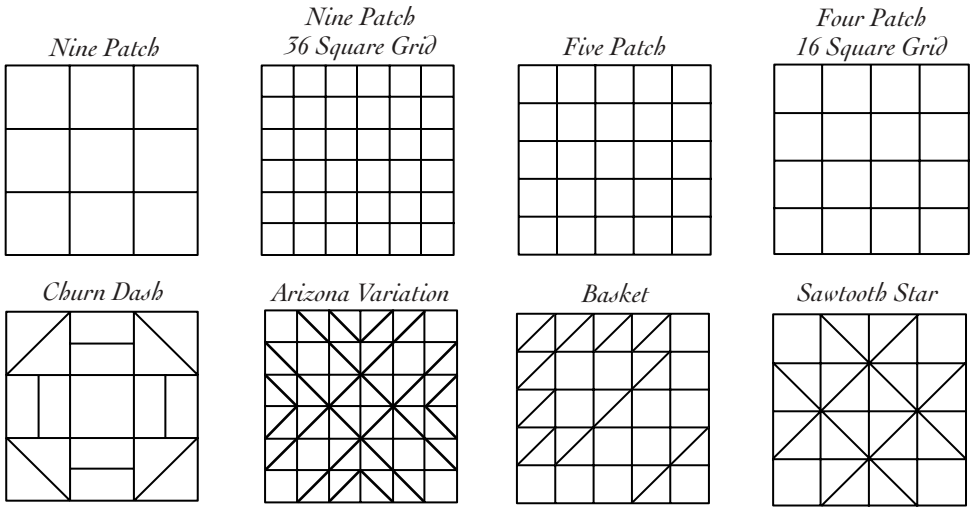
CONSTRUCTION TECHNIQUES



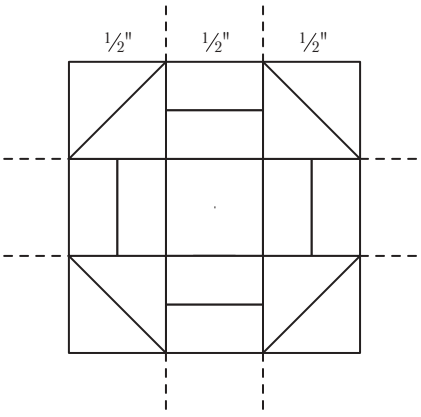
Some of these techniques are new, some exist already. All contribute toward successful small scale quiltmaking if done with care and accuracy. I have included suggestions that may be helpful when working in a smaller scale.

GRID DIMENSION

We draft most patchwork blocks on grids of equal divisions down and across.

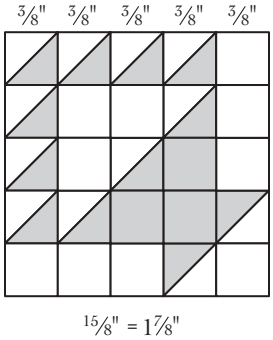


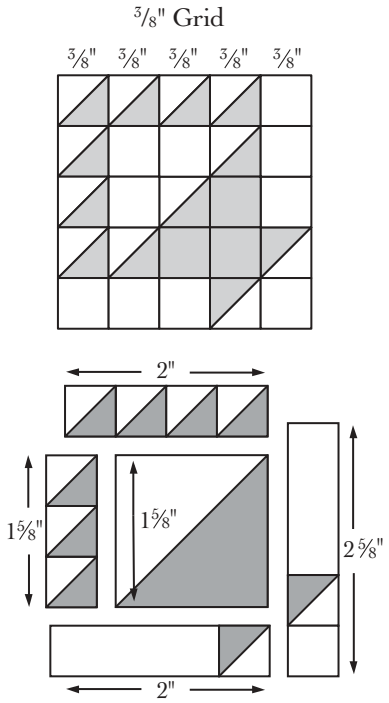
The grid dimension determines the size of the block. You could approach this in two ways.



1. Decide the block size first and then divide that by the number of divisions across. For example, a Churn Dash block has three equal divisions across and down. If you wanted a $1\frac{1}{2}$" block, you would divide $1\frac{1}{2}$" by three, and that would give you a grid dimension of $\frac{1}{2}$".

