



CSA INTERNATIONAL

# WHITE PAPER

for Product Specifiers

## Understanding Product Certification Marks and the Product Testing and Certification Process

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Every day, buyers, contractors, distributors, specifiers, and others make important decisions about which products they will use. While factors such as new technology, manufacturer's name, and technical support can play important roles in the selection process, the presence of a certification mark from a qualified laboratory can be a key prerequisite of product acceptance.

Product certification marks—such as the CSA mark, the CSA Blue Star, or the UL mark—are found on a wide range of products, including commercial electrical and gas equipment, plumbing products, water purification units, heating and ventilating equipment and lighting products. Although many organizations today require that certification marks appear on the products they purchase or specify, confusion remains about what certification marks mean, who is qualified to perform product testing and certification and issue the marks, and how testing and certification organizations can assist buyers, contractors, distributors and specifiers in protecting their customers, and their businesses, from products that don't meet accepted standards for safety and/or performance.

If buyers, contractors, distributors and specifiers do not have a clear understanding of the marks and the companies who issue them, it can prevent them from better assuring that the products meet applicable standards for safety and/or performance. And it may unnecessarily restrict the choice of products available to meet their requirements.

### [Independent Third-Party Testing/Certification Protects Specifier and Consumer Interests](#)

Product certification marks are the result of an independent, third-party testing and certification process. As such, they provide credible evidence that products bearing them comply with applicable standards for safety and/or performance.

Product certification marks must appear on products and may be included on product packaging. They differ from other product and packaging markings such as brand name or logo identification, marketing endorsements, promotional approval seals and similar markings that are directly controlled by the product manufacturer.

Product certification marks provide clear evidence that a product has undergone independent, third-party testing and certification, performed by an accredited/recognized testing and certification organization (referred to in this article as a laboratory). Display of certification marks is not at the discretion of the product manufacturer. These marks may only be used on qualified products under license from the laboratory that tested the product and confirmed that it conforms to applicable national, international or other standards for safety and/or performance.

To qualify for certification marks, manufacturers submit samples of their products to a testing laboratory. The laboratory tests and evaluates these products under controlled conditions to determine if they meet applicable standards. Only product designs that successfully pass all required tests are entitled to bear the laboratory's certification mark. These marks are a visible and credible indicator to buyers, contractors, distributors, regulators and specifiers that the products meet the requirements of the applicable standards.

To ensure that the product continues to comply with the applicable standards over time, the laboratory conducts a series of unannounced, on-site inspections as mandated by the Occupational Safety and Health Administration (OSHA) for products sold in the U.S., and the Standards Council of Canada (SCC) for products sold in Canada. If the laboratory finds that a product does not meet the requirements of the standards during these follow-up inspections, corrective action is required which may include reworking, recalling and/or delisting the product.

## Product Testing and Certification—The Stakeholders

Three stakeholder groups participate in the product testing and certification process (Figure 1): product manufacturers, standards developers and the laboratories.

*Product manufacturers* are the companies that make the motors, industrial controls, heating and cooling systems, electric and gas-fired appliances, commercial electrical and electronic equipment, as well as plumbing and other products specified and/or purchased by specifiers, contractors and distributors. They must be aware of the applicable U.S., Canadian, and international standards when designing their products, and selecting the components and materials used in their products when manufacturing the products.

*Standards developers* are the organizations responsible for creating the standards or facilitating standards development. Often, they are supported by technical committees that include representatives from government, industry, retailers, consumer groups, regulators and end-users affected by the standards. These organizations develop the standards for a particular product and work in cooperation with standards publishers. In the U.S., standards developers commonly delegate the responsibility for publishing, maintaining, and distributing standards to organizations such as the American National Standards Institute (ANSI), the American Society for Testing and Materials (ASTM), CSA America, the National Sanitation Foundation (NSF) and Underwriters Laboratories (UL). In addition, standards developers are working together to produce harmonized standards. For example, tri-national (Canada, U.S. and Mexico) standards are developed through CANENA, the Spanish acronym for the Council for Harmonization of Electrotechnical Standards of the Nations of the Americas. Through standards harmonization, CANENA aims to increase opportunities for trade among the three countries. The standards are published jointly by the Canadian Standards Association in Canada, Underwriters Laboratories Inc. (UL) in the U.S., and Mexico's Asociación de Normalización y Certificación del Sector Eléctrico (ANCE).

