

Introduction Thanks for volunteering to help at a construction site. Your efforts will make a difference not only to one particular family in need of decent, affordable housing but also the whole neighborhood.

In this [Construction Volunteer How-To article](#) we discuss attaching housewrap. Attaching the giant roll of film called housewrap to the outside sheathing of the exterior walls of a volunteer-built house is work that's always performed by volunteers. It's a vital part of making the house water-tight, which is a vital part of building any house. We want your house-wrapping job to last as long as the house does.

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Purpose of housewrap [TOP](#)

We – by which we mean you volunteers – always fasten housewrap to the outside of the exterior walls before the vinyl or other siding is attached. *Housewrap*, one brand name of which is Tyvek, is a film that comes in 9-foot-tall rolls about 150 feet long. It's attached – usually with staples or special nails or both – to the OSB that sheathes the walls.

Seams and other breaks in the continuity of the housewrap are sealed with special tape.

The principal benefit of Tyvek and similar housewraps is that they are impermeable to water in its liquid form, which means if rain or melted ice or snow somehow manages to get past the siding that will be installed later, it will hit the housewrap and drain away from the wooden sheets of OSB (oriented strand board) that are directly behind it.

OSB sheathing is not designed to tolerate much liquid water for very long. Once the wood has become too soaked it will never recover. The water enters the wood fibers, which expand and grow apart and then refuse to shrink back even when thoroughly dried. The wood there then is porous to air and water vapor and even more porous to liquid water. Furthermore, its structural integrity is compromised.

Merely identifying the problem, not to mention rehabilitating it, is beyond the abilities of most homeowners. Consequently, we need to do a thoroughly good job of attaching housewrap.

Here's the simple 4-step protocol for how to install housewrap. The task requires a minimum of two people, and four might not be too many, especially when you get up onto ladders.

Ladders Some of attaching housewrap is done from ladders, and sometimes more than one ladder in coordination. Sometimes the 9-foot height and considerable weight of a roll require getting into awkward positions on those ladders. We want you to be efficient but never at the expense of safety, so think through to the exact best way to set your ladders at each step. Keep in mind whether you're right-handed. If you are, and if you have a choice, place the ladder a bit to the left of where you need to work. And remember not to rest the top of the ladder where the piece you're installing will lie. If you haven't already, please read [How To Use Ladders](#) to learn how to handle, set and work from ladders safely.

1. Starting at one end of a wall, unroll many feet of housewrap. The side with the printing on it must face out (but it may be upside down:) Align the bottom edge of the film flush to the bottom of the OSB.
2. Fasten the housewrap securely to the OSB at the side where you started the roll.

How to fasten housewrap. You will fasten the housewrap to the OSB with staples or special nails or both. All pieces of housewrap must be attached securely along the perimeter and in the *field*, which is the part inside the perimeter. As between using more staples or fewer, especially at the perimeter, go ahead and use a few more.

Staples are often inserted using what's called a *hammer tacker*, which is swung like a hammer onto the film. A hammer tacker is especially useful where it would be difficult or dangerous to use the special nails, which always requires two hands.

To get efficient at using a hammer tacker, start with one swing and observe whether the staple is inserted fully and flush to the wall. Learn to hammer as hard as you need to so the crossbar of the staple is tight to the house but not much harder, and always at the right angle. As you gain experience you'll find you can install more than one carefully placed staple per second.

But as you get faster it's more likely you will lose track of whether you've run out of staples. It's not always obvious when you're shooting blanks, because an empty stapler makes pretty much the same mark on the housewrap as a loaded one. It's not always immediately obvious to many volunteers how to reload the various models of hammer tacker or plain old staple gun. If you can't figure it out, ask around. Also, make sure you know where more staples are and that you're using the correct size.

Hammer tackers and staple guns are surprisingly delicate, so please treat them gently. Don't just drop them into a bucket or let them fall from a height. If the tool jams and you can't fix it, please report the problem to the site supervisor so it can be taken out of service (the hammer tacker, not the supervisor).

