

Designing for legibility

How big for the lettering? How far away to view the sketch?

By Ken Millar

To sell signs effectively, we must know what it takes to create a sign that works: a sign that is both attractive and readable in the setting that it is used. The first part, coming up with an interesting design, is usually easier to do than the second part, which is how do you make sure it will be readable on site?

If you can explain and discuss these issues with clients, they'll realize they're dealing with a professional who has their best interest in mind. In this time of ours, when everyone can choose fonts and clipart and do fades and shadows and distort letters with a click here and a click there, many clients may not place value in the design alone.

But if you can show them that you know how to make sure their sign can be read and deliver their message—you've got something to sell. It will likely separate you from the competition.

Why signage fails We can learn a lot about creating successful sign layouts by considering what causes a sign to fail—to not deliver its message to potential readers. By learning the common pitfalls we may be able to avoid them in our layouts. I find that when signage

is not readable, it's usually because of one or more of the following reasons:

1. Too many signs in a concentrated area
2. Too much copy or wording
3. Poor design or layout
4. Bad choice of colors
5. Letter style that is not legible from the reading distance

Traditionally, advertising design houses stuck to the golden rule of “a trademark plus seven words or less” for design for painted bulletins and billboards. This rule is hard to apply in a sign shop. We may not have the luxury of eliminating unnecessary wording. But nonetheless, the copy must be managed in the layout or readability will suffer.

Guidelines for letter readability Most exterior signs are read from a considerable distance. On top of this distance issue, the reader is often in a moving vehicle. There are physical limitations to what the viewer is capable of reading at that distance and in the time they have to read it. A wise designer plans for this.

Over the years, charts have been published showing the readable distance for various letter heights for maximum impact. When applying for a driver's license, your eyes are tested for the ability to distinguish letters and numerals at various distances, based on a minimum acceptable vision of 20/40.

With 20/40 vision, you are able to read the following size letters at these distances, assuming they're black block letters on a white background:

Readable distance will vary with color, style

At this distance:	You can read:
100 ft.	4-in. letters
200 ft.	8-in. letters
300 ft.	12-in. letters
400 ft.	16-in. letters
600 ft.	24-in. letters



How's this for too many signs? I saw this photo years ago and couldn't resist keeping a copy. I like their "T-bone: 75 cents -with meat, \$4"

of lettering and stylizing of individual letters. A bolder letter may be readable at a lesser height. Readability may be improved by opening the interior portion of lettering by stretching the letters horizontally or vertically. Designers of roadside bulletins and billboards often do that.

Have you ever measured off a typical reading distance for a sign to see how much of the copy was actually legible from that distance? It's a great exercise—and essential if you want to design effective signs and be able to explain your designs to your clients.

Reading distance is a critical factor Outdoor advertising companies usually have a salesperson to sell potential clients locations of existing boards for an advertising contract. Often the salesperson takes a beautiful layout to the client, who holds it at arm's length for viewing.

The client probably does not know much about the issue of readability at a given distance. The salesperson may not be aware of the guidelines that will guarantee good, readable signage. The end result is often that the salesperson is happy to sell the location—but the client is not happy when he drives by the billboard location he has rented and cannot read the message.

I see this failure almost daily and wonder who is to blame. The same problem is apparent on fascia signs, vehicles, freestanding signs and most any other type of sign. The primary message of many signs simply can't be read from the distance at which they can be seen.

By becoming familiar with the formulas for readability, the sign designer and the salesperson will both gain knowledge that has been proven over time to produce better signage. In the early '50's, the standard poster size for printed-paper outdoor advertising was approximately 12-ft.-high-by-24-ft. long—a ratio of 1 to 2. The sketches were typically done at a scale of 1/2 in. equals one ft. The designers often used this simple formula for reviewing a sketch or drawing of an outdoor advertising sign before making it into a full-sized printed poster:

Viewing the sketch from about 17 ft. away simulated seeing the sign at a typical viewing distance of about 400 ft.

The proper approach is to estimate the typical viewing distance at that scale and look at the drawing from this distance. If more sign designers started doing this, the effectiveness of signs in general would skyrocket. Most likely, the primary message

on most signs would get larger.

Here is a set of guidelines based on that traditional formula that you can use to review your drawings at scale:

Scale	View sketch at this distance to simulate viewing at:	
	400 ft.	200 ft.
1/4 in.	8.5 ft.	4.25 ft.
1/2 in.	17 ft.	8.5 ft.
3/4 in.	25.5 ft.	12.75 ft.
1 in.	34 ft.	17 ft.
1 1/2 in.	51 ft.	25.5 ft.

