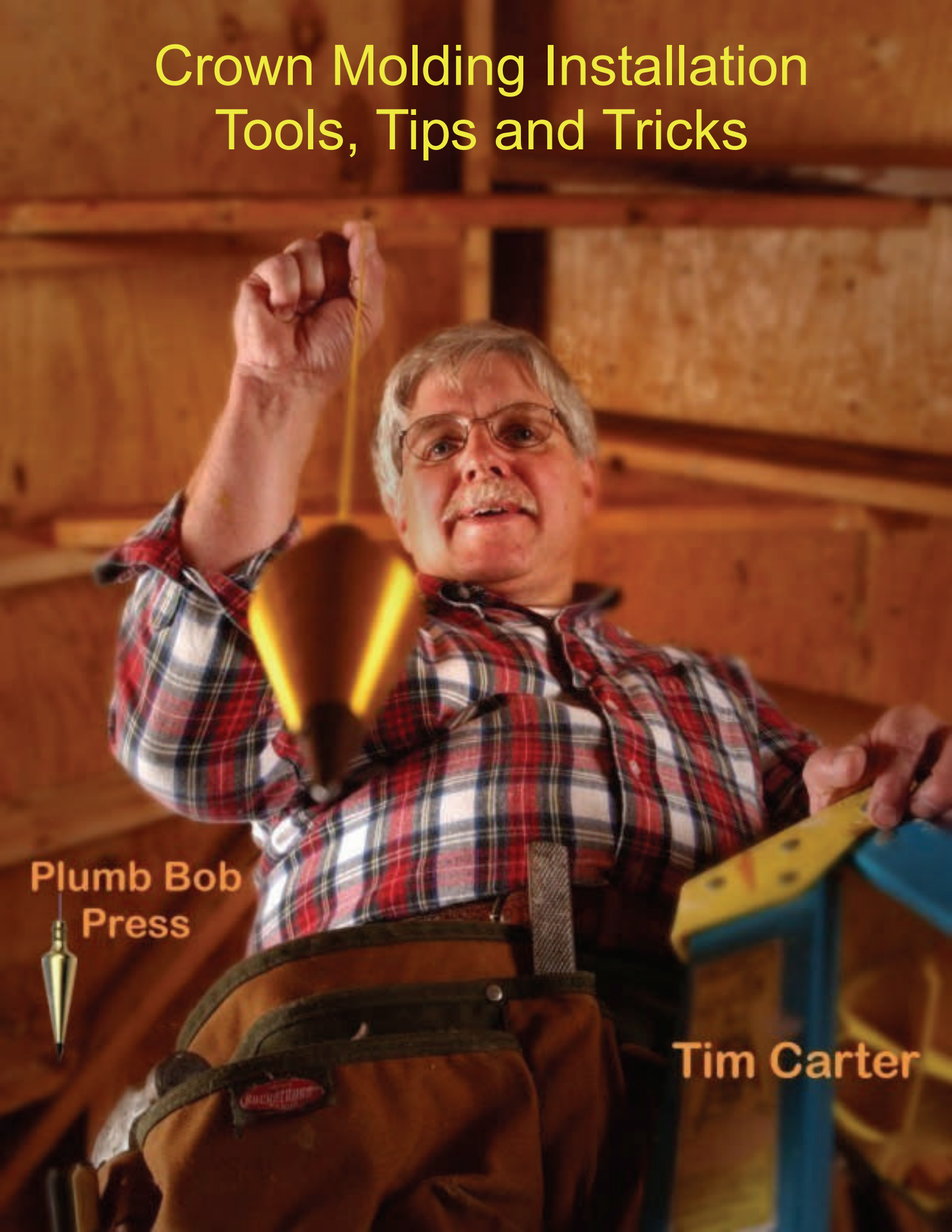
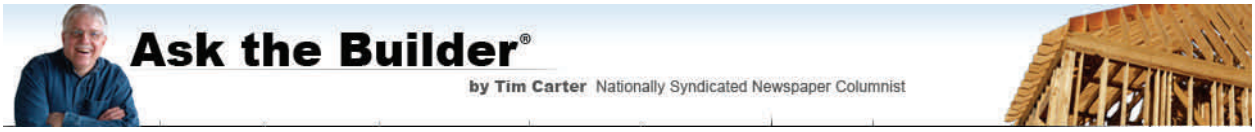
Crown Molding Installation Tools, Tips and Tricks





Crown Molding Installation

Tools, Tips and Tricks

By: Tim Carter

Table of Contents

The information in this book strives to be like a plumb bob at rest – delivering true and accurate information to those who look at it.

Introduction

Cutting crown molding has caused more frustration, anger and arguments between friends and spouses than perhaps any other home improvement project. People struggle when they set their miter saws at the proper angle, cut the trim and then find out once it is up in the corner that one could drive a truck through the large gap between two pieces of trim.

The purpose of this book is to show you a few simple carpentry secrets that allow even the amateur to produce crisp crown molding cuts that fit tightly and accurately. What's more, it can be done without expensive tools.

Not long ago I received a wonderful note from Milton Grant in Clinton Township, Michigan. Milton wrote, "*...I have tried cutting the moldings in a miter box while it is sitting as it hangs on a wall. I have also used a Delta Sidekick compound saw. Results - My greatest product is sawdust, for which I have no market."*

Can you relate to Milton? I am sure you can. Countless people experience immense frustration when attempting to cut and install crown molding. I'll never forget my first time; I struggled for three hours trying to install crown molding in a small breakfast room. After watching me struggle, the stay-at-home Mom came outside as I was staring blankly at the miter box saw. She asked me if I knew what I was doing. When I humbly said, "No.", she politely fired me. I immediately headed for the library where I found several books that showed me the light.

I am quite confident that you are going to experience the same epiphany. You will be amazed at the feeling of accomplishment in just a few moments when you cut your first pieces of crown molding and they fit. I say we get to work.

Helpful Tips While Reading:

From time to time as you read this book, I will alert you when certain information requires added attention. Pay attention for the following:

CAUTION CAUTION CAUTION CAUTION CAUTION

When you see text in a shaded box like this, be alert! The text has important information that is vital to the overall success of the project. It may also contain important safety information.

From time to time, I provide in-depth and often interesting scientific background information about the topic. When this happens, you will see these pieces of tape:

$E=mc^2$ $F=ma$ $S=\frac{1}{2}at^2$ $a^2=b^2+c^2$ $A=\pi r^2$

The information in between the strips of green formula tape may help you win a round of Trivial Pursuit or Jeopardy, but don't feel the need to memorize the information!

When you see the following icon, you are at the end of a chapter and it is time to proceed to the next step.

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Acknowledgements and Credits

It didn't take me long when I was building each day to figure out that I needed to surround myself with quality sub-contractors. These were people who helped me create the new homes, businesses and room additions that became my trademark of quality. Quality is everything and I soon discovered that consumers placed a high value on this characteristic. It should come as no surprise that I have adopted the same philosophy in my current media career. I am constantly striving to work with people who feel the same way as I do about quality.

AsktheBuilder may seem like it is just me, but there are many people who are responsible for my success. The list is large. Some I have known for years, others just in the past several months. No doubt the biggest thanks should go to my lovely wife Kathy. She has supported me since day one when I decided to jump feet first into the writing and publishing world. In fact, the idea to write the syndicated newspaper column was hers. My children, Meghan, Tristan and Kelly, also need to be thanked. When I am grumpy because of deadline pressures or tired from working too hard, they have suffered.

