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The 2007 ANSI Z535 Standards—A New Era For Facility Safety Signs and Product Safety Labels Begins

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Introduction

After twelve years of work in the standards arena, breakthrough developments have occurred in the American National Standards Institutes Z535 series of standards, the standards that set the bar for safety signs, labels, tags, and barricade tapes in the United States. Many of the changes that have taken place in the ANSI Z535 standards are the direct result of efforts to harmonize the U.S. standards with new international standards related to safety signs, labels, colors and symbols. As such, the ANSI Z535 standards embody a new level of global best practice when it comes to the design of visual safety systems.

A Brief History – The Rise to Prominence of ISO Standards for Graphical Symbols

You are sent to China to install a new piece of factory equipment in an automotive plant. On the outside of an enclosure, you see the sign shown in Exhibit 1. You only speak English, the workers in the plant don't speak English and your job is to integrate this new machine into the existing assembly line by the end of the day. You recognize the message might have something to do with safety because the color-coding is somewhat familiar, but you have no idea what the sign is intended to convey. End result: safety communication failure.

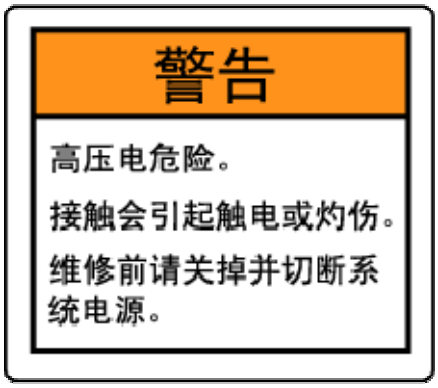

Exhibit 1. Example of a foreign language text-based safety sign.

Whether you are looking at a product safety label with text in an unfamiliar language or you find yourself in a foreign land surrounded by signs you don't understand, the effect is the same; the message is not understood. This is an issue and it has significance, especially when it comes to safety. We live in a time of rapid globalization; a large portion of our manufactured products are marketed worldwide, people travel with increasing ease to every corner of the earth and our nations' economies are tied together through the integration of our commercial workforces. A universal system for the communication of visual information is needed and that is precisely the task that was set before ISO in 1995.

To begin this discussion of the possibility of an international system for the visual communication of information, think back over the last 15 years and try to recall if you have ever gotten into a car and not been able to find the windshield wiper switch or turn the headlights on. Probably not. In the not so distant past there were pull knobs or push buttons in cars that had words printed on them for each control, like "windshield wipers" and "headlights." If you were in a different country, the knobs would have these same words for each function but the words would have been in the language of the country where the car was sold. Things have changed. One of the primary reasons you are now able to find the control switches for any car in the world is that these functions are clearly indicated by the use of standardized ISO symbols (see Exhibit 2). It may have been through someone showing you the car's controls or by repeated use or by reading the manual that you gained the knowledge of what these symbols mean. Since symbol standardization, words are being replaced by symbols and the dependence on text has either been lessened or eliminated, making for improved communication and less problems associated with the worldwide export of products.

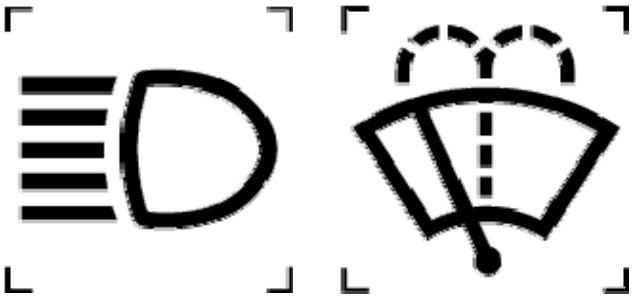

Exhibit 2. Examples of automotive function/control symbols.

