The Importance of Project Planning

Planning in Inches

The project: 9.5 inch center circle with a 1 inch border making the outer size 11.5 inches. The radius is 1/2 the diameter. To make the circle and the border you will use the radius 4.75 inch and 5.75 inch to make the center circle and the 8 trapezoid border ring.
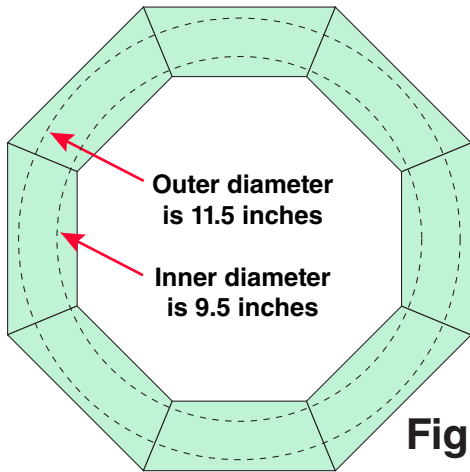

Outer diameter
is 11.5 inches

Inner diameter
is 9.5 inches

Fig. 1 in.

Inch Chart - 8 Trapezoid Ring:

1. Determine trapezoid strip width: Use outer diameter of the project (11.5 inches) to get the base length of the trapezoid. The base length is a red number and is 127 mm. Use the diameter of the inner border and center circle (9.5 inches)to get the length of the trapezoid top. The top length is a green number and is 89 mm.

127 - 89 = 38 ÷ 2 = 19 x 2.414 = 45.866
round to 46 mm strip width

2. Determine strip lengths for multiple trapezoids: See Fig. 2

Fig. 2

From Spreadsheet or
8 Trapezoid Ring
PDF page 6

Millimeters	Strip length with end scrap	Inches
139	1	5.47
247	2 1	9.72
355	3 2 1	13.98

Strip Length: Usually the strip length will be determined by the size of the sheet glass you have for your project. We start with a 12 inch or 305 mm square sheet of glass for the border. From Fig. 2 it appears that 2 trapezoids per strip is the best option possible.

The next pages should give you ideas on how knowing the minimum length needed for the trapezoids from a strip will help your planning.

Planning in Millimeters

The project: 242 mm center circle with a 25 mm border making the outer size 292 mm. The radius is 1/2 the diameter. To make the circle and the border you will use the radius 121 mm and 146 mm to make the center circle and the 8 trapezoid border ring.
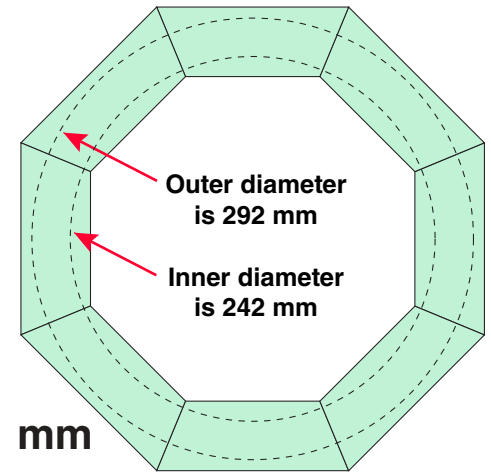

Outer diameter
is 292 mm

Inner diameter
is 242 mm

Fig. 1 mm

Millimeter Chart - 8 Trapezoid Ring:

1. Determine trapezoid strip width: Use outer diameter of the project (292 mm) to get the base length of the trapezoid. The base length is a red number and is 127 mm. Use the diameter of the inner border and center circle (242 mm)to get the length of the trapezoid top. **Note:** 242 mm is missing from the chart. When the number is a green number use the next smaller diameter. The top length for 240 mm is a green number and is 89 mm.

127 - 89 = 38 ÷ 2 = 19 x 2.414 = 45.866
round to 46 mm strip width

2. Determine strip lengths for multiple trapezoids: See Fig. 2

How strips are removed from the glass sheet - option 1

The glass sheet is a 12" x 12" (305 mm x 305 mm). The 2 trapezoid per strip length is the best option for the glass available and the minimum length required is 9.72" (247 mm).

