

# How to Master the Science of Sign Visibility

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THE ANATOMY OF A SIGN



**ACCUFORM**<sup>®</sup>  
Justrite Safety Group



# It's More Than Just a Sign

Over 4,000 worker fatalities and countless more injuries resulted from employees being unaware of hazardous surroundings in 2013,<sup>1</sup> leaving many employers to reevaluate the safety signage in their facilities. With the lives of their workers and serious money in citations, lawsuits and insurance fees on the line, companies can't afford to wait for an injury or death to happen to reconsider the effectiveness of their safety signage.

Taking steps to ensure safety sign visibility is a simple, cost-effective way employers can prevent the safety blind spots that lead to OSHA violations and worker injuries and fatalities. Companies can optimize sign visibility by prioritizing the elements of **placement**, **sign anatomy**, and **contrast** before implementing their sign systems. While following best practices on safety signage will not prevent all issues, it's an important and relatively easy part of the process in mitigating risk and protecting business interests.

## Placement

Sign placement is the chief element in the science of sign visibility. Safety signage does not exist in isolation. It contributes to a dynamic spatial environment that includes facility structures and

active employees, both of which have an impact on how well a sign is seen. For this reason, the first step in optimizing sign visibility should be determining where to mount signage.

To make the most informed sign placement choices, employers should think of their facilities as separated into three tiers: 78 inches above the floor (above workers' head), 45-66 inches above the floor (at workers' eye-line), and 4-18 inches above the floor (no higher than a worker's knee).

- *Location and emergency equipment signage is best placed at 78 inches to catch a person's eyes when directed upward and call attention to the safety identification from afar.*
- *"Danger", "Warning", and "Caution" signs call attention to harmful and deadly hazards. They are most effective when at the eye-line, where workers can readily see the instruction as they perform tasks or operate around hazards.*
- *Wayfinding signage and path-marking signs should be placed no higher than 18" off the floor so they remain visible in the event of smoke conditions.*

<sup>1</sup>Safety Blind Spots in the Most Dangerous Industries in America – Select International

A proactive approach to safety sign placement can also inform company considerations for safety sign size.

Sign Size	Sign Placement	Viewing Distance Up to
10" x 7"	Eye level	21 ft.
14" x 10"	Eye level	31.5 ft.
12" x 8" and 20" x 14"	78"	42 ft.
24" x 18" and 24" x 24"	78"	63 ft.

Considering sign placement around their facilities also gives employers the opportunity to eliminate safety sign clutter by auditing their facility's existing signage. In doing this, they will be able take note of any existing signs that are outdated, irrelevant or that can be combined with any new sign systems, optimizing the visibility of their safety signage and instruction.

Determining sign placement is the first step in implementing an effective safety sign system. Proper sign placement decreases the guesswork involved in operating around hazardous materials by ensuring safety signage is in the right place to be seen by workers.

## Sign Anatomy

Eye-catching sign anatomy increases employee engagement with safety sign instruction. OSHA and ANSI provide guidelines for optimizing safety sign anatomy in the most functional, visually engaging ways. New compliance standards specify that accident prevention signs and tags should follow a uniform format revolving around safety alert symbols, signal words, safety symbols and safety messaging. While companies won't be penalized for lacking the latest z535 formats, the industry-approved form optimizes the space allotted on a sign to deliver need-to-know information in the blink of an eye.

OSHA/ANSI z535 sign formats communicate to workers the following:

- *The nature of the hazard*
- *The consequence of interacting with the hazard*
- *How to avoid the hazard*

For employers, taking time to consider the most visually compelling sign anatomy could be what keeps their company from suffering the large business and human costs of a workplace accident. Visibility charts and measuring tools exist to give companies one more tool in determining optimum sign size and anatomy.

### 3 Steps to Determining Sign Size for Maximum Visibility

1. *Determine Viewing Distance*
2. *Count Characters and Spaces*
3. *Associate Distance with Sign Width*

By adhering to industry best practices for safety sign formats and using the proper visibility calculation techniques, companies can maintain OSHA/ANSI compliance as well as a safe, visual workspace.

