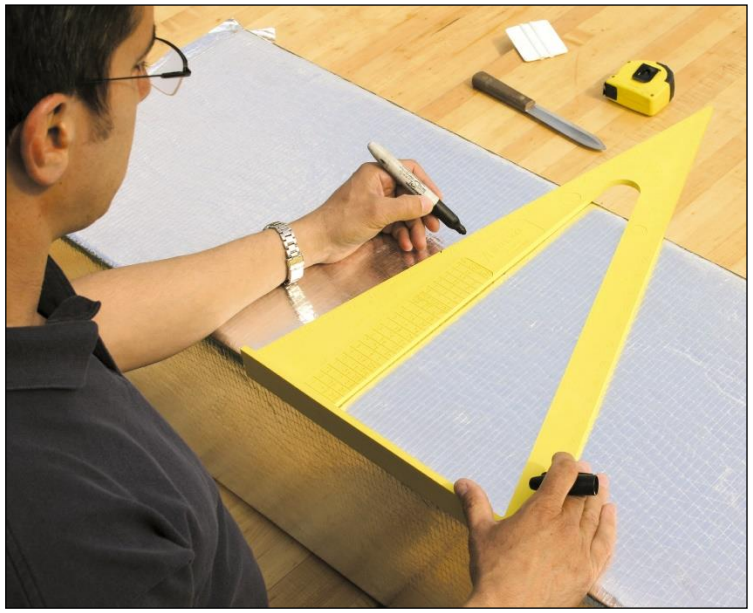
Instruction Manual



A Simplified Method of Accurate Duct Installation

This Instruction Manual makes using the Angler Tool Simple!!

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DISCLAIMERS:

- ***All duct work fabrication shall conform to applicable building and/or construction codes. The instructions contained in this manual describe use of the tool and are not intended to replace building and/or construction code requirements. In the event of any conflicts, applicable building and/or construction codes shall take precedence.***

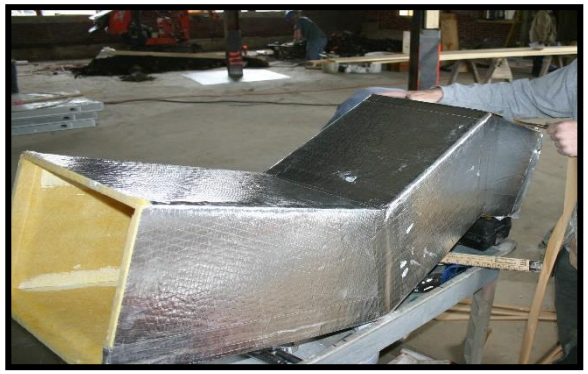
- ***DC Tool Company is not responsible for any errors or omissions that may occur in the production of this reference book.***

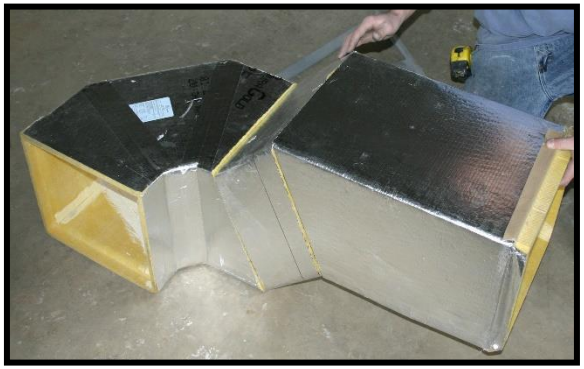
Please direct inquiries to: DC Tool Company, 242 Habecker Church Road, Lancaster, PA 17603. www.anglertool.net

Introduction

Use the Angler Tool™ to make a series of quick layout lines for the most common miter angles used in making air duct fittings. By using the Angler Tool™ you can better control the accuracy and quality of miter joint cuts.

The Angler Tool™ is designed to be used on the job site to construct joints and fittings primarily with fibrous duct board; however, it can also be used in an emergency to alter machine-produced metal duct work in the field should the situation become necessary. These alterations normally are completed by returning the metal duct work to the shop for refabrication, resulting in delays. By using the Angler Tool™ in the field to correct minor problems you can avoid costly delays and refabrication.





Why Does Using the Angler Tool™ Produce Superior Duct Joints?

- More rounded turns produce less air turbulence and reduce air resistance, resulting in a more cost effective and efficient system.
- Using the Angler Tool™ produces consistent solutions to obstructions.
- Using the Angler Tool™ allows faster construction of turns and intersections.
- All these benefits create better, more professional looking duct work, which is appealing to the customer/client.

What is the Proper Method of Duct Construction?

- Recommended tools to use with the Angler Tool™: marking pen, cutting knife, mastic sealer or duct sealer, duct tape, pre-cut fiber-insulated duct board.
- Apply mastic sealer or duct sealer in the grooves of duct board before folding.
- Pull the seam together as tightly as possible. Tab seam together with 4" pieces of duct tape about every 8 inches to hold board together.
- Apply mastic or duct sealer in the seam.
- Apply duct tape along full length of duct seam, rubbing edges with a squeegee to seal completely.

Why is the Proper Method for Taping and Sealing Duct Board So Important?

- It produces tighter seals, making it less likely for tape to split or come loose.
- When sealed properly, a duct is less likely to unfold from pressure of air flow combined with extreme external temperatures.
- If a seal does come loose, mastic sealer or duct sealer holds duct together, maintaining integrity of the system and reducing likelihood of leaks throughout the system.
- Proper method of duct construction is especially important for achieving accurate angles for matching various duct pieces after using the Angler Tool™.

Use a mastic sealer or duct sealer between each seam when assembling the duct.

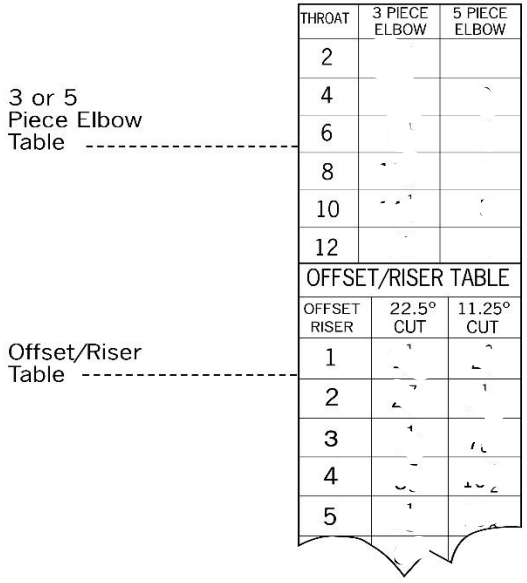
Place 4” piece tabs every 8”. Rub with squeegee to seal.

Apply duct tape full length seam, rub edges to seal.

Use a mastic sealer or duct sealer on each seam after you create each fitting.