The strip width was calculated to be 46 mm. Things to consider first: Does the glass sheet have a pattern? Are the sheet's edges perfectly straight? If the answer to both questions is no you will have more options. As a general rule glass with a pattern may not be a good choice for a circular border in a fused project using the trapezoid ring concept.

The strips must have straight edges and must be parallel. Using the Portable Glass Shop to make the strips is easy. Should you need a review on parallel strips with the Glass Shop this is our best resource. The PG01B eManual at mortonglass.com is the most complete instruction manual we have. Part 2, pages 2, 3 and 4 have all we know about glass strips with the PG01B.

If the edges are straight, and there is no pattern to the glass, the 1st strip would be the one marked #1. A value of the trapezoid ring method is how much of the sheet is left for a next project. The 2nd strip is marked #2 and will be about 259 mm long.

If all goes well you will only need the 4 strips for the project. If you do have a problem and need more trapezoids you have plenty of remaining glass. If only one trapezoid is needed, the minimum length for one is 139 mm (Fig. 2, page 1). From the remaining glass you can remove a strip for one or two trapezoids.

The next page will show options if the sheets edges are irregular.

1

2

3

4

259 mm

167 mm

46 mm
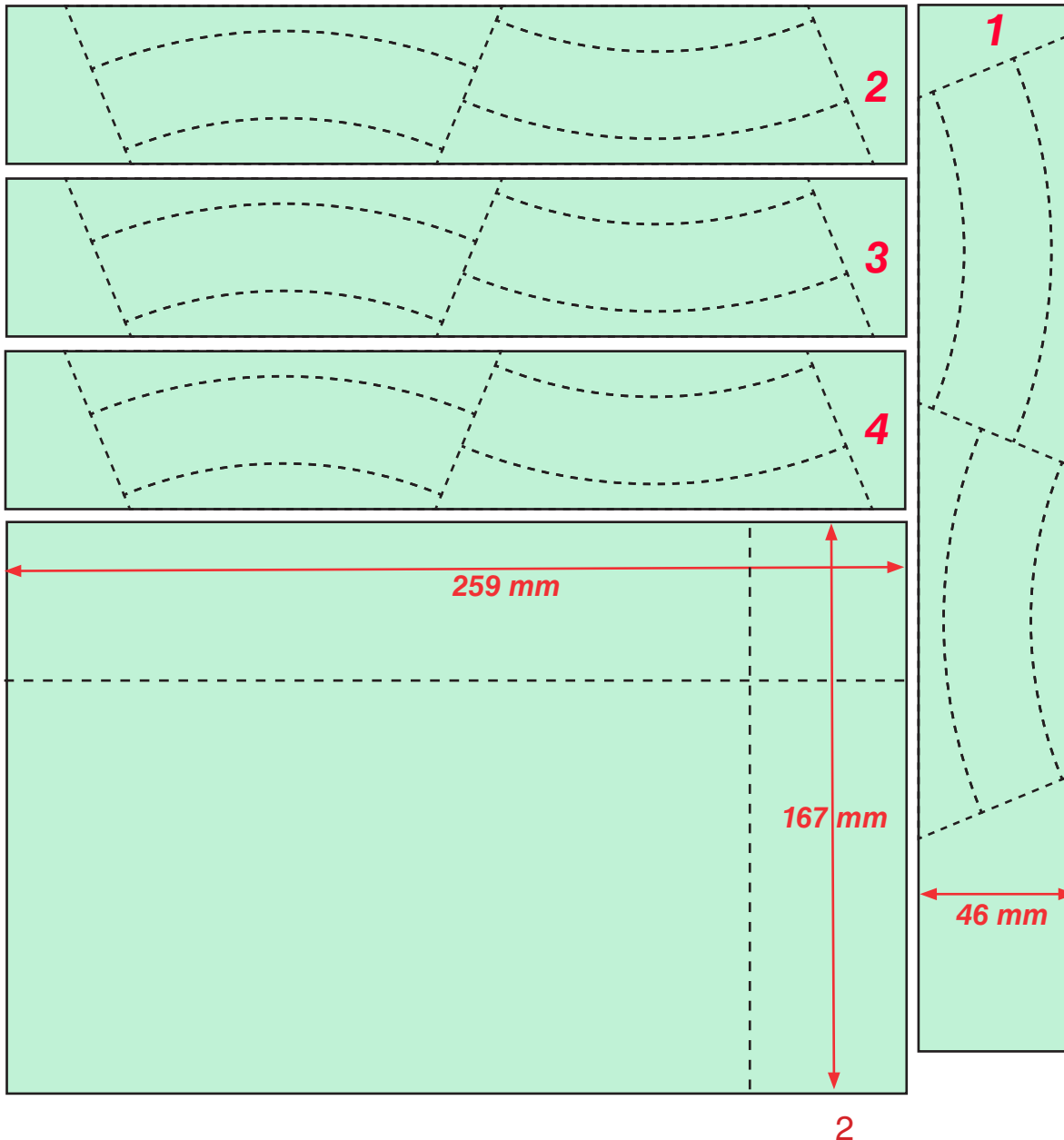
How strips are removed from the glass sheet - option 2