2. I often choose the grid dimension first and then multiply that by the number of divisions across to get the block size. When working in a repeat block format, the size of the block is not as important as working in a grid dimension that is comfortable. For example, the small basket block in *Shadow Baskets*, page 92, is based on five equal divisions across and down. I know from my experience that a $\frac{3}{8}$" grid dimension is comfortable for me. If I multiply $\frac{3}{8}$" x 5 = $\frac{15}{8}$" or $1\frac{7}{8}$", which would be the block size finished (with no seam allowance).





Knowing the grid dimension also enables me to measure as I sew and make any corrections or adjustments easily. It's not fun to get a whole block sewn and discover it does not measure what it should, or to get units of a block sewn and discover they do not join smoothly. Any discrepancy in small scale quilts is magnified. Staying attentive to accuracy is important.

The grid dimension does not include seam allowances. To be able to measure your work as you sew, just add up the number of grids you have sewn together, multiply that by the established grid dimension you've chosen, then add 1/2" for seam allowance. When a unit takes up multiple grids, determine how many and multiply that number by the established grid dimension. Then add 1/2" for seam allowance.

I find this method of maintaining accuracy invaluable. Measuring after sewing also enables you to quickly identify any discrepancy that occurs from the last seam sewn. Yes, this takes a little time, but it is time well spent. Grid dimensions are given for the projects in this book where appropriate and relevant.

CUTTING ACCURATELY

Accuracy is the heart of successful small scale quiltmaking. Accuracy when you cut fabric, either with scissors or the rotary cutter, ensures a good beginning. If you are off just 1/16" over four seams, you have accumulated a 1/4" discrepancy, and if the block size is only 1 1/2", that 1/4" discrepancy can be disastrous.

Rotary Cutting

In my teaching experience I have found that when quilters rotary cut they often misplace the ruler on their fabric. Imagine you are cutting a one-inch strip off your yardage. After developing a straight angle, many quilters position the ruler so that the one-inch line is butted against or just next to the cut edge of their fabric. When you do this, you lose the dimension of the line. You must lift the ruler and place the one-inch line on the edge of the fabric…an accurate one-inch cut includes the one-inch line on the ruler. In small scale quiltmaking thread takes up a significant amount of space, so including the line when you cut specific dimensions gives the thread a place to be.

I prefer using the small rotary cutter with the three rulers described in Tools and Equipment, page 15. The fine black lines on the rulers are important to me because although I do not sew with a 1/8" seam allowance, I often cut in 1/8" increments. These rulers are easy and clear to read.

Refer to your favorite basic quiltmaking or rotary cutting book for instructions on developing a straight edge on the fabric and cutting squares and rectangles from strips.

Triangles

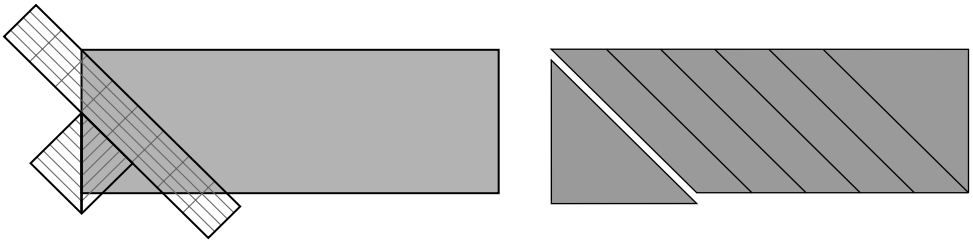
Triangles for the projects in this book are cut in several different ways, depending on their size, grain placement, and how many are needed of a particular fabric. Each project specifies which method I feel is the most successful in each individual case.

Half-Square Triangle Units—Bias Strip Method

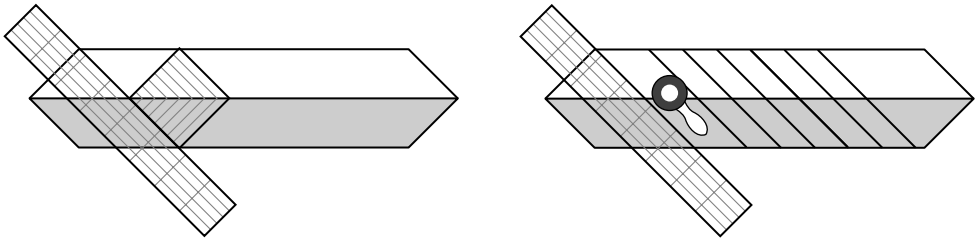
Two right-angle triangles join to create a square. Creating this type of unit from bias strips is an accurate method that adapts beautifully to small scale

quiltmaking. I first became aware of this technique from books by Marsha McCloskey. Although I cut my half square triangle units from the bias strip unit a little differently, the idea is the same. To create two half-square triangles that are already joined and trimmed, do the following (specific widths and lengths of strips will be given with the appropriate projects):