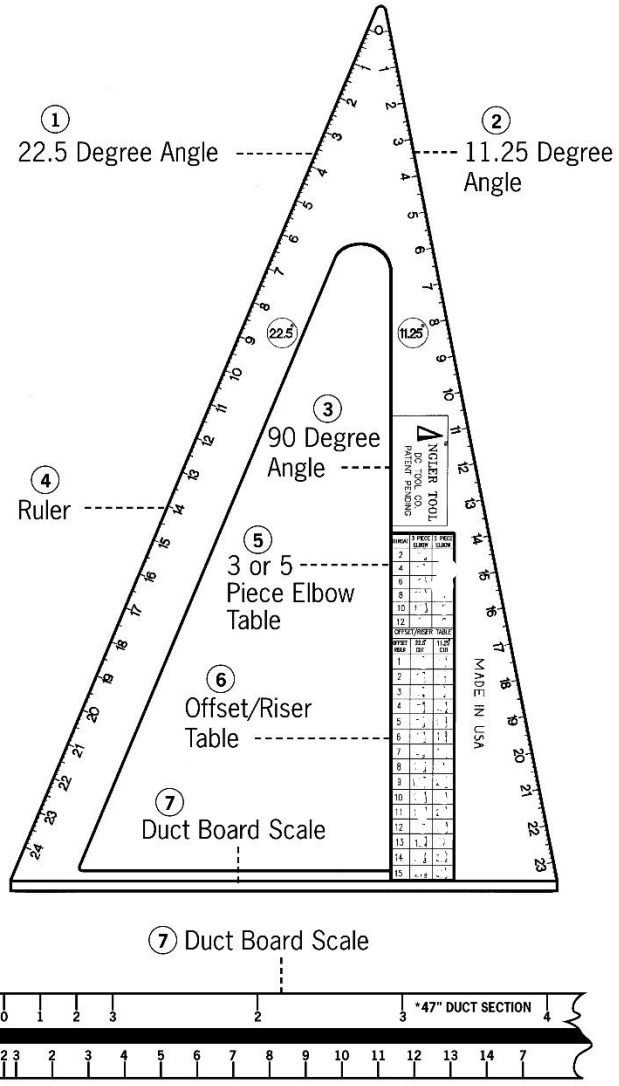
Features of the Angler Tool™

1. 22.5° angle side
2. 11.25° angle side
3. 90° angle inside
4. Rulers on both exterior sides, eliminating the need for an additional ruler
5. Quick measurement table for 3 & 5 piece elbows with varying throat sizes
6. Quick measurement table for risers and offsets
7. Duct board scale in increments of 47 inch duct sections. Four most commonly used scales: 3/16”, 1/8”, 1/4”, 3/8”



THROAT	3 PIECE ELBOW	5 PIECE ELBOW
2		
4		
6		
8		
10		
12		

OFFSET/RISER TABLE		
OFFSET RISER	22.5° CUT	11.25° CUT
1		
2		
3		
4		
5		



How to Make Elbow Fittings for 90° Turns

Elbows are made by cutting a wedge out of the straight duct, rotating the wedge 180° and sealing and taping the wedge back together with the duct, creating a 90° turn.

Important Tips before starting:

- For horizontal elbows, make diagonal layout lines and cuts on the LONG (wide) sides of the duct.
- For vertical elbows, make diagonal layout lines and cuts on the SHORT (narrow) sides of the duct.

Locating the Starting Point for the Fitting

Subtract the width of the duct and the throat measurement from the amount of space you have to make the turn to get the distance to the beginning of the turn. Then measure the distance to the beginning of the turn from the end of the length of duct that will attach to the existing run of duct. Mark the starting point on the edge of the duct closest to you, where the inside of the elbow will begin to turn.

Example:

36" available to make the turn
- 12" duct width
- 8" throat

16" from edge of duct to starting point.

Diagonal cuts on LONG side of duct

Horizontal Elbow

Diagonal cuts on SHORT side of duct

Vertical Elbows

THREE PIECE ELBOWS

1.0 Zero-throat elbows

1.1 Lay the Angler Tool™ against the duct. Draw the cut line using the 22.5° side of the tool.

1.2 For no-throat elbows, immediately flip the Angler Tool™. Line up the 22.5° side on the point at the bottom of the duct and draw the second cut line. You should have drawn a triangle wedge that points to you.

1.3 Rotate the duct away from you one quarter turn. Use the 90° to draw a vertical line from the triangle point.

1.4 Rotate the duct another quarter turn away from you. Again using the 22.5° side, line up on the mark you just drew and draw the first cut line.

Flip the Angler Tool™. Line up the 22.5° side on the same point and draw the second cut line. This time you should have drawn a triangle that is pointing away from you.

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1.5 Rotate the duct away from you to the fourth side. Using the 90° angle, connect the two triangles with vertical lines. All points should be connected.

1.6 Cut on all diagonal lines with the duct board knife at a 90° angle to the board. Cut on all vertical lines with the duct board knife inserted at the same angle as the diagonal lines were drawn. This will bevel the cut edges and they will fit together more tightly.

1.7 Rotate the wedge 180°.

1.8 Pull edges together as tightly as possible. Hold in place with 4" tabs of duct. Tape the length of each seam and smooth with a squeegee for a tight seal. Finish sealing the inside of the fitting. You are finished.

1.5

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2.0 Throat elbows

2.1 Lay the Angler Tool™ against the duct. Draw the cut line using the 22.5° side of the tool.

2.2 For a throat elbow, go to the throat/elbow table on the Angler Tool™ to find the correct measurement you need for the throat size you are using.

Important: the throat size is not the same measurement as the one you use to create the wedge on the duct!

Find the right throat size in the left column and read across to the **three-piece elbow column** to get the correct top measurement between the two diagonal lines. (For example, for a 4" throat, the measurement is 5-5/8”).

After you have drawn the first 22.5° line from the start point, measure left the distance from the table across the bottom edge of the duct and mark it.

2.3 Flip the Angler Tool™; align 22.5° side with the mark you just made at the bottom edge, and draw the second cut line. You should have drawn a trapezoid-shaped wedge on the duct with the longest side away from you.

2.4 Rotate the duct away from you another quarter turn. Use the 90° angle inside the Angler Tool™ to draw two vertical lines from the top wedge corners across the side of the duct.

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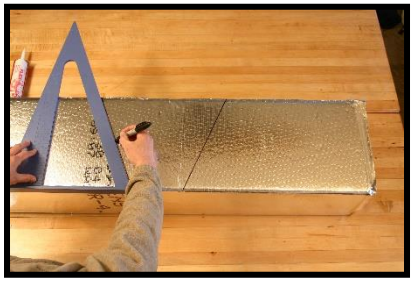

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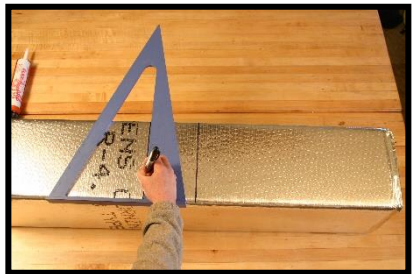


2.5 Rotate the duct another quarter turn away from you. Align the Angler Tool™ with the 22.5° side on the end of one of the lines you just drew. Draw the cut line.

