PDF Library](#) at BayAreaRetrofit.com.