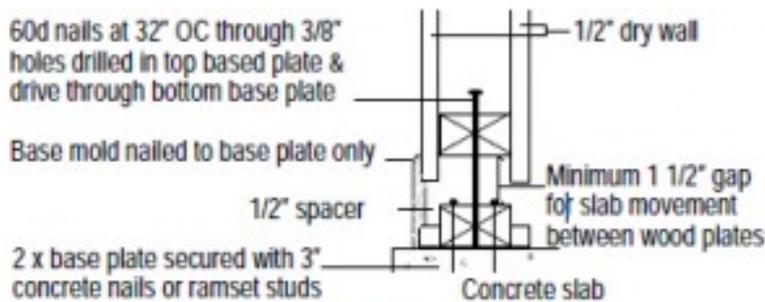


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Here in Colorado, if you want to finish your basement, you have to construct floating walls. What exactly is a floating wall and why do you have to build one?

The reason you have to build floating walls in Colorado is due to the soil. We have what are called expansive soils, in that the clay will expand when/if it gets wet. This can cause the concrete floor of the basement to heave an inch or two. While that doesn't sound like much, it's enough to cause some serious problems if you don't take it into consideration. Imagine your concrete floor rising two inches, then also lifting the first floor of your house along with it. Bad news.



### FLOATING WALL DETAIL

Building a floating wall is really quite simple.

- Lay a 2x4 on the ground where you want to build a wall. This is called the **bottom base plate**. Attach it to the concrete floor using liquid nails (or some equivalent industrial strength adhesive) and concrete nails. Concrete nails are driven through the 2x4 into the concrete floor using a .22 caliber ammunition.
- Lay another 2x4 on top of the base plate. This is called the **top base plate**.
- Cut 4 or 5 pieces of 2x4 that are a few inches long. Lay them flat, between the top and bottom base plates every foot. This is the floating wall gap distance your floor can heave. These will be temporary spacers.
- Square the bottom and top base plates. Nail in a 2x4 header across the ceiling joist directly above the base plates and spacers below. Make sure it's directly above the base plates so your wall will be vertical and not leaning.
- Toe-nail 2x4 studs to the ceiling header board and to the top base plate every 16 inches on center. Leave the spacers between the two plates until you finish building up the studs. This will stop the top base plate from pushing down.
- Drill a pilot hole every 36 inches along the top base plate. Then drive a big 60d nail through the pilot hole, through the top base plate, and all the way through the bottom base plate until you hit concrete. Make sure you get long enough nails such that there nail head is about an inch above the top base plate.
- Once you finish building the wall, remove the temporary spacers.



You now have a floating wall (you can also think of it as a hanging wall). As you will see, nothing is attached to the bottom base plate except the 60d nail. The nail will act as a guide rod should the concrete basement floor start to rise. However, it will not lift the top base plate because the 2x4 studs running to the ceiling are holding the top base plate in place.

It's not a hard project. The toughest part is just making sure you have the bottom base plate directly under the top base plate, and making sure the stud is vertically level so your wall is level. And remember, the floating wall is meant to move an inch or two at most. It's extremely unlikely the basement floor will heave that much, even in expansive soils. If it does, then your whole foundation is probably having issues and you better move!

When it comes to basement doors, you frame them the same way and apply the same concepts. Think of it as a hanging door frame. Just make sure the bottom of the door is no lower than the top base plate. If it is, you will have to cut the door shorter. If you buy a pre-hung door (already framed), you will need to cut the bottom framing off. As previously mentioned, you may have to cut the door a bit shorter such that the bottom of the door is no lower than the top base plate.

## **How to Frame a Floating Basement Wall by yourself**

**I am going to tell you how to frame your basement walls in a way that you will be able to float the walls by yourself.**

Now some sections of walls that are really long you might need help just lifting the wall after framing it on the floor but mostly you should be able to frame lift and

float the walls all by yourself.

Since you are framing your walls yourself I will assume you have general knowledge and knowhow for framing walls. If you are nailing your plates and studs or using an air-nailer it doesn't matter you can use my method with both nailing methods.