2.6 Flip the Angler Tool™ and line up the 22.5° side on the other point. Draw the second cut line. You should now have drawn another trapezoid-shaped wedge on the duct with the short side away from you.

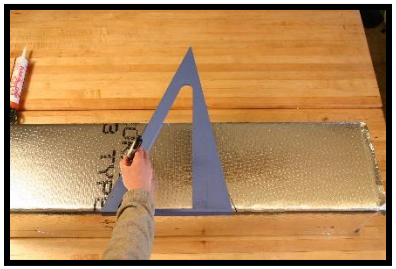
2.7 Rotate the duct away from you to the fourth side. Using the 90° angle inside the Angler Tool™, connect the two wedges with vertical lines on the last side of the duct. All points should be connected.

2.8 Cut on all diagonal lines with the duct board knife at a 90° angle to the board. Cut on all 90° lines with the duct board knife inserted at the same angle as the diagonal lines were drawn. This will bevel the cut edges and they will fit together more tightly.

2.9 Rotate the wedge 180°.

2.10 Pull edges together as tightly as possible. Hold in place with 4" tabs of duct. Tape the length of each seam and smooth with a squeegee for a tight seal. Finish sealing the fitting. You are finished.

2.5



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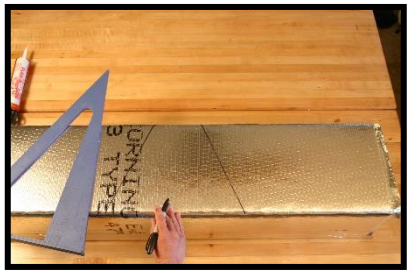

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FIVE PIECE ELBOWS FOR 90° TURNS

3.0 Five Piece Elbow - Making the Wedges

3.1 Lay the Angler Tool™ with the flange flush against the bottom edge of the duct and the 11.25° side on the starting point. Draw the cut line.

3.2 Go to the throat/elbow table on the Angler Tool™ to find the correct measurement you need for the throat size you are using. **Important: the throat size is not the same measurement as the one you use to create the wedge on the duct!**

3.3 Find the right throat size in the left column and read across to the **five-piece elbow column** to get the correct top measurement between the two diagonal lines. (For example, for a 4" throat, the measurement is 2").

After you have drawn the first 11.25° line from the start point (step #3.1), measure the distance (from the table) from the first cut line, across the **bottom** edge of the duct and mark it.

3.4 Flip the Angler Tool™. Align the 11.25° side on the mark you just made at the **bottom** edge, and draw the second cut line. You should have drawn a trapezoid-shaped wedge on the duct with the longest side away from you.

3.5 Measure this time from the second cut line across the **top** edge of the duct and mark it.

3.6 Flip the Angler Tool again. Line up the 11.25° side on your mark and draw the third cut line. Now you should have two wedges drawn on the side of the duct.

3.7 Measure from the third line you just drew across the **bottom** edge of the duct and mark it.

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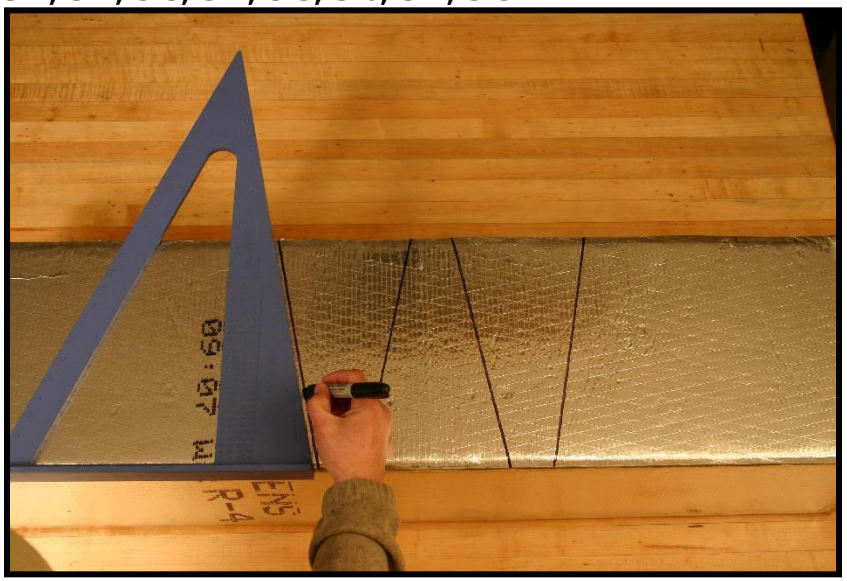
3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8



3.8 Flip the Angler Tool™ again. Align the 11.25° side with the mark you just made and draw the fourth cut line. You should have three wedges drawn on the same side of the duct.

3.9 Rotate the duct away from you one quarter turn. Use the 90° angle inside the Angler Tool™ to draw vertical lines from the four wedge lines from previous side of the duct.

3.10 Rotate the duct another quarter turn away from you. Align the Angler Tool™ with the 11.25° side on the first cut line you just drew in step #3.9. Draw the cut line. Continue drawing cut lines using 11.25° side, rotating the tool back and forth each time. Each cut line should begin from the top vertical lines of previous side. Now you should have three wedges drawn on the third side of the duct.

The measurement from the table should equal the distance of each narrow end of wedges.

3.11 Rotate the duct away from you to the fourth side. Using the 90° angle inside the Angler Tool™, connect the three wedges from either side. All points should be connected.

3.12 Cut on all diagonal lines with the duct board knife at a 90° angle to the board. Cut on all 90° lines with the duct board knife inserted at the same angle as the diagonal lines were drawn. This will bevel the cut edges and they will fit together more tightly.

3.13 For five-piece elbows, rotate 180° only the first, third and fifth wedges, not the second and fourth one.

3.14 Pull edges together as tightly as possible. Hold in place with 4" tabs of duct. Tape the length of each seam and smooth with a squeegee for a tight seal. Finish sealing inside the fitting. You are finished.

