How To Attach Siding

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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 siding. Hanging siding on 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, and it must be done right. We want your siding job to last as long as the house does. We want you to enjoy yourselves, of course. But we need you to take the job seriously. You'll learn why in a few paragraphs.

(Siding is not usually applied till the walls are covered in a product called *housewrap.* Attaching housewrap is another procedure always performed by volunteers. Read about it here.)

We want you to learn how to hang siding on a house in a way that's always safe, always accurate, and eventually efficient.

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Purpose of siding TOP

The main purpose of siding is to shed water away from the house. That water usually appears in the form of

rain or the melted versions of snow and ice. The problem of water infiltration is exacerbated if there is also wind that drives that water towards the house. Speaking of wind, a strong enough one for a long enough time will literally strip siding away from the house, but not if it's installed correctly.

Another obvious purpose for siding is to improve the appearance of the house. And, to one extent or another, siding is a barrier against heat, cold, noise, and pests. And baseballs and Frisbees.

But you must always consider the water infiltration problem first. If any procedure you perform will allow water to get behind the siding, you have to fix that problem. Remember, water is the enemy of walls, and the siding you'll be installing is the house's first and best defensive layer.

Vinyl siding TOP

Vinyl is a petroleum-based product that is very light, tough, and easy to install. The main siding panels (see #4 below) are usually 12 feet long by a foot high. The bottom of each panel is a channel or lip that is hooked over a ridge at the top of the panel below, which automatically sets the overlap. Vinyl is hammered to the house using roofing nails, which have really wide heads compared to other nails.

The vinyl pieces nailed to a new house consist of five types, listed below in the order in which they're attached. You will be involved in attaching some or all of these pieces.

Five types TOP

All of the five types have nail slots along one edge (or two edges in the case of corner posts). You will hammer your nails into these openings to attach the pieces to the house.

#1 Corner posts On a simple rectangular house there will be four corner posts, which are nailed to the house at the four outside corners and which run vertically from the bottom of the wall sheathing at the bottom to the point at the top where the eave face and the gable end meet. A corner post is a relatively sturdy length of vinyl which, when viewed from above, basically forms a right angle. Each of the two legs of that right angle ends in a roughly 1-inch-deep vertical channel into which the main horizontal panels of siding (see #4 below) will be fitted. Sometimes these corner posts will already have been set for you.

If they have not been set for you, understand that it's essential to set them correctly. You can't just toss 'em up there, nail 'em on, and hope you got it right. If you are at all unsure about how to install these corner posts, do not nail or cut anything till you *are* sure.

- Bottoms. The main criterion is that the bottoms of the four posts define a level plane around the house, but we do not expect that the typical novice will know how to accomplish this without supervision.

- Tops. Often the tops of the corner posts must be notched in various novel ways to fit tight up against the house. Again, don't make any cuts till you know you know how to do it right. These are little geometry puzzles that you must solve correctly. You may use trial and error, but remember that once you've cut something off with your shears, you can't cram it back on.

When you do have the corner post cut correctly at the top and the bottom, install it with roofing nails. Make sure the post is truly plumb and square to the corner of the house, then sink one nail at the top and more nails every 16 inches or less and one more at the bottom. Nail tight to the house.

#2 Starter strips Once the corner posts have been set, a special starter strip will be nailed between the bottoms of each two adjacent pairs of corner posts. These starter strips can be made of metal or vinyl, and their only function is to provide a horizontal ridge into which the bottom of the bottommost course of siding can interlock. Sometimes these starter strips will already have been set for you.

If they have not been set for you, understand that it's essential to set them correctly. You can't just toss 'em between the corner posts any old way, nail 'em on, and hope it's right, because all the main panels will start from those starter strips. If you are uncertain exactly how to install these crucial pieces, ask.

When you know you've got a starter strip set correctly, nail it tight to the house with roofing nails at both ends and every 16 inches in the field. If you need to use more than one piece for a run, simply butt the two ends together, leaving a 1/4-inch gap to allow for expansion.

#3 J-channel J-channel comes in skinny, 12-foot-long pieces that you cut to length and install around interruptions in the wall such as doors and windows and dryer vent boxes. J-channel is also used to frame the triangular part of the gable end walls. It is used at inside corners, and it is also used to hold the inside ends of the vinyl soffit pieces. In every case, the purpose is to be a channel to receive an end or a top or a bottom of a siding panel.