Floating basement walls is always a good idea in case your floor heaves and shifts. When you float the wall and your floor shifts chances are you won't get cracks in your walls.

Framing and Floating your basement walls

Floating your walls means either the top or bottom plate will be floating only using spikes to connect your wall to a 2nd wall plate. I float my walls at the floor. Let's get started. So you have all your lumber on site right? Ok good.

A couple of things to consider before you start framing. If you are going to have a plumbing stack in the basement make sure you frame that wall with 2" by 6" lumber, the rest should be 2" by 4".

Make sure you know what size doors you will be installing so you can frame the rough openings accordingly.

When framing outer walls around windows make sure to allow enough around the window to allow for the finished product for instance I build 5/8" boxes that butt up to the window and are flush with the face of the drywall, so I have to allow for that 5/8" all the way around.

In my neck of the woods the outer wall studs are spaced 24" on center and the inner walls are 16" on center meaning the center of each stud is approximately either 24" or 16".

To float your walls at the floor you will have to put down a plate on the floor securing it, I still use cement nails because I like pounding them into the concrete myself.

The trick to floating walls by yourself is to measure from the top of the plate you just laid on the floor to the underside of the joist and deduct 1 1/2". The 1 1/2" will be the space between the bottom plate on the floor already and the underside of the plate on the bottom of the wall you frame.

Make sense?

The easy way to hang the wall yourself is to put a couple of small pieces of 2” by 4” on top of the plate already secured to the floor and lift your framed wall and set it on top of those pieces.

Now that you have framed & floated the wall yourself

It might be a bit tight and you might have to hammer the wall around a bit to get it where you want it but that is all there is to it.

Now get your wall squared up at the top and bottom and nail the top of the wall to your joists and drill some holes in the bottom plate of your wall just snug enough so the spikes fit through with just tapping them lightly through the bottom wall plate into the plate that was secured right to the floor.

Make sure your spikes are long enough that they are still sticking out from your top plate. I use 5” or 6” spikes. Now you can take out the two small pieces of lumber and you know have a wall floating from the floor and you did it by yourself. It’s that easy.

## How to Install a Top Floating Wall

### Step 1: Cut Filler Pieces

**Tip:** Typically, floating walls are built to withstand natural movement in basement floors. But if you're building a wall in an attic, a top-floating wall will handle any movement from the roof and prevent your drywall from splitting and cracking later on.

Cut filler pieces to fit in between the floor joists and the ceiling joists, and secure them in place with nails.



## **Step 2: Secure Top and Bottom Plates**

Secure top and bottom plates to the joist pieces.

**Tip:** Build the frame separately, measuring the slope and keeping in mind an inch and a half gap between the top plate and the frame.



### **Step 3: Plan Your Frame**

Draw the frame measurements onto a large sheet of plywood. This will help with square and plumb.

Build the frame on the board starting with the top plate, then the bottom plate and sides. Attach the elements using a framing gun.



#### **Step 4: Finish the Frame**

Cut the studs to length and attach them at 16" on center, keeping in mind the slope (Image 1). Attach with a framing gun. A hatch for the attic is optional.

Dry fit the frame to make sure the gap is consistent (Image 2).

Nail the frame to the base plate with a framing gun, then drill holes between every other stud to fit large nails into the top plate (Image 3).





### **Step 5: Finish up the Floating Wall**

Drive nails into the upper plate and check with plumb as you hammer.

Add insulation and drywall the new wall.

With each of these methods, you have to use double walls if you want to construct normal floating walls for the rest of the basement. This makes the entrance to the room very tricky, but it can be done with well placed extra-thick casing around the door. The header casing will not be bound to the door header - the drywall will extend down behind the casing and float into the gap between the door header and the header casing. The header casing will only be bound to the side casing and the door jamb. The thick nails will connect the door header and the false door header, to work against shearing force. You can also add bolts and steel plates plates to the king studs, and cut channels (for floating) into the jack studs, so the sides of the door framing will also prevent shearing force (both sideways AND front to back) Note that the jack studs and king studs

are not nailed together, and will rub up and down against each other (a miniscule) gap is suggested.