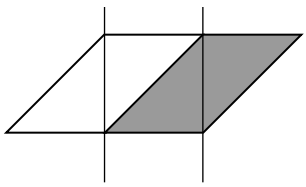
1. Pair two desired fabrics, right sides together, and press.
2. Develop a true bias cut as illustrated, then cut the desired width of strips.



3. Sew the two strips down the length with a 1/4" seam allowance. Press seam open and trim. Refer to page 29–31 for Pressing and Trimming instructions.
4. To cut the desired size half-square triangle units from the bias strips you need to first establish a 45° angle on the strip unit. Place the 45° line of the square ruler on the seam, not on the edge of the fabric. The ruler is now the appropriate angle for cutting. Next, position the long ruler next to the square ruler firmly, move the square ruler away, and cut along the long ruler edge.
5. Using the long ruler, cut the desired width of slices from the two-strip unit, always keeping the 45° line of the ruler on the seam and the chosen dimension line of the ruler on the edge. Aligning both lines as described ensures an accurately angled cut. When you cannot position the two lines as described, that suggests the angle is off and you need to reestablish the angle as described in Step 4 and proceed again. Keeping the 45° line on the seam when cutting appropriate width slices contributes toward equally split squares.



6. From the slices, cut squares as illustrated, continuing to keep the 45° line on the seam.

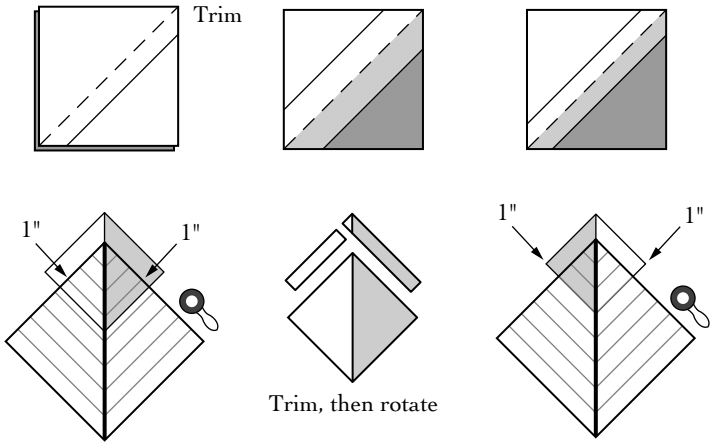


Oversized Half-Square Triangle Units

Another technique that is successful, accurate, and makes it easy to use a variety of fabrics.

1. Cut two squares larger than you need of two appropriate fabrics.
2. Draw a diagonal line on the wrong side of the lightest one. Pair it to the other square, right sides together, and sew on the line.
3. Trim to within 1/4" of stitches, open seam with hands, then iron and trim seam allowance again to a generous 1/8".
4. Using the Bias Square®, fine cut the oversized half-square triangle unit to the desired size, using the seam as a guide.

I use this method when I want a few units from many fabrics. It is also a very successful method for quilters who are new to this scale of work.



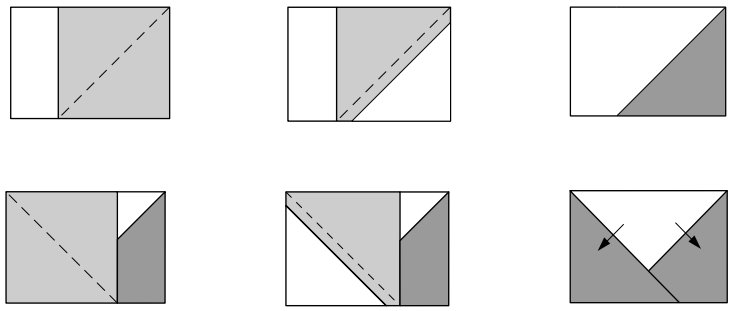
Double Half-Square Triangle Units

I first saw this technique in the book *Quilts, Quilts, Quilts* by Diana McClun and Laura Nownes. The technique is used here to make star points, but could also be Flying Geese or other similar units. The unit consists of three triangles. To sew the unit you will use a rectangle and two squares.