Who else has helped me get to this point where I can so readily share my knowledge with others? Let's start at the beginning. I owe much to:

- Roger Henthorn - for his years of computer support
- Marty Hovey - for his computer, programming and graphic support
- Richard Anderson - for his constant moral support of my new career
- Laura Bennett - for her fresh perspective of the publishing and public relations industries
- Jaclyn Easton - for her mention of me in her best-selling *StrikingitRich.com* book
- David Weiner - for selecting me to become a *Home Ranger*
- Randy Cassingham, author of This is True® - for introducing me to Hotshots
- Mary Westheimer - for connecting the dots between instant need and my content
- Michael Keating - for his photographic talents. His photos grace the website and EBooks.
- And countless others who have helped me get to this point

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Chapter One - Required Tools and Safety

Believe it or not, you need only a few very basic tools to install crown molding. A simple hand powered miter box saw, tape measure, hammer and nail set is all I used for many years. These tools are shown in this photo. The miter box saw is a new model made by Stanley tools. You can get similar ones from Sears or just about any hardware store.

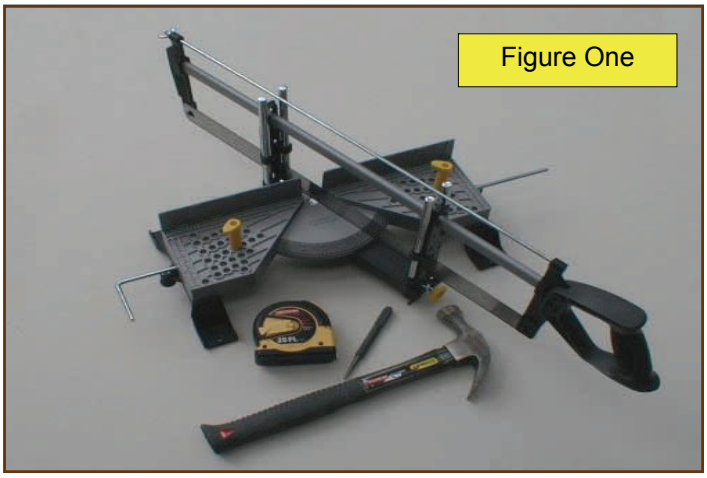
Figure One

The saw in the Figure One is fine except that it has one major flaw. The rear vertical fence is far too small. The fence is the vertical portion of the saw that rises at a 90 degree angle off the flat table surface that has numerous holes in it. The minimum height of the fence should be four inches. This defect can be modified quickly by simply screwing a straight piece of wood to the existing metal fence. You simply need to make sure that the face of the fence extension is a perfect 90 degree angle to the flat table surface where you see all of those holes. This 90 degree relationship is vitally important if you desire to make precise miter cuts that fit.

If you want to cut crown molding quickly and accurately with minimal fatigue, then you need to get tools like mine. In Figure Two you see a 12 inch diameter Ridgid compound power miter box saw. The compound feature allows me to tilt the blade in addition to the swivel feature that is common on regular power miter box saws. I do not use the compound feature as I prefer to cut crown molding the failsafe old fashioned way of upside down and backwards. The tool purists will argue that using the compound feature allows you to forget about rear fence height since the crown molding lays flat on the table when they cut it. I say to them, “You run your railroad and I will run mine.”

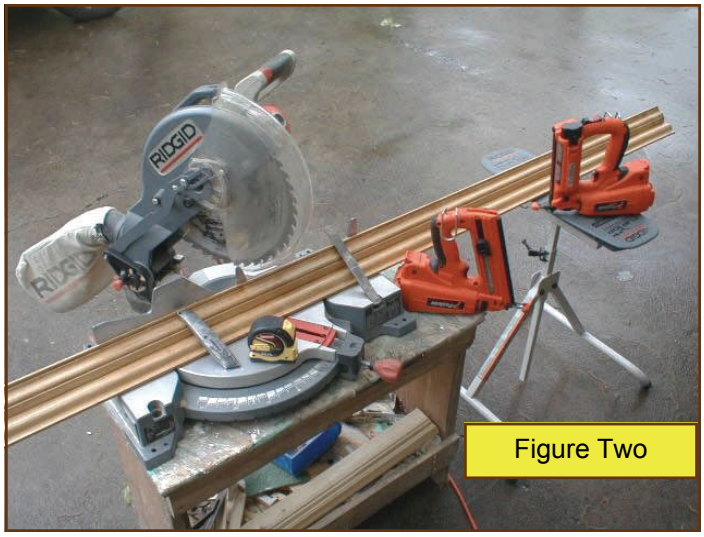

Figure Two

The other tools in **Figure Two** really help once the crown molding cut is complete. There are two impulse nail guns, a razor knife, a wood rasp, carpenter’s bench to support the saw and a new cool Ridgid Flip Top adjustable support stand to hold the long lengths of crown molding up to the same level as the saw table.

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I use two different impulse nailers as they drive two different size nails. The one gun fires standard finish nails while the other gun fires small diameter 18 gauge brads. This small size brad nail is very handy when you are nailing two pieces of crown molding together. This happens frequently where crown molding wraps around an outside corner.

The razor knife and wood rasp are used to trim wood away on a cut edge of molding. Tapering this cut face after it is cut allows the finish miter to fit more precisely. When you trim or rasp a cut edge, the only wood that touches when you join two cut pieces together is that chiseled edge where the molding profile stops and the cut edge begins. If you do not taper it, then the entire cut faces touch as you join both pieces of crown.

Working with saws, razor knifes, nail guns, etc. can be very dangerous. You can get seriously hurt if you are not alert and are not wearing safety glasses, etc. Do not work with this equipment if you are taking prescription drugs and/or are fatigued. Always read and follow safety instructions with all tools.

Chapter Two - Cutting Crown Molding

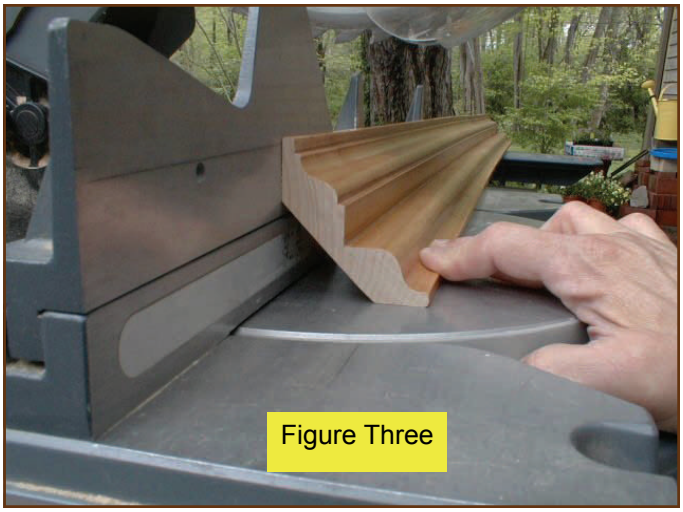
Figure Three

To succeed in cutting crown molding you must position the molding in the saw correctly. The molding must be positioned and **cut** in the saw the exact way it will be positioned on the wall. Remember how I said earlier that the table of the saw and the vertical fence must be at 90 degrees to one another? If your house is built as mine is, the ceilings and walls are also oriented at 90 degrees to one another. If you print this page out, turn it upside down. Note in Figure Three, how the table of the saw where my hand is looks surprisingly like a ceiling. See how the vertical fence appears to be a wall. This concept explains the first part of my ***upside down and backwards*** method of cutting crown molding. In other words, the crown molding is actually upside down in the saw right now. My fingers are touching the part of the crown molding that will actually contact the ceiling once this piece is cut and installed. I have always felt that this Figure is worth more than a thousand words.

