

# Shade and Shadow

By Gretchen Maricak

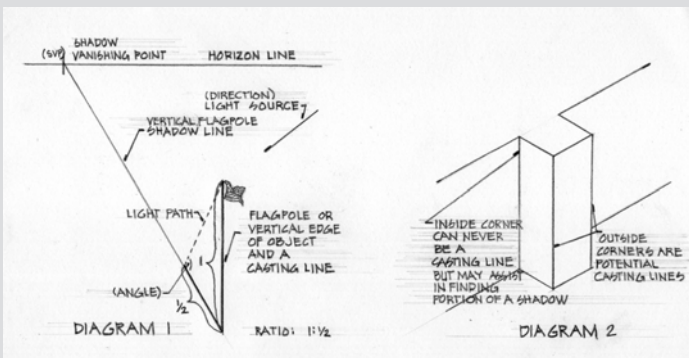
A former architecture professor barked this sage advice to me years ago, “It is important to know the rules before you break them, Maricak!” Whether an artist is drawing a photorealistic or abstract image, what is being viewed or imagined may be interpreted with more clarity if the sun, shade, shadow, and value process is understood. Here are some of the rules, as I understand them, along with some of my favorite reference books.

As an architecture student, I studied from *Drawing as a Means to Architecture* (1977) by William Kirby Lockard and *Design Graphics* (1968) by C. Leslie Martin. These two books have formed the framework for my lectures on shade and shadow.

Lockard begins his explanation of where shadows originate by discussing his Flagpole Assumption



Artist and architect Gretchen Maricak rendered this Michigan bungalow.



that is applied to vertical edges of an object. Assumptions are made based on the desired angle and direction of the light source.

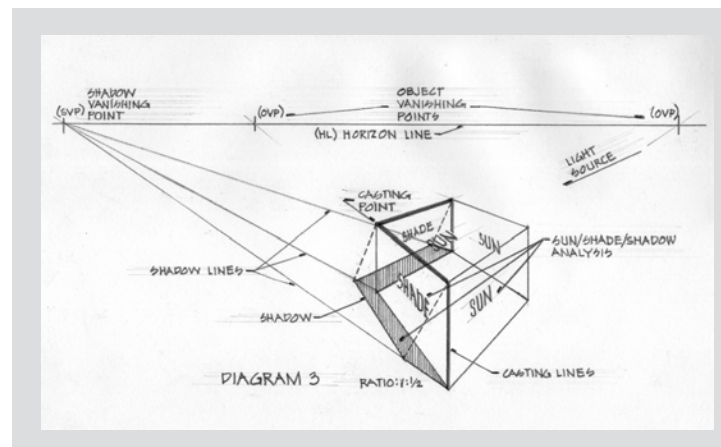
In my example (Diagram 1), begin by presuming the light direction (“sun” and “light” are used interchangeably) comes from the right and the shadows vanish to the left. A line is drawn from the base of the flagpole out to the horizon line and creates a shadow vanishing point; the line is called a shadow line. Lastly, determine a ratio relationship between the flagpole and its shadow length. This determines the light angle.

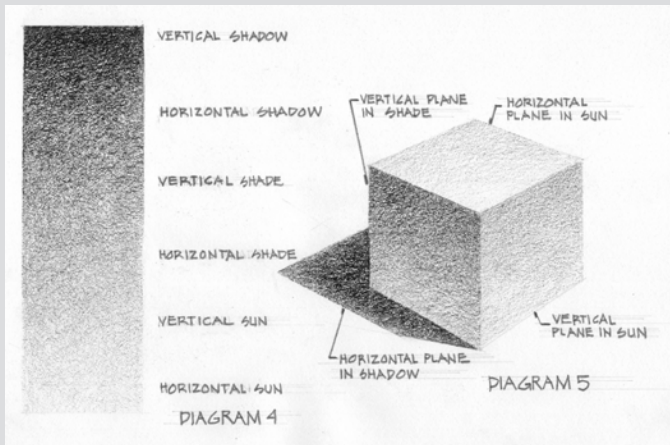
The first number in the ratio is the vertical height of the line and the second number is the shadow length (e.g., 1:1/2). This means that the shadow is proportionally half the length of its corresponding vertical flagpole. The dashed line indicates the

light path. Each vertical line in a perspective is a different height so each corresponding shadow is a different length. The assumptions of light location, shadow vanishing point and ratio relationship will change for each drawing based on the artist’s preference.

Lastly, we need to label all of the object planes as sun or shade (sun planes face toward the light source; shade planes face away from the light source) to determine the location of casting lines on the box (Diagram 3).

Think of casting lines as a road map that lead you through a sequence of shadow construction steps. Casting lines define the difference between planes in sun and planes in shade that are outside corners (Diagram 2).





However, all verticals may potentially assist in creating shadows (they may create shadow points and not edges). The bold casting lines appear in Diagram 3. Let's apply the Flagpole Assumption to this box.

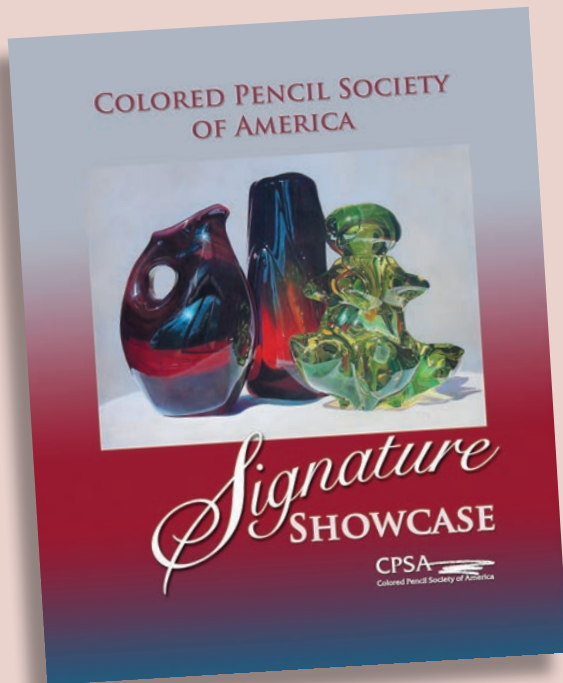
I typically begin with the most obvious vertical in the foreground. From the base of this vertical

I extend a line to the shadow vanishing point. I measure the vertical line, divide it in half and measure this distance along the shadow line.

I repeat this step for all verticals that are connected to casting points or lines. I then connect the shadow ends to each other and the shadow becomes apparent. Also note that the shadow edges not related to a shadow line vanish to object vanishing points.

Use the value strip in Diagram 4 along with the sun/shade/shadow analysis in Diagram 3 to create the final box displayed in Diagram 5. This sun, shade, shadow and value process should provide a means of evaluating what you see.

*Gretchen Maricak lives in Birmingham, Michigan, and has been a CPSA member since 2011. A licensed architect, she has worked for architecture firms and is now an architecture consultant. She started teaching at Lawrence Technological University in 1977.*



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