

Installing Gates and Posts

Tips and Pointers

When one installs a gate we hope that the gate will not sag and that the gate post will not move so that our work will not only look great but function properly. However, this can be difficult to achieve as the wood that the gate and post is made of is a dynamic medium that is expanding and contracting as well as twisting and warping with changes in temperature and humidity. Furthermore, in northern areas there is frost heave which tends to move posts in the ground. While we cannot eliminate these problems we can do certain things to prevent gates sagging and posts moving. Therefore, we suggest first of all to use hardware that is adjustable so that small adjustments can be made to correct movement of the posts and gates construction techniques that will prevent the gate from sagging.

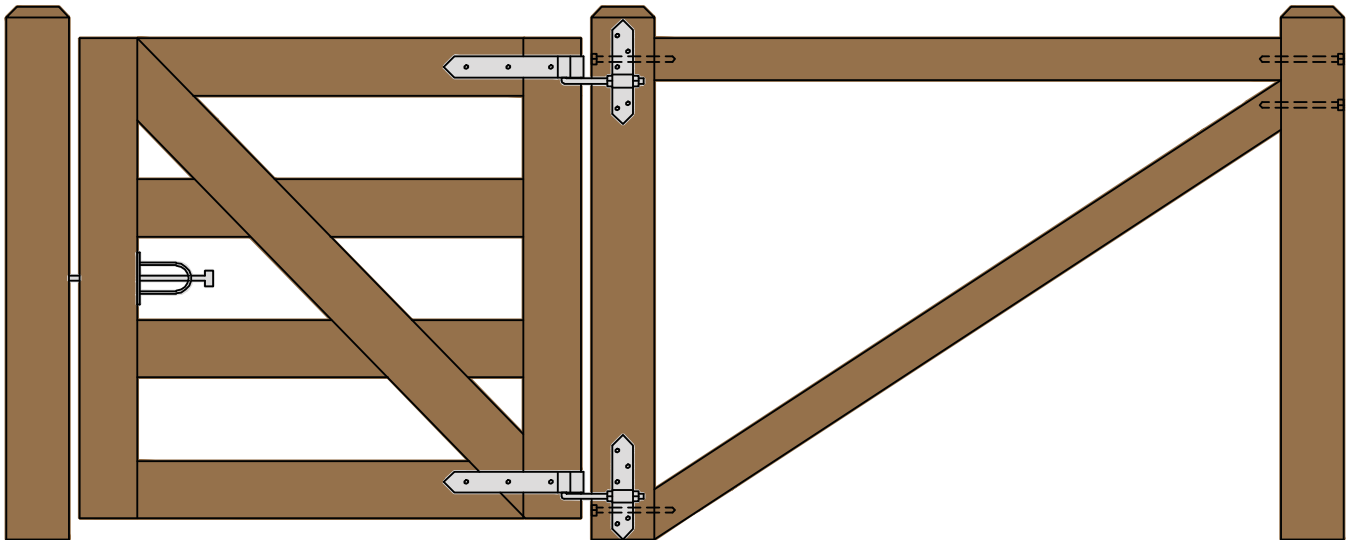
In addition, below are some recommendations that will reduce the chance of posts moving.

The Post Hole

1. Ensure that the depth of the hole extends well below the frost line.
2. The diameter of the hole permits 2" of clearance between the post and the edge of the hole.
3. Ensure that tree roots are not close to the post as when the root grows in diameter it will move the post.
4. Remove all stones and boulders that may push against the post.

The Hinge Post

1. The hinge post must be of sufficient size to support the weight of the gate. A 4 x 4 is not sufficient for a driveway gate for example.
2. Brace the gate hinge post to the first line post.



We strongly suggest that the bracing between the hinge post and first line post for larger and heavier rail or driveway gates should be done as shown above. The top horizontal brace (4 x 4) fit tightly between the two posts and that lag screws are placed through the post and extend at least 3" into the horizontal brace (if the horizontal brace is not fixed securely to the posts then it is totally ineffective). The diagonal brace (4 x 4) should fit snugly under the horizontal brace at the line post end and slope downwards to fit snugly against the gate post just above ground level. Lag screws are placed through the post and extend at least 3" into the diagonal brace.