You can clearly see the void space behind the molding. Note how just the foot and the shoulder of the trim are actually touching the saw fence and table. They are perfectly positioned so that the flat surfaces of the foot and shoulder are in complete contact with both the vertical fence and the table. Before I start cutting any crown molding, I take a 24 inch long representative piece of trim and carefully position it in the saw. I then take a sharp pencil and trace a line on the table and the fence at the edges of the molding. These lines are my guidelines when I place all future pieces of trim in the saw. You simply rotate the molding so that the edges are touching the lines and you know that you have the wood positioned correctly. Doing this you simply can't make a mistake so long as you always have the crown molding upside down!

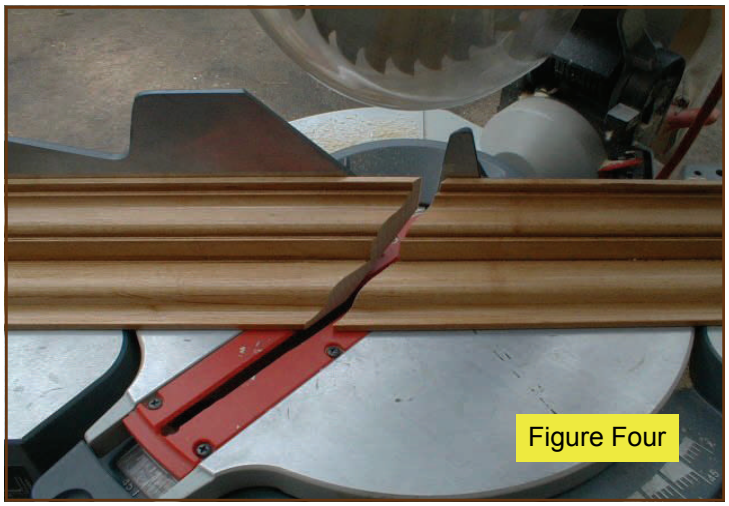
Figure Four

Remember the epiphany I mentioned before? You are already halfway there. Here are the final two pieces of the puzzle! A vast majority of people are confused about how to cut both inside and outside corners for crown molding. Figures Four and Five solve the mystery. The crown molding was positioned correctly in the miter saw as shown in Figure Three. Note that the molding is upside down in the saw. I rotated the miter saw table to the left and set it at

45 degrees. I then cut through the trim. I slid the pieces apart for clarity-don't think my blade is that wide! The crown molding on the left side of the cut is a piece that will work on an inside corner of a room. If you were on a ladder looking at it, it would be the piece that leaves the corner and goes along the wall on your right side. The piece in the Figure on the right side of the saw cut is a piece of trim that would work on an outside corner of a room, If you were on a ladder facing the outside corner this piece would leave the corner and travel down the left wall or left side of the corner. This is the **backwards** part of the cutting method! In other words, if you are in need of a piece of crown that will leave the **right** side of an inside corner, you better have the long length of the crown molding hanging over the **left** side of the saw table.

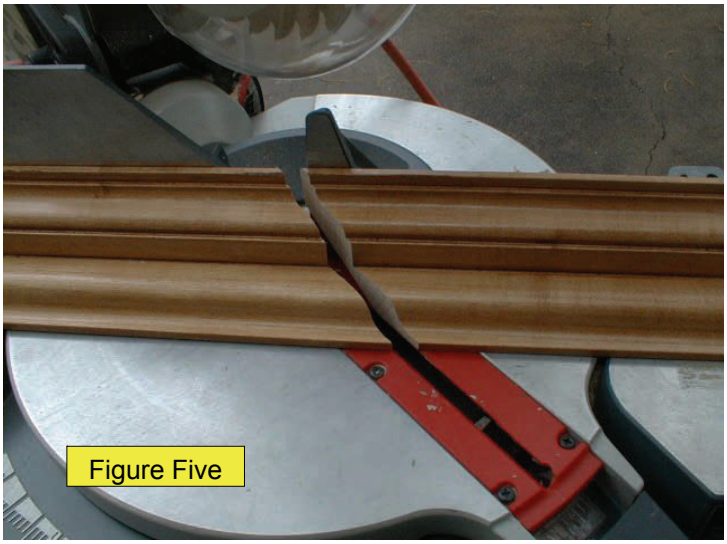
Figure Five

There should be no mystery here! It looks like the same Figure doesn't it? Well it isn't. The miter saw blade was rotated to the right side and set at 45 degrees. The resulting cuts are the ones you need to complete the job! If you grasp this concept you will be running crown molding so fast your head will spin! The piece of crown on the right side of the cut is the other half of the inside corner set. The piece of trim on the left side of the cut is the other half of the outside corner. Don't believe me? Take an eight foot long piece of crown molding and make a straight cut at the four foot mark cutting the molding into two equal four foot pieces. Now place each four foot piece in the saw as I have done in Figures Four and Five so that you have two feet of molding on either side of the center of the saw. Cut them as I have. Fit the pieces together to see what I am talking about. Don't get rid of them because we are going to need them!


Figure Six

To eliminate waste and make nearly perfect crown molding cuts each time, you must make perfect cut test pieces before you start your project. Figure Six shows several sets of test pieces. Each set is cut at different angle setting on the miter saw. For inside corners I make three different sets cut at 45, 44 and 43 degrees respectfully. Outside corner sets are made with angle settings of 45, 46 and 47 degrees. I use a permanent magic marker to note the angle setting and whether each piece is an inside left or right or outside left or right corner. The left and right side of each test set is cut the same angle.

With these test pieces in hand, you can use them to check the corners you are about to work in. Using the set cut at 45 degrees, you determine whether or not the corner is square. If the corner is square, when you slide the test pieces together, they should fit perfectly. If a corner is out of square - and most are - the other test pieces tell you the angles settings for each piece of crown that needs to be cut. Keep in mind that the angle cut for each side of a corner does not have to match. Don’t get caught in this trap. In other words, a twisted wall or ceiling may cause you to cut one side at one angle and the other adjacent side at a slightly different angle.

Chapter Three - Inside Corners

Figure Seven

Figure Seven shows two test pieces that I cut. The cuts are perfect 45 degree angles but the resulting fit up on the wall is anything but perfect. Look at the enormous gap at the top of the Figure while the crown molding is touching at the bottom. This is not your fault unless of course you built and erected the walls. It is not time to give up or fill the gap with wood dough or caulk. What the test pieces are telling you is that you can't cut your finish crown molding at perfect 45 degree angles in this particular instance. It is now time to use the other test pieces!

The trick is to take the different test sets and see which one fits better. You will soon discover that you may actually have to mix and match the sets for a perfect match. Figure Eight shows the same corner but with the molding fitting nearly perfectly. In this instance I had to use the 43 degree set. In the same room, though there was one corner where I used a 45 degree left corner cut and a 43 degree right corner cut to make a perfect match. Both pieces of crown molding do not have to be cut the same angle to make a perfect fit.