For an uninterrupted run of a main siding panel from one corner post to another, the corner posts supply those channels. But for many courses, the run from one side of the wall bumps into a door or something. In these cases the object that interrupts a continuous run of siding must get surrounded by J-channel.

In the case of a door, for example, the siding panels will run from a corner post up to the side of the door, and at that point they need a channel to hold that end in. Also there will be J-channel at the top to receive the (probably notched) bottom of the panel that runs across it, and that particular piece of J must be cut so as to have a little tab on each end that shunts water away from the house.

Remember, water is the enemy siding is designed to vanquish.

The exact best ways to cut and install J depend on the circumstances, and we will not endeavor to describe them all here. We do use 45-degree miters at the square corners, and we do angle-cut the top of the gable. Some ways, such as how to cut and fold those tabs, are less obvious than others, so feel free to consult someone on site who knows when you run into something tricky.

Tip: Attaching J to the top of a gable end We will describe one way to attach J-channel to the gable, because so many other ways are worse. The goal is to attach J-channel from the very top of the triangle of a gable end slanting downwards on each side, which has to be done from high up on a tall ladder. But step 1 starts on the ground with a full length of J-channel.

1. Cut a slit into the front side (which will be about 1 inch) and another into the back side (which will be just over 1-1/2 inches) of the J at its middle so it's held together only by the crossbar part. If it's 12 feet long, cut the two slits at or near 6 feet. Now carry it up a ladder with some shears and maybe a pencil and definitely a hammer and nails.

2. Bend the J at the slits and hold it in place at the top of the gable.

3. Analyze the resulting corner and trim the right and left sides in the front so they meet in a nice, tight vertical line. Don't worry about trimming the back side, the nail slot side, of the J-channel unless the pitch there is 45 degrees or steeper.

4. Nail the J tight to the house, with a nail at the two tops and the two bottoms and no more than 16 inches between nails in the field.

5. Measure or hold in place the next piece down on one side, mark, cut, butt, and nail. Do the same on the other side.

Sometimes the pieces of J-channel will already have been set for you.

#4 Main siding panels The principal work of siding a house that's always performed by volunteers is hanging the main horizontal panels of vinyl that clad the walls. Each horizontal run is called a *course.* The panels are nailed on from the bottom up, with the bottom of each course lapping over and locking into the top of the one below, the result being that that evil water will always drain down and out rather than down and in.

Generally, here's the protocol. (We'll assume here that you're starting on a wall whose corner posts and starter strip and J-channel have been installed already.)

1. Choose which side of the wall the courses should start from, left or right (see "Six rules about laps" below).

2. Hang the first panel from that side, attaching the bottom of it firmly to the starter strip and nailing it at each end and otherwise with no more than 16 inches between nails. Put the nails in the centers of the nail slots, and don't drive 'em all the way down. When you're finished nailing, test whether you can slide the panel half an inch from left to right; if you can't, you did something wrong.

3. Hang the next panel over in the same way, and continue till you get to the panel that will reach to the other side of your wall or an interruption such as a door. Hold that panel in place, then make a pencil mark where it should be cut.

When you get up to ladder height you'll typically need three people -- two on ladders and a third, called the *runner,* on the ground. The runner's job is to get instructions from the ladder people, prepare the next panel by getting it cut to the right length or angle, and hand it up the ladder people.

We'll discuss more details of hanging the main panels below.

#5 Soffit The other work always performed by volunteers is nailing on the many identical soffit pieces. On the eaves and sometimes the gable ends of a house, the space between the far outside end of the eave or the gable and the side of the house is filled with special pieces of vinyl that, taken together, form the soffit of the house.

For an eave side of the house, if you go outside and stand directly under the eave of a typical roof and look up, the horizontal part that runs flat from one gable end to the other is the soffit. (The *fascia* is the horizontal piece just outboard of that soffit that is oriented vertically on edge.) The soffit for these eaves on most houses is vented in some way.

