Building – Chain Link

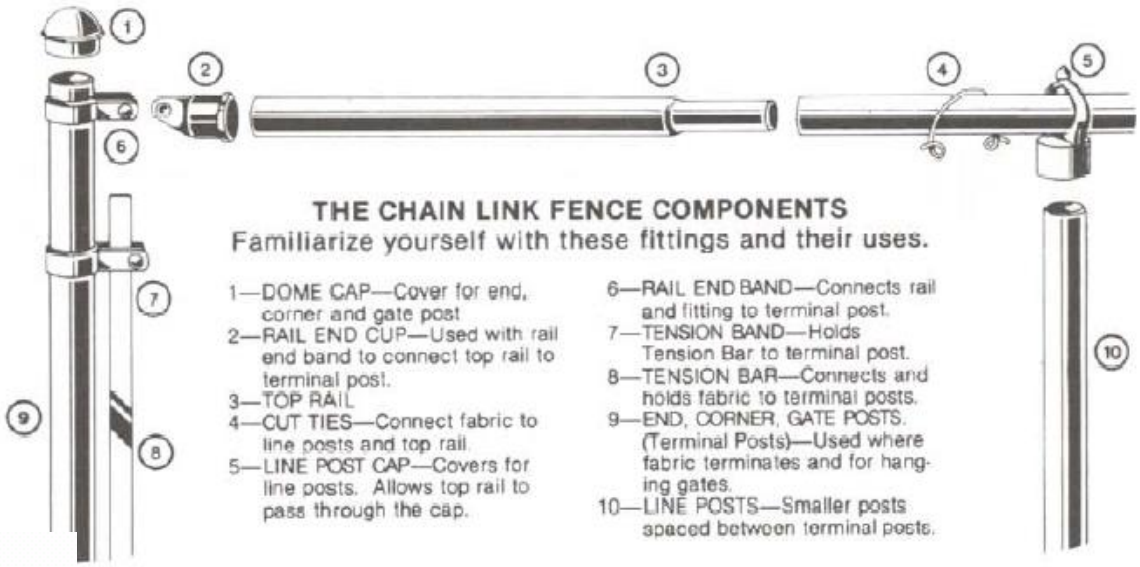
Objective: By mastering this lesson, you will be able to build chain link fence so that the fence is both pleasing to the eye and secure.

Equipment: 2ea. come-a-longs, pliers, bolt cutters, chop saw or hand saw, wire rake for the appropriate height wire, speed wrench with ½" socket, and hammer.

Key Questions:

1. How do I install the fittings?
2. How do I install the top rail?
3. How do I roll-out and weave the fabric together?
4. How do I stretch the fabric?
5. How do I tie the fabric to the framework?
6. What are the most common safety obstacles to overcome when stretching fabric?

