

DESIGN DEFECTS AND PRODUCT SAFETY

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Design defects are one type of product defect. They occur when a product is inadequately planned, which could pose unreasonable hazards to product users. The basis underlying this theory of defect is that the product manufacturer should have adopted a design that would have reduced the risk of accidental injury. Unlike production defects, which only apply to products that deviate from established manufacturing requirements, design defects apply to an entire product line that is built in conformance with the flawed design. This can expose many people to a hazard.

This report provides an overview of the basic types of design defects, legal theories under which product liability lawsuits alleging defective design are brought, tests used by courts to determine defectiveness, and recommendations for reducing liability for defective design.

Types of Defects

In general, two broad types of design defects can be distinguished:

- Inadvertent design errors are those that result because the designer failed to adequately appreciate the implications of the various design elements or to employ commonly understood and accepted engineering techniques of safe product design. These types of design errors are like manufacturing errors because they may be measured against an objective standard. Common types of inadvertent design errors include specifying a material or component that was inadequate for the product or failing to identify a concealed hazard in the product.
- Design errors involve conscious design choices that result from a product designer's decision to accept the risks associated with the intended design in exchange for increased product utility, reduced costs or other business objectives that the designer believes justify conscious acceptance of the risks. These cases are more difficult to assess because the defect cannot be judged against an objective measure of defectiveness. Instead, it must be judged based upon the surrounding circumstances at the time the product was manufactured and whether a reasonably prudent manufacturer would have acted the same way. One common type of claim resulting from conscious design choices is the failure to provide a needed safety device.

Tests for Defectiveness

Design defect cases may be brought under each of the main theories of liability: negligence, strict liability or breach of warranty. The determination of defectiveness is very complex, and there is no single rule that applies to all cases. Jurisdictions vary widely in the specific tests used and depending on the legal theory under which the case is brought or the type of product involved.

In general, courts will judge the adequacy of a product's design using one of two basic standards or some combination of these standards – risk-utility analysis or consumer expectation.

Risk Control Recommendations

Product Safety in Design

Organizations designing products should:

- Ensure that technical specifications consider product safety.
- Ensure that products comply with all applicable safety standards and regulations.
- Perform hazard analyses on potential product designs using accepted hazard assessment techniques (e.g., failure modes and effects analysis or fault tree analysis).
- Incorporate customer feedback into design planning to determine if complaints are an indication of design flaws.
- Conduct formal, systematic and critical design reviews at prescribed intervals throughout the product development process to reevaluate product designs.
- Address any safety concerns identified by hazard analyses or design reviews.
- Control design changes that occur.

Documentation is Important

Product safety activities during product design should be well documented.

The documentation should:

- Demonstrate the formal activities performed by the organization to address product safety.
- Identify the specific activities that occurred and substantiate why actions occurred – for example, why one design solution was chosen over another.
- Be maintained in accordance with company document retention policies.



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