For another example to illustrate the positive repercussions of symbol use, you need look no further than your next drive down an interstate highway. The change in signage that has occurred in this venue often goes unnoticed, but again the change in communication method is dramatic. When you travel on freeways in the United States it is not uncommon to see signs indicating fuel, food, lodging or hospital. Over the past decade the signs used to indicate these meanings have shifted from word-based messages to symbol-based messages (see Exhibit 3). There are several reasons for this change. First, once learned, these signs communicate their message in a shorter amount of time, validating the age-old dictum that a picture is worth a thousand words. This is important because when traveling at 65 mph drivers have literally fractions of seconds to safely scan the roadside for such information. Second, the U.S. continues to be a melting pot of immigrants. It is estimated that over 150 languages are spoken in the United States and over 23 million Americans speak a language other than English in their homes.[1] With this diversity of population, and the fact that the U.S. hosts millions of international travelers yearly, a symbol-based method of communication is the common sense approach to overcome language barriers. Again, like the automotive control symbols, once the highway symbols are learned they are easily recognized.

Exhibit 3. Example of a symbol-based highway information sign.

[1] American National Standards Institute Z535.4 Standard for Product Safety Signs and Labels, 2007, annex B5.

Efficient communication and the ability to overcome language barriers: In short, these are the reasons that make symbols the key for global communication. It is through systematic worldwide standardization that symbols are now becoming an important tool for communicating information. It goes without saying that not all messages can be conveyed by symbols alone and that is where the use of symbols on signs with the addition of text is still a viable signage method, symbols and words reinforcing each other to communicate the message. The important fact is that whether used alone or supplemented with words, symbols are increasingly being used throughout the world to convey information.

Problem. The use of symbols to communicate is a great step forward because of the factors mentioned above. But the positive effect of this change can really only be optimized if the symbols that are used are the same worldwide. For example, if different buildings use different exit symbols, people will have to learn an assortment of symbols for the same meaning, thereby thwarting or delaying recognition and comprehension. In order to minimize the proliferation of different symbols for the same meanings, the International Committee for Standardization (ISO) established Technical Committee (TC) 145 "Graphical Symbols" and it is though this committee that symbols are registered and standardized. I have chaired ANSI's U.S. TAG since its formation in 1996. Our goal has been to ensure that the U.S. plays an active role in this process of standardization, both in contributing to the dialog that takes place in the development of these standards and to integrate the best U.S. standards practices into the international standards and vice versa. This activity, called "standards harmonization," has been given the highest priority in the codes and standards field because of the recognized need for global approaches to standardization. And this includes the field of safety standards. ISO/TC 145 has three subcommittees, each responsible for establishing the guiding principles by which a set of symbols will be standardized. Each subcommittee is in charge of maintaining a growing database of symbols as well as sets of standards that apply to the symbols within their areas of expertise. The basic committee structure and the primary documents of ISO/TC 145 are as follows:

Subcommittee 1: Responsible for the standardizing symbols for public information signs. Its standards include:

- ISO 7001 Public information symbols, 2007
- ISO 9186 Graphical symbols -- Test methods - Part 1: Methods for testing comprehensibility, 2007
- ISO 9186 Graphical symbols -Test methods - Part 2: Method for testing perceptual quality (FDIS 2007)

Subcommittee 2: Responsible for the standardization of formats, colors and symbols used for safety signs and labels. Its standards include:

- ISO 7010, Graphical symbols - Safety colours and safety signs - Safety signs used in workplaces and public areas, 2003
- ISO 3864 Graphical symbols — Safety colours and safety signs:
  - Part 1: Design principles for safety signs in workplaces and public areas, 2002
  - Part 2: Design principles for product safety labels, 2004
  - Part 3: Design principles for graphical symbols for use in safety signs, 2006
- ISO 16069 Graphical symbols – Safety signs - Safety way guidance systems, 2004

- ISO 17398 Safety colours and safety signs -- Classification, performance and durability of safety signs, 2004