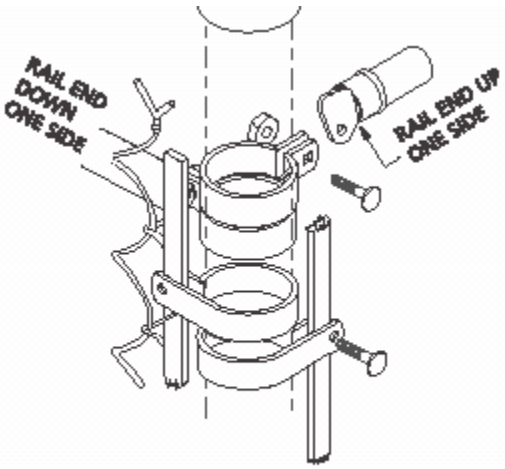
CHAIN LINK FENCE COMPONENTS



THE CHAIN LINK FENCE COMPONENTS

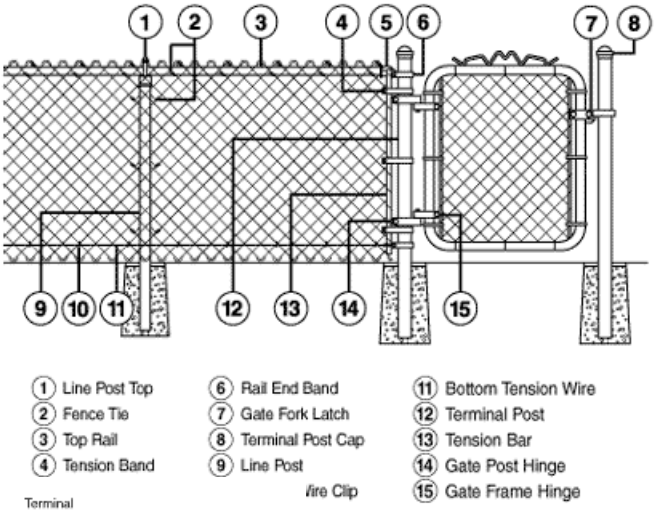
Familiarize yourself with these fittings and their uses.

1—DOME CAP—Cover for end, corner and gate post.
2—RAIL END CUP—Used with rail end band to connect top rail to terminal post.
3—TOP RAIL.
4—CUT TIES—Connect fabric to line posts and top rail.
5—LINE POST CAP—Covers for line posts. Allows top rail to pass through the cap.
6—RAIL END BAND—Connects rail and fitting to terminal post.
7—TENSION BAND—Holds Tension Bar to terminal post.
8—TENSION BAR—Connects and holds fabric to terminal posts.
9—END, CORNER, GATE POSTS. (Terminal Posts)—Used where fabric terminates and for hanging gates.
10—LINE POSTS—Smaller posts spaced between terminal posts.

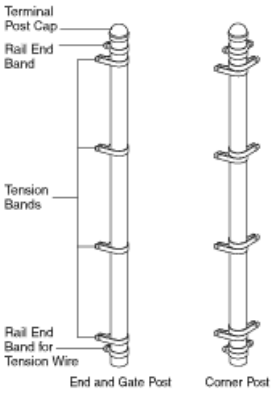


CORNER POST DETAIL

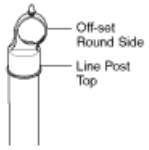
How do I install the fittings? Using the two charts to identify the fittings, you will install the fittings accordingly:



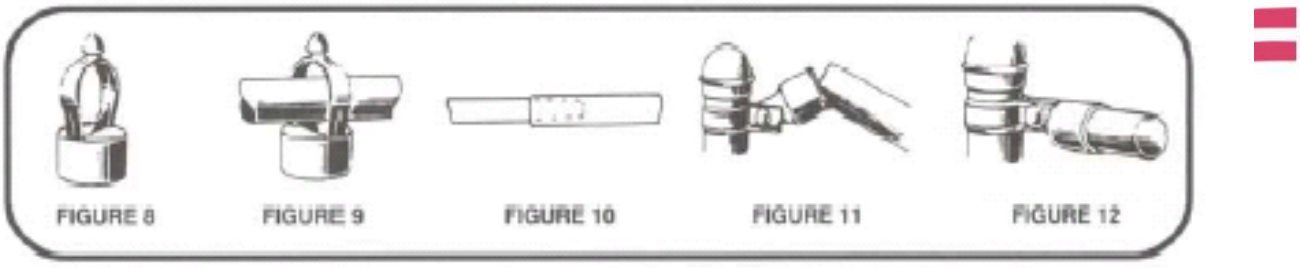
1. Slip the tension bands on with the flat side out. Generally, there is one tension band per foot of fence. Always start with your first band approximately 6" from the bottom of the fence, leaving room for end bands, etc. that will discussed later on. Space the balance of your tension bands on evenly apart.
2. Slip your end band on last, leaving it approximately 3" down from the top of your posts.



