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Installing your new Ultra Fence™

The material contained herein is for general installation information only and is not intended as a complete manual on fence installation. Aluminum Fence Specialists, LLC is not responsible for any errors or omissions made by the installer of the fence. If you have any doubts about your ability to install your fence, Aluminum Fence Specialists suggest that you hire a professional, experienced fence installation company to do the job for you.

*please read the entire manual before you begin installation

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Congratulations on your purchase of a new Ultra Fence™ from Aluminum Fence Specialists!

You'll be pleasantly surprised by the ease with which your Ultra Fence™ can be installed, and you'll be proud of how professional your installation will look when complete!

This manual provides just about all the information you'll need to complete the installation quickly and efficiently, but you may call Aluminum Fence Specialists at any time to ask additional questions or to get further installation tips. Remember: Always measure twice and cut once.

Before you purchase- code compliance

Prior to making your purchase, be sure to check with your local building authorities regarding permits and fencing code requirements. This is especially important for swimming pool fences. Code compliance is the responsibility solely of the contractor or homeowner.

Before you begin installation

If you are fencing the border of your property, you must be sure the post footers do not exceed your property line. Check your mortgage documents for plat lines, your local records office or a local surveyor.

Be sure to check with your local utility companies to mark all underground phone lines, water lines, etc., before doing any digging.

Check with your homeowners association (HOA), if you belong to one, for any special rules or guidelines. For example, some HOAs require that the assembly screws face inside the fence.

Earmark types of panels

If you have ordered rackable panels to accommodate sloping in your yard you will want to identify these panels first. The punch in the rail around the picket will be slightly larger than that of a standard panel.

Tools you will need

Power post-hole digger
Hand tools for cleaning out holes
100' tape measure
Levels
String and wood stakes
Power hacksaw
Power drill or screw driver with Phillips-head bits
Rubber mallet for putting on the post caps
Wood blocks to place under panels to "hold grade" while the posts dry
One 50 lb. bag of fast-setting concrete mix for each regular post and one 80 lb. bag for each gate post

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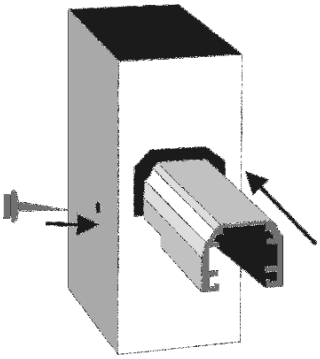
Part 1: General installation concepts



Attaching panels to posts

As shown in this illustration, posts are pre-punched with holes to accept the ends of the rails of a fence section which are then held in place by a set screw in each rail end. Screws are painted the same color as the fence.

Note: It is very important that you do not over tighten the screws. If you do, you may snap the head off the screw or slip and scratch the fence. The screws need to be only snug enough to keep the rail end from moving inside the post due to wind, etc.

The overall steps for installing your new fence are: dig a hole; install the post; insert rail ends into post; dig next hole; install next post; etc.

Because the spacing between gate posts is critical, you should always install the end/gate posts first (see post explanations below). When you order a 48" gate for example, the 48" refers to the size of the opening, not to the gate itself. The manufacturer always makes the gate a bit smaller than the opening to allow for the latch and hinges. Thus, for a 48" gate, the opening from inside of gate post to inside of the other gate post must be exactly 48". You then follow the steps of fence panel, post, etc., from each gate post away from the gate. You don't install the actual gate until the cement holding the post is hardened.

Types of Posts

It is important to understand the differences between end/gate, corner, and line posts.

The posts have pre-routed holes to accept the rails of the fence sections. The position of the holes will determine the use of the post.

There are also 3-way and 4-way posts that are punched on 3 or 4 sides when multiple fence runs meet at one post.

Each type of post is defined as follows:

End/gate post: any post that ends a run of fence. An end post is also a gate post. A gate terminates a run of fencing for this purpose. The fence may continue on the other side of a gate and that post would also be an end post. An end post has holes only on one side of the post. Only one section of fence is connected to that post.