Note that the most important measurement when cutting inside corners is the actual length of the lower edge of the crown molding where it dives into the inside corners of the walls. You must mark this location using the test pieces at all inside corners and measure at your fine pencil marks. Do NOT take your length measurement up at the top of the wall where they contact the ceilings. The measurement may be more or less just inches away.

Figure Eight

To make the actual pieces of crown molding fit perfectly, you should practice the different angle technique before you start cutting into expensive crown molding. Go to a lumber yard and buy the least expensive crown molding you can find. It does not have to be the same size or profile as the actual material you will ultimately use. This inexpensive crown molding will allow you to practice your cutting and more importantly, the adjustment cutting technique. I would buy possibly two 8 or 10 foot long pieces. Cut several test pieces about 16 inches long to get the feel of this trim in the saw. Don't cut up all of he junk trim.

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CAUTION CAUTION CAUTION CAUTION CAUTION

If there is a gap at the top of your inside corner, you must decrease the degree of angle to make the miter fit. If there is a gap at the bottom of your inside corner, you must increase the degree of the angle.

You will rarely get an absolutely perfect fit that requires no filler. In the Figure here, I actually had to add a very small amount of filler in three different places on the joint. The trim would touch and then there would be a small gap. It would touch again for a short while then another gap. The gaps look bad when you are up on a ladder with your eyes five inches away. But after you fill the gaps with color wood putty and step back to the center of the room the joints look perfect. I used light colored wood putty here to show you a color difference. The actual gaps were approximately 1/32nd of an inch. That is very small.

Because crown moldings are different sizes the necessary adjustment cut angle will be different. This is why you should practice cutting test pieces with the inexpensive junk crown molding first. Trust me, I'll bet you get two perfect cuts within four attempts. Be sure the miter box saw you purchase has the ability to swivel past 45 degrees!

Chapter Four - Outside Corners

Most standard residential crown molding jobs involve inside corners. If you are doing a typical room, you will simply complete four inside corner sets. But from time to time a room or hallway will have an outside corner. Don't fret as the technique you have mastered to cut an inside corner will be used to do an outside corner. Earlier I showed you how an outside corner cut is automatically created when you cut an inside corner. Refer back to the **Cutting Crown Molding** section for a refresher should you feel the need.

Figure Nine is a perfect example of an outside corner. In this instance, the two test pieces that were cut at a 45-degree angle happened to be a perfect fit! What luck! You can see why taking the time to cut the different test pieces is advantageous. It only took seconds to determine the correct angles for the actual piece of crown molding that will be installed. At this point, all that is necessary is to determine the length of the final pieces.

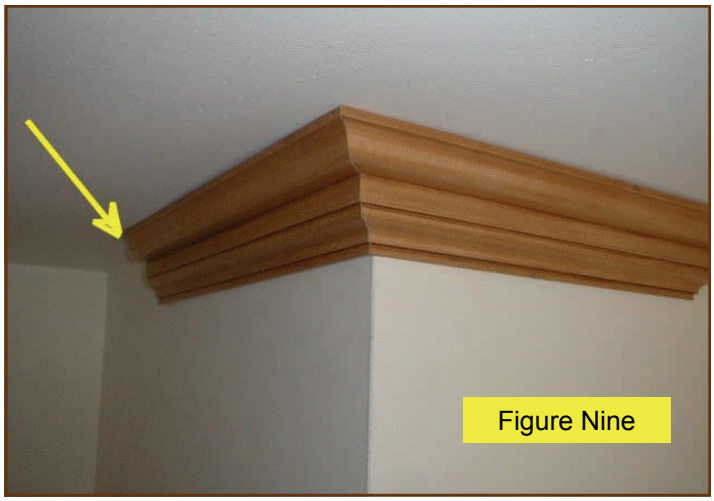

Figure Nine

Figure Nine also shows that when you cut the actual piece for the left side of the outside corner, you will have an inside corner cut to deal with in short order; as the next corner in the room is an inside corner just 28 inches away. Once you verify that the two test pieces fit perfectly, take a sharp pencil and trace fine lines along the ceiling where the top of the molding touches the ceiling. The two pencil marks create a crisp 90-degree angle on the ceiling, showing exactly where the final two pieces of crown will meet. These two pencil marks will help you when you fit the longer pieces of crown molding up on the wall to mark them for exact length just before cutting them.

Note that in the Figure Nine photo I used my actual test piece to illustrate the outside corner cut. The arrow points to the regular straight cut on the left side of the test piece of molding. When the real piece is cut from material that is long enough to reach the next corner of the room, it will have the proper cut to create the right side of the inside corner.

There is another way you can judge the exact angle cuts for an outside corner. The following method is very time consuming, but it works. You would do it this way if you did not have any test pieces of molding to help you determine the actual cut angle. Take one piece of scrap crown molding that is about 18 inches long. Place it up on the wall as if you were going to install it. Make sure it fits correctly with respect to its positioning on the wall. Slide it 4 inches or so past the outside corner. Use a very sharp pencil and make a fine line on the ceiling where the top edge of the crown molding touches the ceiling. Do this exact same thing on the other side of the outside corner. The two pencil marks should create a very faint X mark. The point where the two pencil marks intersect is where the top of the two pieces of crown molding will meet once they are cut and installed.

The X mark gives you a measuring point so you know how long the molding must be if you are measuring along the top of the trim. If you were to then take a piece of crown molding that was long enough to work, you would hold it up on the wall and use a pencil to mark where the crown hits the X mark on the top edge of the molding. Then make a mark on the bottom of the crown molding exactly where the molding contacts the outside corner of the wall. If you adjust the angle of the miter box saw so it cuts a straight line connecting these two marks, you have the exact cut angle that is necessary to produce a perfect fit. But keep in mind that this method requires great vision and the ability to look down the spinning saw blade to ensure it doesn't cut too much wood off by missing the mark along the top edge of the molding. Remember, this mark is down on the table of the saw and the blade has a long way to go to get to it.

The first thing to do to create the necessary pieces to complete this outside corner is measure and cut the inside corner (left side) of the left piece, as indicated by the yellow arrow in Figure Nine. Make sure that the piece of crown molding you are working with extends four to six inches beyond the outside corner, and also make sure it extends past the pencil marks on the ceiling. Imagine that you are cutting the final piece that makes the left side of the outside corner in Figure Nine. Once the inside corner has been cut and verified by matching it against other test pieces for a perfect fit, you can mark it so the first outside corner cut can be made.

Place the crown molding so that the inside corner fits perfectly. The excess material is still running wild past the outside corner. Firmly hold the piece in position, and use the sharp pencil to mark the exact cut point on the bottom of the crown molding where it touches the farthest extent of the outside corner of the wall. Then make a mark on the top edge of the crown molding where the molding touches the center of the cross mark.

Since you used the test pieces and know your angle, adjust the miter saw and proceed to make the cut. I prefer to make a test cut that leaves an excess of material on the crown molding – perhaps one-half inch of material. If the cut angle is right, it will parallel the marks you made at the top and bottom edges of the crown molding. I then make one final test cut so just one saw-blade width of material remains. If the amount of wood is perfectly parallel with the marks, you then know the saw angle is right and you can cut off the remaining wood to make the perfect cut for a perfect fit.