> **Why soffit is vented.** Soffit makes the outside of any house look better, of course, but the main reason soffit is attached to a typical house at all is to keep birds and other pests out of the attic while allowing the free transfer of air. Often the attic of a volunteer-built house in the Kansas City area is not living space, i.e., it is neither heated by a furnace nor cooled by an air conditioner. Furthermore, there is no attic floor at all, nor are the sloping walls (the eave sides) or the triangular walls (the gables) finished inside with drywall.
>
> The point is that such an attic – whether it's atop a house you're volunteering on or your own house – **is supposed to be the same temperature (and humidity) as the outdoors.** In the winter if the attic is warmer than the outside air then some of the energy used by the furnace is being wasted heating that attic. In the summer if the attic is cooler than the outside air then some of the energy used by the air conditioner is being wasted cooling that attic.
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> To reduce that waste of energy in a house, a great deal of **insulation** is installed, always by volunteers, to thermally separate the attic space from the living space below.
>
> But it's also important to try to control the **moisture content of the air in that attic.** A tall glass of iced tea sitting out on a warm, humid day will quickly develop a coating of water on the outside surface of the glass and start dripping in minutes. This water results from condensation, which arises when warm air meets a cold surface. The water vapor in the air at that interface in such circumstances changes from a gas to a liquid, which is OK if you've got a coaster.
>
> But if condensation occurs too much for too long in a typical unfinished attic or anywhere else, the result will be too much liquid water on surfaces. The wood surfaces can eventually develop mold and mildew, which are bad for your

health, and rot, which is bad for your house. And worse, the insulation itself that's so important to thermally separating the attic from the space below can get so waterlogged that it permanently loses its effectiveness. When that happens, things only get worse and worser over time. (If on a day when snow is melting off the roof you see one section is melting faster than the others, the insulation there is missing or mis-placed or saturated.)

The main purpose of the perforations in the soffit of a house, then, is to make sure the attic air is substantially the same temperature and humidity as the outside air, so that we minimize the duration and intensity of a cold surface's meeting moist, warmer air and causing condensation. Further to that end, we often install **Styrofoam chutes** that run from the bottom of the eave rafter bays to an altitude above the attic insulation. These chutes are installed by volunteers.

Rules for attaching soffit The exact steps for installing soffit are similar to those for installing the main panels, except that each piece is theoretically exactly the same size, and there are no interruptions such as doors or A/C cut-off boxes. It's just one straight run from one end to the other. You'll measure and mark for the first such piece and cut it, then you'll fit it into the J-channel on the house side and, if it fits, attach it with a nail to the bottom edge of the wooden fascia board. If it doesn't fit, diagnose and solve the problem.

Here are some rules for attaching soffit.

- As with the main panels, the channel at the bottom of each piece you install must lock securely into the ridge at the top of the previous piece. You have to get this right every time, and it's binary. Either you've got it right along the entirety of the seam or you don't.

- Each piece you install must fit to pretty close tolerances. If the piece is too narrow, it can fall out of place altogether. If it's too wide it will interfere with the sheet aluminum or other cladding that is used to dress up that edge and, of course, to protect against water infiltration.

- Don't forget to keep the piece you're nailing pulled taut away from the previous one. If you ever see a piece or two that sag, you did something wrong that must be fixed.

- Sometimes the nail slot will get cut in the process of making the piece the right width. When that happens you may nail a little closer to the solid side so the piece is less likely to just flop loose.

- Every two or three pieces, take a look at what you've got so far to make sure it's lining up straight and always perpendicular to the side of the house. If you're gradually getting off somehow, you want to catch it early. Also, sometimes the dimension changes slightly as you progress along the wall, which is why you don't want to cut more than, say, three at a time.

More rules and tips TOP

There's still more to learn about attaching vinyl siding, so keep reading.

Vinyl expands and contracts TOP

Unlike some types of siding such as steel and Hardie board, vinyl siding expands in the heat and contracts in the cold, both from season to season and – during certain spring and autumn days – from the hottest part of the day to the coldest part of the night. Cold can be especially harmful, because when it's cold vinyl not only contracts but it also gets brittle.

If the vinyl doesn't have enough room to shrink and grow it can crack or buckle, which means it's no longer attached adequately, which means that eventually, especially if there's enough wind, it will fall away from the house. The sole benefit of a piece's falling off the house is that the homeowner will at least be alerted to the problem.

Most siding pieces that are attached wrong by inattentive volunteers do not fall off the house. What they do

do is invisibly let water leak in, sometimes a lot and sometimes a little, sometimes over a very long time.

The result is never harmless and is always avoidable.