*The laboratories* are independent organizations accredited/recognized by various governmental or national organizations to provide testing to national standards (e.g. OSHA, ANSI and Standards Council of Canada in Canada). These laboratories are hired by manufacturers to test their products and certify that the products meet the applicable standards. When a product is certified, the manufacturer is licensed to use the appropriate approval mark issued by the laboratory. The laboratory also makes available to the public, usually through an Internet website directory, a list of the products it has certified. The services offered by the laboratories include testing and certification of the original product design ("prototype") and regular follow-up inspections conducted at the factory where the mark is applied to the product to ensure that the products continue to conform to the standards.

Figure 1. Product Certification Process



\* NRTL = OSHA Nationally Recognized Testing Laboratories.

In addition to operating offices and laboratories in the U.S. and Canada to serve manufacturers with North American design and production operations, organizations such as CSA International have opened offices and established partnerships outside of North America to support the needs of manufacturers with global design and manufacturing centers or outsourcing arrangements.

### Understanding the Distinct Roles of Standards Developers and the Laboratories

It is important to understand the difference between the laboratories and standards developers. In some instances, separate divisions of the same organization are involved in testing/certifying products and in publishing the standards that the products are tested against.

When an organization is involved in both standards publishing and product certification, these activities are performed independently and separately to avoid conflicts of interest. Within CSA Group, for example, CSA America is responsible for publishing U.S. standards, the Canadian Standards Association publishes standards for Canada, and CSA International is a North American product testing and certification organization.

Sometimes the name (or a portion of the name) of an organization well known for its testing and certification activities appears in the name of standards published by that organization's standards division (for example, UL standard 507 for electric fans, or CSA standard Z21.47/2.3 for gas-fired central furnaces). This does not mean that a product must be tested and certified by the company whose name appears on the standard. So-called "CSA standards," "NSF standards," "UL standards," and others, are available to all qualified and accredited testing laboratories for use in testing and certifying products.

### Recognition/Accreditation Means Choices

A laboratory must be accredited to test a particular product. Accreditation/recognition means that the laboratory has proven that it possesses the necessary competence, capabilities, calibration and control programs, independence, and reporting and complaint handling procedures. In the U.S., OSHA recognizes laboratories as qualified to test electrical and gas products and to certify those that meet U.S. standards. OSHA-recognized facilities are known as Nationally Recognized Testing Laboratories (NRTLs).

To receive U.S. recognition, a laboratory must submit application materials to OSHA. OSHA then performs an application review and an assessment review of the laboratory's organization, programs and test facilities. The preliminary findings are published in the Federal Register to allow public comment. Following a waiting period, OSHA publishes a second notification and responds to any comments. If the application is successful, this second notice signifies that the laboratory has been approved as an NRTL. CSA International and Underwriters Laboratories are two examples of OSHA NRTLs. Both of these organizations are considered equally qualified to perform testing of products covered by their OSHA recognitions.

All NRTLs test products against the same sets of standards, regardless of who wrote or published them. For example, since CSA International and UL are both NRTLs for electrical products, a floor lamp certified by one laboratory against a particular standard has successfully met the same criteria as a floor lamp certified by the other.

All NRTLs also conduct unannounced follow-up inspections to ensure that the products they certify remain in compliance with applicable standards. The frequency of these inspections is set by OSHA guidelines; some NRTLs conduct more frequent inspections based on production volume, product liability risk or manufacturer compliance history.