CAUTION CAUTION CAUTION CAUTION CAUTION

If there is a gap at the top of your outside corner, you must increase the degree of angle to make the miter fit. If there is a gap at the bottom of your outside corner, you must decrease the degree of the angle.

Rounded Corners

Crown molding can be applied to round corners. A traditional 90-degree corner can be cut, but the bottom of the crown molding will meet out in space, producing a gap that must be filled.

Turning the corner with one extra piece of crown molding can reduce the size of the gap. A small piece of crown molding fits between the two pieces that are approaching the corner as they run down each wall. Cuts to all three pieces should be 22.5 degrees.

Chapter Five - Butting Joints

Crown molding can often be purchased in 16-foot lengths. It is wise to use long continuous pieces so as to avoid splicing two pieces together. However sometimes it is unavoidable to have a seam where two pieces must butt against one another.

There are two schools of thought as to the best way to produce a butt seam. Some people feel a 45-degree mitered seam is the best, while others, including me, feel a simple butt joint where the two pieces are cut at a 90 degree angle give a better fit.

The simple 90-degree cut offers one distinct advantage. There is less distance across the butt joint. An angled butt joint produces a longer butt joint where complications in matching the shaped profile of the crown molding can be problematic. Those that prefer this method will tell you that the angled cut produces a place where the two overlapping pieces of crown molding can be glued and nailed.

You can interlock two pieces of crown molding with simple 90-degree angle straight cuts as well. The trick is to add thin shims between the back of the molding and the triangular blocking until the shims just touch the back of the crown molding. Glue and nail the shims to the triangular blocking.

Cut the two pieces of crown molding so the butt joint is extremely tight, with little or no gap between the two pieces. Once you are satisfied with the fit, apply glue to the back of the crown molding and the shims. Also, glue the edges of both pieces of crown molding. Fit the pieces to the wall and nail through the crown molding into the shims and triangular blocking. Wipe away any excess glue. This joint will be permanent and will rarely open up.

If the profiled face of the crown molding doesn't match perfectly, wait 8 hours until the glue has set. Use different wood chisels to carefully carve the moldings until they appear to be one piece.

Chapter Six - Ending Crown Molding

In certain instances you find that you want crown molding to simply stop on a wall or stop at an outside corner and not make the return on the other half of the outside corner wall. If you just make a square cut you see the ugly void space that exists behind crown molding. No one wants to see that, even if you do try to cut a fancy filler block. The simple trick is to make an outside corner that returns or dead ends into the wall. The finish detail creates an illusion as if the crown molding is puncturing the wall and actually passes through to the other side. You can clearly see this in Figure Ten.

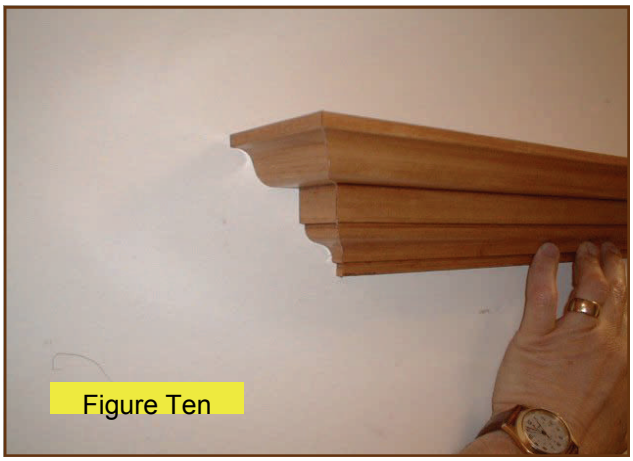
Figure Ten

I created a typical outside corner but believe me, the left side of the cut is not passing into the wall, not by a long shot. Just how does one do that?

Look at the Figure Eleven. Here is the secret! The triangular piece of wood to the left of the saw cut is the actual small return piece on the left side of the finished miter joint that you see in the Figure Eleven. But for the concept to make sense I did not complete the saw cut. You are looking at the back or unfinished side of the crown molding. You need to be looking at this side to accurately cut it for length ***after*** you have made the outside miter cut.

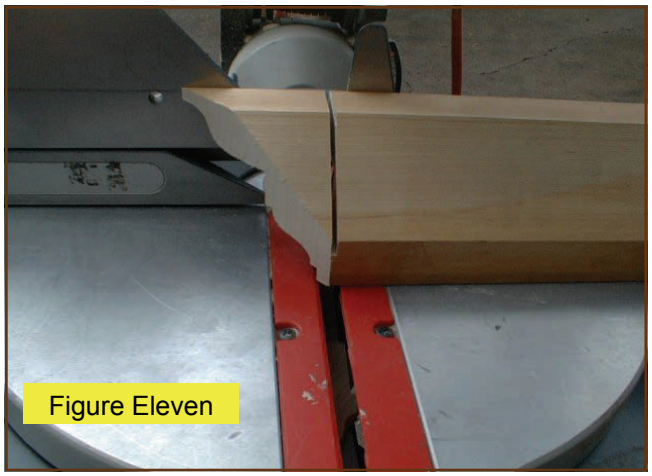
Figure Eleven

I want to look at the back of the trim as I cut it because I wanted the left side of the saw blade to be right where the darker foot face of the back of the trim ends and the lighter colored chiseled 45 degree angle face meet. This is the point of the trim where the wall plane is. If the saw cut were more to the right, then the piece would be too long. If you cut more to the left then the piece would be too small and you would see a gap next to the wall in Figure Ten. See how simple it is?

Chapter Seven - Nailing Tips

Nailing finished pieces of crown molding can be very frustrating. You can spend lots of time trying to locate wall studs and/or ceiling joists. If you are installing the crown molding in a house that has walls built using top and bottom horizontal plates, there is a much easier method. Most houses built after World War II have top and bottom plates. This method of construction, among other things, helped stop the spread of fires in houses. The top and bottom plates on walls create closed cavities between each wall stud once the walls are covered with drywall or plaster. This closed cavity system makes it tough for fire to spread sideways or up and down through a house.

You can use the top plate to your advantage. If the ceiling has one half inch drywall on it, you will probably hit solid wood up to one inch down from the ceiling surface no matter where you drive a nail in this space. The nail is penetrating into the 1.5 inch high top plate.

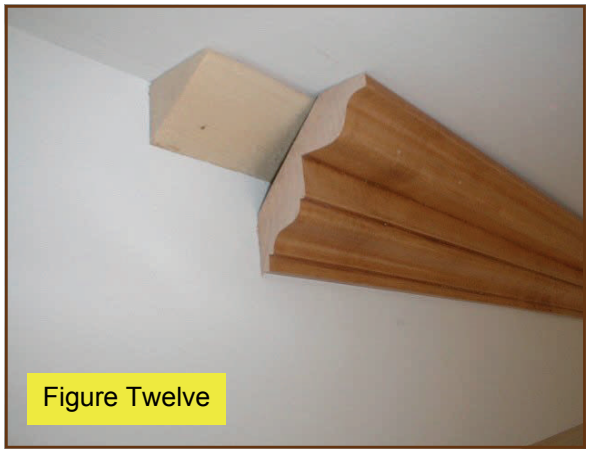

Figure Twelve

Look at Figure Twelve. The crown molding creates a hollow spot that can help you. I took a 2x2 piece of lumber and cut it at a 45-degree angle. This triangular piece of wood will fit behind most standard crown moldings. Try to cut one and test it against the trim you are using. If it works, you simply cut long pieces that extend from corner to corner around the entire room. These backing strips are nailed to the top wall plate that is hiding behind the drywall up in the corner. If you don't have a top plate, then nail it to the wall studs you discover.