If a wire brace is used it should extend from the high side of the hinge post to around the line post at just above ground level.

Should Hinge Posts be Cemented?

While it is common practice to pour cement around hinge posts it may not be the best practice. If the hole is irregular in shape (which most are) the cement will assume the shape of the hole. The irregular surface of the cement will in fact increase potential for frost heave because the cement and post will now have no choice but to move with the ground when it heaves. Water is trapped between the post and cement and the post will never dry out, therefore dramatically increasing wood rot.

While it is more work if done properly we suggest that once the post is set in the hole that it be back filled with gravel that is tamped firmly as the hole is filled. This will allow for better water drainage with less wood rot and the post will not be united with upper soil levels as they heave in winter.

Our Comprehensive Plans Are Only a Starting Point.

We have found that four rail 46" high gates are very common and functional. You are free to construct a gate using our plans as a starting point.

If you require a three rail gate just remove a board from our plan and adjust the space between the boards accordingly.

If you need a higher gate or a narrower gate to fit an existing opening make the changes to the horizontal boards and stiles (uprights). Remember however, that this will change the length of the diagonals and the angle at the end of the diagonals. Determining the angles and length of the diagonals is explained in the "Build A Better Gate" brochure .

Need to Keep Small Animals In or Out?

If you need to keep your small dog or chickens in or keep pesty rabbits out then install a galvanized wire mesh between the first layer of boards and the middle layer of boards. The mesh can be cut so that it comes to within approximately 2 inches of the edge of the gate. This will mean that there aren't any sharp wire ends exposed when the gate is completed.

The Central Hinges (8312) require about 4.5 to 5.0 inches between the gate and the post. If this is a problem then we suggest a few filler blocks lag screwed to the fence post (see picture).



How to Latch the Gates

Hoover Fence Company offers a variety of heavy duty latches for heavy rail, farm, drive or dumpster gates. Please see our website or catalog for a complete listing. Below are a few suggestions.

SLIDING GATE LATCH



Combine our one piece cane bolt with the optional keep for an excellent heavy duty gate latch. In the picture to the left is a 12" (5000-122) cane bolt with a single keep (5000-002). Many of our customers use the 15" cane bolt also for this purpose. Ideal for double gates, single gates, and dumpster enclosures.



IRISH RAIL GATE LATCH

On a recent trip to Ireland we found this style of latch in common use throughout the countryside. We have made some modifications so that it will work with European style five bar gates and with our Maine Board Gate, Cape Cod gate or any other style of wood rail gate. Simply drill hole or route slot to receive the bar in to the gate post. Cotter pin pushes through hole in bar to ensure it remains closed or you can put a padlock (not included) through the hole. 16" long overall, 5/8" rod, 4" of draw - with a 5.5" wide style latch will accommodate a space of up to 2" between the gate and the post. Bar can be cut shorter if necessary. Ideal for livestock.



THROW OVER GATE LOOP



Latch two gates together. Heavy duty construction. Hot dipped galvanized finish or black powder coat over galvanized. Fits gates 2 3/4" to 3 1/8" thick. Notch in throw over gate loop closes over staple on plate. Can be locked with a padlock or snap fastener (essential when used with livestock). Includes fasteners and staple on plate. Padlock and clip not included.

CANE BOLTS

Our 12", 15" and 24" cane bolts can be locked with a padlock (not included) when in the fully extended position. The 36" cane bolt comes with a separate keeper that can be mounted at any position on the drop so that it can be locked with a padlock (not included).

- AVAILABLE IN 12" (4" DROP), 15" (6" DROP), AND 24" (10" DROP)
- LOCKABLE (PADLOCK NOT INCLUDED)
- HOT DIPPED GALVANIZED OR BLACK POWDER COAT OVER HDG
- HEAVY 5/8" ROD