Projects that use this technique are the *Ohio Sampler*, page 70, and *Stepping Out*, page 83. Each project will give specific cutting and sewing directions. Create the unit as follows:

1. Cut a rectangle and two squares of chosen fabric.
2. Draw a diagonal line on the wrong side of each square.
3. Place one square onto the rectangle at one end, right sides together, and sew just on the scrap side of the line (the scrap side is the side that gets trimmed). Thread takes up space, so sewing on the scrap side of the line gives the space back.
4. Flip the square's corner to meet the rectangle's corner. If the corners meet to your standards, trim away the square's corner only, to within 1/8" of the stitches, leaving the rectangle in place.
   Note: I leave the rectangle in place as a safety net feature in the event the corners do not quite meet. If that happens, when you join this unit to something else you would use the edge of the rectangle as your guide, not the edge of the square.

5. After trimming the corner, press to the square. Add the second square at the other end of the rectangle, taking care to position the second diagonal line correctly, and sewing just on the scrap side of the drawn line. Trim and press as described earlier.

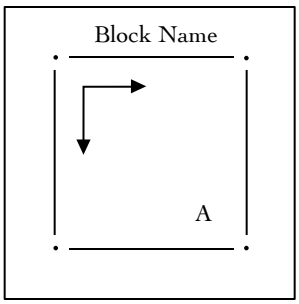


TEMPLATES

Templates are guides used for cutting angular or curved shapes from fabric. Accurate templates, which include 1/4" seam allowance, ensure accurate work. When templates are needed I like to mark the sewing line on the templates and punch a hole at each intersection, which allows me to insert a pen or pencil into the hole and make a dot on the fabric. These dots are used as guides when pinning one shape onto another so that the pieces are aligned properly for sewing. When making templates I use a permanent black pen to mark dots at intersections and a No. 2 pencil to mark all other information. This gives me the flexibility to change or correct by erasing.

1. Place a manageable-size piece of template plastic material over the shape needed. Dot each intersection and almost connect the dots, leaving them obvious and apparent for piercing or punching.
2. Mark an accurate 1/4" seam allowance on all sides of each shape. Also mark where to cut off tips, if appropriate.
3. Write the name and size of the block, identifying letter, and grain line on each template.
4. Cut out each template accurately, cutting the drawn line off.
5. Punch holes at the dots with a 1/16" hole punch; or place the template face down on a thick towel and carefully pierce the plastic with a stiletto, large needle, or similar tool and twist gently, taking care not to crack the plastic. The hole should be large enough to insert a pencil or pen to mark a dot on the fabric. The 1/8" hole punch creates too large a hole and makes it difficult to dot the fabric accurately.

Before cutting into your fabric, place the templates onto one another as if you were sewing. Because the template shapes interrelate to each other, the edges and holes should line up.



Marking Fabric with Templates

When using templates to mark fabric, place each template face down on the wrong side of the fabric. Reverse templates will be placed right side up. Trace around the template, angling the marking tool into the edge of the template (this is the cutting line). Dot each intersection hole (if these dots were connected, you would create your sewing line). Cut out each shape accurately, cutting the line off.

To prevent the fabric from shifting, place the fabric on a sandpaper board and hold the template shape firmly while tracing.

SEWING ACCURATELY

Accurate sewing is the soul of successful small scale quiltmaking. If you have cut accurately and now sew accurately, your work will go together smoothly, much like a puzzle.

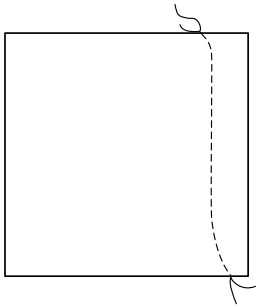
1/4" Seam Allowance

Assuming you have cut with an accurate 1/4" seam allowance, you must now sew with the same seam allowance to ensure a successful, accurate block or quilt. One way to check your 1/4" accuracy is to cut two 1" x 3 1/2" strips of any fabric, pair them and sew down the length with an accurate 1/4" seam allowance and a large stitch length (in case you need to remove the stitches and retest). Open the two-strip unit and press. This unit should now measure 1 1/2" from edge to edge. If it does, you are cutting and sewing accurately. If it does not, your cutting or sewing is in question and you need to make an appropriate adjustment.