Once this backing strip is in place around the entire room, you can see that you can nail the crown mold anywhere along it length and hit solid wood. What's more, the nails typically need to be no longer than 2 inches.

Chapter Eight - Finishing Tips

If the crown molding is going to be painted, it is best to use non-shrink spackling compound to fill all holes and gaps. This material usually dries in an hour and is easy to sand. Another benefit is that it does not shrink as does caulk.

If the crown molding is to be stained, use color putty to fill holes and gaps. The crown molding must be completely stained and finished with urethane before you use the color putty. Filling unstained wood can be problematic as some fillers block the wood pores and the staining job looks bad. See the next section about prestaining and painting.

Caulk is used to fill gaps between the crown molding and the walls and ceilings. Large gaps at either location may be a sign that a large dip or hollow spot in a wall or ceiling exists at that location. To make the job look perfect, you may be required to add significant amounts of drywall compound to fill the dip or low spot.

Prestaining and Painting

It is infinitely easier to prefinish the crown molding before it is installed. If staining, use a wood conditioner to ensure the wood grain shows. Failure to use a conditioner on soft woods can cause the wood to accept too much stain and thus hide the wood grain. Stain the molding and apply two coats of clear finish.

If painting, prime the molding and apply one finish coat of paint. The second coat of paint will be applied after the crown molding is installed.

Chapter Nine - Crown On Cabinets

You can really dress up cabinets by placing crown molding on top of them. But people run into trouble quickly by trying to place the foot of the crown molding on the top face frame of the cabinet. If you do it this way, it ruins the look of the cabinets. What's more, some cabinets are frameless - the actual cabinet door hides the cabinet box.

Adding crown molding on cabinets simply involves adding a 3/4 inch thick piece of squared off lumber to the top of the cabinets. This piece of lumber is nailed down through the top of the cabinet into the frame or the cabinet box. It is important for the piece of lumber to be flush with the cabinet face frame if your cabinets look like what you see in the . If the cabinets have full coverage doors, the piece of lumber may have to be set back a little so that the crown molding does not interfere with the movement of the door. Check this with a test piece of trim.


Figure Thirteen


Figure Fourteen

Once the lumber strips are in place and secure you can proceed with cutting the crown molding. In Figure Fourteen, you can clearly see that the bottom of the crown molding is at the top of the cabinet face frame. The crown molding hides the ugly unfinished lumber strips. You can just about count on cutting perfect 45 degree angles for this task as even the least expensive cabinets are typically fairly square. I also prefer to use small finish nails to nail through the foot into the lumber strip. Once all of the pieces are installed and the corners of the crown are nailed together the pieces have no inclination of tilting forward.

The finished look is stunning as Figure Fifteen shows. I realize the crown molding stain does not match the cabinet. I did this for illustration purposes only so that you could see a crisp color differentiation line between the top of the cabinet and the bottom of the actual crown molding. If you want to really make your kitchen look superb, consider installing indirect lighting on top of the cabinets. The fixtures would be easily hidden by the crown molding. Soft rope lights or low powered fluorescent lights have worked well for me in situations such as this.


Figure Fifteen

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Chapter Ten - Bay Window Angles - 45 & 60 Degrees

Okay, so you mastered cutting inside and outside corners that are 90 degrees or nearly so. Now you ask, "Tim, I have a 45 degree and a 30 degree bay window area in a room. How do I make the angles work there?" No problem! If you know the intersection angle of the walls, then you simply divide that by 2 to get the saw cut angle.


Figure Sixteen

Let me prove it to you. Figure Sixteen is a photo of a 45-degree angled bay in my own dining room. Pardon the mess as I am in the midst of my own remodeling and redecorating. What do you think of the neat modular wainscoting? My dining room bay is actually just one half of an octagon-or eight sided object. If you remember your high school geometry, you will recall that the sum of the angles in a square, rectangle, octagon, hexagon, etc. add up to 360 degrees. In the case of an octagon it contains eight 45 degree angles. A simple square or rectangle has four 90 degree angles. We successfully made miters in the 90 degree corners by cutting 45 degree angles. To cut the crown molding in my dining room bay all I need to do is set the miter box saw at 22.5 degrees.


Figure Seventeen

The cut on the molding will look similar to your other cuts, it will just not be as long. Go ahead, cut two test pieces. They will look a little odd, but they will work.

In Figure Seventeen you can see the two test pieces that happen to fit perfectly in the upper room corner directly behind the chandelier in Figure Sixteen. You can just see the edges of the tops of the window trim in the lower portion of Figure Seventeen. You might ask how I knew I had a 45 degree bay instead of perhaps a 60 degree bay. You can use an angle finder tool that has a rotating protractor attached to a straightedge. This tool can be placed in one of the angled corners and adjusted until it reads the actual obtuse or open angle of the wall intersection. In my case, it read 135 degrees. If you subtract that number from 180 degrees - the arc of the diameter or one half of a circle - you would get 45 degrees. Had my angle finder read 120 degrees, then I would have known it was a 60 degree bay. To make miter cuts in a 60 degree bay, simply set the saw to 30 degrees and get to work.

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Chapter Eleven - Crown Molding in Stairwells

Check out the crown molding in Figure Eighteen. You are looking at the crown molding that is above the stairwell landing that connects the Entrance Hall in my home to the second floor. Several important things are happening in this photo. The crown molding comes up the first flight of steps, it levels out going across the landing, it turns 90 degrees on the landing and then it resumes its upward trend towards the second floor.


Figure Eighteen

It took me less than one hour to calculate the cuts and install all of these pieces. There is really nothing to it. In case you are wondering, I also installed the wallpaper with the help of my wonderful wife Kathy. I love to wallpaper.

Starting Up the Steps


Figure Nineteen

Figure Nineteen clearly shows where the crown molding starts its trip up my stairwell. The angled crown molding you see is diving into the floor joist header that supports the second floor landing. As you walk down my steps, as you would in any staircase, your head passes well under this header. It appears low simply because of the way I took this photo.

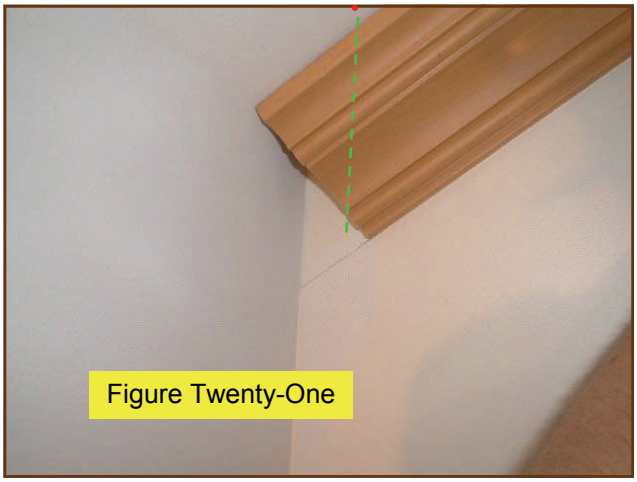
The crown molding is positioned at the wall/sloped ceiling interface as it would in a regular room. The foot of the crown molding is resting as it should on the wall and the shoulder is firmly and squarely planted upon the sloped ceiling. As a point of interest, you can see how I terminated the crown molding on the Entrance Hall ceiling. I had to return it to the wall right where it stops at the header.

