TECHNICAL INFORMATION PAPER SERIES: PRODUCT LIABILITY

THREE IMPORTANT STEPS FROM THE HARTFORD TO REDUCE PRODUCT LIABILITY EXPOSURE.

To reduce the potential for product liability claims or suits, a manufacturer of a product must take these three steps, in this order:

1. Design the product to be without hazards
2. Safeguard the hazard through the use of a guard or devices, if the hazard cannot be eliminated
3. Communicate the hazard to the user, if the hazard cannot be safeguarded through the use of labels and/or written instructions or directions

If the last alternative is used, warnings or labels must follow the guidelines as outlined by *American National Standard for Product Safety: Signs and Labels* (ANSI Z535.6-2011).

COMPATIBILITY WITH LOSS PREVENTION AND RISK MANAGEMENT

The hierarchy of Product Loss Prevention noted above is parallel to other safety and risk management techniques used in industry today: the Three E's of Accident Prevention (Eliminate the hazard. Engineer the hazard, and Educate the user) and Risk Management-Risk Control Techniques (Exposure Avoidance, Loss Prevention, and Loss Reduction).

THREE PARALLEL SAFETY AND RISK MANAGEMENT TECHNIQUES

Product loss prevention	Three E's of accident prevention	Risk management risk control techniques
Design without the hazard	Eliminate the hazard	Exposure avoidance
Safeguard the hazard	Engineer the hazard	Loss prevention
Communicate the hazard	Educate about the hazard	Loss reduction

continued

THE HARTFORD

Legal theory suggests that a manufacturer must warn against every hazard created by any intended or foreseeable use, misuse, or alteration of the product. Product warnings have two basic functions: first and foremost, to reduce injuries, and second, to reduce claim costs. The effectiveness and need for a warning is determined by two groups: the users of the product and jurors.

The relationship between the two goals and the two decisionmaking groups is easily seen. Product users suffer the injuries, and jurors render decisions in trials. A product without a warning is presumed to be without danger of causing injury in the foreseeable use. It is expected to be safe, except for any hazards that are open and obvious.

INCORPORATE THE WARNING DESIGN INTO THE PRODUCT DESIGN

The most effective way to develop a warning is to make the warning an integral part of product design. Warnings should be developed during product hazard analysis, not after the fact.

Two basic types of design changes can make products safer: functional and barrier design changes. Functional changes alter how the product is used or how it works, such that the hazard is virtually eliminated or engineered out. Barrier changes, either physical or psychological, focus on altering the way a user interacts with the product. Barrier changes do nothing to alter the product's function. Physical barriers are guards; the user must make a conscious effort to defeat or alter the protection being provided. Psychological barriers include warnings, which may be in the form of instructions, directions, or labels. Functional design changes should be attempted first, followed by the use of physical barriers, with the last resort being psychological barriers or warnings.

USE STANDARDS TO DEVELOP EFFECTIVE WARNINGS

If it is determined a hazard cannot be eliminated or guarded, then a warning must be developed to communicate the hazard to the user. The *American National Standard for Product Safety Signs and Labels* (ANSI Z535.6-2011) requires all warnings comply with these five criteria:

1. The signal word is appropriate to the level of hazard
   DANGER
   WARNING
   CAUTION
2. The statement describes the hazard
3. The statement describes probable consequences of involvement with the hazard
4. The statement includes instructions on how to avoid the hazard
5. The label has the appropriate colors, graphics, and pictorials
   DANGER – White letters, red background
   WARNING – Black letters, orange background
   CAUTION – Black letters, yellow background

HAVE DEVELOPERS TEST THE WARNING LABELS

Once the warning has been developed (ideally, during the product design process), it should be user tested. Testing is a very effective way to verify that the user will receive, understand, and act upon the message as intended by the in-house engineers, marketing specialists, etc. Information, instructions, illustrations, or symbols that seem to be very clear to the developer can often be very unclear, and even misleading, to the end user.