Subcommittee 3: Responsible for the standardization of symbols for use on equipment to indicate function and control. Its standards include:

- ISO 7000 Graphical symbols for use on equipment, 2004
- ISO/IEC 60416 Basic principles for graphical symbols for use on equipment:
  - Part 1: Creation of symbol originals, 2001
  - Part 2: Form and use of arrows, 2001
  - Part 3: Guidelines for the application of graphical symbols, 2002
  - Part 4: Guidelines for the adaptation of graphical symbols for use on screens and displays (icons), 2005

Since its re-establishment in the mid-1990s, ISO/TC 145 has had a flourish of activity concerning the revision of the standards that fall under its auspices as well as the creation of new standards involving graphical symbols. There are several driving forces behind the activities of ISO/TC 145. First and foremost is the advent of the European Union in the 1990s. The formation of the EU allowed a breakdown of *trade* barriers and an increase in travel to occur. Yet *language* barriers still remained as an obstruction. For this reason Europe was, and continues to be, very interested in the development of standardized symbols. Second, the rise in immigrant populations throughout Europe has resulted in the same dilemma of language barriers prohibiting communication. Third, the rise in the trade of finished products worldwide required the communication of safety-related and function-related messages through the use standardized graphical symbols. The U.S. TAG's interest was initially concerned with safety symbols and product safety labels. In addition, U.S. manufacturers of automobiles and heavy off-road equipment were interested in participating at all levels regarding function/control symbols.

Standardization is the key. Products and facilities were the applications. Improved safety communication on a global basis is the goal. Here is what has happened.

Changes in Safety Sign and Product Safety Label Standards

With the publication of the revised *ANSI Z535.2 Standard for Environmental and Facility Signs - 2007* and the *ANSI Z535.4 Standard for Product Safety Signs and Labels - 2007* (Exhibit 4), a new age for the communication of safety-related information on products has arrived. Engineers who work with product design and safety should have knowledge of the changes that have taken place in this standard, as well as its related ANSI Z535 standards for color (Z535.1), safety signs (Z535.2), symbols (Z535.3), temporary safety tags and barricade tapes (Z535.5), and an entirely new standard for safety information in a product's collateral material (Z535.6).

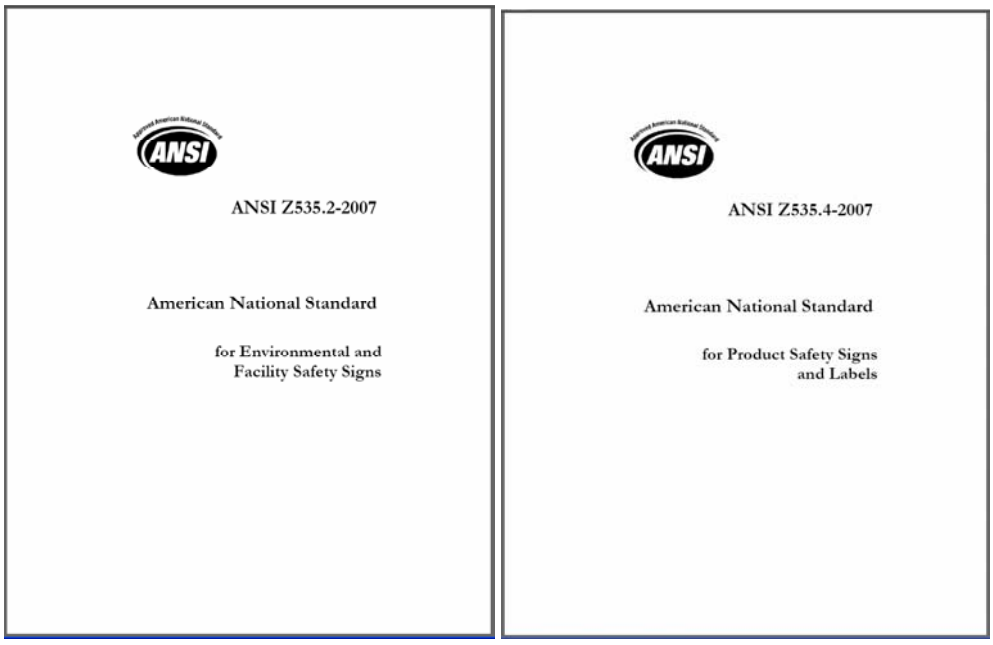

Exhibit 4. The ANSI Z535.2 and Z535.4 – 2007 standards.