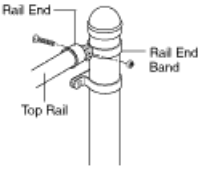
3. Place the rail end tab between the end band. Cup side down per the detail. If this is a corner post assembly, one rail end will be cup side up and the other rail end will be cup side down. This will assure that the adjoining top rails are in alignment.
4. Do not spread or distort the bands. If you do, the bolt holes may not line-up later. Install 5/16" x 1 ¼" nuts and bolts through the bands with the carriage head facing out. Only hand-tighten at this time.
5. Install the loop caps (figure 8) on top of the line posts, turned so that the top rail can slide down the fence line through the caps but with the flat side toward the outside of the fence.



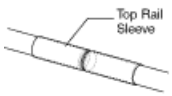
AMERICAN FENCE COMPANY



How do I install the top rail?

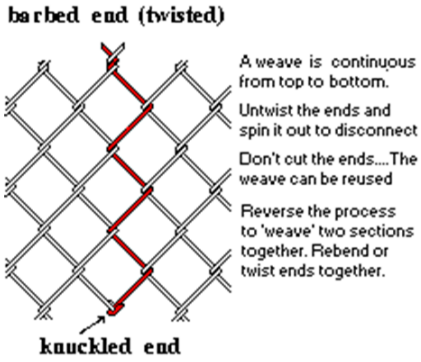


1. The end of the top rail fits into the rail end fitting, attached to the terminal post as shown in figure 12. Join the top rail together by sliding the small end (swedged-in) into the larger end. If not swedged, a sleeve will be necessary that slides on the outside of the rail, adjoining the two sections together.
2. Upon reaching the next terminal post, measure carefully and cut the top rail to fit. Measure from the end of the last piece of rail to the inside of the rail end. If this last piece of shortened top rail does not extend through a line post, place the short piece between two full length pieces with a full length section, running into the rail end and through a line post. This will prevent the railing from collapsing when you attach the wire.



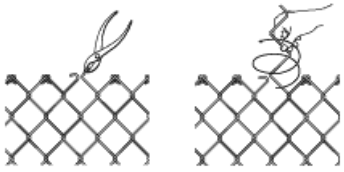
3. With the rail end turned up at a 45 degree angle, place the top rail into the rail end cup and snap down for a snug fit (Figure 11). You may have to adjust your rail

end / end band combination height to accommodate the grade. Once in place, tighten the end band around the rail end for a firm fit.



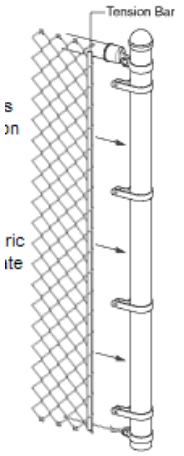
How do I roll-out and weave the fabric together? You must examine the roll of fabric to determine the salvage. The salvage is how the fabric is tied together on the ends. It will be either knuckled over or twisted together. If one end is knuckled and the other end is twisted, you must know what end goes on the top and what end goes on the bottom. Once determined, proceed with installing the fabric per these steps:

1. Lay the fabric roll out so that the bottom end is closest to the post and the roll is perpendicular to your fence line. The fabric is generally installed on the outside of the fence, corresponding to the flush side of your tension bands. By closely examining the roll, determine if the fabric roll will roll-out easily on the ground like a carpet. If not, you will have to start at the other end of your fence line to achieve this effect.
2. Once you know your fabric is in the correct location, stand the fabric roll up so that it sits approximately 3' from the terminal post and flush against the outside of the top rail.
3. Cut the ties that hold the roll together and hand spin the roll so that the beginning of the fabric is pulled loosely up to your terminal post.
4. Tie the fabric for height by loosely installing one fence tie to the top of the fabric and around the top rail 8" from the terminal post and another tie in the same manner 24" from the terminal post. Make sure that you have a half diamond above the top rail when tieing the fabric to the rail.
5. Tied for height, run a tension bar through the end of fabric while also running through the evenly spaced tension bands on the terminal posts.
6. Tip the fabric roll over away from the top rail so that it again lays perpendicular to the top rail. Roll the fabric along the fence line on the ground like unrolling a carpet.
7. At the end of each roll, begin a new roll by weaving the two rolls together as shown in Figure 14. This is done by un-knuckling or untying the weave at the end of the roll. Unscrew the weave out of the fabric with a cork screw twisting motion until it all the way out.