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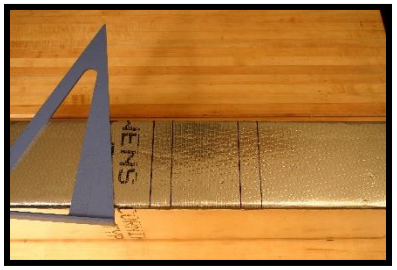

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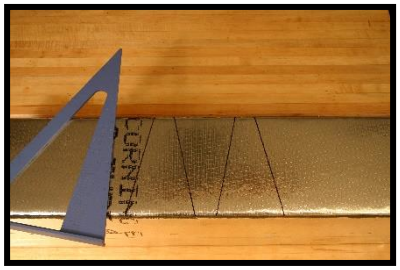

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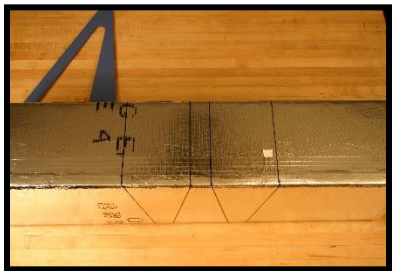

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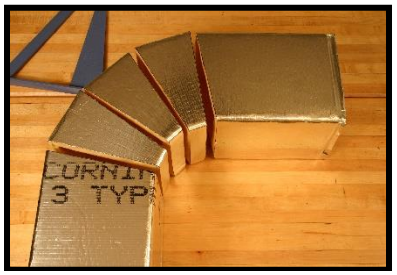

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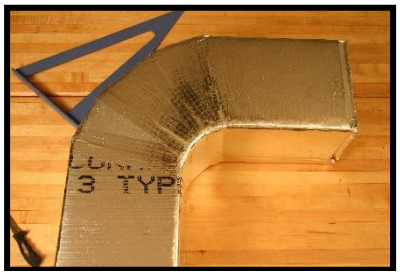


How to Make Risers or Offsets for More Gradual Slopes and Turns

Offset/Risers change the direction of a run of duct more gradually than a 90° turn. A single offset/riser turns in one direction and continues in that direction. It is made by taking a diagonal slice out of the duct, rotating the slice 180°, and finishing the fitting.

Quick tips:

- **For Offsets**, to change directions left or right, the diagonal cuts are on top and bottom LONG sides of the duct.
- **For Risers**, to change directions up and down, the diagonal cuts are on left and right SHORT sides of the duct.

SINGLE OFFSETS OR RISERS

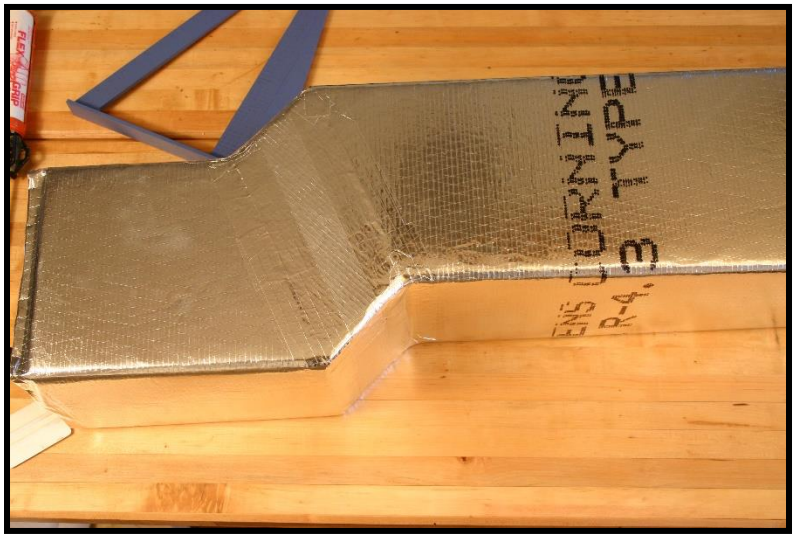
4.0 Making a 45° Offset or Riser

4.1 Lay the Angler Tool™ with the flange flush against the bottom edge of the duct and the 22.5° side on the starting point (where the turn begins). Draw the cut line.

4.2 Go to the Offset/Riser Table printed on the Angler Tool™. In the left-hand column, find the distance you need to clear the obstruction. Read across to the **22.5°** column to find the distance you need to measure on the duct to the next cut line. For example, a 4" riser requires 5-5/8". Measure the distance down the edge of the duct and mark it.

4.3 Line up 22.5° side of the Angler Tool™ on the mark and draw the second cut line parallel to the first one.

4.0



4.1

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4.4 Rotate the duct toward you one quarter turn. Using the 90° angle inside the Angler Tool™, draw two vertical lines across the second side of the duct.

4.5 Rotate the duct toward you another quarter turn. Repeat steps #4.1 - 4.3 on the third side of the duct.

4.6 Rotate the duct toward you one more quarter turn. From the cut marks you just made, draw 90° vertical lines across the fourth side of the duct. All points should connect.

4.7 Cut on all diagonal lines with the duct board knife at a 90° angle to the board. Cut on all vertical lines with the duct board knife inserted at the same angle as the diagonal lines were drawn. This will bevel the cut edges and they will fit together more tightly.

4.8 Rotate the slice 180°.

4.9 Pull edges together as tightly as possible. Hold in place with 4" tabs of duct. Tape the length of each seam and smooth with a squeegee for a tight seal. Finish sealing inside the fitting. You are finished.

5.0 Making a 22.5° Offset or Riser

Use the 22.5° Offset/Riser for a more gradually sloped turn. Follow the same basic procedures as described in **4.0 - Making a 45° Offset or Riser (pg. 22)**, except for these important differences:

- Use the 11.25" side of the Angler Tool™ to mark the diagonal cut lines.
- Go to the Offset/Riser Table printed on the Angler Tool™. In the left-hand column, find the distance you need to clear the obstruction. Read across to the **11.25" column** to find the distance you need to measure on the duct to the next cut line. For example, a 4" riser requires 10-1/2".

4.4, 4.5, 4.6

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5.0

DOUBLE OFFSETS

Double offsets are used to go around an obstruction such as a steel beam, or sprinkler pipe. Unlike risers, Double Offsets change direction and then return to the original path of the duct.

6.0 Making the 45° Double Offset

6.1 Mark the first two cut lines (first slice) as described in steps #4.1 – 4.3 (pg. 12).

6.2 From the original starting point, measure the **distance the offset must run until it must begin its second turn (return to the original path of the duct).** This is the measurement from starting point of the first turn to the starting point of the second turn. Mark it.

6.3 Flip the Angler Tool™. Line up the 22.5° side on the mark and draw the third cut line.

6.4 Measure across the bottom of the duct the same distance you took from the table in step #4.2 (pg. 12). Mark it.

6.5 Line up the Angler Tool™ on the mark and draw the fourth cut line parallel to the third line. You should have drawn two diagonal slices pointing away from each other, separated by a trapezoid-shaped wedge with the longest side away from you.

6.6 Rotate the duct away from you one quarter turn. Draw 90° vertical lines connecting from first duct side continuing to the second duct side.

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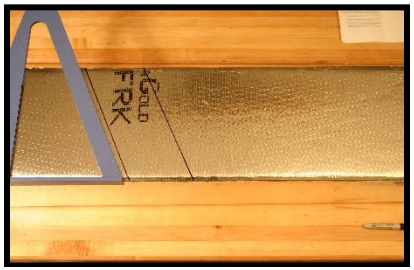

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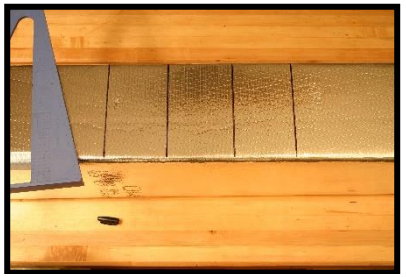

6.7 Rotate the duct away from you one turn. Draw the four 22.5° diagonal cut lines as you did on the first side of the duct (#6.1 – 6.5, pg. 14), only this time the longest side of the trapezoid wedge is towards you.