All together the ANSI Z535 standards are the primary standards used in the United States for communicating safety information. Their 2007 revision contain some pivotal changes that set the course for the future of safety signs and product safety labeling to be used in the United States.

As with all ANSI standards, the ANSI Z535 standards undergo review and revision every five to six years. Given the liability situation that continues to escalate in the U.S., it is essential that those responsible for the design of products and the safety of facilities understand their "duty to warn" begins with the legal mandate to "meet or exceed" the standards that are in effect at the time the facility is marked or the product is manufactured. This is why compliance with the current edition of the ANSI Z535 standards is your starting point for developing an effective safety sign visual safety system.

Since its formatting options now serve as the basis for facility signage, it's best to discuss the ANSI Z535.4 standard for product safety signs and labels first and then tie in facility signs. It is worthwhile to note that the ANSI Z535.4 standard is a standard that has evolved in tandem with legal court precedents regarding what constitutes the "state of the art" for on-product warnings. Since its initial publication in 1991, the ANSI Z535.4 standard has, in itself, become one of the primary benchmarks by which our legal system judges whether or not a company's product warnings are "adequate." This is why compliance with the latest version of ANSI Z535.4 is virtually mandatory for all product manufacturers.

The ANSI Z535.4 standard sets forth both the format and content requirements for product safety labels. According to the standard, a safety label should identify the seriousness of the hazard, the type of hazard, the probable consequence of not avoiding the hazard, and indicate how to avoid the hazard. This may seem like a lot of information to put into a safety label, but in practice, it

works quite well. Exhibit 5 illustrates the four components of a typical Z535.4 product safety label:

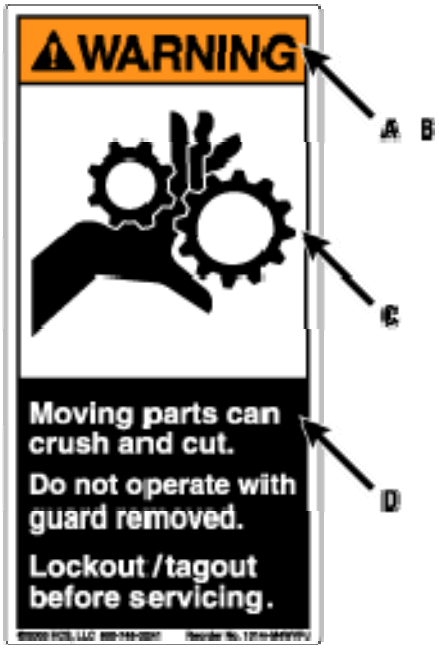

Exhibit 5. Example of a typical ANSI Z535.4 safety label

Elements A & B: Safety Color and Signal Word
The large word at the top of the label is called the signal word. It is used in combination with a specific colored background and combined with the safety alert symbol (a triangle containing an exclamation mark) to communicate the first of four items of content; the degree of seriousness associated with the potential hazard. Because of its colored background, the signal word is typically the first thing that you notice when looking at a Z535.4 safety label. According to the Z535.4 2007 standard, there are four choices for signal word (a quotation from the standard, with its footnote, follow below):

"4.14.1 DANGER: Indicates a hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations.

4.14.2 WARNING: Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

4.14.3 CAUTION: Indicates a hazardous situation, which, if not avoided, could result in minor or moderate injury. It may also be used without the safety alert symbol as an alternative to "NOTICE."