Because vinyl expands and contracts,
you should never attach a panel of siding firmly to the house.

If you attach the main vinyl panels in any way that prevents them from expanding and contracting enough, the result will be a failure. In some cases the failure is apparent from a cursory inspection of the wall, but in others it's not. It's your job to make sure the wall you're siding does its job for decades.

To prevent the failures that can result from expansion and contraction, here are several rules for hanging the main panels of siding.

- Generally, every panel of vinyl must be able to be slid from right to left one-half inch. It should hang from the nails, and it should not be wedged in.

- Don't nail directly into vinyl. Said another way, always nail through the nail slots you'll find along the entire top edge of each main panel.

- Never place the nail up against the right or left side of the nail slot, i.e., use the center of the slot.

- And never nail siding panels tight to the house, i.e., don't drive the nail all the way in.

Novice volunteers who haven't read this article on vinyl siding violate this last rule way too often, sometimes to the point where whole panels have to be removed the next day and re-nailed or, worse yet, replaced. This rehab work is obviously time-consuming and just generally wasteful, and we hope you will make sure we never have to do this to a panel *you* installed.

Even worse is if the homeowner has to replace a panel five years from now because you nailed the siding panels tight to the house today. They will last a lot longer than five years if they are installed correctly.

It's natural to want to hit that nail one last time to sink it solidly. In every other situation where you're nailing, that instinct is a good one, because nails whose heads stick up are not fully driven. Said another way, nails whose heads are driven below the surface of the wood (or drywall) are properly sunk. But the giant heads of roofing nails are never sunk into wood, and in the case of vinyl siding they should never touch wood. Please **remember** not to hammer vinyl panels tight. If you remind yourself every time, after a while it becomes habitual. If you see that someone else got it wrong, please make sure it gets rehabbed.

If you do accidentally sink a nail too close – which can happen even when you remember not to – you must somehow relieve that nail. Here are four ways to try.

- If you're lucky you'll be able to pry it out at least an 8th of an inch or so using just one of the claws of your hammer.

- Sometimes the head can be pulled out just enough by slipping the back of the blade of a utility knife under it and levering it back out.

- Another option is to slip the claw end of your hammer behind not only the nail but also the vinyl at the top, then wedge it down till you're behind the nail and can lever it away from the house. This is more easily done with what's called a *straight-claw* hammer, and sometimes you need to hit the head of that hammer with the heel of your hand or even another hammer to wedge it in deep enough.

- In worse cases you'll have to use a tool called a *cat's paw,* also called a *nail-puller,* which you might be

able to track down on the site somewhere if you ask around. The proper use of a cat's paw is not obvious to 98.6% of novices, so unless it's obvious to you, ask around for help. This rather violent procedure might tear the nail slot, but don't worry about it; just use the next one over. If the nail you drove too tight is at one end or the other, do try extra hard not to ruin the nail slot.

In any event, that vinyl must not be attached tight to the house, so if you can't relieve the nail then separate it from the vinyl around the nail slot with, say, a utility knife, then hammer the nail in just to get it out of the way, make sure the now-loose vinyl lies on top of it, and use the next nearer nail slot to try again.

- Allow one-quarter of an inch of space between the end of a panel and the far side of a piece of J-channel or corner post. For any panel that will be a total of half an inch of left-right play. This is also a rule many novices forget about, so please don't. It is true that the shorter the piece, the less room it needs for expansion.

- If it's really cold out and the vinyl is cold, that means it's already contracted quite a bit, which means you need to leave even more room for expansion. Similarly, of course, if it's really hot out and the vinyl's hot, that means you should leave a little less room.

Six rules about laps TOP

A lap, also called a *seam,* is the point (actually, a vertical line) at which two laterally adjacent panels of vinyl siding overlap each other. Here are six rules to keep in mind about laps.

#1 Rain will enter at the laps and try to get to the house, so we want as few as possible, but keep reading.

#2 Since we know water will enter at the laps, we want the course below each lap to be free of laps for at least 2 feet in both directions. That way the water that enters at a lap will leak onto only uninterrupted vinyl and be forced back away from the house.

#3 Doors and windows and dryer vent boxes and so on, being openings in the vinyl cladding of a wall, are especially vulnerable to rain infiltration. With respect to a door, be sure the course immediately above it does not lap within 2 feet of either side of it. With respect to a window or other opening, be sure the course immediately above and the course immediately below such an opening do not lap within 2 feet of either side of it.