6.8 Rotate the duct away from you one turn. Draw four 90° vertical lines to connect the slices and wedges together. All points should connect.

6.9 Cut the slices and wedge as described in #4.7 (pg. 13).

6.10 Rotate both slices 180°. Do not rotate the wedge.

6.11 Seal inside the fitting. Tab and tape as described in #4.9 (pg. 13) to finish the offset.

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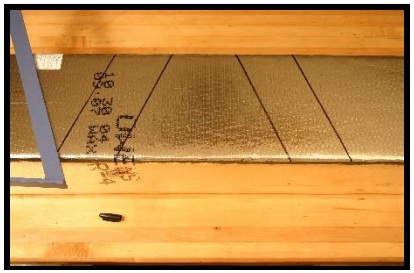

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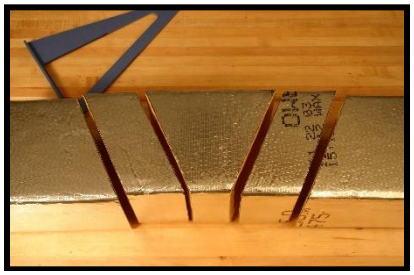

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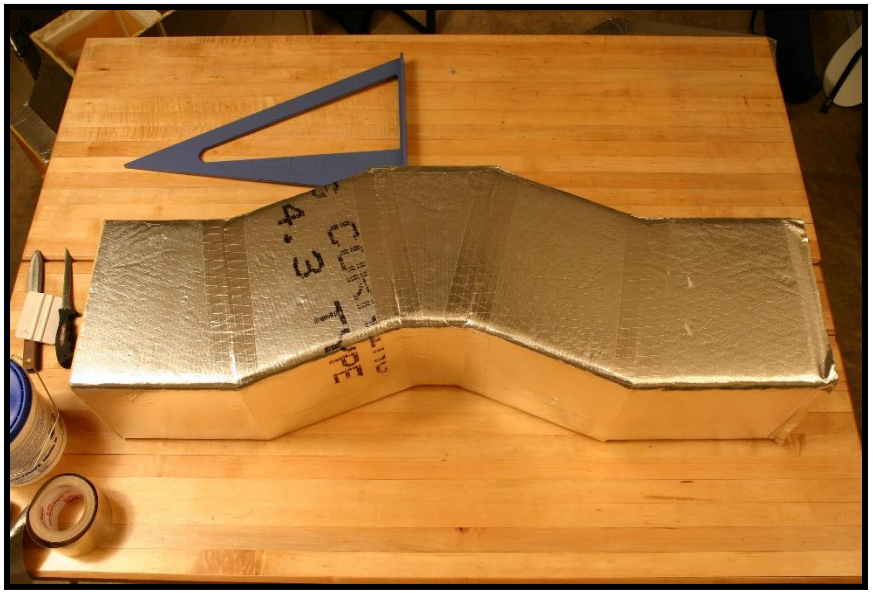
7.0 Making the 22.5º More Gradual Double Offset

Use a 22.5º Offset for a more gradually sloped turn. Follow the same basic procedures as described in **6.0 - Making the 45º Double Offset (pg. 26)** with the following **important exceptions:**

- **Use the 11.25º angle** of the Angler Tool™ for all diagonal cuts.

- Go to the Offset/Riser Table printed on the Angler Tool™. In the left-hand column, find the distance you need to clear the obstruction. Read across to the **11.25º column** to find the distance you need to measure on the duct to the next cut line. For example, a 4" riser requires 10-1/2".

7.0



COMPLEX OFFSETS

Complex Offsets turn a duct in two directions at once, for example when the duct must change direction both side-to-side and front-to-back in a short amount of space. The Complex Offset created with the Angler Tool™ accomplishes this maneuver in the minimum possible space by creating one offset **inside** of a second, larger one.

Important tips before starting a Complex Offset:

- Do not attempt to complete complex offsets until you have successfully created several single risers and double offsets.
- The **Run** is the total distance you have to complete both offsets.
- Make the larger offset by using the 11.25° side of the tool and make the smaller offset with the 22.5° side of the tool.
- One offset will be vertical (diagonal cut lines on the short sides) and the other one will be horizontal (diagonal cut lines on the long sides).

8.0 Making the Complex Offset Slices

8.1 Make your desired offset with two diagonal lines by using the 22.5° angle. (Reference #4.1 – 4.3, pg. 12)

8.2 Finish drawing your lines on all four sides. (Reference #4.4 – 4.6, pg. 13)

8.3 Cut slice piece. (Reference #4.7, pg. 13)

8.4 Spin slice piece 180°.

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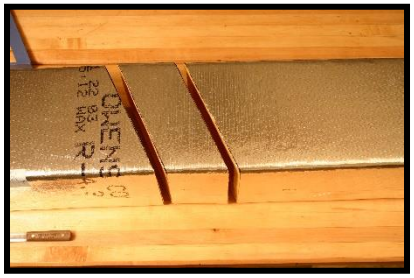

8.4

8.5 Tab, tape and seal the joint. (Reference #4.9, pg. 13)

8.6 Rotate the duct away from you one turn. Use the 11.25 side of the tool and make the second larger offset. Draw your cut line.

8.7 Determine the second offset by using the table, measure over the proper distance.

8.8 Use the 11.25° side of the tool, draw your second line.

8.9 Rotate the duct one turn away from you and draw two 90° lines on the duct, connecting from the two previous lines.

8.10 Rotate the duct one turn away from you and continue drawing the 11.25° lines on the third side.

8.11 Rotate duct one turn away from you and draw the 90° lines on the fourth side. All lines should connect.

8.12 Cut slice piece out as described in #4.7 (pg. 13).

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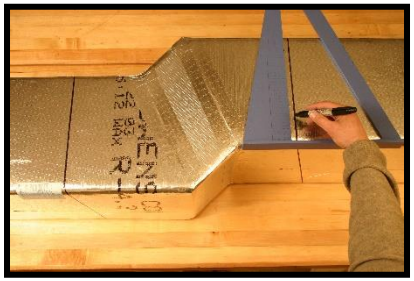

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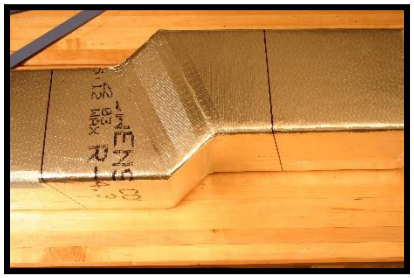