## Contrast

OSHA/ANSI's z535 format not only provides companies with an optimized, economical sign anatomy, but it also ensures their signage stands out from their facility in the most industry-standard way.

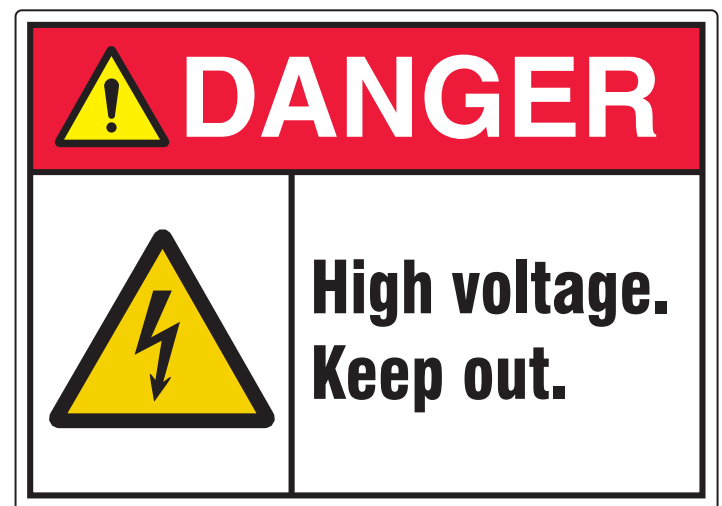
High-contrast safety signs are one of the best ways companies can prevent safety sign blind spots around their facilities. The eye is naturally drawn to salient objects. Signage with bold type, bright colors and thick borders have an increased chance of visually attracting workers. By using high-contrast signage in their facilities, companies also increase their chances of preventing industry violations, raised insurance premiums and worker fatalities.

## OSHA/ANSI Color Standards

OSHA/ANSI Hazard Classification	Color
Caution	Yellow
Warning	Orange
Danger	Red
Other Safety Identifiers	
Exit signs	Red (when required) on white background
Directional signs	White with black panel and black directional signal

## What a Custom Sign Solution Does for Sign Visibility

The best sign systems effectively marry facility specifications with industry signage standards. Optimized sign visibility plays an important part in that process. By staying mindful of safety sign visibility best practices and using signage solutions that meet unique workplace specifications, employers won't just have safety signs – they'll have a visual, responsive safety environment.



OSHA/ANSI z535 Format



## Optimize the effectiveness of your sign!

Letter size and number of characters per line can have a huge effect on the success of a sign. See below to determine the recommended letter size for a specific viewing distance.