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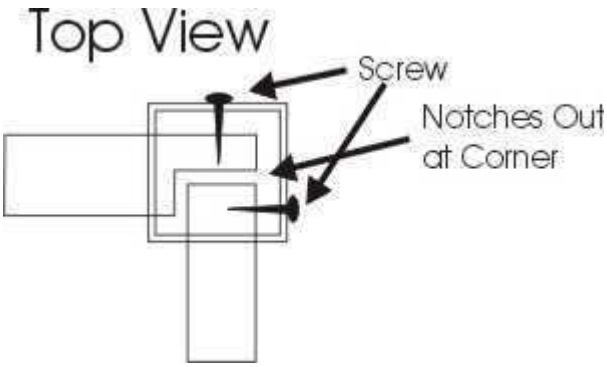
Line post: any intermediate post that has fence connected to two opposite sides forming a straight line (180 degrees). These posts have holes on two sides of the post, opposite each other. An easy way to figure the quantity of line posts required in a run of fence is to figure the total sections in the run and subtract one. This is why it is necessary to know measurements on both sides of a gate. The gate breaks the line of fencing into two distinctly different runs for this purpose. Angles between 90° and 180° degrees require the use of line posts. The ends of the rails may need to be mitered to allow the rails to slide in without binding against each other.

Corner post: any post that is to be used on a 90-degree corner to join two runs of fence. The holes are on two sides adjacent to each other. Corner posts are also used for odd angles between 45° and 90°.

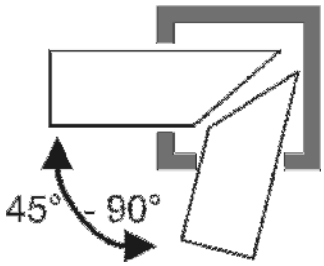
Blank post: a post with no holes. Commonly these are used as a gate post where no fence is to be attached to the post. Therefore a gate post can be a blank post. For example, your mailbox post is most-likely a blank post. Avoid using blank posts as hinge posts and use them as latch posts if possible. The fact that a fence is attached to the hinge post makes it stronger and a lot of sagging gate problems can be traced to leaning blank posts.

Creating angles

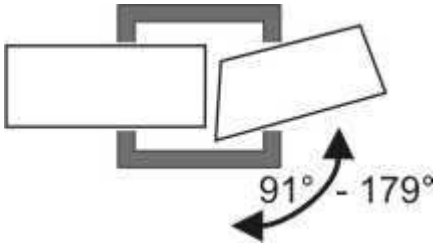
If your fence-run ends with a corner post, the rails of the next panel must be notched to fit the post, like this:



If you need to create an angle less than 90°, use a corner post. It may be necessary to miter the ends of rails the closer you get to 45°, like this:



For angles greater than 90°, use a line post and miter the rail ends if necessary, like this:



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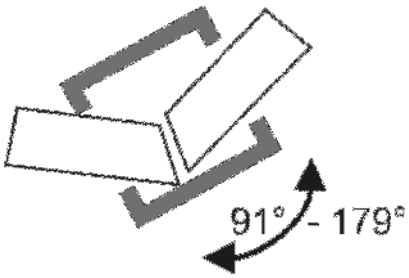
The closer you get to 180°, the less you will have to mi ter the rail ends. If necessary, you can also rotate the post so that it is not perpendicular to either run of fence, like this:



Many people prefer this technique, as the face of the post aligns with the angle.

Digging post holes

Dig your posts holes straight down to a depth of 18" minimum to 48" maximum. The depth required depends on the frost line depth in your area. For gates, you normally want deeper holes to avoid leaning posts and sagging gates. Use the 48" depth for wide gates over 96" wide or heavy gates over 100 lbs. A 42" depth works for nearly any gate in most areas. If you are not sure, dig deeper. You have to dig the holes only one time, if you do it right.

