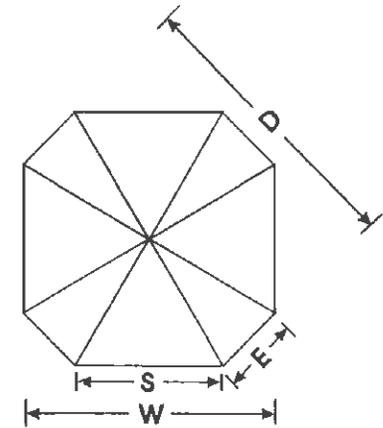


## SEATTLE FACETOR DESIGN

April 1992

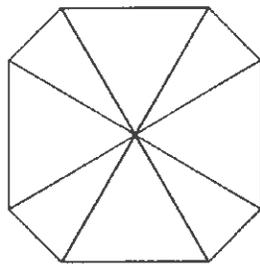
### PREFORMS FOR SQUARE EMERALD CUTS

Establishing the "outline" is usually the first step in layout of a new facet design. It is the primary function of a "preform" and is almost a necessity in a computer program like GEMCAD. Whenever possible we use a "standard outline" because this saves a lot of calculation and immediately makes all other similar designs in the database accessible for "mix or match" variations. The cut corner on a square emerald design is a good example of useful information that is available in the "preform" files but is not always shown in the cutting instructions. On this page is shown several side/corner ratio variations of the Square Emerald. The "D/W" parameter is useful for predicting size of mounting that must be ordered for this cut. If we assume a four prong mount, one prong will fit in each of the four corners which is a smaller square than a square formed by the side edges. The critical dimension is  $D \times \cos 45$  (or  $D \times 0.707$ ) the diagonal distance between the prongs.

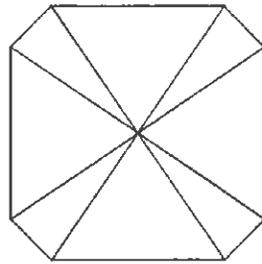


**TYPICAL SQUARE EMERALD PREFORM**

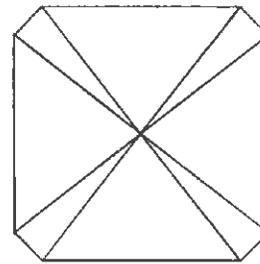
Definition of terms D, E, S, and W



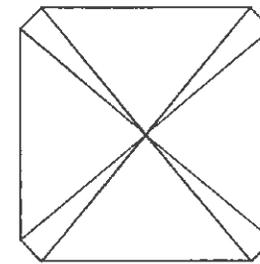
**S/E=2**



**S/E=3**



**S/E=5**



**S/E=6**

	2.0	3.0	4.0	5.0	6.0	7.0		
S/E=	2.0	3.0	4.0	5.0	6.0	7.0		
S/W=	0.586	0.680	0.739	0.780	0.809	0.832		
E/W=	0.293	0.227	0.285	0.156	0.135	0.119		
D/W=	1.121	1.094	1.188	1.230	1.258	1.295		
Step	Angle						Bearing	Comment
PF1	32.0	30.5	29.7	29.1	28.7	28.4	80-60-36-12	Cut to TCP
PF2	35.0	35.0	35.0	35.0	35.0	35.0	96-72-48-24	Meet PF1 at TCP
G1	90.0	90.0	90.0	90.0	90.0	90.0	80-60-36-12	Fix size
G2	90.0	90.0	90.0	90.0	90.9	90.0	96-72-48-24	Level girdle/ complete preform

Basic formulas for generating tabled items: (a)  $W = S + 2E \cos 45^\circ$  (b)  $E = W / ((S/E) + 2 \cos 45^\circ)$  (c)  $D = (W / \cos 45^\circ) - E$