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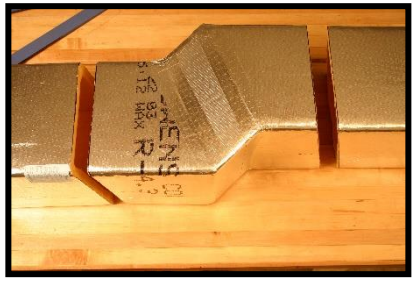
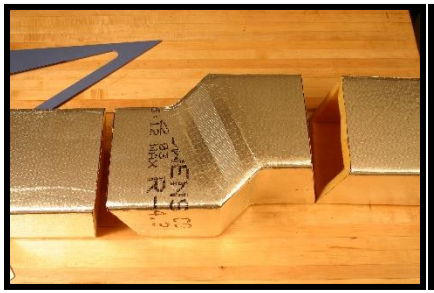


8.13 Rotate the outer pieces of duct 180°.

8.14 Finish with tabs, tape and proper sealing of outer joints.

8.15 You have finished a compound offset fitting.

8.13



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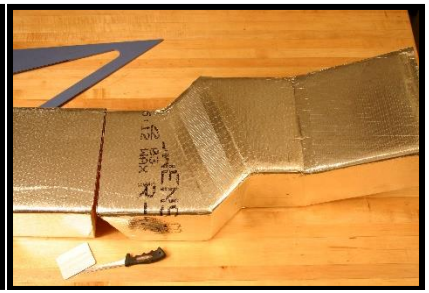

8.15

How to Make Intersections With 90° Elbows

T-intersections occur where one large duct is being split into two small ones that turn 90° in different directions. T-intersections can be either vertical or horizontal.

T-INTERSECTIONS

9.0 Making "Horizontal" T-Intersections

Important tips:

- Draw diagonal cut lines on the wide/long sides. Draw vertical cut lines on the short/narrow sides.
- Make sure the left side elbow turns left, and the right side elbow turns right.
- A horizontal "T" will lay flat when finished.

9.1 In the middle of the long side of duct, draw a 90° line. Rotate the duct away from you to the short side, continue drawing the 90° line. Rotate the duct away from you and continue drawing the 90° line on the other long side of duct. You should have lines drawn on two wide and one short sides of duct.

9.2 Go back to the first long side of the duct. With the Angler Tool™, measure over right any measurement that you want to start the elbow. (Example – 4 inches)

9.3 For a three piece elbow, use the 22.5° side of the Angler Tool™ and draw a line.

9.4 Flip the Angler Tool™ . From the 90° line, measure left the same distance as before, and draw another 22.5° line. You should have two trapezoids with narrow ends pointing towards you.

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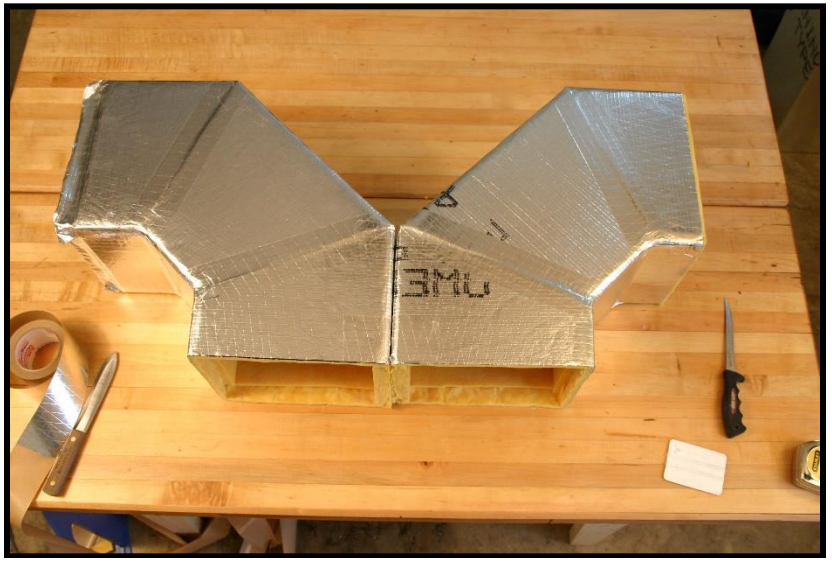

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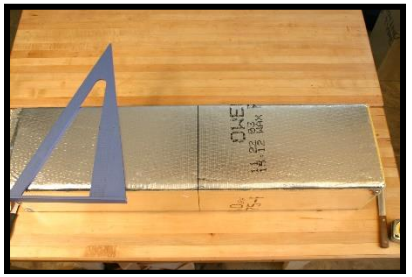

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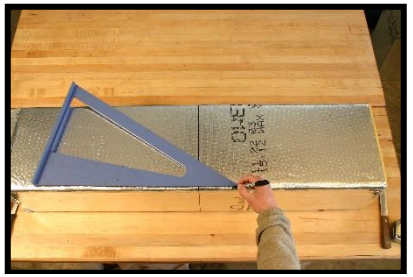

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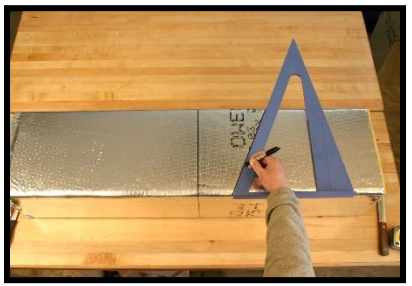

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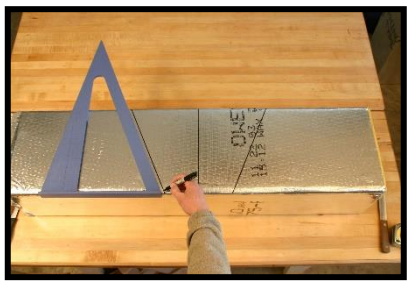


9.5 Rotate duct away from you and with the 90° edge of the tool, draw two lines connecting from previous 22.5° lines.

9.6 Turn duct back over to first side of duct. From the top left line, measure left the desired throat measurement. For example, a 3 piece elbow with 4 inch throat, measures 5-5/8". (Left Elbow)

9.7 With the Angler Tool™ , use the 22.5° side and draw a line.

9.8 Go to far right line, measure over the desired throat measurement. For example, a 3 piece elbow with 4" throat, measures 5-5/8". (Right Elbow)

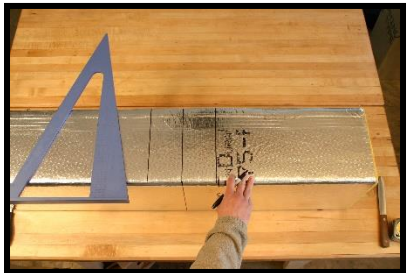
9.9 With the Angler Tool™, use the 22.5° side and draw a line.

9.10 Angles should look like picture.

9.11 Rotate duct away from you one turn and draw two more 90° lines. They should connect from the two outer most 22.5° lines from previous side of duct. There should now be five parallel 90° lines on this side of duct.

9.12 Rotate duct away from you one turn and draw four 22.5° lines on duct as shown, connecting from previous side. Reference picture.