As with any test, document the results. (This documentation could be useful in the defense of a product liability suit where it is alleged the warnings were defective and failed to convey the intended message to the user.) In addition to its usefulness in defending against allegations of "failure to warn," a formal, written Warning Development Procedure, based on the results of a hazard analysis, has several other advantages, including demonstrating that:

- The warning is based on actual, rather than presumed, knowledge of user expectations
- Through user testing, users evaluated the effectiveness of the warning
- Management has a commitment to product safety
- The development of the warning was a conscientious effort, similar to the product design, and was not an "after the fact" thought

The documentation procedure does not have to be complicated or very sophisticated. It can be as simple as documenting certain items for each warning developed, as shown in the sample which follows.

SAMPLE WARNING DEVELOPMENT PROCEDURE

1. Specifically define:
   a. The risk or hazard.
   b. The consequences of exposure to the hazard.
   c. The audience or receiver of the message.
   d. How to avoid the hazard.
2. Determine and evaluate the BEST method to communicate the message.
3. Draft the wording.
4. Evaluate the wording (use a communications specialist and legal counsel).
5. Perform user testing, evaluating results with established pass-fail criteria.
   a. Was the message noticed?
   b. Was the message understood?
   c. Was avoidance behavior correctly carried out by the users?
6. Revise the warning based on the results of user testing.
7. Re-test the warning, if necessary; print, and distribute.

HAVE USERS TEST THE WARNING LABELS

Readability

The ability to read the warning is a prerequisite to understanding the message. If it is printed in the English language only, will it effectively convey the hazard to the worker who does not speak or understand English? Consideration also must be given to the fact there may be employees who are functionally illiterate. To accommodate these situations, supplement the written warning with pictographs, drawings, or photographs.

Understanding

Understanding pertains to the ability of the user to interpret every element of the message. Failure to understand even one element could make the entire warning ineffective and result in the user being exposed to the hazard. Avoid using complex words if there are simpler, less ambiguous ones that can be found (not always an easy task). Caution should be exercised that the severity of the warning is not sacrificed for simplicity.

Comprehensibility

Not only must each element of the warning be understood, but the meaning of the entire message must be comprehended. After looking at the message can the user interpret the meaning, or do they comment "What does it mean?"

Comprehension can be improved by keeping the concepts presented, phrases used, and "technical" terminology simple. Simply put – few words, short sentences and non-technical words.

Practicality

The warning should not direct an action that is impractical for the user, something that is contrary to what is expected and available to the user. For instance, a warning reads "Do not stand closer than 6 feet when operating this equipment;" yet to operate the equipment, the operator must stand at the controls which are located on an attached panel. The information conveyed in the warning must be practical for the work environment.

Behavior Modification

Does the warning alter the user's actions as intended or desired? Is the unsafe act altered so as to reduce or eliminate the loss potential from the hazard?

Compatibility

Does the warning follow expected customs and practices known to the user? Compliance with known standards helps to reduce conflicts with prior learned responses and habits. The warning should not be in conflict with local, state, and/or federal regulations.

Conspicuousness

Is the warning noticeable? Conspicuousness is influenced by color, contrast, size, movement (if applicable), and brightness. Does the warning blend in with its surroundings? A good example of blending is the warning printed in raised letters on tires. Is the warning buried in other information that is being presented, or is the warning too "wordy"?

Durability

Will the warning label last as long as the product to which it is attached? Durability should be a fundamental requirement of the material used for the warning label. What is the environment where the label will be used? (caustic, acidic, flammable, wet, dusty, etc.)

Placement

Is the warning placed where it should be and when it should be? Placement of the warning label on the side of a machine when the hazard is in the back or front does not do any good. Consider how the user will approach the equipment; from one side? from the rear? or is it possible for someone to approach it from any of the four sides? Installation, routine maintenance, and repairs must be considered in deciding correct placement of the warning label.

CONCLUSION

It is of the utmost importance to understand that the use of a warning label should be the last effort in the product design process. Has every effort been made to eliminate the hazard? If it cannot be eliminated, has every effort been made to provide a guard or device to protect the user? If all efforts in these two areas have not been exhausted, then applying a warning is not the approach to take.

When reviewing warnings and labels, evaluate them to be sure that they are not just "decorative" or that they are being used to assure "compliance" with some regulatory requirement. Warnings should have a distinct purpose: the reduction of the loss potential from a hazard that cannot be eliminated or guarded. The decision to use a warning should consider, "Does the risk outweigh the benefits?"

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