A rumor is going around in the quilt community that says if you are just a little off it does not really matter as long as you stay consistently off and use the same machine. Sound familiar? It does to me, too. Experience, however, has taught me to question this standard of quality. If you are sewing a 3" block that has 45 pieces and numerous seams to a 3" block that has only 5 pieces and minimal seams, you must sew with an accurate 1/4" seam allowance or the two blocks will be different sizes and will not sew together very smoothly. The smaller the block, the more crucial accuracy becomes.

Sewing Straight

I find this to be a most overlooked area of accurate, precise sewing. To sew straight, that is, to enter onto the fabric at 1/4", stay at 1/4", and exit off the fabric at 1/4", is crucial to successful small scale quiltmaking. As you begin to sew, be sure the pieces of fabric are positioned or registered onto one another correctly and "squarely". Sit directly in front of your needle so that you see the sewing path clearly.



You will often be sewing short distances, so how you enter and exit the fabric will impact on the accuracy and squareness of the piece. Unknowingly, many of us enter onto the fabric casually, perhaps a little deep of 1/4". Then we straighten out to 1/4", and when we get near the end we let go so we can pick up the next pieces while the previous piece sews itself off, often at less than 1/4". This results in what I describe as wavy sewing, which can create problems in small scale work.

Sewing Slowly

Sew slowly—think of yourself as hand sewing with an electric needle and be sure the sewing machine needle enters and exits the fabric exactly where you want. I hold my work firmly with my left hand as I guide it under the needle and often use the stiletto to help keep the raw edges of the fabric against whatever seam guide I am using. Most machines will pull your fabric to the left as you get to the end of the sewing line. Using the stiletto to hold the edges in place helps to exit the fabric at 1/4".

Uneven Edges

When appropriate, be sure edges are even and matched. If one edge drops below the other while sewing, you have not taken equal seam allowances on both pieces, which can make your work measure inaccurately even when you are sewing with an accurate 1/4" seam allowance.

Measuring and Maintaining the Grid Dimension

This one element will enable you to monitor your work and identify what seam needs adjusting, if any. Refer to page 21 for specifics on Grid Dimension.

Stitch Length

After testing for an accurate 1/4" seam allowance, I adjust the stitch length to approximately 12–15 stitches per inch. You want to be sure the stitch length is not too small and draws up or gathers the fabric, or is too small to remove easily. I often change the length of the sewing stitch depending on what I am doing. If I am experimenting, or if I am unsure about matching a heavily seamed center, I increase the stitch length so that if I need to remove the stitches I can easily do so and resew. If my sewing meets my standards, I resew over the thread with a smaller stitch. Adjusting the stitch length when doing Y-seaming or inset seaming (page 102) is helpful as well; it allows you to sew very close to the 1/4" reference dot without actually sewing into it.

Sewing Thread Type and Color

I use Mettler 100 percent Cotton Machine Embroidery thread 60/2 in the top and bobbin of my sewing machine. This thread is fine and strong and takes up less space, which results in flatter seams. I encourage you to try this thread when doing small work. You will be amazed at the difference.

I generally use a medium or muddy tan or gray color thread, which blends into most of the fabrics. Matching color is not as important as blending or camouflaging. You do not want to see thread from the right side of the work. My rule of thumb is to choose a dark thread color in relation to the fabric. If I were working in black and white, I would probably use black thread. Some blocks create more opportunity for thread to show, as in a LeMoyne Star where eight seams meet in the center. Open seams are another opportunity for thread to show. Be attentive to the thread color.

Feeding Fabric Under the Needle Smoothly

1. Sew on a scrap piece of fabric first, then feed "real" pieces behind it. When all the "real" pieces are through the needle, cut off the scrap, bring it around to the front, and sew on it, cutting off the "real" pieces. As a result, you are

not pulling the work out from the machine and clipping threads. You sew tidier with less thread. The machine takes on small pieces easier if it is already sewing, and you will not continually lift the presser foot up and down.

