



**New Recognition Certification**  
for Access Hardware

INDUSTRY  
ARTICLE

By Chris Waite, Engineer,  
Diversified Technologies,  
Southco, Inc.

Until recently, electrical enclosure manufacturers faced a challenge: In order to build enclosures that were UL 50E Type rated, additional testing and evaluation of the enclosure was almost always required due to the unknown compliance status of components, such as hinges and latches used in these enclosures.

However, UL recently released FTTA2/FTTA8, a new Recognition Certification for the U.S. and Canada. This new Recognition Certification for enclosure accessories assists manufacturers who wish to utilize Type rated hinging and latching accessories in enclosures complying with the requirements of UL 50E, respectively.

UL 50 and UL 50E are two UL Standards for electrical enclosures. UL 50 applies to enclosures for electrical equipment intended to be installed and



<sup>1</sup> UL 50, Section 1.1

used in non-hazardous locations in accordance with the Canadian Electrical Code, Part I, CSA C22.1, the provisions of the National Electrical Code, NFPA 70 and the provisions of Mexico's Electrical Installations.<sup>1</sup> UL 50E covers additional environmental construction and performance requirements for these types of enclosures.

With the new FTTA2/FTTA8 certification, enclosure manufacturers may be able to reduce the significant time and cost associated with having to put their enclosure through all facets of UL 50E testing (e.g., corrosion resistance, gasket integrity, and plastic concerns such as UV, water exposure and immersion, and flammability requirements). By properly and pre-emptively selecting registered components under FTTA2/FTTA8 and leveraging exemptions for other materials used to construct the enclosure, enclosure designers can achieve their desired Type Rating with a final hosedown test of the end-item.

This makes it possible for enclosure manufacturers to accelerate market access efficiently without compromising product safety. Risks from sourced components are mitigated, as there are no latching and hinging hardware corrosion protection and plastic requirements, gasket testing and traceability issues that the enclosure manufacturer must test for and document on their own. Although a final hosedown test is always required, latching and hinging hardware is also vetted for different levels of water ingress testing in isolation.

## Understanding UL Recognition Certification

To understand FTTA2/FTTA8, it is useful to understand how UL evaluates and certifies components according to UL standards. A complete product is ultimately an assembly of components, often thought of as building blocks. Components can be either Listed or Recognized by UL. The simplest method by which to comply, on a component level, is to start with certified components.

With UL's component recognition service, UL determines that a manufacturer has demonstrated the ability to produce a component for use in an end product that complies with UL's requirements. This type of investigation takes into account the performance and construction characteristics of the end product and how the component will be used in that product.

The new FTTA2/FTTA8 Recognition Certification covers a broad range of enclosure accessories, including:

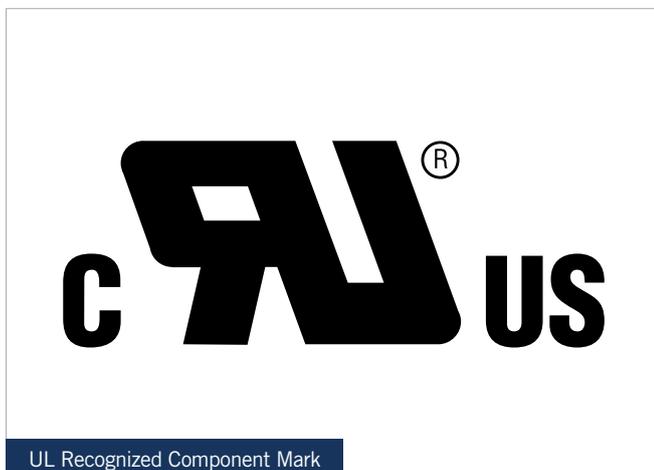
- 3-point handles
- Butt and concealed hinges
- Draw latches and compression latches
- Captive fasteners
- Quarter-turn fasteners
- Swing handles

The environmental testing and certification provided by UL can potentially eliminate common “pain points” that enclosure manufacturers can encounter when trying to comply with UL 50E, most notably during the product development process.

If component products do not comply with UL 50 and/or UL 50E, the entire enclosure needs to be refitted and tested again, which can lead to a continuous loop of cost and testing time. To illustrate the cumulative impact of this loop, it can add up to 50 days or more to the timeline for completing one FTTA2/FTTA8 corrosion test – a major disruption of a manufacturer's development plans.

Testing can range in complexity, manufacturers may not have the equipment needed to test under certain environments, or may not have the manpower to perform these tests. Ultimately, this type of testing can exhaust the resources of the enclosure manufacturer and extend their end product's time to market.

Using components that already comply with FTTA2/FTTA8 provides added peace of mind to the manufacturer's end customer, in that the functionality of that enclosure will not be affected when used by operators in the field. For instance, using certified hardware in electric utilities enclosures can safeguard against the possibility of equipment failure, helping to prevent power outages, upset residential and commercial customers, and expensive repairs.





Southco products tested at a UL facility

## UL Testing and Evaluation Process

UL conducted three highly rigorous environmental exposure tests to assess the samples selected from the hinges, latches and other products submitted.

- A 25 day/600-hour salt spray test where the test sample is compared to G90 galvanized steel
- A 50 day/1200-hour moist air carbon dioxide (CO<sub>2</sub>)/sulfur dioxide (SO<sub>2</sub>) test where the test samples are subjected to moist carbon dioxide-sulfur dioxide-air exposure in an assessment protocol, which includes numerous compliance criteria for determination of the test results
- A 200-hour salt spray test where the test sample is compared to 304 series stainless steel

For the moist air CO<sub>2</sub>/SO<sub>2</sub> test, samples are immersed in the test chamber with the prescribed mix of gases and moisture for the required time period. Once the exposure is completed, samples are evaluated by performing a visual inspection. The UL Lab Technicians look for certain levels of corrosion and pitting, and perform blister analysis and creepage analysis.