VIEWING DISTANCE	NUMBER OF LETTERS (AND SPACES) IN LONGEST LINE OF MESSAGE										LETTER SIZE
<b>30'</b>	<b>10</b> 5" W Sign	<b>16</b> 8" W Sign	<b>18</b> 10" W Sign	<b>22</b> 12" W Sign	<b>29</b> 14" W Sign	<b>34</b> 18" W Sign	<b>40</b> 20" W Sign	<b>49</b> 24" W Sign	<b>51</b> 28" W Sign	<b>67</b> 36" W Sign	<b>3/4"</b>
<b>40'</b>	<b>7</b> 5" W Sign	<b>11</b> 8" W Sign	<b>14</b> 10" W Sign	<b>17</b> 12" W Sign	<b>22</b> 14" W Sign	<b>26</b> 18" W Sign	<b>30</b> 20" W Sign	<b>34</b> 24" W Sign	<b>42</b> 28" W Sign	<b>52</b> 36" W Sign	<b>1"</b>
<b>55'</b>	<b>6</b> 5" W Sign	<b>9</b> 8" W Sign	<b>11</b> 10" W Sign	<b>14</b> 12" W Sign	<b>18</b> 14" W Sign	<b>21</b> 18" W Sign	<b>24</b> 20" W Sign	<b>29</b> 24" W Sign	<b>34</b> 28" W Sign	<b>43</b> 36" W Sign	<b>1 1/4"</b>
<b>65'</b>	<b>5</b> 5" W Sign	<b>8</b> 8" W Sign	<b>9</b> 10" W Sign	<b>11</b> 12" W Sign	<b>15</b> 14" W Sign	<b>18</b> 18" W Sign	<b>20</b> 20" W Sign	<b>24</b> 24" W Sign	<b>30</b> 28" W Sign	<b>32</b> 36" W Sign	<b>1 1/2"</b>
<b>75'</b>	<b>4</b> 5" W Sign	<b>6</b> 8" W Sign	<b>7</b> 10" W Sign	<b>9</b> 12" W Sign	<b>11</b> 14" W Sign	<b>14</b> 18" W Sign	<b>16</b> 20" W Sign	<b>19</b> 24" W Sign	<b>23</b> 28" W Sign	<b>29</b> 36" W Sign	<b>1 3/4"</b>
<b>85'</b>	<b>4</b> 5" W Sign	<b>6</b> 8" W Sign	<b>7</b> 10" W Sign	<b>9</b> 12" W Sign	<b>11</b> 14" W Sign	<b>14</b> 18" W Sign	<b>16</b> 20" W Sign	<b>19</b> 24" W Sign	<b>23</b> 28" W Sign	<b>25</b> 36" W Sign	<b>2"</b>
<b>115'</b>	<b>2</b> 5" W Sign	<b>4</b> 8" W Sign	<b>5</b> 10" W Sign	<b>6</b> 12" W Sign	<b>8</b> 14" W Sign	<b>10</b> 18" W Sign	<b>11</b> 20" W Sign	<b>14</b> 24" W Sign	<b>17</b> 28" W Sign	<b>19</b> 36" W Sign	<b>2 1/2"</b>
<b>135'</b>	<b>2</b> 5" W Sign	<b>3</b> 8" W Sign	<b>4</b> 10" W Sign	<b>5</b> 12" W Sign	<b>6</b> 14" W Sign	<b>7</b> 18" W Sign	<b>8</b> 20" W Sign	<b>10</b> 24" W Sign	<b>12</b> 28" W Sign	<b>15</b> 36" W Sign	<b>3"</b>
<b>150'</b>	<b>1</b> 5" W Sign	<b>2</b> 8" W Sign	<b>3</b> 10" W Sign	<b>3</b> 12" W Sign	<b>4</b> 14" W Sign	<b>5</b> 18" W Sign	<b>6</b> 20" W Sign	<b>7</b> 24" W Sign	<b>10</b> 28" W Sign	<b>11</b> 36" W Sign	<b>4"</b>
<b>200'</b>	<b>1</b> 5" W Sign	<b>1</b> 8" W Sign	<b>2</b> 10" W Sign	<b>3</b> 12" W Sign	<b>3</b> 14" W Sign	<b>4</b> 18" W Sign	<b>5</b> 20" W Sign	<b>6</b> 24" W Sign	<b>7</b> 28" W Sign	<b>7</b> 36" W Sign	<b>6"</b>
<b>350'</b>	<b>1</b> 5" W Sign	<b>1</b> 8" W Sign	<b>2</b> 10" W Sign	<b>2</b> 12" W Sign	<b>2</b> 14" W Sign	<b>3</b> 18" W Sign	<b>4</b> 20" W Sign	<b>4</b> 24" W Sign	<b>6</b> 28" W Sign	<b>6</b> 36" W Sign	<b>8"</b>

Visibility charts eliminate the guesswork that goes into choosing sign size.

Accuform is the leading sign manufacturer with solutions designed to meet facility specifications while maintaining OSHA/ANSI requirements. Improve your identification program today by visiting [www.Accuform.com](http://www.Accuform.com) or call 1-800-237-1001.

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