

# The UL and You

Anthony J. Shalna ©2007

Principal IMSA representative to the Automatic Fire Alarm Association  
President- Southeastern Signalmen of Massachusetts  
Approvals Manager – Gamewell-FCI by Honeywell

One of the questions asked most often in the fire alarm industry is: “Will modification of a fire alarm control panel void the UL Listing?”

The answer is: “It depends”.

First, let’s review the UL Listing process. An original equipment manufacturer (OEM) designs a new fire alarm control panel and wishes to have it listed, since codes specify that all equipment shall be listed for the purpose intended, or similar wording. The Occupational Safety and Health Association (OSHA) recognizes various companies as Nationally Recognized Testing Laboratories, (NRTL), and certifies them to test per various standards. Therefore the term “Listing” is generally defined as a certification by an NRTL that the equipment has satisfactorily passed testing per a given standard. The standard that covers fire alarm control panels is ANSI/UL Standard 864, currently in its 8<sup>th</sup> Edition, with the 9<sup>th</sup> Edition scheduled to take effect in the middle of this year. ANSI/UL Standard 864 is a rather large document specifying tests concerning all types of panel usages. A number of the tests specified in the standard are concerned with special applications, such as agent release, outdoor, or weatherproof applications, etc. and do not usually apply to the average fire alarm installation that is intended for indoor basic fire alarm use.

Underwriters Laboratories is perhaps the best known of the three NRTLs currently certified to test to Standard 864, and so we will confine this article to UL Listing.

The OEM engineers are careful to design the panel to conform to Standard 864 to the best of their ability, and the OEM then applies to UL for listing. Requisite documents accompanying the application include schematics, wiring diagrams, photographs, installation instructions and manuals, board layouts and bills of material.

Once UL opens the project, there are three options available:

- 1) UL can send an engineer to the OEM’s plant to act as a project handler and perform the applicable tests from Standard 864. Obviously a visit by a UL project handler will involve additional travel and lodging expenses, but this may prove more economical in the long run, since the OEM’s engineers can make any necessary corrections or fixes as problems are uncovered, or in the event some test results are unsatisfactory.
- 2) The OEM can send a sample panel to the nearest UL Laboratory where UL personnel will set up the panel and perform all applicable tests. This eliminates the travel and lodging expense costs of a visit, but is cumbersome unless the OEM sends his own engineer to the UL laboratory to facilitate setting up and testing. Otherwise delays will be encountered in the event of questions raised by the project handler or failures encountered in the testing process.
- 3) If the OEM is certified by UL under the UL Client Test Data Program (CTDP), the OEM’s own UL certified personnel

are allowed to perform tests in-house with the exception of the final “Normal Operations” test. In order to achieve CTDP status, an OEM must undergo a rigorous program and examination including performance of all pertinent tests in the presence of a UL evaluator. If the OEM is fairly prolific with new products, this would be the most economical and practical course to take. Upon completion of the CTDP testing, the UL project handler reviews all test data sheets and then pays a visit to perform the Normal Operations Test. Various innovative review methods for the Normal Operations Test are continually developing, including closed circuit TV, webcams, etc., eliminating the need for a visit by the UL project handler, depending on the level of comfort UL has with the client’s testing ability.

Once all testing has been performed satisfactorily, the project undergoes a review process by the project handler, who reviews all documents including the test data sheets, carefully checks all components to determine their suitability or adherence to UL Recognition status which is widely used for small components. Once the project handler is satisfied, the project then undergoes a final, comprehensive review by a reviewer.

Once the product satisfactorily passes the final review stage, UL then issues a Notification of Acceptance (NOA) letter, good for a certain amount of days, that serves as a temporary authorization for the OEM to affix the UL Label to his product until the final report is printed and issued. A Follow-Up Service Procedure (FUS) is also compiled along with the report. The FUS serves as a guide for the local UL inspector, contains additional construction details, including photographs of the sub-assemblies.

Any manufacturing location where UL Listed product is built, is subject to unannounced, random visits by a UL Inspector, who has a copy of the FUS and inspects randomly selected products to ensure that the procedure is followed. If there are any discrepancies or failures to follow the FUS, the inspector will issue a Variation Notice (VN) which must be addressed by the OEM within a specified period of time. If the variation is serious enough, the inspector may order the production line stopped and prohibit the application of the UL label to the product until the problem is addressed.

The UL Label can only be affixed to the panel at the manufacturer’s plant. If a label is inadvertently omitted at manufacture, (or removed after shipping) the panel must be returned to the manufacturer to have the label installed. The only other means of affixing a label in the field would be by a UL engineer who visits the installation, and determines that the equipment is eligible to have the UL Label applied. However, this would involve time and expense charges that may be substantial.