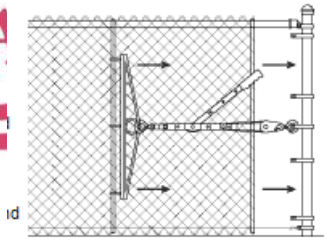
8. Lay a new roll at the end of the existing roll. Unroll it about three feet. Match the ends of the two rolls together. Begin to weave the wire weave back into both pieces of fabric catching both pieces with each full corkscrew twist.
9. You may have to remove more than one weave to get the two pieces of fabric to mesh. Looking at the top of both rolls, if these begin with two complete diamonds on both rolls, you will have to remove one more weave. If you have one complete diamond on one roll and one half diamond on the other, you can begin to weave the two rolls back together with the wire weave you initially removed.
10. Once the rolls are weaved together, tie or knuckle both ends to complete.

11. Complete this process of rolling-out fabric and weaving together until you have gotten to the next terminal post or 200'.
12. If you have gotten to the next terminal post, hand stretch the fabric by dragging it along the ground.
13. Shake it like a rug while pulling to break the galvanizing at the knuckles to assure it is tight and straight.
14. Pull the fabric past the terminal post. At the terminal post, remove a weave so that the fabric on the ground is now terminated at the post. You are ready to stretch.



How do I stretch the fabric? Fence fabric should be stretched from the terminal post already attached to the terminal post at the other end of the line – or – at stretches less than two hundred feet.

1. With the fabric terminated at the terminal post, install a tension bar approximately five feet from the end of the unattached fabric.
2. While still lying on the ground, attach a chain link wire rake to the tension bar as shown in the illustration.
3. Place the hook at the end of the cable jack onto center of the wire rake. Discharge the cable so that the cable hook is wrapped around the middle (height) of the terminal post. You may use one of the tension bands to hold the cable in place.
4. Gently crank the cable jack so that you begin to place tension on the wire. As you continue to crank the jack, stand the fabric up against the post. Pull the bottom of the fabric out away from the post approximately 6" to assure that it will not fall over. Note: Windy days and taller fabric may require temp ties or the fabric may need to be further pulled out away from the fence line.



5. Once the fabric is all stood-up and the cable jack is taut, but not too tight. Pull the fabric from the far end of the fence line away from the cable jack by lifting it, shaking it and pulling it toward the cable jack. Repeat this every ten feet.
6. Keep tension on the cable jack while lifting and pulling the fabric by slowly cranking.
7. Repeat this process as necessary to properly tension the fabric. Proper tension is achieved when you are just barely able to squeeze the fabric together a ¼" with

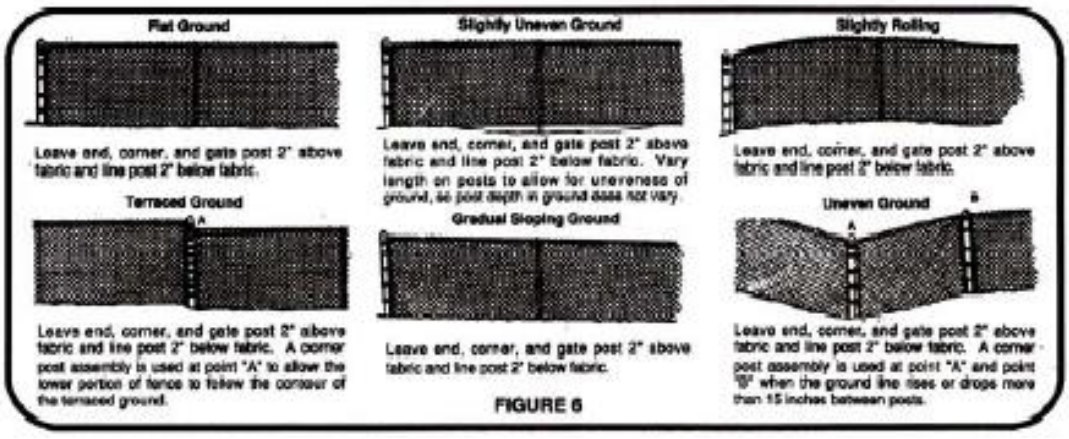


FIGURE 6

one hand.