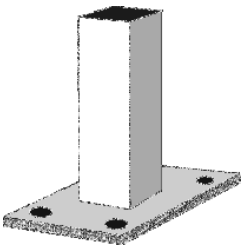
The diameter of the hole should be about 2-3 times the diagonal width of a post. For example, a 2” post is 3” across the diagonal, so your hole should be between 6” and 9” in diameter.

On small diameter holes, 6"-9", you could be limited to a depth of 36" because you can't get tools into the hole to clean it out. This is fine, if you have followed the guidelines thus far. The post will be shorter than the depth of the hole, i.e. 36" deep hole with 24" of the post in it. This is not unusual since the post does not need to extend the full depth of the hole. A common error is to assume the hole needs only to extend the length of the post. Make the shape of the hole so that the diameter at the bottom of the hole is wider than the top diameter. This is called "belling" since it resembles the shape of a bell.
This will anchor the post and help to avoid post heaving due to frost. Under no circumstances should your hole resemble a carrot shape where the top of the hole is larger in diameter than the bottom.

Post-hole depth guidelines – *These are guidelines only; be sure that the concrete extends below your local frost line to prevent post heaving.*

Fence height	**Post depth**
36”, 42”, or 48”	18” - 24”
54” or 60”	24” - 28”
72”	30” - 36”

Using floor flanges instead of holes



When you want to mount the fence atop your concrete pool apron, for example, you can use floor flanges on the posts. These are bolted down using lag bolts and anchors, which are available at any hardware store. You’ll need four 3/8” x 2” bolts per post.

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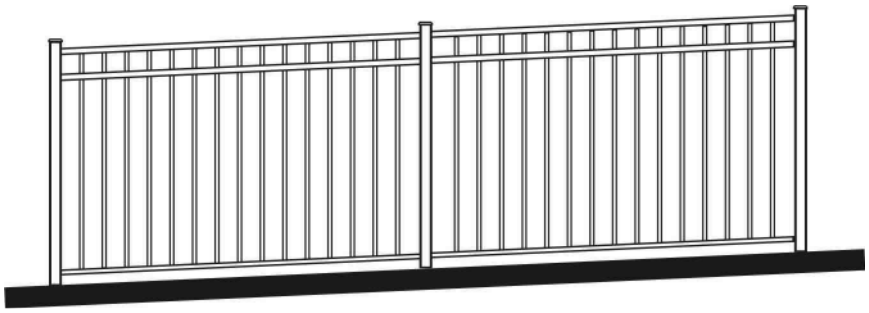
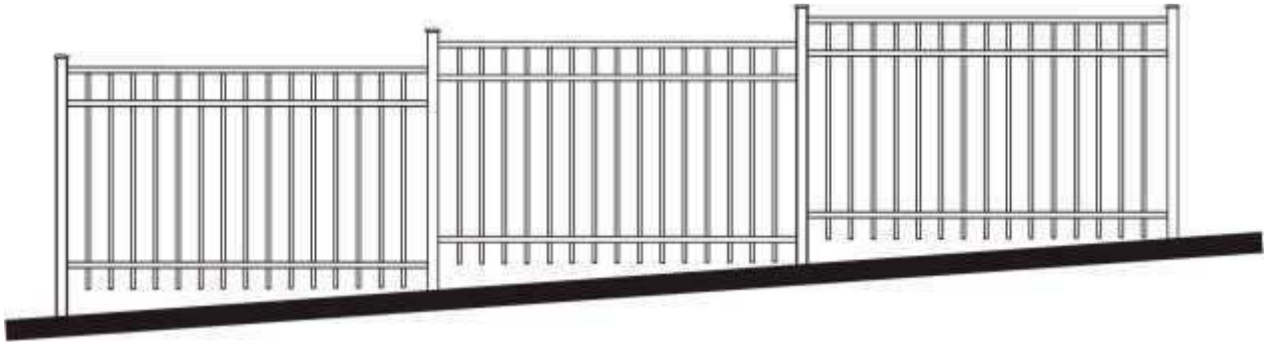
Racking or stair-stepping panels on rises

When the grade of a property follows a slope, the preferred method of installation is to use rackable panels. A racked panel can be shifted out of square to accommodate changes in the grade. Different degrees of racking are available. A *standard* punched rail will allow for approximately 6" over a 6' panel. A *rackable* punched rail will allow for up to 20" over a 6' panel and a *heavy rackable* punched rail will allow up to 36" over a 6' panel.