2. Use the stiletto as an extension of your hand to help guide your work under the needle straight and to keep the edges against whatever seam guide you use. This tool helps you to manipulate small pieces. A wooden skewer, toothpick, seam ripper, or large pin would also work.
3. A straight stitch throat plate (the one with the tiny round hole) lessens the opportunity for the machine to "eat" small pieces. Leave needle in center position, for obvious reasons.
4. Change the sewing machine needle after fifteen to twenty hours of use.
5. If you find the machine seems to shift the two pieces of fabric being sewn by pushing the top layer of fabric first, which creates a small hump as you begin to sew, slightly lift the presser foot to position your work where you want it, then put the foot down. It's more successful to position your work for sewing than to push it under the needle and hope it feeds evenly.
6. If you are doing Y-seam or inset seam construction, or if you do not use a scrap piece of fabric ahead of your work, you will need to hold the threads as you begin sewing. If you do not, you might get a bobbin bulge on the back of your work. If this happens, cut it off and begin again.
7. Placing a thin piece of paper underneath the fabric can help to stabilize it when entering sharp corners.

REMOVING STITCHES

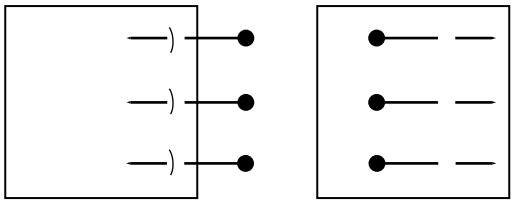
When it becomes necessary to remove stitches and resew, do so carefully, so as not to distress or fray the fabric. Using a seam ripper, cut every third or fourth stitch along the sewing line. Then turn the work over and lift that thread. It will easily release, and the two pieces of fabric can be separated and repositioned for sewing. Careful removal of stitches will allow you to resew the same small pieces of fabric over and over without having to recut.

PINNING

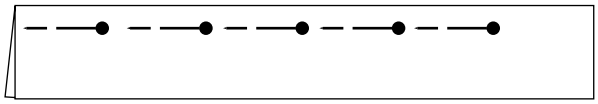
I use long, fine pins ($1\frac{3}{8}$" x .50mm) with glass heads. This type of pin slides into fabrics easily and creates little or no distortion on the edge of the fabric when sewing, resulting in a flatter piece for the machine to sew over. I sew over pins successfully without hurting the machine because the combination of slow sewing and fine pins allows the sewing machine needle to either slide in front of or behind the pins. Fast sewing increases the opportunity for the needle to hit a pin and break.

I use pins to secure intersections, match points, ease areas of fullness, keep outside edges even, match dots which help position one piece onto another properly, and sometimes just while transporting work to the machine, then removing them. I use pins whenever it benefits my sewing.

We often pin the same way regardless of the type of seam. Most of us pin perpendicular to the edge, with pin heads to the right as the fabric goes under the needle. This pin positioning can often create humps and bumps and distortion on the edge of the fabric, which can be difficult for your machine to sew over. Positioning the pin heads to the left creates a much flatter path for the machine needle to follow.

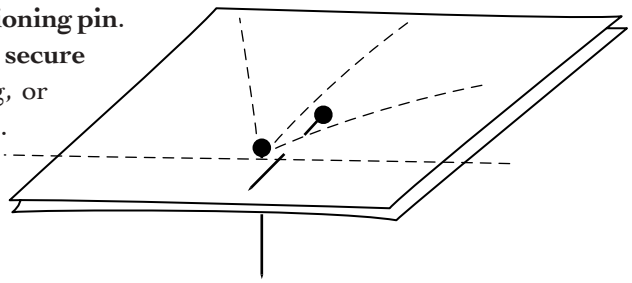


When sewing narrow strips of fabric together, pinning parallel to the edge and drawing the pins out as you approach them creates less distortion than pinning perpendicular to the edge.



Matching points and intersections successfully requires careful pinning, accurate straight sewing, well-planned pressing, and time, but is easily accomplished. After sewing, if the point or intersection is not matched, only two possible things could have happened: your pinning and/or sewing needs improvement. It's very easy to remove a few stitches, repin, and resew. It's not as if you only get one try. I remove stitches and resew as many times as it takes to accomplish the task successfully.

To match some seams I use what is referred to as a **positioning pin**. This pin precisely **matches** one point to another; it does **not secure** the area. It keeps the two pieces together while registering, or positioning, them onto one another and creating even edges. An additional pin, usually positioned just to the left of the seam, secures the area and the positioning pin is removed.