4.14.4 NOTICE: "NOTICE" is the preferred signal word to address practices not related to personal injury. The safety alert symbol shall not be used with this signal word. As an alternative

to "NOTICE," the word "CAUTION" without the safety alert symbol may be used to indicate a message not related to personal injury.[1]

[1] It is the intention of the ANSI Z535 Committee to eliminate the alternative of using the signal word "CAUTION" without the safety alert symbol to indicate a hazardous situation not related to personal injury in the 2011 version of this standard. This will assist in making more of a differentiation between safety messages indicating personal injury and messages not related to personal injury." [2]

Exhibit 6. The ANSI Z535 Signal Word Panels.

Exhibit 6 shows the signal word panels that are standardized for use across the entire series of Z535 standards for safety signs, labels and tags. Two things should be noted. First, for years the ANSI Z535 committee had debated how to best address the need to warn about property-damage-only hazards, feeling compelled to separate these types of hazards from those related to personal injury. In 2007 the separation definitively occurred with the acceptance of the signal word NOTICE for property-damage-only hazards and by stating the intention to phase out the use of CAUTION for this same use.

Second, the 2007 ANSI standards now accept the ISO approach of using the international "general danger" symbol (a black banded yellow triangle containing a black exclamation mark) as the safety alert symbol. This change mirrors a format for product safety labels incorporated in *ISO 3864-2 Graphical Symbols, Design Principles, Product Safety Labels 2004*. As the major proponent of this format, I can tell you that it took a long time to develop. It was first presented to

[2] ANSI Z535.4 Standard for Product Safety Signs and Labels, 2007, section 4.14.

ISO/TC 145 by the U.S. TAG after long discussions about the need to incorporate the ANSI Z535-style safety sign and label formats. The ANSI Z535 concepts of signal words and signal word panel background colors was a difficult one for many ISO experts to understand, much less accept. To a large part because of the acceptance of various levels of risk put forth in recent ISO documents concerning risk assessment, the ANSI Z535 signal word concepts were accepted by ISO/TC 145 with the caveat that the safety alert symbol shall only be the "general danger" symbol already defined by ISO standards. The next step was to bring this harmonized format option back to the U.S. ANSI standards as a change proposal to the Z535 committee. Clarion submitted such a proposal in 2005 and the outcome was successful; the new formatting approach was accepted by the Z535 committee and it is incorporated in all of the 2007 Z535 standards. As such, the format succeeds in now serving as a means to bridge U.S. safety marking standards with ISO standards.

Elements C & D: Symbol & Word Message

Symbols are not mandatory according to the ANSI Z535 standards but their use is strongly encouraged by the standard and, as we will see, use of symbols represents the state-of-the-art in terms of warnings communication. In the ANSI Z535 standards, symbols and word message are used to communicate the three remaining items of content: type of hazard, the consequence of interaction with the hazard, and how to avoid the hazard.

The 2002 revision to the ANSI Z535.4 standard saw two major developments take place with regards to on-product warnings. First, the 2002 publication of the Z535 standards made the old 1967-era ANSI Z53 and Z35 sign formats[3] obsolete (formats that had picked up by OSHA in the early 1970s for their safety sign regulations 1910.145, see Exhibit 7). In short, they were eliminated from the ANSI Z535 standards. A single, national uniform system for hazard recognition has always been the goal of the ANSI Z535 committee and the elimination of the old formats enabled this to be met. The new ANSI Z535.4 formats (as shown in Exhibit 8) are the only formats now defined in the ANSI Z535 standards and, as such, they should be used for all safety signs appearing in public places, workplaces, product safety labels, and on temporary tags such as the lockout/tagout tags used when servicing equipment. This format better allows for the accommodation of a symbol, a longer text message, and it uses a uniform approach to the format of the signal word panel. Because of the increasing need to convey more information on safety signs and labels, the change to adopt the Z535.4 format for all safety signs, labels and tags makes sense. The Z535.4 format lends itself well to both vertical and horizontal arrangements with lots of room for a symbol panel and text message. It is highly recommended that those responsible for the communication of safety information in facilities and on products switch over to the new format for their labels and signs.