Rackable panels **must be specified when ordering.** This preferred method is used in order to keep a uniform small space under the fence. Standard line posts can be used with rackable panels. The illustration below shows how rackable panels will follow your grade.



If the grade exceeds the limitations of the rackable or heavy rackable method, then a configuration as stair-stepping should be employed. The stair step method consists of blank posts and rail end brackets. The posts have no pre-punched holes, and brackets are attached to the post to hold the ends of the rails.



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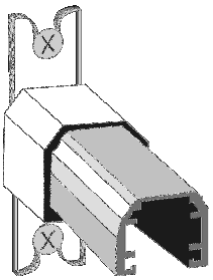
In this fashion, there is no need to worry about pre-punched holes being precise. Please note that when using the rail end brackets, the tapered “notch” (3/4”) on the rail end needs to be cut off so that the first picket is not spaced too far from the post.

Rail end brackets are also used when it is desired to attach panels to existing walls or columns.

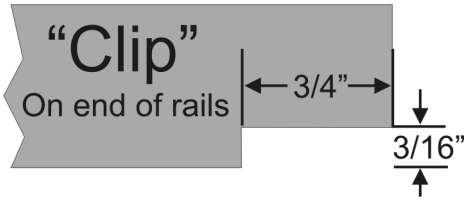
Using rail end brackets



To attach fence panels to existing walls, columns or posts, you need to use rail end brackets. Brackets are screwed to the mounting surface and the rail end of the panel is inserted.

If you are installing a UAB 200 pool fence, you must cut the top “ear” off of the rail end bracket to fit the mid-rail because the spacing between the top rail and mid-rail (2”) is too small to accommodate two full brackets.

Please note that when using the rail end brackets, the tapered “notch” (3/4”) on the rail end needs to be cut off so that the first picket is not spaced too far from the post. This is illustrated in Figures A and B.



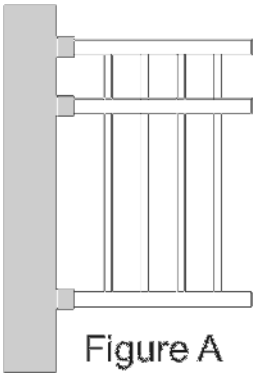


Figure A

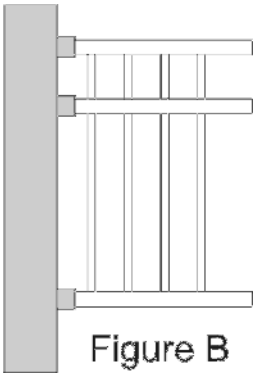


Figure B

In figure A, the first picket is spaced too far from the post because the notched end of the rail is not cut off.

In Figure B, the pickets are all evenly spaced because the notched end of the rail is cut off.

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Part 2: Specific installation steps

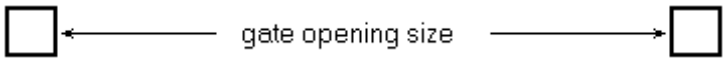
Marking your fence layout

Start by making sure what, if any, setbacks from your property line are required by your municipality or homeowners association.

Next, using your stakes and string, start where your gate posts are to be, assuring that the distance from inside of post to inside of post is exactly the size gate you ordered -- 48" for a 48" gate, for example. Here is a suggested method for doing this:

First, make sure you determine which way the gate will swing and that it has the necessary clearance. Pool fence gates are normally required to swing out away from the pool.