A drawback to staples is that each one punctures the housewrap twice, which is two places water might try to sneak in. Another drawback is that the film is more likely to tear away from staples in high winds than if those staples were button nails.

Button nails, also called *wrap caps*, are slim, short, sharp, ring-shanked, rustproof nails fitted with a round, plastic collar about an inch in diameter just under the head. When the nail is hammered in properly, the bottom of the cap presses firmly against the housewrap and forces water that gets to it to drain away from the hole made by the nail. The drawbacks to these nails are that they are much slower to install, they require two hands to install, and they are much more expensive than staples.

Safety notice: The cap just under the head of these nails means that, unlike other nails, if you drop one *it will often land point up*, which is obviously really dangerous. Needless to say, you must never allow this to happen. If you lose control of one of these nails and it lands on the ground or anywhere else and someone comes along a

two minutes or two months later and steps on it and then says a bad word and then has to limp away from the site to get medical attention, that's *your* fault. Just because you won't be there to see it doesn't mean it won't happen.

Tip: How to hold a button nail When you're using a regular nail, an 8-penny framing nail, for example, you grasp it in your nail hand between thumb and forefinger with your palm facing more or less away from you, and you confidently tap it a few times till you can take your nail hand away and bash away with your hammer. But using that method with button nails, which are significantly shorter, increases the risk of injuring yourself if your hammer misses or even if you don't miss but you swing too hard. Instead, emulate the professionals and hold the nail between your index and middle fingers with your palm facing towards you, i.e., the bottom of the plastic head of the nail will be resting on the *pads* of those two fingers.

Another benefit of holding a button nail (or a roofing nail) nail correctly is that you can reach a few inches farther, which might save you one whole ladder move, and that's a big deal compared to having to remember the special way to hold short nails.

Keep in mind that the housewrap you're installing today will have to withstand up to four months of heavy rain and driving winds before it gets covered with siding. Pay particular attention to fastening the housewrap well around openings such as doors and windows.

3. Continue to unfurl the roll carefully, keeping it flat and taut against the house and vertical and aligned with the bottom of the OSB. Continue to fasten it as you roll it out. If you're using button nails, look for special marks such as red squares that tell you where to place those nails in the field.
4. When you get to the other side of the wall, just keep wrapping right around the corner, whether it's an inside corner or an outside one. For an inside corner, make sure the film is fastened well to both sides. If you run into a corner you can't wrap around and you need to cut the film, go ahead and do so with a utility knife. Then just keep going.

Housewrap cuts quite easily when it's held taut in mid-air, where you can use the *edge* of the knife blade. If you find it better to cut it against the OSB or other wood, realize that you need a pretty sharp *point* on the blade and you need to press pretty darned hard; you're looking to separate the pieces in one clean, swift laceration, not several ragged abrasions.

That's the 4-step protocol for the simplest of house-wrapping scenarios. Now we consider two common situations that are more complicated, those being openings in the wall and triangles.

Doors and windows When you get to an opening in the wall such as a door or window, merely wrap right over it as though it isn't there. As you already know, be sure to fasten the film extra-securely on the perimeter of the opening. Then go back and cut out the opening with a utility knife using this method.

1. Slice in from each of the four corners of, let's say, a door, at a 45-degree angle till you reach the center of the width of the opening. This will create a triangular flap of housewrap hanging down from the top and another that would be pointing up from the bottom if it weren't obeying gravity.
2. Slice vertically between the points of the two triangular flaps, which, if this helps you picture it, will create an isosceles trapezoidal flap at each side. The opening is now, well, open again.
3. Wrap each of the four now-loose flaps of housewrap tightly across the 2-inch framing members they're next to and slice off the excess at the proper place, then fasten it using staples (not button nails).

When you get to the end of a 150-foot roll, make sure that end won't lie within 2 feet of any opening such as a door or window. If that would happen, cut it short and fasten it, and then start the new roll, remembering to overlap by at least 6 inches.