#4 Wherever there's a lap the question arises whether that lap should be left over right or right over left. (Rule: All of the laps on your particular elevation must be the same.) The answer is that it depends on the direction from which more people will view that elevation.

To take one of the two examples, if the panels are hung from the left of your crew's wall to the right (which means the left side of each panel will rest on top of the right side of the panel to its left), then the laps will be quite visible from the vantage of a person standing to the left of that elevation whereas they will be virtually invisible from the vantage of a person standing to the right.

(Tip: If the last paragraph doesn't make sense to you yet, re-read it and use your two hands to represent two laterally adjacent panels.)

So, before you hang the first panel of siding you must decide which will the more popular, or "good," vantage from which that elevation will be viewed. Side walls will almost always be viewed from the front more than the back. Front and back walls you might have to think about.

If you decide the good side is the right side, start every course on the left corner, and vice versa. *In short, always start each course on the less popular, or "bad," side.*

#5 The laps should form a random pattern as you scan them vertically. Said another way, where possible you should try to vary the lengths of the panels so that no two laps match up vertically within three or four courses of each other. Often this means you have to cut a piece a few feet short even though there's room for a longer piece. But this very piece you cut off can be used as the starting piece for a later course.

#6 You will notice that there's a 2-inch long notch cut into the top edge at each end of a full panel, and a less obvious one at the bottom. These notches set the overlap distance between two laterally adjacent panels to 2 inches. If your panel's notches are missing them where you need them, you must duplicate them using your shears or snips so the overlap is properly positioned.

Tight lip-to-ridge connection TOP

Just as with soffit, you must make sure each piece of siding is firmly attached to the piece below along its entire length. The horizontal lip behind the bottom edge of each piece must fit snugly into the horizontal ridge on the front of the top edge of the previous piece. If this connection is not made correctly along its entire length, which can sometimes happen unless you're careful, the piece *will fail* to perform its function.

Before you start nailing, check along all of the bottom of the new piece to make sure it aligns with the top of the course below. Feel free to push up on the new piece a little before you nail to make sure the connection can't ever loosen.

Nailing schedule TOP

In order to do the siding job right, there are a couple rules for where to place the nails. The nailing schedule for each panel of vinyl siding on a typical volunteer-built house is as follows:

- Drive a nail as close as is practicable at each end of a panel (remembering to use the center of the nail slot and not to drive the nail tight), regardless of the rule below.

- No two consecutive nails may be more than 16 inches apart.

Tip: How to measure 16 inches fast

You'll quickly realize that trying to measure off 16 inches for each nail is too slow. Even measuring how many nail slots make up 16 inches and then counting them off each time is too slow. Here's an easy way, which starts with two one-time-only measurements.

For the next steps we assume you're right-handed and that you're nailing from the left corner of the panel to the right corner. (Also, if you're right-handed then you'll want the nails in the left pocket of your nail apron. If you're wearing your own tool belt, you already knew that.)

Make two preliminary, one-time measurements:
- Measure the length of your hammer. Let's say it's 11 inches.
- Measure the width of your left fist. Let's say that's 4 inches.

Then, to place the next nail, do this:
- Grab a nail with your left hand, your nail hand.
- Hold the side of your hammer horizontally against the top of the panel you're working on, with the top of the head resting on the last nail you drove.
- Crossing your left hand under your right wrist, place the left side of your left fist against the butt end of your hammer.
- Without moving your left hand, hammer the nail it's holding into the center of whichever nail slot happens to be immediately under it.

Now, obviously this method requires that you make a one-time adaptation to different circumstances. If your hammer-plus-fist measurement is over 16 inches then your nails will be too far apart. If it's 14 inches you'll be wasting time and nails. But after only a few trials you'll learn how to use the regular distance between nails slots to insure that your

hammer-plus-fist measurement for nail placement is not more than and not significantly less than 16 inches.

(This is one of those procedures that takes a lot of words to explicate but that makes immediate sense if you try to visualize it. Despite all the words above, the entire procedure of locating where the next nail goes using this tip takes literally about two seconds to perform.)