In addition to OSHA, other accreditation bodies accredit laboratories as qualified to test electrical, gas and other classes of products for the U.S. market. These include ANSI, the International Accreditation Services (IAS)/International Code Council (ICC), the National Voluntary Laboratory Accreditation Program (NVLAP) and the American Society of Safety Engineers (ASSE).

### The Product Testing and Certification Process

To begin the product testing and certification process, a product manufacturer may request a project estimate from one or more laboratories. Once the manufacturer receives the estimate(s), they choose a laboratory based on factors such as price and delivery time.

The manufacturer then makes available to the laboratory product samples and data such as a materials list, schematic diagrams and information about the components used in the product.

Upon successful completion of evaluation and testing the manufacturer will receive confirmation from the laboratory, typically in the form of a descriptive and test results report, which specifies that the product does comply with the applicable requirements. The product will then be publicly listed by the laboratory. The manufacturer can then label the product with the certification mark of the laboratory. The National Electrical Code provides the following description of what it means for a product to be listed and labeled:

**Listed.** Equipment, materials, or services included in a list published by an organization that is acceptable to the authority having jurisdiction and concerned with evaluation of product or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that the equipment, material or services, either meets appropriate designated standards or has been tested and found suitable for a specified purpose.

**Labeled.** Equipment or materials to which has been attached a label, symbol or other identifying mark of an organization that is acceptable to the authority having jurisdiction and concerned with product evaluation, that maintains periodic inspection of labeled equipment or materials and by whose labeling the manufacturer indicates compliance with appropriate standards or performance in a specified manner.

Most laboratories, including CSA International, post directory listings on their websites, where any interested party can verify whether or not a particular product has been certified.

## What the Marks Mean

Product certification marks are a visible indicator that a product or component meets applicable standards for safety and/or performance. Some of the marks issued by accredited/recognized laboratories and commonly found on products certified to applicable U.S. national standards are CSA, UL, NSF, ETL and TUV. Here are some example marks from CSA International and explanations of when they are used.



The CSA mark indicates that a product meets applicable Canadian standards including those from CSA.



The CSA US mark indicates that a product meets applicable U.S. standards, including those from ANSI, ASME, ASSE, ASTM, NSF, CSA America and UL.



The CSA C/US mark signifies that the product meets applicable U.S. and Canadian standards, including those from CSA, CSA America, ANSI, ASME, ASSE, ASTM, NSF and UL.



The CSA Blue Star, found on gas-fired products, demonstrates that they meet U.S. standards for gas-fired products published by ANSI and CSA America.



The CSA Blue Flame, found on gas-fired products, demonstrates that they meet Canadian standards for gas-fired products published by CSA.

## The Benefits of Competition

Because multiple laboratories have attained accreditation/recognition to test and certify various types of products, product manufacturers have the freedom and flexibility to select an accredited/recognized laboratory for a particular certification project based on factors such as delivery time, price and convenience.

Since different laboratories test and evaluate similar products against the same standards, buyers, contractors, distributors and specifiers can select products based on brand, price and quality, rather than who did the testing and evaluation.

A competitive, open testing and certification marketplace helps manufacturers bring their products to market as quickly and economically as possible while also ensuring that they are subjected to the testing called for by the applicable standards. This can help assure that qualified products, competitively priced, will be available to buyers, contractors, distributors and specifiers without shortages or backorder delays.

Buyers, contractors, distributors and specifiers can only take advantage of this openness and competition, and ensure that they have access to the broadest possible selection of products, by ensuring that their product selection practices are not unduly restrictive. For example, a policy or practice that accepts products tested and certified by an accredited/recognized laboratory protects against the use of nonconforming products without placing unnecessary limits on product selection. In contrast, a purchasing or specification policy requiring products certified by a particular laboratory unnecessarily limits the range of products available.

By becoming more familiar with the product testing and certification process, and taking advantage of the benefits offered by a competitive system of testing and certification offers, buyers, contractors, distributors and specifiers can ensure that they have continued access to new and innovative products.

## To Learn More, Contact:

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