[3] The ANSI Z35 and Z53 standards were the predecessors of the ANSI Z535 standards.

Exhibit 7. Formats made obsolete by 2002 and 2007 ANSI Z535 standards.

Exhibit 8. Examples of ANSI Z535.4 safety labels.

Another development in the ANSI Z535.4 standard regards symbols. Symbols can now replace all or a portion of the word message if it can be demonstrated to be satisfactorily comprehended or if there is a means to inform people of the symbol's meaning. The effect of this change is that it first, recognizes the possibility of replacing word messages with symbols, and second, that instructions, training materials, manuals, etc. can be used to train people as to the meaning of graphical symbols. Where once we relied on words to communicate safety messages, we are now able to rely on symbols to do the same and remain incompliance with the U.S. standards.

A major change that has significant ramifications is that, according to the 2007 version of the ANSI Z535.4 standard, the Z535 committee has approved the use of the ISO 3864 Part 2 product safety label standard as a viable alternative to ANSI Z535.4. This "incorporation by reference" of the ISO standard in the exceptions section of the 2007 version of the ANSI Z535.4 standard represents a major step forward in the international harmonization of safety signs and labels. This move allows products sold in the U.S. to use the ISO standard instead of the Z535.4 standard and still be in compliance with the Z535.4 standard. This, in effect, is the change that those who design safety labels have been waiting for. With the 2007 revision of ANSI Z535.4 companies

have the choice to use ANSI or ISO safety label formats and still be in compliance with ANSI, which, as has been stated earlier, is a benchmark tool for legal decisions regarding a manufacturer's duty to warn in the U.S.

The adoption of the ISO standard's formats as a viable alternative for use in the U.S. is such an important development that it is worthwhile to look at this in more depth. What needs to be understood is the ISO 3864-2 standard's symbol-only formats. Basically the ISO standard picks up on the vocabulary of safety signage first defined in ISO 3864 Part 1 which uses graphical symbols placed within specifically designed colored surround shapes to communicate distinctive messages. In this system the color coded surround shapes act as a first level of meaning. As you draw closer to the sign or label, you then distinguish the specific information conveyed by the graphic symbol. To make this system work, the viewer must first understand the color-coded surround shapes (see Exhibit 9).

Exhibit 9. Examples of ISO formatted symbol-based safety signs.

Example A in Exhibit 9 is an ISO "Warning Safety Sign." This type of label is meant to tell you what the hazard is (e.g. "fire hazard"). Example B is an ISO "Prohibition Safety Sign." This label tells you about an action not to take in order to avoid a hazard (e.g. "no open flame)". Example C is an ISO "Mandatory Action Safety Sign." This label tells you about an action that needs to be taken to avoid the hazard (e.g. "read manual").

Once learned, as we have seen with the examples of the automobile function symbols and highway signs, the viewer should be able to easily recognize the safety information presented on the ISO safety signs. In this way the goal of efficient communication across language barriers is intended to be met.

In practice, the ISO symbol-only formats are usually used in combinations so that both hazard description and hazard avoidance information is presented. When working with products, each symbol's intended message can then be further explained in the product's manual. Obviously one of the primary benefits of such an approach is that it eliminates the need for translation. The downside is that it relies on people's understanding of the symbols and/or the availability of the manuals or posters for training purposes. It is this approach that is commonly used throughout Europe. With the 2007 revision of the ANSI Z535.4 standard that accepts the ISO labeling

formats, including symbol-only formats, it is likely that more and more products in the U.S. will also carry these types of safety labels to convey necessary safety information.