Gable ends When you get to the triangular top of a gable end, you have to figure out the most efficient way to trim and apply the film. Here are two methods for wrapping the isosceles triangle atop the gable end of a house. (Note that sometimes the gable ends are not house-wrapped at all, so check with a site supervisor before you start this procedure.)

Keep in mind that seams, whether horizontal or vertical or any other direction, must overlap by at least 6 inches and that they must be taped.

Method #1. **Measure, mark and cut**

This method requires measuring, which is always prone to error, especially when you're measuring along a flimsy, floppy film over a distance of several yards. Sometimes this requires a crew of three or more people just to hold the film taut in mid-air while yet another person walks along and does the measuring and marking and then the cutting. It's a team project, requiring good communications to get and stay coordinated.

1. Measure the maximum width distance, i.e., the distance from the left side to the right at the base of the triangle. Let's say it's 30 feet.
2. Measure the maximum height distance, i.e., the distance from the point of the gable straight down to the base of the triangle. Let's say it's 8 feet.
3. Roll out, measure, and cut off 30 feet of film. If you don't have room because a tree's in the way or something, measure halfway, then fold in half there. Either way you'll have a rectangle that's 30 feet wide by 9 feet tall.
4. Fold in half or measure to make a mark (Sharpies are well-suited for this) at the top of that rectangle at the midpoint (15 feet along). This spot will be the top point of the triangle you're cutting out.
5. On the left side of the film measure down 8 feet and make a mark. Do the same on the right side.
6. Cut the film diagonally from the mark on the left side to the mark at the center of the top edge. Do the same on the right side.
7. Since you were really careful at every step above, your piece of film is now perfectly cut to shape, so go ahead and hold it in place and fasten it (unless you want to use it as a template for any identical gable end on the other side of the house).

A benefit of this method is that there is no seam. Another benefit is that the roll of housewrap, which can get heavy and awkward since it's so big, never needs to be held onto by anyone on ladders or even held against the house at all.

Method #2. **From the middle out**

This method of wrapping the gable end does not require any measuring, which is good.

1. Starting with the roll aligned plumb under the peak of the roof, pay out the film to the left (or right) side and fasten and cut it.
2. Do the same on the other side (but do overlap the two pieces by at least 6 inches).

One drawback of this method is that it requires some pretty fancy ladder work, because the large, often heavy roll must be held in place at one end and then rolled out in a difficult configuration while that end is being fastened and sliced.

Another drawback is the fact there will be a seam. The benefit to this method is that experts can perform it faster than novices can perform the first method.

Taping seams

When you install housewrap you must make sure to seal all the seams and other openings with a special tape generically called *housewrap tape* and commonly called *Tyvek tape*.

Other things being equal, we want as few inches of seam as possible, because applying Tyvek tape is time-consuming and expensive and prone to problems. But where you must use tape, take the time to do a crisp job. If you let the housewrap or the tape bunch up instead of lying flat everywhere, that could be a source of damaging water infiltration for decades.

Apparently it's not obvious to every volunteer group that you want to tape seams as you create them, as opposed to attaching all the housewrap and then going back and taping all the seams. I mean, you're already there, and ladder moves are bad, right? So, make sure you've located a supply of housewrap tape before you get started.

(If as you're applying [siding](#) you see an opening in the housewrap, you must take the time to seal it before you side over it. Any such opening – whether it's a whole seam or just a one-inch cut or an abrasion or just some stretch marks – will invite that evil liquid water in. If necessary, cut a patch of housewrap and tape it.)

Conclusion [TOP](#)

Because the pieces of film are so huge, house-wrapping is always a team effort. You all must talk to one another a lot to get the job done right, and you must watch out for one another's safety.

House-wrapping is satisfying for most volunteers because you can get so much area covered in such a short time. In a matter of hours you literally change the house from being a sitting duck for water to soak into to being a duck's back off of which water rolls. Enjoy it.

We thank you for volunteering on a construction site, and we hope you find the experience pleasurable and educational and worthwhile. Your hard work and earnest efforts will help a deserving family afford a house you built, and that is always worthwhile.

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