8. NOTE: Any deformities, irregular swoops in the fabric will remain once the fabric is stretched. To avoid this, be sure that the fabric is at the desired height before and during stretching. It is almost impossible to remove these while fully stretched.
9. Once fully stretched, tie the fabric for height every ten feet to assure that it does not create a wave and fall over. Tie the fabric so that a half knuckle remains above the top rail
10. While still under tension of the cable jack. At the unattached end, pull the fabric firmly past the terminal post to determine were to remove a wire weave to tie the fabric into the terminal. Remove the weave. Tie the fabric for height 6" from the end. Pull the fabric in line with the tension bands and slide the tension bar through the evenly spaced tension bands and fabric simultaneously.
11. Once tied in, slowly release the tension on the cable jack. Remove the tension bar used to hold the cable jack.
12. Note: On short 10' or less stretches or to assist in tying-in a longer stretch, use a Pul-jak.

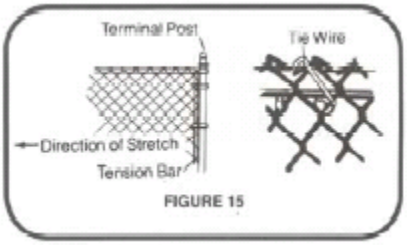


FIGURE 15

How do I tie the fabric to the framework? Unless you have a set of specifications or drawings that show otherwise, fence ties are placed 24" on center along the top rail and 16" on center on the line posts.

1. When tying the top rail, make sure that the fabric is a half diamond above the rail. This can be accomplished by placing your pliers in the fabric above the top rail and leveraging the fabric into place. In more severe applications, you will have one person lift the fabric while another individual ties it. Applying too much leverage on the top rail will only cause it to swoop between the posts.
2. Place hook of the tie into knuckle above the rail. Using your pliers, grab the end of the hook and pull-up while pulling the tie down and around the top rail. Wrap your tie around the fabric as close to the post or rail, avoiding large spans that create dents in the fabric.
3. Using your thumb, twist the tie around the fabric as far as you can. Then, grab the loose end with your pliers and twist the end of the tie all the way around the fabric.
4. At both ends of the tie make sure that the ends wrap around the fabric a full 360 degrees. Do not over tension or wrap the tie around the fabric. This will cause the fabric to cave in at the tie and cause the tie to break.
5. Repeat this procedure at the line post, beginning 6" below the rail.

What are the most common safety obstacles to overcome when stretching fabric?

1. Lifting. A roll of chain link fabric can weigh between 50 to 400 pounds. As a result, always practice safe lifting techniques. Never try to lift the wire onto your shoulders. Get help.
2. Cuts. Chain link fabric may have icicles formed during manufacturing from the galvanizing dripping-off. Wear gloves when you can and be conscious of grabbing the materials, particularly when sliding the tension bar through the fabric. It is easy to pinch your hand between the fabric and bar. Also, with cutting top rail, you will have several burs and sharp ends.
3. Loose top rail. Before you get the fabric tied to the top rail, the rail is loose on top of the post. If it gets knocked loose, it will slide through the line top like a spear. Wear your safety glasses and hard hats. Be conscious of what is happening around you.
4. The Wave. After standing the fabric-up but before you tie-it off, there is a real risk of the fabric falling over, causing a wave effect as it sweeps from one side of the stretch to the other. There is a lot of weight and momentum, causing serious injury to anyone in its path. Make sure that your fabric is pulled away from the posts. On taller heights, make sure you have temp tied every 10'. Educate your crew members so that when a wave occurs, everyone should yell "wave!" to warn others to clear the area. No "wave" in the photo to your right but they are at the beach in their shorts. Not official AFC photo.