In addition to the increase in symbol-only safety label formats in the U.S., a move towards the use of a "harmonized" approach to safety signs and labels is taking place. This format option utilizes one or more ISO-formatted safety symbols in the symbol panel of an ANSI Z535 safety sign, label or tag format (as shown in Exhibit 10).

Exhibit 10. Example of a harmonized safety sign/label format.

As a manufacturer of safety signs and labels for the past two decades, my company has seen the harmonized ANSI Z535 format become an established safety sign and label design format for a simple reason: It fully meets the current ANSI Z535 standards, meets OSHA requirements, and by incorporating ISO symbology, it can be used for both U.S. and international markets. In short, this format provides manufacturers of products and facility owners with properties worldwide with a single approach to safety labeling and safety signs for all markets. The question of text translation still remains for exported products and foreign facilities. Much depends on the target audience, type of product, industry, and complexity of the safety message. We have found various acceptance patterns emerging in the use of the harmonized formats; ranging from complete acceptance of this format with English text, to stipulations that the message be translated in the manuals, to requesting that the sign or label's text be changed to the language of the country in which the marking is to be seen. In all cases mentioned above, the ISO-formatted symbol is fully accepted.

Taking a step back for an overall view, the importance of the harmonized format is that it acknowledges both the U.S. ANSI standards and the U.S. legal requirements that have set the tone for the proper content of a safety sign and label while at the same time it uses an international style for the presentation of the symbolic information. Over the past several years ANSI, as an organization, has strongly encouraged the development of "harmonized" U.S. and international standards so that compliance, when possible, can be with global standards rather than a multitude of conflicting national standards. It is for this reason that the U.S. TAG to ISO/TC 145 continues to work with both the ANSI Z535 committee and the various ISO committees in this field so that norms are established by which the world standardizes and uses safety signs and graphical symbols.

Implementing a New System of Visual Safety

Safety signage systems developed with the newly revised 2007 ANSI Z535 standards that incorporate international advancements in graphical symbols technology give every product manufacturer and facility owner the opportunity to freshly communicate essential safety messages. As a starting point, review of your current signage and perform or update your risk assessments of your products and facilities. Know what you have to warn about, what you need to convey to product users or employees or visitors. This is an essential prerequisite for launching into a program to adopt a best practices approach to implementing a new visual safety system.

Often, as a practical consideration, the rule for signage and labeling should be *less is more.* Too many signs in one place lends itself to the "cry wolf" syndrome where a question exists in the viewer's mind concerning which sign, if any, should be paid attention to. This is true for both product safety labels and facility safety signs. If several safety messages need to appear in one location, it is often best to consolidate them onto a single sign. Such a choice presents the viewer with a cleaner visual field of view and lends itself to being noticed.

Depending upon the size of your facility, a simple walk through is performed to get an idea of what's presently installed (a digital camera is a great asset for recording the current state of your facility's safety signs). Subsequent study of the areas noted in your risk assessment and current signage report will give you the documentation you need to enlist management support and reveal priorities of signage concerns for updating. The symptoms of ineffective signage are easy to recognize. Look for signs that exhibit lack of clarity, poor visibility, illegibility, outdated format, degradation, inappropriate or incomplete content, and irrelevance. Compare what you currently have with the current standards and make determinations as to how best to communicate your safety messages. Your decisions should include consideration of:

- National and international formats
- Symbols
- Hazard nature content information
- Hazard avoidance content information
- Choice of signal word
- Material choice
- Photoluminescent capability for viewing in the dark
- Size and legibility concerns