The "opening size" of your gate is the distance from the inside to the inside of the gate posts. The gate finish size will be smaller to allow for the latch and hinges. The only measurement you can trust is what we call the "opening size". Use this measurement to space the two gate posts. Measure across your opening on the ground and mark the ground indicating the inside edge of each post. A 36" opening gate would have two marks 36" apart. To better visualize where the post must go, you can draw the post on the ground. A 2" sq. post would require that you draw a 2" square with the edge of the post on your opening size mark. See the sketch below.



The size of the circle, which represents the area to be excavated, should be larger than the post to allow for the proper amount of concrete. Multiply the diameter of the post at its widest point (diagonal on a square) by three and draw a circle with the post as the center using that calculation. If you are going to drill with an auger, mark the center of the drawn post marks to indicate the center of your auger. Now you have located the position of the holes to be dug.

Working away from the gate, drive a stake every 72-½" for a 6' wide panel with 2" posts in the residential grade, 73" for a 6' wide panel with 2-1/2" posts in the commercial grade, and 72-1/2" for a 6' wide panel with 2-1/2" posts in the industrial grade. These represent the "on center" distances between your posts. Use your string, run from stake to stake, and your level to make sure the line is straight. At this point you can dig all your holes as long as you are sure you measured the on-center distances correctly. **Do NOT install all the posts at once.** You must work post, panel, post, panel, etc.

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Installing the first post

Start with a gate post. Mark and dig your holes as described earlier. Work away from only one side of the gate at this point. Place the gate post a fixed distance from your string line, for example, 1/4". Be sure that all subsequent posts are the same distance from the string. Do not let the posts touch the string or you will wind up with a crooked line.

Insert your post, dump in a bag of fast-setting concrete mix, add the appropriate amount of water, then pack 3"-4" of dirt on top. This will help to hold the post in place as you continue.

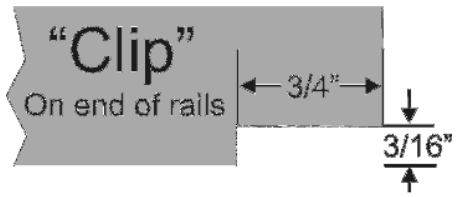
Insert the rail ends from the first panel into the pre-punched holes in the gate post and lightly tighten the set screws through the pre-drilled holes on the side of the post into the "notch" (the tapered end of the rail). Set a wood block under that end of the panel such that the bottom of the panel is 2"-3" off the ground. All your wood blocks should be the same size to keep a consistent space under the fence. Make sure that these blocks are on solid ground and not on top of the post hole. This will keep the post from sinking as the concrete dries.

Insert the rail ends at the loose end of panel into the next post and cement it into place as before. Be sure to block up this end of the panel, too.

After every 3-4 sections, go back and make sure your posts are plumb. Also, if you are racking panels, make sure that they are contouring the ground by raising or lowering the posts as necessary.

When you need a section that is less than 6' in length, you can cut it with your saw to the length needed. Always measure twice and cut once. For the best appearance, try to cut the panel so that the pickets are the same distance at either end from the posts.

When you cut a section, it is also necessary to re-notch the rail at the ends. Cut the 3/4" "notch" as shown on the illustration:



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The next to last step: Installing your gate

1. Make sure the posts are level and the cement is hard.

2. Double check the gate swing.

3. Install hinges on the cemented gate posts first (if a braced gate is being installed, the low side of the diagonal brace of the gate is the side the hinges go on), using 1" self-tapping screws.

4. Now bring in the gate. Center the gate in the opening and put one screw in each hinge. This is for the final adjustment reasons.

5. Attach the latch.

6. Adjust tension in hinges for proper swing of gate.

7. Assuming the gate swings well put the remaining screws in the hinges.

Installing the post caps

The final step is to install the cap on each post and the frame of the gate(s). Place the cap atop the post squarely and, using a **rubber mallet** only, tap the caps into place. Use of a metal hammer will damage the caps.

There is a hole in one lip of the post cap as shown here. **This is NOT a screw hole.** This hole is used to hang caps during the powder-coating process. Screws are not required for cap installation.