Siding a triangle TOP

Siding a rectangle such as an eave-side wall is relatively easy because all the panels' ends are square to its length. But when you get to non-rectangular areas such as the triangle atop a gable-end wall, you have to cut one or both of those panels' ends at a non-square angle.

That non-square angle will be the same as the roof pitch. For example, if the roof pitch is a 4/12, the angle will turn out to be 18.43 degrees, with the complementary angle being 71.57 degrees, which add up to 90 degrees. You can use the spreadsheet referred to in the How To Measure and Mark article to learn a lot more about right triangles and other mathematical information that's useful on a job site.

Your task is to figure out how to cut a panel's end to that correct angle. The goal is to have it match the J-channel that you will find lining the two slanted lines under the roof. If when you slide the cut piece next to the J-channel those two angles are parallel, you've got it right.

Once you've got it right, you will want to make a template, but first here are two ways to achieve that angle to begin with.

Measure a lot If you know the roof pitch you can measure and mark on an uncut end. Let's say the roof pitch is 4/12 (which is the same as 8/24) and you're cutting the left side of a panel.

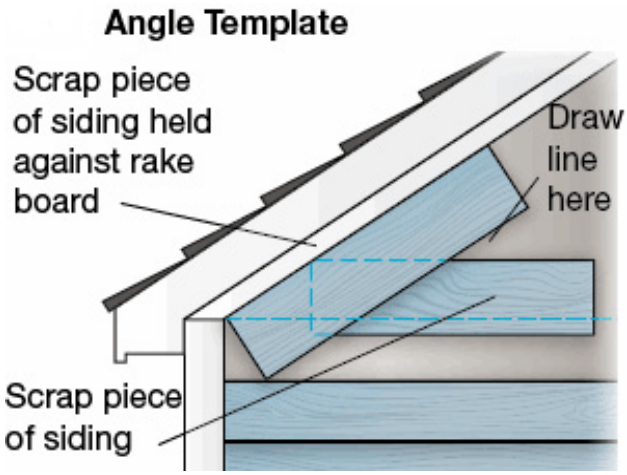
1. Measuring from the left end, make a mark at 24 inches.
2. Measuring straight up from the bottom edge at your 24-inch mark, make a mark at 8 inches up.
3. Draw a straight line from the lower left corner through your second mark and on up to the top.

This method requires that you know the roof pitch, which will be on the drawings if you can find them, or someone on the site might know for sure. You may measure it using a framing square if you know how. If you do everything perfectly the cut line will also be prefect. But no matter what, you have to measure twice and mark three times, and each such activity is always prone to error.

Don't measure at all A method that doesn't involve any numbers or any measuring at all and only one mark – the straight line at the correct angle that we're aiming for – does require some ladder work, sometimes two ladders' worth right next to each other 20 feet up.

You can make an *angle template,* or *pattern,* by performing these steps (see illustration below).

1. Hold the piece that will become the template in place horizontally where it belongs.
2. Lay on top of the template a scrap piece of siding inside the J-channel or against the rake board so that it is parallel to the angle of the roof.
3. Mark a straight line on the horizontal template piece along the lower edge of the angled piece.



This method requires that you make sure both pieces are positioned correctly and that neither of them moves while the line is being drawn. Getting all this just right, from atop ladders no less, can be difficult unless you focus, so do.

And both methods require you avoid parallax error, about which you can read more below.

Template Whether you use either method above or some other, you now have a piece with an angle cut in one end. You want to be able to use this as a template for marking for future cuts at this angle.

Hold it in place to make sure it's parallel to the roof pitch. If it is not, determine which way the angle should change, mark and cut on a closer line, and re-test. Note that cutting on a new line is itself both time-consuming and prone to error. No matter what, the line you cut must be straight from one edge to the other. If it isn't straight then the resulting template will be defective.

Eventually you will have a perfect template – one with a straight line that exactly matches the angle of the J-channel you'll be fitting the panels into. Mark this piece on both sides with big letters that say TEMPLIT or PATERN or KEEP so it doesn't get lost. If you happen to know the pitch or either non-square angle, go ahead and write that on your template too.

Use your now-perfect template to mark the panels with the correct angle. Hold the template on top of the piece to be cut, flush up the two edges, and carefully mark the angled line. When you get to the other eave side of the wall, just flip the template over.

Ideally this template will work for all the angled cuts, but the careful installer will check every few courses up to make sure it's still accurate. Please be careful.