The test simulates a long-term exposure to the environment for a particular material, which corresponds to simulating a 20 to 30-year lifecycle of the product. The test is designed to assess if the hinge or latching hardware can withstand this kind of exposure over multiple years in outdoor applications. The testing and evaluation for the other two tests follows a similar process. The 600-hour salt spray test also benchmarks the test sample against G90 galvanized sheet steel. Passing both the 600-hour and the 1200-hour test is required to achieve a UL 50E Type Rating suitable for outdoor applications.

In the case of the 200-hour salt spray comparison, the bar is set higher as the products tested are compared with standard 304 series stainless steel to assess that zero pitting, cracking, bubbling or scaling has occurred during exposure. Passing all three tests earns an extra degree of corrosion resistance, designated by an “X” in the Type Rating (e.g., 3RX, 4X).

UL also conducted testing on gasket materials that are typically included in latch kits. Instead of corrosion, the testing evaluates the deterioration of the gasket when it's exposed to certain environments: elevated temperature and oil-based contaminants.

Flange gaskets and O-rings are critical components contributing to the sealing features of latches and fasteners. Naturally, the gasket swelling, shrinking or losing its elasticity may be a problem. To rule this out, oil immersion at room temperature as well as tensile strength and elongation tests are performed before and after oven aging to evaluate gasket materials and their ability to provide secure latching over a long period of use and exposure to environmental conditions.

## Simplifying Enclosure Certification

Enclosure accessories that receive the FTTA2/FTTA8 Recognition Certification can be used by manufacturers who create or use Type rated enclosures that comply with UL 50 and UL 50E, which streamlines the process of bringing Type rated enclosures to market.

For example: Type 4X rated enclosures are certified for outdoor use, providing an established degree of protection against hosedown, splashing water, windblown dust, rain, snow and sleet, and are constructed of materials and components that remain undamaged by the formation of ice on the enclosure.

So, if all the other Type 4X conditions are met -- constructing the enclosure out of materials exempt from corrosion testing such as 304 or 316 stainless steel, using pre-qualified UL approved gaskets to line the enclosure, and choosing accessories with the new FTTA2/FTTA8 recognition -- all enclosure manufacturers will need to do is perform a hosedown test to document that their enclosure can be Type 4X rated by UL. By pre-qualifying the enclosure for outdoor applications, it's been estimated the manufacturer will save at least 50 days of testing time as well as the cost of test samples.

## Results of UL Evaluation of Southco Products

Upon completion of testing, UL will post information about products that have received the FTTA2/FTTA8 Recognition Certification in the UL Online Certifications Directory. Products that have received the Recognition will be listed by company and categorized by product category, and the Type rating for which the components can be used.

Once an enclosure manufacturer establishes a need for a UL 50E Type rated accessory, they can review the available options in the online directory. It makes sense to do this early in the design process, while other design considerations are being addressed, such as panel thickness, grip, enclosure color and style.

Working with an accessories supplier that understands compliance requirements, and has proven experience in meeting the core functional needs of the application can help ensure that the design is successful; for example, suppliers can help manufacturers avoid future testing and design issues.

It is important to note that selecting accessories with FTTA2/FTTA8 Recognition does not mean the enclosure manufacturer can bypass final testing of a completed enclosure. It simply means that the accessories themselves do not require additional testing. The manufacturer must still work with UL to complete the required testing of the enclosure as a whole under UL 50/50E.

However, selecting Recognized accessories can save significant design, testing and certification costs, enabling faster market access for new enclosure designs that satisfy end-user requirements for Type rated applications.

# About Southco

Southco understands that first impressions are critical. Southco is passionate about connecting with our customers to create innovative engineered access hardware solutions that enhance the “touch points” of our customers’ products. Our unmatched engineering experience delivers proven, high quality off-the-shelf solutions that can be customized to solve the unique design challenges of our customers around the world.



ELECTRONIC  
ACCESS



DISPLAY  
MOUNTS



COMPRESSION  
LATCHES



CAM LATCHES,  
LOCKS & SWING-  
HANDLES



PUSH-TO-CLOSE  
LATCHES



ROTARY  
LATCHES



DRAW  
LATCHES



HINGES



QUICK ACCESS  
FASTENERS



CAPTIVE  
SCREWS



INJECT / EJECT



HANDLES  
& PULLS

**southco**®

**Americas Global Headquarters**

Concordville, PA, USA  
Tel: (1) 610 459 4000

**Europe Headquarters**

Worcester, UK  
Tel: (44) (0) 1905 346722

**Asia Pacific Headquarters**

Hong Kong, China  
Tel: (852) 3127 1503

**WORLDWIDE MANUFACTURING AND STOCKING LOCATIONS**

Concordville, Pennsylvania, USA · Honeoye Falls, New York, USA · Philadelphia, Pennsylvania, USA · Warminster, Pennsylvania, USA · Chihuahua, Mexico · Tecate, Mexico  
São Paulo, Brazil · Farnham, UK · Worcester, UK · Hong Kong, China · Shenzhen, China · Shanghai, China · Seoul, Korea · Melbourne, Australia · Pune, India · Osaka, Japan