The glass sheet is a 12" x 12" (305 mm x 305 mm). The 2 trapezoid per strip length is the best option for the glass available and the minimum length required is 9.72" (247 mm).

The strip width was calculated to be 46 mm. On page 2 the answer to "Are the sheet's edges perfectly straight" was yes. This page will show the possible options when the edges of the sheet are not straight.

The strips must have straight edges and must be parallel. Part 2, page 4 of the PG01B eManual at mortonglass.com explains how to get started when the edges of the sheet are irregular.

For the glass crafter it is easier to remove a small strip from a small strip than to remove a small strip from the larger sheet. The marked 2nd and 3rd scores are the example of removing the 60 mm strip and then making it a 46 mm strip. It is usually reliable to remove a 12-14 mm strip and it is much easier to remove it from the 60 mm strip than from the larger sheet. If you are thinking in inches 1/2 inch is about 12-13 mm.

The reason for the 60 mm strip is to deal with an irregular glass edge so be sure you make your 46 mm strip from the straight side. If all goes well you will only need the 4 strips for the project. If you do have a problem and need more trapezoids you have plenty of remaining glass.

Something you should think about is just how much leeway you have as you size your strips. As long as you keep the base length and strip width to plus or minus 1 mm your elements will end up being the same. Be as accurate as possible but remember it will be how you set the size of the center circle and inner and outer radius of the border pieces that is really important.

The next 2 pages will help you understand the most important part of using the circle and border concept.