It’s also interesting to know that, unless the equipment has a modular listing, individual sub-assemblies cannot be replaced nor can panel capacities be expanded in the field by addition of sub-assemblies. Equipment with this type of listing will bear only one label, referring to “Listed Fire Alarm Control”. The entire panel must be returned to the factory for replacement or

*Continued on page 37*

## The UL and You . . . *Continued from page 36*

addition of sub-assemblies. Optionally a site visit by a UL engineer would be required.

If the panel is modularly listed, each replaceable sub-assembly and enclosure will have its own individual UL Label, referring to "Listed Fire Alarm Equipment Enclosure", "Listed Fire Alarm sub-assembly" etc. These assemblies, cabinets, etc. may be installed in the field.

Modifications involving rebuilding of listed equipment are an entirely different subject, since allowing the original OEM's name or UL label to remain on rebuilt equipment without authorization of the OEM or UL involves violation of the copyright laws and is illegal.

This brings us back to the opening question regarding voiding of the UL Listing. In actuality, the UL Listing process involves only one thing: it allows the OEM to affix the UL label to his product. This means only that the product was manufactured in accordance with the UL Standard in place at the time of manufacture. Once the product is sold to a customer and leaves the OEMs shipping platform, the product becomes the property of the customer and no longer comes under UL authority.

One exception to this would be a situation where the panel installation is to be certified by a UL certified third party who ensures that all equipment remains as manufactured, with no modifications allowed, and the installation is per the National Fire Alarm Code and other applicable codes.

Otherwise, any subsequent modifications to the equipment, such as addition of components, relays, etc., fall under the auspices of the Authority Having Jurisdiction (AHJ) who is usually a Fire Prevention Officer, Fire Marshal, Fire Chief or similar person, depending on the jurisdictional structure in the area where the installation is to take place. Some towns or cities may have ordinances or bylaws requiring modifications to the equipment. One typical modification commonly required in the past was the installation of a proprietary key operated switch that the responding Fire Dept official could operate to silence audible signals when it was safe to do so, so as not to impede fire fighting operations. Thus the officer in command could use his special key to silence any brand of control panel. Therefore, in the event of any subsequent legal challenges, the AHJ can refer to the ordinance or by-law as his authorization to allow that particular modification.

One extremely important point, however, is that the AHJ will be extremely reluctant to allow modifications to listed equipment, due to liability considerations. The AHJ might allow modifications only for an exceedingly good reason, and follow NFPA Fire Alarm Codes, etc. as closely as possible.

Therefore, the answer to the posed question is moot, since the UL Listing applies only to the manufactured product and UL Certified installations. Once the equipment leaves the OEM's premises, a listing cannot be "voided" as such, but any modifications deviating from codes and standards will indeed void the intent of the listing process. An example of this would be additional components that may increase heating or impede ventilation in the cabinet, so component and panel temperatures would be in excess of that allowed in the standard.

Thus, modifications of listed equipment in the field are allowable if approved by the AHJ. Keep in mind, however, that the ultimate AHJ could be the grand jury.



## Fire Alarm Systems . . . Getting It Right The First Time

*Continued from page 35*

Any other trades necessary to conduct the test (e.g., elevator technician) should be on-site and ready to support the test. Keep in mind that some jurisdictions may prohibit fire alarm technicians from operating fire suppression systems. Therefore, a sprinkler technician may be required to conduct flow tests.

Some jurisdictions and Federal agencies now require the contractor or owner to use the services of a qualified and impartial third party to provide indication of compliance of a new installation. There are many qualified third party contractors, and some jurisdictions maintain a list of approved verifiers. In all cases the verifiers must be in no way connected to the installer or owner.

At the completion of all tests, be sure the owner is provided with copies of all required documentation and software. This documentation includes the following:

- (1) Operations & Maintenance (OM) Manual
- (2) Record (as-built) drawings
- (3) Site-Specific software
- (4) Project specifications
- (5) Record of Completion (from NFPA 72, Figure 4.5.2.1)
- (6) Record of Inspection & Test (from NFPA 72, Figure 10.6.3)

When the system requires servicing and testing, this information will be needed. It is recommended that a receipt be obtained upon delivery of the documentation, in order to

*Continued on page 49*

## Protect important intersections from power outages.

*Install UL Listed transfer switches with your traffic pedestals.*



- Surface or flush mount units available
- Flush design recesses into cabinet to prevent tampering
- 20, 30 and 50 amp configurations available
- Optional pilot light indicates when utility is restored

**1-888-GEN-TRAN**  
**www.gen-tran.com**  
IMS A Sustaining Member