PRESSING

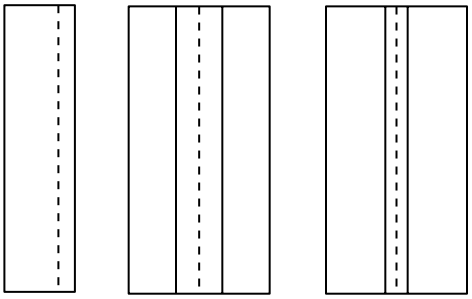
Pressing is setting a seam with heat and pressure, with a dry iron or with steam, by lifting the iron and setting it down. Sliding the iron around is ironing. Pressing, not ironing, is very important and contributes greatly to the success of this work. I press seams to one side or sometimes open; occasionally I collapse seams. Ideally, you want to create opposing seams for easy matching of points. When that is not possible, press to create as flat a piece as possible and distribute the bulk.

Pressing each seam helps to get the maximum measurement. Arrange and manipulate the fabric with your hands before touching it with the iron. Pressing

can either distort your work or help you reshape it. The direction you press the seam allowances when you begin pinning units and rows together can sometimes make a large difference in how smoothly the sewing goes. Pressing the seams in one direction could round out a point. Pressing them in the opposite direction could sharpen the point, and opening the seam could improve it even more and distribute the bulk. Poor pressing can distort beautiful piecing.

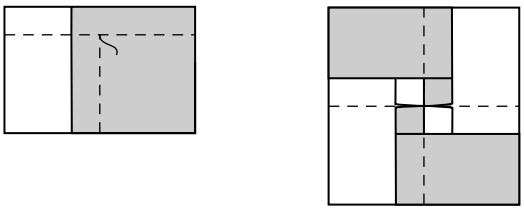
When I begin I use a hot dry iron, and as my work grows and accumulates bulk I use steam. Be careful the steam does not distort the edges of your fabric. Running your fingernail along the stitches of a newly sewn seam (finger-pressing) and/or pressing the stitches before final pressing relaxes the thread and will nestle the stitches into the fabric.

Open a seam by first combing your nail down the seam. When you do this, you will feel the two fabrics separate and the threads relax. A good open seam requires the two fabrics to be separated down to the thread. After opening the seam with your hands, use your iron carefully to press both from the back and the front. Now trim the seam allowances to a generous $^1/_8$" by scissor cutting up one side and then the other. Often I'm asked why not rotary cut the seam allowance before opening, and my response is that it is much easier to trim an open seam than to open a trimmed seam. Yes, it takes a little more time, but it is well worth it.



Note: The projects will identify pressing paths by using arrows to indicate direction and an "o" to indicate an open seam.

Collapsing seams helps to distribute and reduce bulk and can be done on a simple, straight, four-seam intersection. To collapse a seam, simply remove, (do not cut), the vertical stitches in the seam allowance at the intersection, one at a time, to the last horizontal line of stitching on both pieces. With your hands, arrange the seam allowances in opposite directions and then press.



When the quilt top or block is complete, do a final steam pressing, carefully manipulating, if necessary, the fabric into shape. One way to block your work is to draw the desired size on a piece of muslin, lightly dampen the block, and

pin into place. Then gently either stretch the edges to meet the guidelines, or pat inward to meet them. Steam press and let cool and dry in place before removing pins. Cotton is very forgiving and allows minor adjustments easily. Final pressing from the top on a soft towel allows the seams to sink into the towel and makes the top look flatter.

TRIMMING SEAMS

The projects in this book use a 1/4" seam allowance. If you have a 3" block, for example, that has 40 or 50 pieces in it, and all those pieces have a 1/4" seam allowance on all their sides, you can imagine the bulk that will accumulate. To help distribute and release bulk, trim seams to a generous 1/8". I trim whether the seam is open or not. Creating a well-sewn, flat, accurate block in a small scale requires trimmed seam allowances.

1. Do not trim too much or the seam allowance will stand straight up rather than press to one side or the other. This condition can create more quilting problems than anything else.
2. You must also know your work is correct before trimming the seam allowance. If you trim your seams and then discover you need to remove stitches and resew, your seam allowance will have been distorted and changed, and resewing could be a little more difficult. This is just one reason why it is so important to maintain grid dimension by monitoring and measuring your work before trimming if possible. If you do trim and then discover you need to remove stitches and resew, you can remove the stitches and measure over from the opposite edge, the grid dimension plus 1/4", and draw a sewing line.
3. Trim thread close to fabric so work stays neat and tidy.
4. When your block or quilt top is complete, it should have a 1/4" seam allowance on all sides. Trimming up or squaring up is not a way to correct problems; it should only create straight edges.