1st score at 247 mm

2nd score at 60 mm

3rd score at 46 mm

4th score at 46 mm
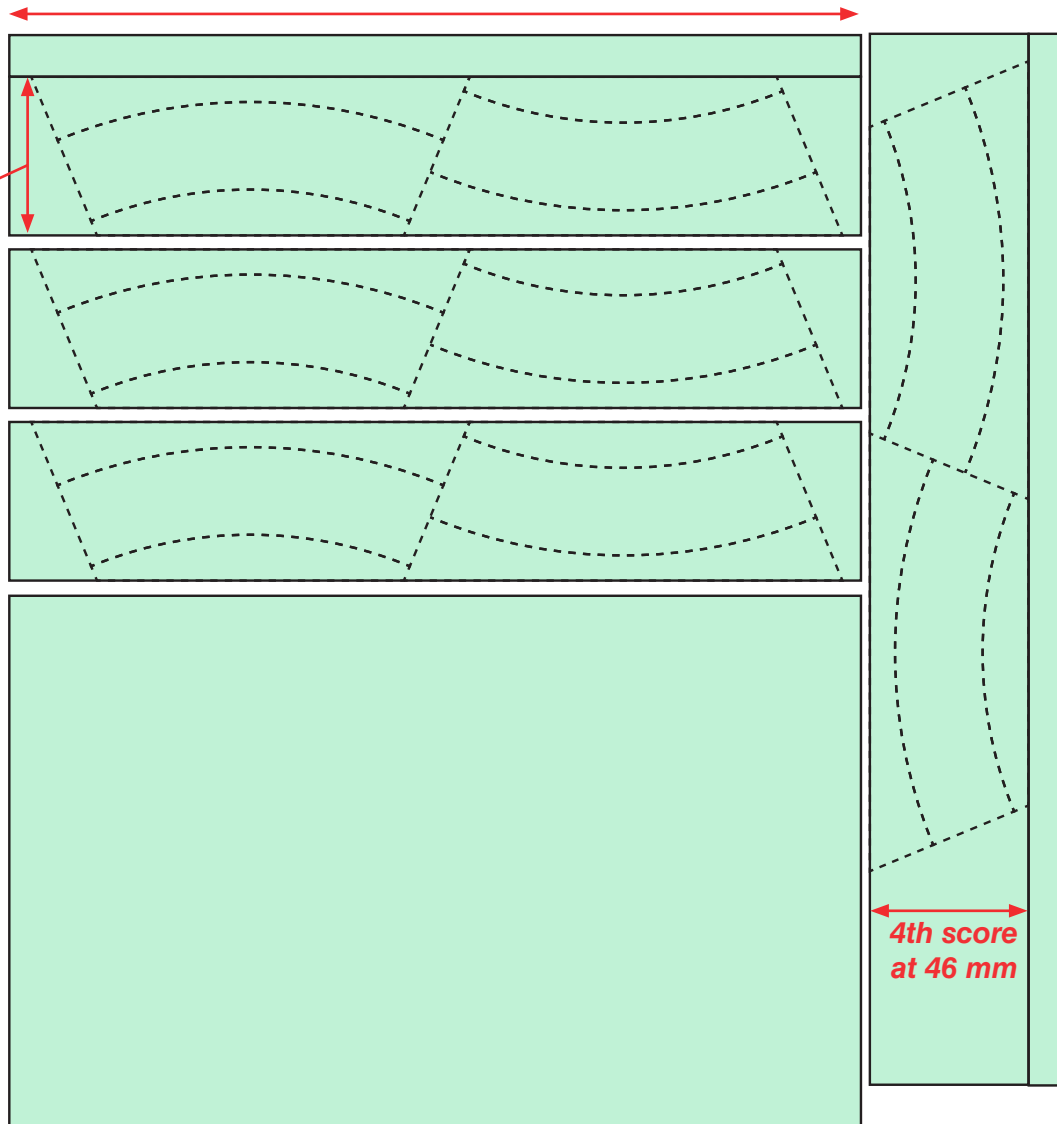
Important Circle & Border Rule - Example in Inches (millimeters page 5)

The center circle must be smaller than the diameter of the inner border ring. Failure to make the center circle smaller than the border will result in a gaps between border elements. To insure a good fit of the border around center circle the center is made a little bit smaller and the border is made a little bit larger. There is an easy way to make the adjustment.

The project:
9.5 inch center circle with a 1 inch border making the outer size 11.5 inches. The radius is 1/2 the diameter. To make the circle and the border you will use the radius 4.75 inch and 5.75 inch to make the center circle and the 8 trapezoid border ring.
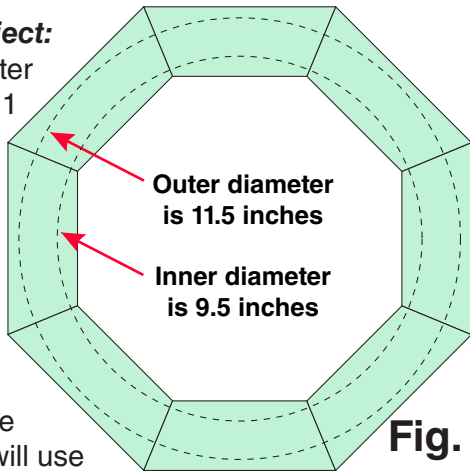
Outer diameter is 11.5 inches

Inner diameter is 9.5 inches

Fig. 1

The radius for the center circle and the radius for the inner border is listed as the same. To make the center circle smaller you will move the left fixture in Fig. 3 to show the 4.75 in. line. In Fig. 2 the left fixture is adjusted to cover the 4.75 in. line making the setting one line width larger. One line width does not seem like much but because this is the radius of the circle the one line width doubles.