9.5



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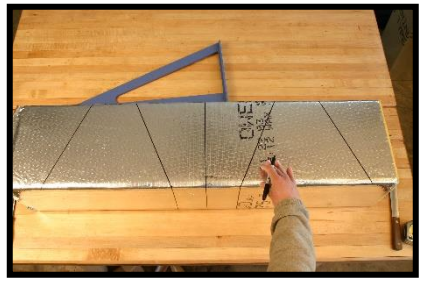

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9.13 Rotate duct away from you one turn and draw four 90° lines on duct as shown. Do not draw a line in the middle.

9.14 Rotate duct away from you one turn. Cut apart the left and right sides of the duct.

9.15 For the middle section, cut through the two long sides and one short side. Make sure to leave the fourth side (short) intact.

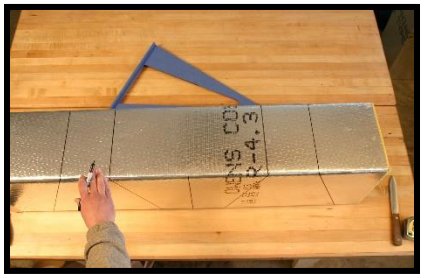
9.16 With your knife, cut the inside to make folding easier. Be careful not to cut through the foil side of the duct.

9.17 Spread pieces apart.

9.18 Start to make female end of this side of duct to fit into larger connecting duct board. Leave the center section intact.

9.19 Rotate appropriate outer elbow pieces. Position the left and right side elbows in place on top of center piece.

9.13



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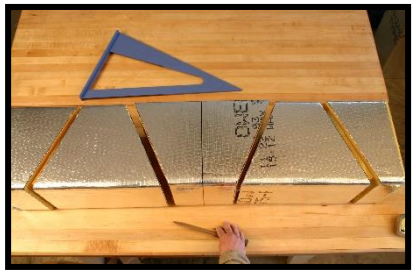

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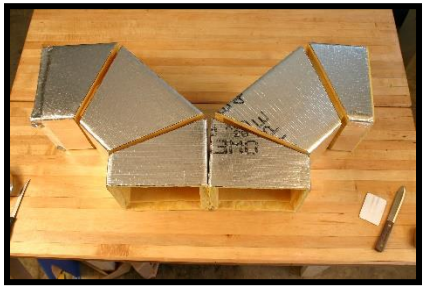

9.20 Tab and tape the joints tight.

9.21 Tape together both elbows at mid section and finish sealing the inside seams of the "T" fitting. You are finished.

9.20

9.21

10.0 Making "Vertical" T-Intersections

Important Tips:

- Draw diagonal cut lines on the short/narrow sides. Draw vertical cut lines on the long/wide sides.
- Make sure the top side elbow turns the opposite direction from the bottom side elbow.
- A vertical "T" will not lay flat when finished.

10.1 In the middle of the long side of duct, draw a 90° line. Rotate the duct away from you to the short side, continue drawing the 90° line. Rotate the duct away from you and continue drawing the 90° line on the other long side of duct. You should have lines drawn on two long and one short sides of the duct.

10.2 Go back to the first long side of duct. Starting from the first drawn line, with the Angler Tool™ measure over to the left any measurement that you want to start the elbow. (for example 4 inches).

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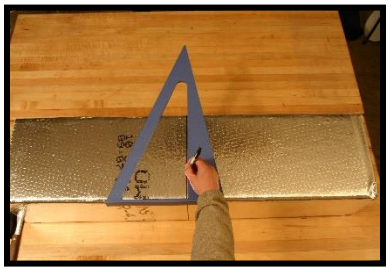

10.2

10.3 With the 90° edge of the tool, draw a line.

10.4 Rotate the duct away from you and draw a 22.5° line from the previous line.

10.5 From the 90° line, with the Angler Tool™, measure to the right 4 inches where the elbow will start.

10.6 Draw another 22.5° line from that mark.

10.7 Rotate duct away from you and draw two 90° lines continuing from the previous 22.5° lines.

10.8 Rotate duct away from you and draw a 22.5° line continued from the 90° line on the far left.

10.9 Draw a second 22.5° line continued from the previous 90° line on the far right.

10.10 Rotate the duct away from you. Draw a 90° line on the duct from previous line drawn from #10.9.

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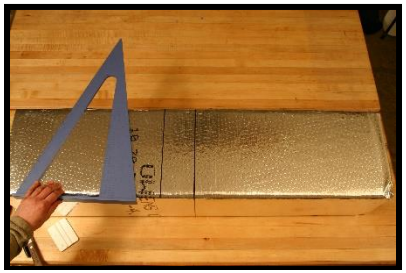

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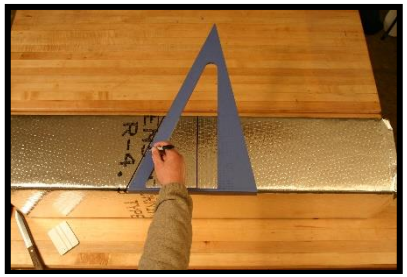

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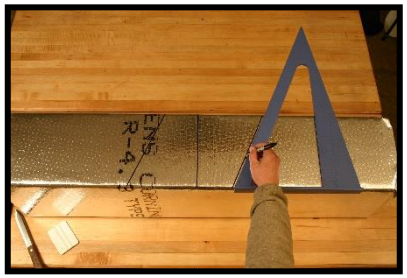

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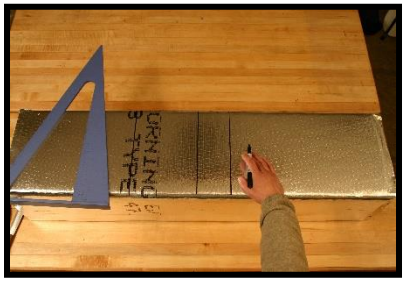

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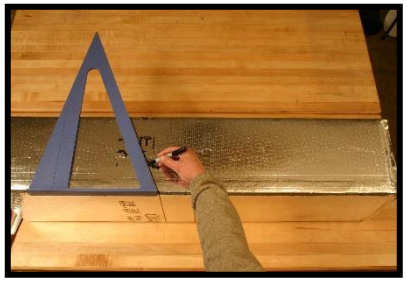

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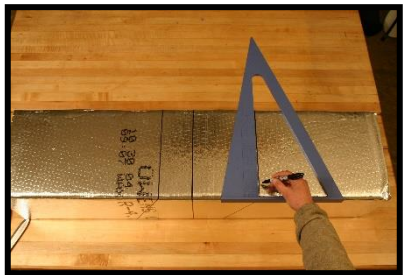

10.11 Measure to the right the desired throat measurement. For example, for a 3 piece elbow, for a 4 inch throat, measure 5-5/8”.

10.12 With the 90° edge of the tool, draw a line from that point.

10.13 Rotate the duct away from you. Using the Angler Tool™, draw a 22.5° line continued from the previous line from #10.12.