Avoid measuring TOP

A lot of getting construction right involves marking and cutting. Much of doing a good siding job entails cutting panels to the right length. Generally, there are two ways to do it, and the one that seems more obvious to most novices is not the better one.

> **Plan A** Imagine there are two siders on ladders and a runner below. The siders use a tape measure to determine the length of the next piece they need, and one of them calls out that number to the runner. The runner uses his tape measure to determine where that length is and makes a mark at that point. That's where he will make his cut.
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> **Plan B** Or imagine it differently. One sider holds a fresh panel in place on his end, and the other sider holds the panel up at the other end and makes a mark where the cut should be.

Notice that plan B does not involve a tape measure or any numbers whatsoever.

Plan A, on the other hand, requires one measurement, the communication of that measurement to someone, and the second use of a tape measure. It's all too easy, especially for a novice volunteer, to mis-read a tape measure, especially when upside-down, which it is half the time (the tape measure, not the volunteer) and it's all too easy to call out or remember or mark on the wrong number. Plan B eradicates all those sources of error. The one drawback to plan B is that it requires handing each panel up and down the ladders twice instead of once, but that price is often cheaper than making more than just a couple errors.

You might have heard of the Carpenter's Rule, and it's a good one: "Measure twice, cut once." But even before that is this rule: "Don't measure if you don't have to."

Parallax error TOP

We encourage you to learn more about parallax error in the section of that name in How To Measure and Mark, but the concept has a special application in marking siding. Siding panels and soffit panels have ridges and valleys and bumps and dips, and if you aren't careful you will measure or mark wrong because of them.

Two significant parallax error problems arise because of those ridges and valleys, and novices often underestimate how much difference this type of error can make, especially if they both go in the same direction.

One such error arises when you aren't careful where you really start your line. It is important that you follow this procedure every time:

Place the pencil on the mark first, then slide the straightedge up to the pencil.

We know that the initial inclination of 99% of novices who haven't read this article is to reverse the proper order, that is, to slide the straightedge up to the mark and then place the pencil against the straightedge. As bad as this practice is in working with nice, flat wood or drywall, it can be much worse when working with vinyl because of those darned bumps and dips.

So, remember, to make a cut line, *place your pencil on the mark first,* and only then slide your straightedge up to the pencil. Then go ahead and draw the line . . .

. . . but wait, drawing that line can be a problem even if it does start at the right spot, because of another type of parallax error. **If your pencil leans** left at the beginning of the line and leans right at the end of it, when you cut on that line the result probably won't be straight and it definitely won't be at the correct angle.

The solution is to make sure your pencil maintains the same angle relative to the straightedge, and the simplest way to do that is to adopt the convention that it should always be *perpendicular* to the surface you're marking. If you start the pencil perpendicular to the surface and you keep it perpendicular throughout the whole length of the line, you will avoid this problem. Please avoid it.

So, to recap, place your pencil on the mark so it's perpendicular to the surface, then slide the straightedge up to the pencil, then mark the cut line without leaning your pencil left or right.

How to cut vinyl TOP

Vinyl products can be cut using a number of tools.

Shears or aviation snips are used for many cuts into vinyl, sometimes all of them. Unlike saws, shears and snips are safe, they are silent, and they require no electricity, just really hard squeezing sometimes. For certain procedures such as notching the tops of the corner posts, no tool is better.

A **utility knife** can also cut vinyl, although it is not ideal for long runs or slicing through the really hard folded parts. It's used more for little trimming operations.

A **circular saw** can be used to cut panels of siding and soffit to length. This is usually done using a jig that the saw rides along to make sure the cut is at a right angle to the piece. A circular saw in use with the proper jig can also be used to make consistent angle cuts such as for the gable. Such saws are usually used with the blade installed backwards, especially when it's cold. For more information see the section titled "Vinyl saw" in How To Use a Circular Saw.

A **sliding miter saw** can be used in the same way as the circular saw immediately above, except no jig is needed for square cuts or angle cuts. However, some cuts are too long for this saw.

OSB bounces TOP

The wood you'll be hanging the siding from is sheets of oriented strand board, called OSB, and it's more difficult to nail into than, say, a nice, consistent, and relatively soft stick of 2 by 4 lumber. Because of the way OSB is manufactured, it has a tendency to bounce your nail on the first few taps.