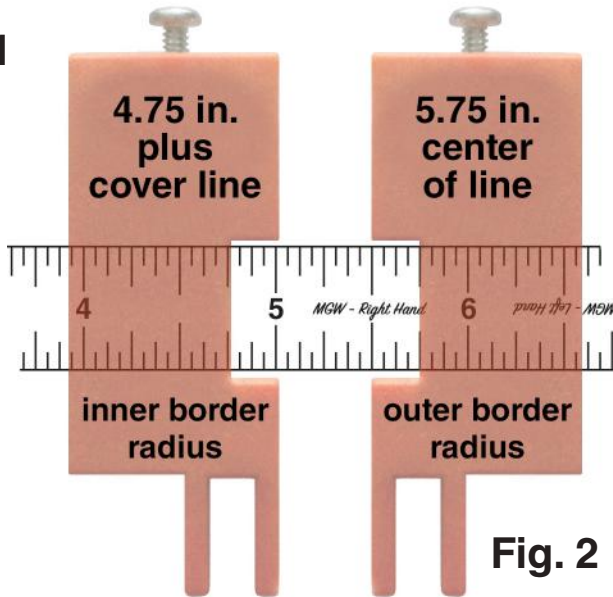To sum up, the circle must be smaller than the inside of the border for a proper fit

4.75 in. plus cover line

5.75 in. center of line

inner border radius

outer border radius

Fig. 2

4.75 in. minus show line

5.75 in. center of line

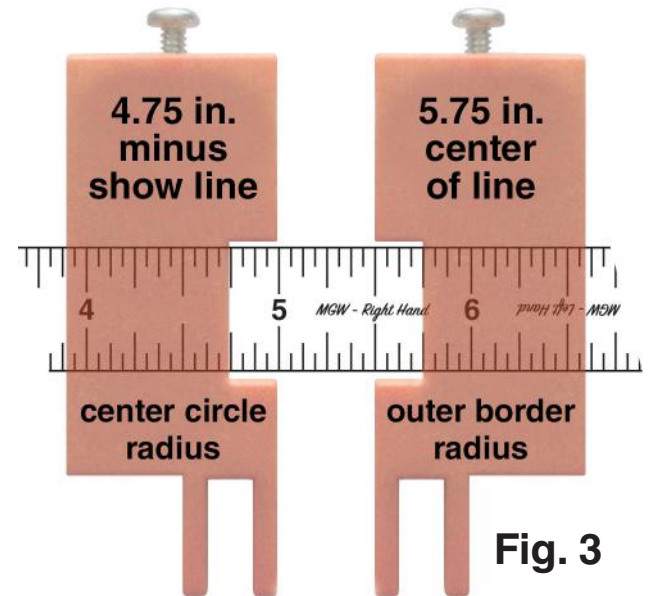**center circle radius**

outer border radius

Fig. 3

Important Circle & Border Rule - Example in Millimeters (inches page 4)

The center circle must be smaller than the diameter of the inner border ring. Failure to make the center circle smaller than the border will result in a gaps between border elements. To insure a good fit of the border around center circle the center is made a little bit smaller and the border is made a little bit larger. There is an easy way to make the adjustment.