The only thing you have to do to cut the angle that dives into the header is to determine how much to cut off. I have seen other people talk about using fancy angle finders and translating those angles to the miter saw, but I think there might be an easier way. One thing is for sure, the way I do it works perfectly every time.

Look at Figure Twenty. For the sake of the photo, I used a scrap piece of painted crown so I could get contrast between the wall and the molding. You can see where the top of the crown molding is touching the vertical header. The end of the crown molding is square cut at 90 degrees. This produces the triangular void you see between the end of the crown molding and the header. The blue dashed line represents the projection of the bottom of the crown molding

where it will extend and eventually touch the header. To determine the cut angle, all you do is measure the distance along this blue line where the bottom of the crown molding stops and where the blue line touches the header. In this instance I believe it was one and three quarter inches.

The next step is to translate this measurement to the **top of the crown molding**. I prefer to work with scrap material first so that I get a perfect cut on the actual material. Look at Figure Twenty-One. I have measured one and three quarter's inch along the top of the crown molding and then made a small mark. A red dot in the photo represents this mark. If you connect this point with the bottom end point of the crown molding, you will create a triangle of material that needs to be cut off. Do this with a pencil and a straightedge. The green dashed line represents this cut line. You can clearly see that the green dashed line is parallel with the intersection of the header and the wall upon which the crown rests. Once you cut this material off, the piece of crown will slide down the wall and rest perfectly against the header. You place the crown molding in the saw the same way as I illustrated in Figure Three.



Before you cut, you will need to rotate the saw and look down the blade to see if it is parallel with the pencil line. In my case the angle of the cut was 37.5 degrees. You will find that most staircase cuts fall within 35 to 40 degrees. The entire time for you to mark and cut your first test piece should be no more than two minutes. If you end up with a gap, then you might have to re-cut at a slightly different angle. This is one reason why you save all scrap pieces until the job is finished. You can cut experimental angles with the scrap pieces until you have a perfect fit.

Changing Direction

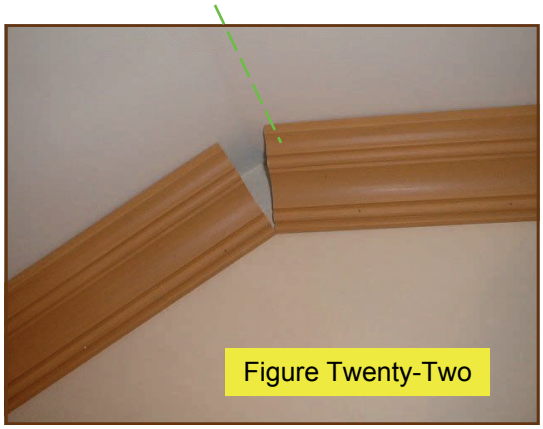


Figure Twenty-Two shows you the before image of what happens when the slope ceiling meets the level ceiling above the landing. Once again, I am starting with two scrap pieces of crown molding that have 90 degree square cuts on each of the ends you see. The green dashed line in this photo is the intersection of the sloped ceiling with the flat ceiling of the landing.

It is important to work with scrap pieces and hold them in position on each of the wall surfaces.

Once I have the two pieces aligned, as I do in Figure Twenty-Two, I use a sharp pencil to trace the bottom edge of each piece of crown molding on the wall surface. If you remember what we

CAUTION CAUTION CAUTION CAUTION CAUTION

The 90-degree square cuts allow you can establish on the wall, the exact location where the two pieces of crown molding will touch one another after they are cut. You already know where the tops are going to touch - where the two ceilings intersect.

just did with the first piece of crown molding at the bottom of the stairs, you can use that skill to cut the correct angle for each of these two pieces of scrap. You simply determine the distance that the **top of each piece** is away from the green dashed line. Translate that distance to the bottom of the crown molding and you will have created the triangle of material that needs to be cut away to make the correct angle.

Figure Twenty-Three shows the final result. If my memory serves me right, I believe the angle of the piece on the right that is level was 17 degrees. The sloped piece was cut at 20 degrees.

CAUTION CAUTION CAUTION CAUTION CAUTION

But there is a twist when you cut these pieces! You position the molding in the saw as I show in Figure Three, but **DO NOT** place it upside down. The crown stays right side up in the saw because the pieces are fitting together in the same plane on the same wall.

Your angles will undoubtedly be slightly different. What's more, the actual angle is **not important**! You are simply creating the triangle of material with a pencil mark that needs to be removed. Once you have got the pieces to fit well, you can write down the respective measurements of your final test cuts. You will need them when you actually cut the pieces of crown that will be up on the wall.

The same skills are used to cut the remaining pieces that continue to go up the staircase. But keep in mind that I had traditional inside corner cuts on the inside corner of the landing. As your crown molding jobs get more complicated, you have to combine the different things you are learning. You will see that in just a moment in Chapter Twelve!

Figure Twenty-Three

Chapter Twelve - Cathedral or Vaulted Ceilings

Perhaps the most difficult place you can install crown molding is in a room with cathedral ceilings. It is possible to do it, but it requires a significant amount of skill and patience. You have already learned everything you need to know to do the job.

Cathedral or vaulted ceilings present a challenge for several reasons. Virtually every traditional crown molding is made at the factory to work in a situation where the wall and ceiling meet one another at a 90 degree angle. We covered this in Chapter Two. But in a typical room with cathedral ceilings, only two of the walls meet the ceiling at a 90-degree angle. These are almost always the side walls where the crown molding will be sloped. Perhaps now you can see why we covered Crown Molding in Stairwells before this chapter.

Figure Twenty-Four is a small cathedral ceiling in my kitchen. The green dashed line represents the intersection of the ceiling with the wall. You can easily see how the sloped ceiling has made the angle greater than 90 degrees.

$E=mc^2$ $F=ma$ $S=\frac{1}{2}at^2$ $a^2=b^2+c^2$ $A=\pi r^2$

The other two wall walls meet the ceiling at an obtuse (greater than 90 degrees) and an acute (less than 90 degrees) angle. The wall ceiling intersection where the cathedral ceiling starts to rise up is the obtuse angle.

Several important things are visible in this photo. I have tacked up a scrap piece of crown on the sloped wall so you can see how the two pieces of crown relate to one another. The pieces have been placed so that the tops of the crown molding touch at the same place on the profiled face of each molding. This is vitally important. What is impossible to see in the photo because it is not a close up, is that the **top front edge** of the crown molding on the wall is not fitting tight to the sloped ceiling. There is a gap. This gap is caused because the back edge of the shoulder is touching the sloped ceiling. Note the dashed black line on the cut face of the crown molding. If you were to take this piece of crown molding down and place it in a table saw with its blade tilted at an angle to match the dashed line, you could remove the triangle of wood material. Doing this allows the crown molding to move up the wall so that the front gap will disappear.