Consider the viewing time It takes three to five seconds to read a typical sign, once you're close enough to see it adequately and assuming the lettering is done in a very legible style and color combination. Often we must read signs from a moving vehicle—or the sign itself is on a moving vehicle. This affects the time we have to read the sign and introduces other distractions that can reduce this time.

While driving a vehicle at 30mph on a city street, you're moving at 44 ft. per second.

Consider these three possible different locations of your vehicle:

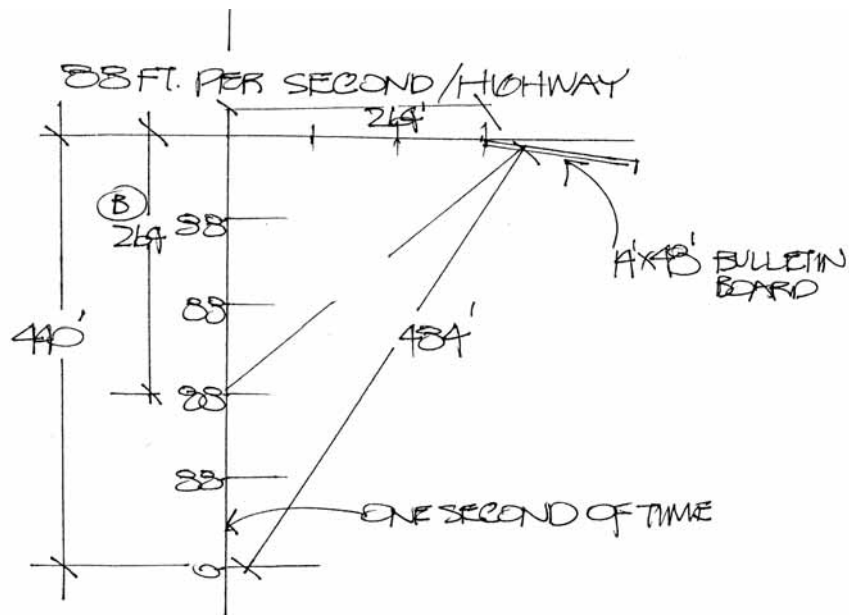
A = 220 ft., or 5 seconds before reaching the intersection

B = 132 ft., or 3 seconds before reaching the intersection

C = intersection, at which there are two possible events: You either go through the intersection on a green light with no viewing time at all or you are stopped by a red light and have a long viewing time.

A driver may not be aware of the sign at all during the travel space of 220 ft. He or she may be looking only at the road or may be looking in another direction—say looking for a street sign or a business address. To catch the eye, the message on the sign must be direct and to the point, with minimal copy.

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At 60mph, you're moving at a rate of 88 feet per second. This drawing shows how the viewing distance was determined for a roadside bulletin.

Now consider driving on a highway driving at 60mph. You're moving at 88 ft. per second.

This example indicates two potential locations for your vehicle when approaching the sign:

- A = 440 ft., or 5 seconds of reading time
- B = 264 ft., or 3 seconds of reading time

For a viewing distance of 440 ft., the smallest letter should be 16 in. or more in height. If the viewer chooses to read the secondary copy, he will be closer in a few seconds and will be able to read the smaller copy.

Again, the total message must be direct and to the point with minimal copy. Of course, there may be more than one sign at this site, which means less reading time available for any one sign. Or the viewer may be concentrating on the traffic, passing or being passed, and thus have no reading time at all. Getting their attention is a challenge.

We see this sign every day Consider a stop sign on a 35mph street: white lettering, white border, red background, done in all reflective material. The word STOP is a message or element. The message is enclosed in a panel. The other factor is reading distance: you can

see a 10-in. letter at 250 to 300 ft., so you have 7 to 8 seconds to respond to the message and stop.

For fun, we can reduce the information to a formula:

$$\frac{W \div P \times D}{C} = S$$

Which is WORD(s) divided by PANEL(s) over COLOR(s) times DISTANCE equals SOLUTION



When designing signs, if the solution is not right—that is, it doesn't work because it isn't effective or appealing—we must change the WORD/PANEL portion. That's what makes us designers. We don't just come up with a creative layout—we consider its use so that it does that the sign does its job for the client. •§C



Ken Millar spent years as a sign designer in the Chicagoland area, and was also the instructor at the International Brotherhood of Painters and Allied Trades sign school in Chicago.

Speed	Distance at 5 seconds away	Readable letter size	Distance at 3 seconds away	Readable letter size
30mph	220 ft.	8 in.	132 ft.	4 in.
45mph	330 ft.	12 in.	198 ft.	8 in.
60mph	440 ft.	16 in.	264 ft.	12 in.

This table shows what size lettering you can read as pass by a sign at various speeds. Remember that all readability charts assume a dark, legible letter on a light background.