The project:
242 mm center circle with a 25 mm border making the outer size 292 mm. The radius is 1/2 the diameter. To make the circle and the border you will use the radius 121 mm and 146 mm to make the center circle and the 8 trapezoid border ring.
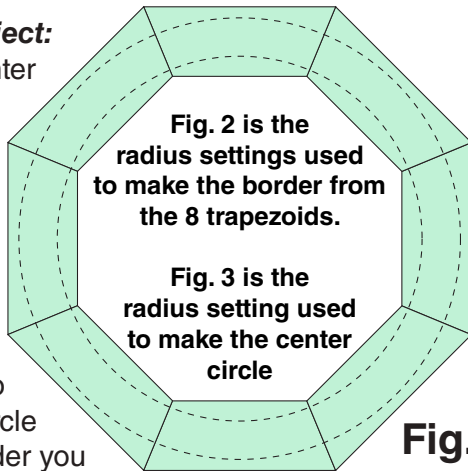
The radius for the center circle and the radius for the inner border is listed as the same. To make the center circle smaller you will move the left fixture in Fig. 3 to show the 121 mm line. In Fig. 2 the left fixture is adjusted to cover the 121 mm line making the setting one line width larger. One line width does not seem like much but because this is the radius of the circle the one line width doubles.

To sum up, the circle must be smaller than the inside of the border for a proper fit
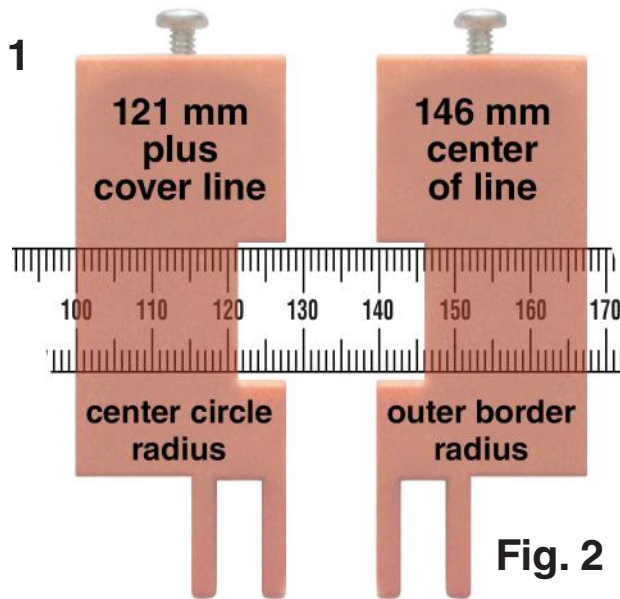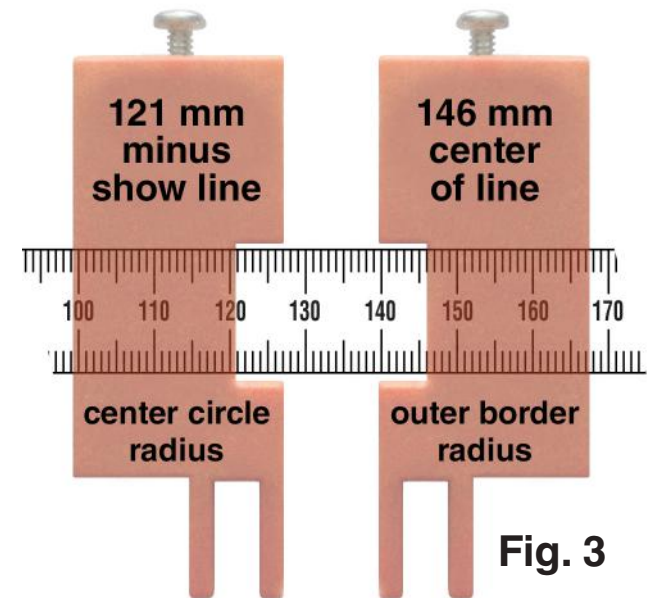

Fig. 2 is the radius settings used to make the border from the 8 trapezoids.

Fig. 3 is the radius setting used to make the center circle

Fig. 1

121 mm plus cover line

146 mm center of line

center circle radius

outer border radius

Fig. 2

121 mm minus show line

146 mm center of line

center circle radius

outer border radius

Fig. 3