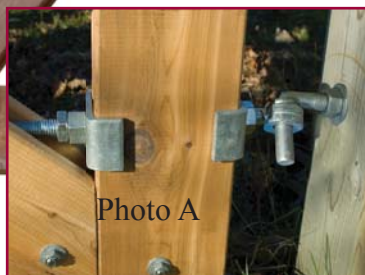
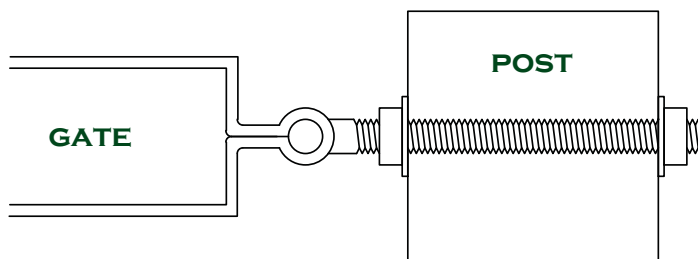


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Central Eye Double Strap Bands with Fully Threaded Adjustable Pins (Sku# 8312-Sets)

Installation Instructions

1. Place the central eye double strap hinge top band (12/18/24") on the gate in the vertical center of the top rail. Install the Adjustable Bottom Fitting On the hinge stile of the gate between the bottom rail and the one above it keeping it as low as possible but not interfering with the diagonal support. Place the top band square on the gate and install by drilling a 3/8" hole through the gate at each square hole location on the band. Generally drilling half way through from both sides makes this easier.
2. Install the supplied carriage bolts, washers, and nuts through the holes. Tighten them down which will sandwich the gate with the double strap bands. If this gate is for use with animals install the nuts and washers on the outside of the gate as this will give them less to catch themselves on.
3. Once the hinge band and bottom fitting are installed, place the gate in the opening and shim it to its desired location. An extra pair of hands comes in handy with this step. Generally we recommend a space of 2" between the gate bottom and the ground. Pay special attention to which direction the gate will swing, if it is swinging into an incline you may need to raise it up to compensate for this. If installing double gates ensure that the level is equal on both sides to ensure a good fit in the middle.
4. Once you are satisfied with the gates spacing and location, transfer a mark for the location of the bottom of the top band and the bottom of the adjustable bottom fitting to the center of the hinge post. Measure down from these lines/marks 1/2" and mark again, these new marks will be the center of each hole that will need to be drilled through the post to install the pins. If you are using this gate for animals you will want to install the bottom pin so that it is pointing down(see figure A) to prevent the gate from accidentally being lifted off its pins. To do this it is much the same as above only instead of transferring a mark from the bottom of the adjustable bottom fitting you will transfer a mark from the top and instead of moving 1/2" down from that mark you move 5/8" up from that mark.
5. Once your pin placement has been established on your posts, you can now drill through the posts. It is important to keep the drill bit perpendicular to the posts as this will make installation easier later. Holding a square against the post and parallel to the drill bit makes this easier. Use a bit that is slightly larger than 3/4" or ream the hole to enlarge.
6. Install the pins in the holes if they are both pointing up or if the bottom is pointing down you will need to put the pins in the holes while they are in position on the hinges.
7. Tighten the nuts and adjust as necessary.