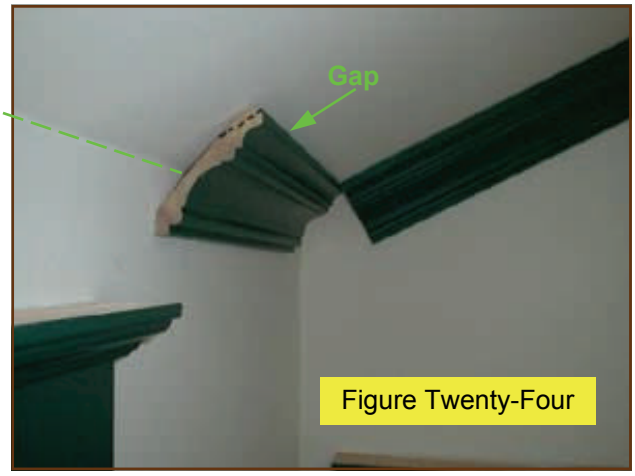


Figure Twenty-Four

You will also notice in Figure Twenty-Four that there is a huge gap in the corner that is missing crown molding material. Believe it or not, this gap will be filled with one special transitional piece of crown molding. To assist in filling the gap, the scrap piece you see on the sloped part of the ceiling will receive another cut similar to those we made in Chapter Eleven.


Figure Twenty-Five

Figure Twenty-Five should clear up the mystery. I have cut the special triangular transitional piece of crown molding that allows you to turn 90 degrees and start to head up the sloped ceiling all at once. It may seem complicated but it is not. I have separated the two pieces of crown molding in the photo on purpose so you can see the gap. Two things should be slightly familiar.

The left side cut of the triangular piece is simply a standard inside cut for a regular room with inside corners. You can prove this easily by placing two of your original inside test corner cut pieces I illustrate in Figure Seven. If you do this, you will see how the right side test piece continues along the wall **level with the left side piece**. This is important. You can see that in Figure Twenty-Five. The bottom edge of this triangular piece is indeed level. In fact, go back to the first photo in Chapter Nine — Figure Eighteen. Look at the right side piece of crown molding coming out of the landing corner. It is level. The left side of this piece of molding has a traditional inside corner cut. The right side of this piece is cut so that it can intersect with the piece of crown that continues up the staircase! Has the light bulb gone off in your head yet? All I have done with the triangular piece in Figure Twenty-Five is to remove all of the linear distance of crown molding material that lies between the two end cuts!

The Right Side Cut of the Transitional Triangular Piece

I did another trick to calculate the right side angle cut in the triangular piece above. In Chapter Eleven, I showed you how to do this without using an angle finder. You can attempt to do this if you choose in this instance. It will be a slight challenge. I feel there is an easier way if you know the pitch of the vaulted ceiling. It may be on your house plans if you have them or you can use a two foot level to determine the pitch. Pitch is simply how many inches of rise does a roof have per foot of linear run. It is expressed in inches. For example, a 4 / 12 pitch roof rises four inches for every foot or 12 inches of run.

The vaulted ceiling in my kitchen has a 6 / 12 pitch. I know this as I built the roof. I can verify this easily with the help of another person. If I place one end of a two foot level at the intersection of the wall and sloped ceiling and hold it level, the vertical distance from the other end of the level to the ceiling **in a plumb line** will be one foot exactly.

I have a fantastic roof framing book that contains all sorts of tables and angles of roof pitches. If you know the roof pitch, you can quickly determine the angles to cut to make the transition from the flat crown molding to the one that slopes. The angle cut for end of each of the two intersecting pieces is **one half the total angle**. In other words, the right side cut of the triangular piece in Figure Twenty-Five is 13.25 degrees because a 6 / 12 pitch roof rises at a 26.5 degree angle from the horizontal. The angle cut of the sloped piece of crown that butts into the triangular piece was also cut at a 13.25 degree angle. You can clearly see they meet very well. I cut them as I told you to do it in Chapter Eleven. I also had to trim off the back of the shoulder of the triangular piece to get it to fit.

Roof Pitch Angle Table

The following is a handy table that will allow you to translate roof pitches into angles. Keep in mind that as you are trying to calculate the rise and run that it is very rare for a roof or ceiling to be an intermediate pitch. This means a 4.5 inch rise in 12 inches of run. Or say a 7 and 3/8 inch rise in 12 inches of run. If you are getting measurements such as that, just round to the closest whole number. The reason for the odd amount of rise per foot of run may be caused by your level, the person helping you may need to have eyeglasses, etc.

Roof Pitch (rise / run in inches)	Angle in Degrees
2 / 12	9.5
3 / 12	14
4 / 12	18.5
5 / 12	22.5
6 / 12	26.5
7 / 12	30.25
8 / 12	33.75
9 / 12	37
10 / 12	40
11 / 12	42.5
12 / 12	45

Believe it or not, that is all there is to it. Do not expect to get perfect cuts the first time. You will start to get the hang of it after a few test cuts.

You use the same skill sets in reverse when you get to the top of the cathedral ceiling. Just think about it, all that is happening is that you are making the same sloped to level transition as we made in Chapter Eleven when I was coming up the steps and hitting the landing. All that you are doing now is adding a 90 degree turn to the mix.

The secret to success when working on cathedral ceilings is to use up some of your scrap pieces. Don't be afraid to experiment. Cathedral ceilings are the most difficult. Do not expect success immediately. But let me assure you, once you have cut a few pieces and they work, you will be filled with pride. Your friends and neighbors will be amazed.

Chapter Thirteen - Complete Tool List

The tools needed to install crown molding can range from very simple and few, to somewhat extravagant and complex. Let's first discuss the simple method.

Simple Tools:

Hand-powered miter box with backsaw
Circular saw
Step Ladder(s)
Tape Measure
Carpenter's Bench
Garbage cans to support lumber away from saw
Hammer
Nail Set
Putty Knife
Caulk Gun
Sponge

High-Tech Tools:

10-inch Power Miter Box Saw (Can be a Compound Saw, but not necessary)
Table Saw
Step Ladder(s)
Carpenter's Bench
Adjustable stands to support lengths of crown molding away from saw
Tape Measure
Impulse Nail Gun(s)
Assorted Wood Chisels
Electronic Stud Finder
Putty Knife
Caulk Gun
Sponge

Optional Tools:

Coping Saw – Some feel the need, but it is not absolutely necessary

Chapter Fourteen - Video Listing

Below is a list of AsktheBuilder videos dealing with Crown Molding. If you have already viewed these videos on the AsktheBuilder website, this might be a good time for a little review.

If you have not viewed these videos, they might help you understand some of the positioning of the crown molding in the saw or how those test pieces work. These short videos touch on different areas of the Crown Molding cutting and installation process.

Installing Crown Molding Video

Installing crown molding is easy with a few tips. Here are some tips for getting started with your crown molding project.

How to Cut Crown Molding Video

Cutting crown molding and trim is easy if you know how to cut crown molding the right way - and expensive if you do it wrong. This video will show you how to cut crown molding and trim to ensure that it fits on your wall the first time.

Cutting Crown Molding Video

Cutting crown molding is simple with these . Your crown molding will easily fit any inside or outside corner if you follow these tips regarding using test pieces. Simple crown molding will be even easier and complex crown molding will be doable.

Crown Molding Cutting Video

Additional tips for making some sample test pieces, that will assist in the corners of the room. Following these techniques make for easy crown molding installation.

Cabinet Crown Molding Video

Here is an easy to install crown molding for making fancy crown molding corners on your cabinets. You can dress up most kitchen or bathroom cabinets with the addition of some simple crown molding.

Fancy Crown Molding Corners Video

Watch this video for a demonstration on how to make dramatic inside and outside corners with crown molding

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