10.14 From the far left drawn line, measure to the left the desired throat measurement and make a mark. For example, a 3 piece elbow with 4 inch throat, measures 5-5/8”.

10.15 Using the Angler Tool™, draw a 22.5° line.

10.16 Rotate the duct away from you one turn. With the Angler Tool™ draw a 90° line from the previous line from #10.15.

10.17 On the far right, draw the last 90° on this side from previous line from #10.13.

10.18 Rotate the duct away from you. With the Angler Tool™ draw a 22.5° line from the previously drawn line from 10.17.

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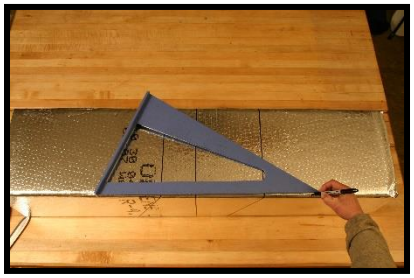

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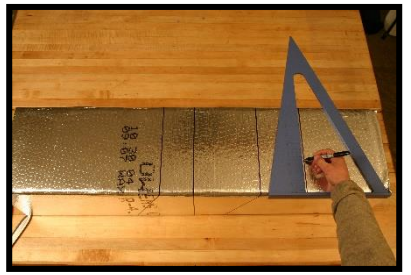

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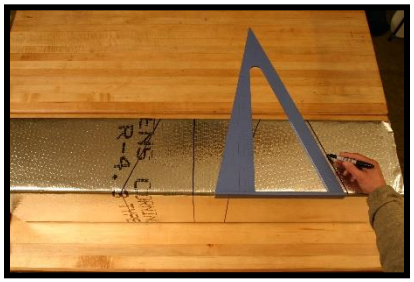

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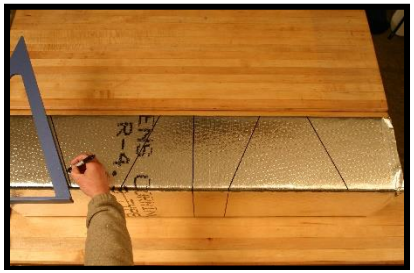

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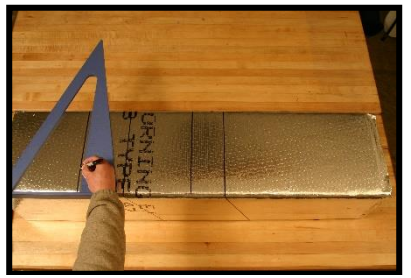

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10.19 On far left of duct, draw another 22.5° line connecting from 90° line on previous side, from #10.16.

10.20 Rotate the duct away from you and draw the last 90° line from previously drawn line, from #10.19.

10.21 Cut apart the left and right sides of the duct.

10.22 For the center section, cut through the two long sides and one short side. Make sure to leave the fourth side (short) intact.

10.23 With your knife, cut the inside of the fourth side of duct to make the folding easier. Be careful not to cut through the foil side of the duct.

10.24 Spread the piece apart.

10.25 Get ready to build the elbow.

10.19

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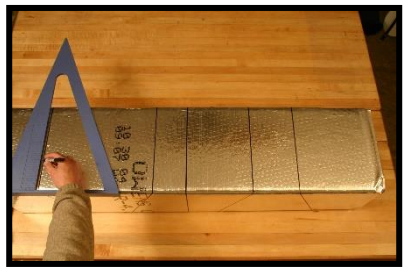

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10.26 Position the left and right side of the elbows in place. Tab and tape the joints tight.

10.27 Tab and tape last section of elbows together.

10.28 Cut female end on bottom of duct. Finish sealing the inside seams of the Vertical "T" fitting.

10.29 You have finished a Vertical T-Intersection.

10.26

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10.29

How to Make Branch Intersections

BRANCH INTERSECTIONS

11.0 Making the Branch Intersection

11.1 Find the desired location you want to install the branch duct off of the larger main duct.

11.2 Mark half of the height of the branch duct.

11.3 With the 11.25° angle side of the tool, draw a line from that mark.

11.4 Flip the tool over and draw another 11.25° line from the same mark.

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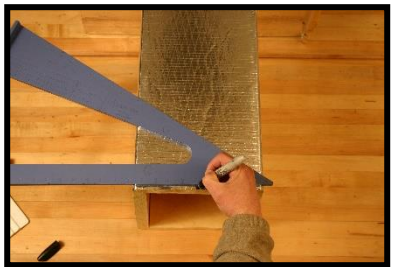

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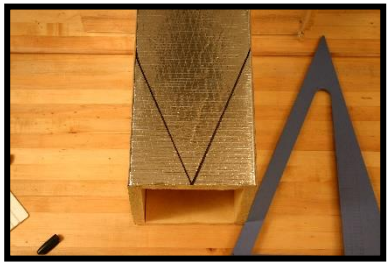


11.5 Rotate the branch duct a quarter turn to the left and with 90° side of the tool, connect the two previously drawn diagonal lines.

11.6 Cut out the triangle shape on the branch duct. Hold your knife blade on a 45° angle when cutting the diagonal lines. When cutting the 90° line, hold the knife blade on a 90° angle.

11.7 Remove triangle piece from the branch duct.

11.8 Lift out and straighten the sides.

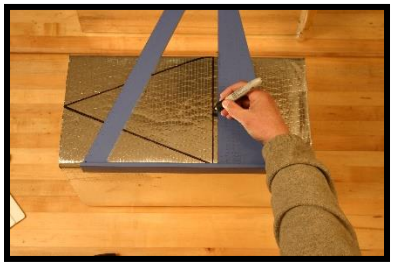
11.9 Place branch duct against main duct at desired location.

11.10 On the main duct, mark the throat size of the branch duct.

11.11 On the main duct, mark the other side of the branch.

11.12 With the angler tool, draw a 90° line at the previous mark drawn in #11.11.

11.5



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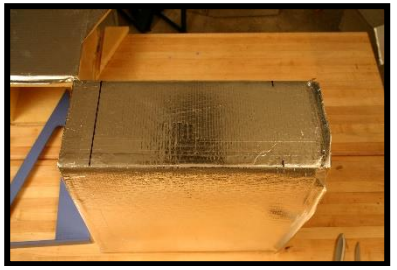

11.13 Cut across the top and bottom of the main duct. Cut each line holding your knife blade at a 45° angle. Then starting from the mark drawn in #11.11, cut across the side of the duct while holding your knife at a 90° angle. Open the flap. With your knife blade, cut the duct at mark from #11.10 without penetrating the foil so the flap can open easier.

11.14 Apply duct sealer to edges of fiberglass.

11.15 Continue to apply duct sealer to edges of fiberglass.

11.16 Place branch duct up against main trunk line. Tab with tape to hold in place.

11.17 Cut the end of the flap to the proper length to fit the branch duct.

11.18 Tab and tape.

11.19 Finish with proper sealing of joints.

11.20 You have finished a Branch Intersection.

11.13

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