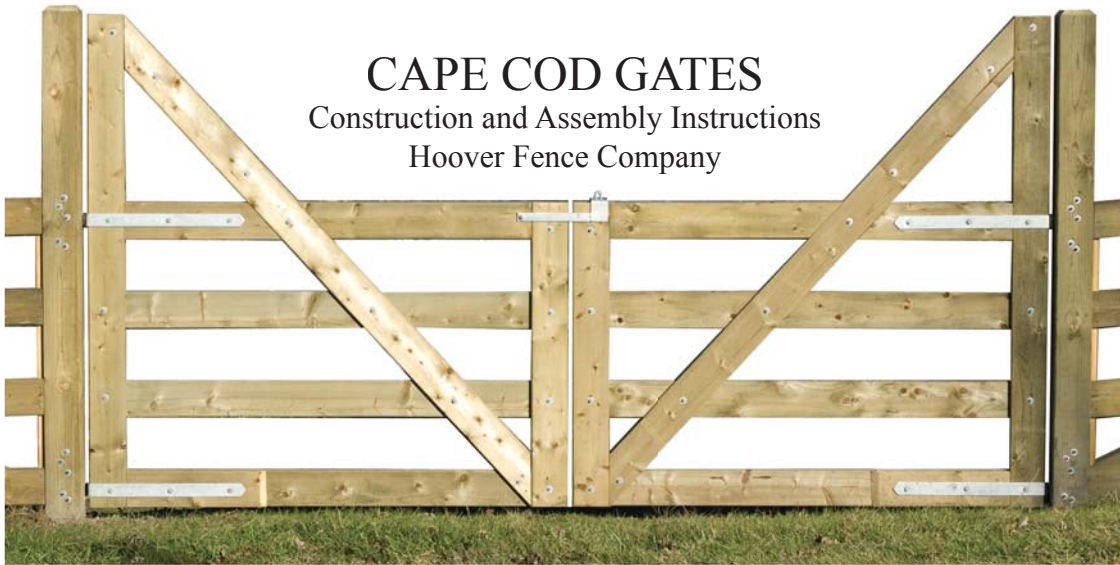


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CAPE COD GATES

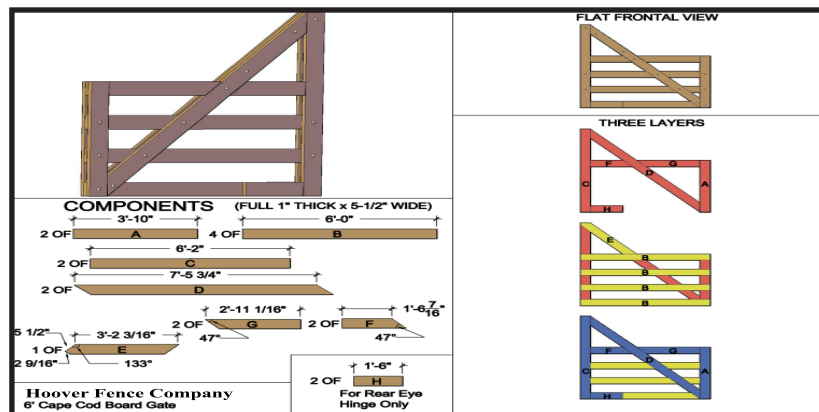
Construction and Assembly Instructions

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Step 1

Simply by following these step by step instructions you can make an attractive, functional and sturdy gate that will endure for years to come. All you need to do is calculate the overall height and width you require (or pick one of our standard sizes), make a trip to your local lumber retailer and get started.



Step 2

Start by cutting the rails (horizontals) and stiles (verticals) to length. The rails will be cut to the overall width of the gate, if you have planned an 8' gate then cut them to 8'. The stiles on this gate are different lengths on the left and right. These pieces determine the overall height of your gate which is optional. The standard height we use is 74" on the high side of the gate and 46" on the low side. See our detailed cutting guide for help.



Step 3

After you have those 8 pieces cut to length you can begin the layout and assembly. Lay one of the large stiles and one of the small stiles on a large work surface at approximately the gate width apart. Lay the top and bottom rail across the stiles at 90 degrees. The top rail will be equal with the top of the short stile and the bottom rail will be equal with the bottom of both the long and short stile.

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Step 4

Align each of the intersecting corners square to their outside edges and fasten with one 1.75" screw in each outer corner. Determine the placement of the top rail on the large stile by measuring 46" (or your new height dimension) up on the large stile from the bottom and make a pencil mark.



Step 5

At this point ensure your top and bottom rail are parallel and that your left and right stiles are parallel (their distance apart is the same at both ends). Now square the gate by measuring diagonally across corner to corner. The measurement across both diagonals will be equal when the gate is square.



Step 6

Now that your gate is square put another 2 screws in each of the corners to hold the gate square. Keep your screws to the outside corners of the intersection because later you are going to put a bolt right through the middle when the gate is complete.



Step 7

Now the frame is square lay the other rails in the middle of the gate and space them out equally. Do this by measuring the distance between the top and bottom rails, subtracting the overall width of the 2 middle rails and dividing the total by three. This will give the distance between each rail, we like to cut spacer blocks to this dimension to make it easier and uniform.



Step 8

Now that the two middle rails are positioned properly put three screws in each of the 4 intersections in the same fashion you did the others. Remember to leave the middle clear.



Step 9

This is what you should be left with. At this point install the other two stiles . Our pictures show us screwing them on from the outside, but if you don't want any screws to be visible on the completed gate you can clamp them into position and put the carriage bolts through the center of the intersections.