With a 2 by 4, the nail goes in nicely and evenly as you're tapping it a few times to get it set deep enough so you can let go of the nail with your nail hand and start whacking away with your hammer hand. But with OSB, you usually have to tap a lot harder to get the nail to go in at all. If you tap too lightly the nail will just bounce off the OSB without penetrating. Also, if you strike the nail head at an angle that's too far off parallel, the nail will not only bounce, it can also fly off in some random direction at an alarmingly fast pace. If you're far enough off to the side, it can hit your own eye, but more likely it will be the eye of someone near you. To prevent that time-consuming and potentially dangerous bounce, the only solution is to hit the nail harder while you're starting it.

The drawback there is that the harder you swing, the worse it's going to hurt if you hit the wrong nail, if you see what we mean. Also, the harder you swing in those first few taps, the faster the nail will fly through space if your angle was off too far. You will eventually learn through experience how to get your roofing nails started safely and efficiently when you're hanging vinyl siding on OSB, so just be aware that, if you're used to nailing only into relatively soft 2-inch wood, this is, well, harder.

Tip: How to hold a roofing 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. But using that method with roofing nails, which are much 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 second and third fingers with your palm facing towards you, i.e., the bottom of the head of the nail will be resting on the *pads* of your index and middle fingers.

Another benefit of holding the 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 roofing nails.

Yet more rules and tips TOP

Here's a bunch more miscellaneous tips and rules about siding. They're in no particular order, so please read them all.

■ **Ladders** Some of the work you'll perform might involve climbing ladders and working from a height above the ground. The misuse of ladders can cause serious injuries. If you haven't already, please read the article titled How To Use Ladders here and now.

Also, 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 make sure not to place the ladder exactly where the piece you're installing next will rest.

■ **Corners** For the sake of a good-looking appearance, you must match up the courses at the corners, i.e., keep each course on your wall at the same height as the corresponding courses on the two walls adjacent to yours. In order to achieve this goal your crew will need to communicate and coordinate with those two other crews. If one of you is getting off, try cheating.

■ **Cheating** Sometimes, whether it was your fault or not, it will be discovered that a particular course of siding has gotten measurably off of level, meaning it's tilted up at the right or left. (This can also happen with soffit.) One solution is to de-nail and rip off the pieces down to where the problem started and start over, and sometimes that is the best solution.

Other times, *if you catch the problem early enough,* you can adjust the next few courses to make up the difference. This is called *cheating* the courses. For example, if your last course is 1 inch higher at one end than the other, you can make two 1/2-inch adjustments in the next two courses up, which will bring you back to level gradually enough so that the error is invisible and harmless. Similarly, if your fourth course is lower than the fourth course on an adjacent wall, you can cheat up and they can cheat down till you match again.

Be timid when you're cheating down, because that lip-to-ridge connection must still be solid everywhere.

■ **Cold** Vinyl siding does not suffer cold well. Below a certain temperature it gets brittle, which makes it difficult to cut. The blade – whether it's a power saw or a knife or a pair of shears – will tend to chip and spatter the vinyl rather than slicing through cleanly as it does when it's warmer.

The solution is to try to warm up the vinyl before you cut it. One way, depending on the circumstances, is to lay it out in the sun. Another is to take it inside the house, which might be warmer. Either way, if you need to do this you need to do it first, before you get out all the tools and ladders and so on.

■ **Nail apron** You will almost certainly want to wear a nail apron for most of the siding processes. We suggest you load it up with one each of as many of these objects as you can get hold of:

• steel tape
• pencil
• shears or snips
• utility knife
• hammer and
• a bunch of roofing nails.

Conclusion TOP

There's more to know about how to attach vinyl siding, of course, but you will learn those details on site as they arise. In non-critical situations you should use your good judgment, but you should always feel to ask questions. Don't hesitate to pass on to your fellow volunteers any authoritative tip you've learned.

You and the other members of your little crew will find within the first hour or two that you're drifting into a more and more efficient way of getting the job done. As with certain other activities on volunteer construction job sites, teamwork and good communication are vital to your success. You'll gradually discover more and more shortcuts (especially if you're on the lookout for them), you'll get a better and better rhythm going, and by the end of the day you'll be a veritable siding machine. Enjoy it.

We thank you for volunteering for to help build a house, 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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