For purposes of illustration, take the example of safety signs indicating the need to wear eye protection. If you have a large facility where this type of sign is used you will most likely discover that your signs use varying formats; some without symbols and some using different symbols and a variety of text messages (e.g., "Wear safety glasses," "Wear eye protection"). Typically further confusion is caused by the inconsistent and often inappropriate use of the signal word headers DANGER, WARNING, CAUTION, and NOTICE, or no headers whatsoever. With an understanding of the current standards in mind, the safety committee might look to choosing a single sign for communicating the "Wear eye protection" message. On the other hand, the committee might choose to have a set of uniformly designed signs to communicate this message with differences only in the specific description of the hazard that necessitates the need for wearing eye protection (e.g. "Flying debris. Wear safety glasses in this area."). Or it might decide

that the signs need to be different for different locations; they might need to mandate different types of eye protection, both through the use of different words and different symbols (e.g. wear safety glasses, wear safety glasses with side shields, wear safety goggles, wear face shield). In either case, the final specification for the sign or signs should be made available corporate-wide for all areas that require such messages. In this way, company standardization takes place, people learn uniform meanings for the signs and symbols, and workplace safety is improved overall.

As important as the sign design itself is the location of each product safety label or facility sign should be evaluated. Location may impact visibility, materials of construction, and installation method. In facilities you will want to take note of signs that are no longer needed and take steps for their immediate removal. Often a sign remains posted long after the hazard or condition to which it relates has been retired. Pay attention to doorway entrances because these are often hot spots for signs needing replacement. As mentioned before, the best practice method is often to consolidate room identification, entry requirements and warnings into a single doorway entrance sign posted on or next to a door.

The content of each safety sign is, at root, the most critical information that needs to be determined by your safety committee. The both the ANSI Z535.2 facility sign standard and the Z535.4 product safety label standard state that the sign's message panel should contain words related to identification of the hazard, how to avoid the hazard, and/or the probably consequences of not avoiding the hazard.[4] Though some of this information may be omitted if it can be readily inferred, most well-designed best practice safety signs today incorporate the full safety message. Human behavior studies have shown that people are more motivated to comply with hazard avoidance procedures (e.g. "wear safety gloves") if they understand the nature of the hazard that is trying to be avoided (e.g. "Hazardous chemicals. Wear approved protective gloves."). Expanded content is the reason many companies are replacing their old single-statement safety signs with signs formatted to the new Z535.2 standard that contain a more comprehensive safety message through the use of additional words and one or more symbols. Exhibit 11 illustrates the kind of transformation that is occurring, old vs. new. And not just any symbols but the symbols that have credentials established by current standards.

[4] ANSI Z535.2-2007, section 4.7.2, ANSI Z535.4-2007 section 4.7.2

Exhibit 11. Comparison of old-style signs (left) with ISO harmonized ANSI 2007 safety signs having more complete content (right).

It is in this way that an understanding of the standards and the format and symbol options they contain leads to an intelligent approach to developing the right content for each safety sign or label. From a facilities perspective the content and design for some signs will be unique for a single location while the content and design of other signs may be able to be used in multiple locations. The same holds true for products. A given label design may be applicable only to a specific product line while other labels will be able to be used across many product lines. Single or multiple use, the same degree of attention should be made to tailor the design of every safety label and facility safety sign to say exactly what needs to be said. Only in this way will you achieve the optimum in visual safety communication.

Conclusion

The effect the 2007 ANSI Z535 revision will have on our visual landscape will be nothing less than profound. It is this author's prediction that within the next ten years a global transformation will take place in our visual surroundings that will be both elegant and simple. Office buildings, public spaces, cruise ships, skyscrapers, factories, warehouses, oil rigs, sports stadiums, concert halls…. literally every public and work environment will potentially be built or retrofitted with these new systems for communicating safety. In addition, the warning labels that appear on the vast majority of products will reflect the changes that have occurred in these ANSI standards. The end result will be improved communication of safety-related information which opens the possibility to achieving a significant reduction in risk. The wise application of the 2007 ANSI

Z535 standards gives safety engineers a critically valuable tool for improving safety in their organizations. It is now their challenge to implement a program to adopt these best practice standards in the facilities they manage and the products they manufacture.

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