Step 10

Lay the remaining stiles on top of the gate and flush with the others. Fasten them to the rails using screws from the outside or with the carriage bolts mentioned earlier. If using bolts do not put a bolt in the top and bottom intersection on the hinge side as they will be in the way of installing the hinges later. Use a screw instead as it will be covered by the hinge later.



Step 11

Lay a diagonal board across the gate from the top of the hinge (tall) side to the bottom of the (short) latch side and over lapping onto the two stiles. Mark the cuts you need to make on this diagonal by using a ruler and eyeing up so that your ruler is even with the inside edge of each stile. If you are using one of our plans this step is already calculated for you. Make the cuts and fine tune for a nice fit.



Step 12

After you have one diagonal in place flip the gate over. You now need to cut a block to join the diagonal with the top of the taller stiles. This block will be sandwiched between the diagonals and extend up into (and also sandwiched by) the two tall stiles. It is this block that ultimately keeps the gate square and prevents it from sagging so choose a piece of stock with little or no knots.



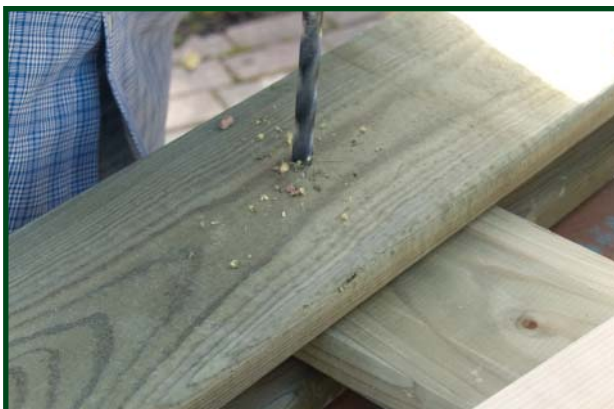
Step 13

First, cut the block at the angle that the diagonal intersects the top rail, mark the block using the ruler method explained earlier. With that angle cut, put the block in place so that it overhangs the top of the tall stile. Trace around the outside edges of the top stile and make those cuts, it should now fit perfectly. Fasten with screws along the outside edges, these will be covered when you install the second diagonal.



Step 14

Lay the second diagonal across the gate so it overlaps the first. Mark and cut it as you did the first one in step 11. Once the fit is perfect clamp it in place and either screw it down along the outside edges or drill 3/8" holes in the center of each of the 5 intersections and install the 3.5" carriage bolts to hold it in place.



Step 15

If you haven't already, begin marking and drilling 3/8" holes through the center of all the intersections in the gate (there should be 11). Also put a couple bolts equally spaced in the diagonal where it extends above the top rail if you haven't already. Remember not to put any where the hinges will go as this will be done when the hinges are installed at the end.



Step 16

Install a 3/8" x 3.5" hot dipped galvanized carriage bolt in each of the holes you just drilled. Add the nut and washer to the back side and tighten each one firmly. If this gate is being used for animals, pay attention to which way the gate will swing and which side the nut and washer will be on. Ideally, you will want the carriage bolt heads to face the animals as they are smooth and won't catch the animals.



Step 17

You now need to cut filler blocks which will pad out the top rail where the hardware will install(4 pieces in total, 2 on each side). Mark and cut them as you did previously and fine tune for a snug fit. Fasten them in place with 1.75" screws or bolt through.



Step 18

You also need to cut 2 filler blocks for where the bottom hinge overlaps the bottom rail. Cut them two inches longer than the amount the hinge overlaps and fasten. If you are using the central eye hinges(8312) on your gate with the adjustable bottom fitting than this step is not necessary.



Step 19

Once all the filler blocks are in place you can install the hinges. Generally speaking they are installed in the center of the top and bottom rail. The hinges wrap around both sides of the gate and are through bolted for extreme strength. It may be necessary to tap the hinge with a hammer to achieve a nice fit, if so use a wood block so you don't mar the finish.



Step 20

Drill 3/8" holes through the gate at each square hole location in the hinges and install the supplied 3/8" x 4". You may find it necessary to drill halfway through from both sides to make it easier to line up. Once the holes are in, install the bolts, nuts and washers and tighten firmly.



Step 21

Congratulations, you have completed the job! For detailed instructions on how to hang your gate, please visit our web site at www.hooverfence.com