FIELD EVALUATION

COVER STORY: EXAMINING the IMPORTANCE of

FIELD INSPECTION

Answers to Unlisted and Unique Equipment Issues

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When it comes to Field Evaluation, some of the most frequently asked questions are:

- Is it difficult to achieve Local and Regional Regulatory Compliance?
- What does the NEC say about unlisted equipment?
- What are the legal implications of installing and operating unlisted equipment?
- What is TUV doing for the City and County Inspectors?
- What is TUV doing for manufacturers and owners of unlisted and unique equipment/systems?

TUV Rheinland of North America has the answers to these queries and works with its customers to ensure their industrial equipment and machinery comply with local, state and federal regulatory agencies.

National Electric Code (NEC)

The National Electric Code (NEC) requires that all electrical utilization systems are either listed, labeled, identified or approved as compliant to the requirements of relevant safety standards as developed by a number of standard writing organizations such as Underwriters' Laboratories (UL) and American National Standards Institute (ANSI).

Specifically, section 90-7 of the NEC states that:

- For specific items of equipment and materials referred to in this Code, examinations for safety made under standard conditions will provide a basis for approval. The record is made generally available through promulgation by organizations *properly equipped and qualified for experimental testing, inspections of the run of goods at factories, and service-value determination through field inspections*. This avoids the necessity for repetition of examinations by different examiners, frequently with inadequate facilities for such work, and the confusion that would result from conflicting reports as to the suitability of devices and materials examined for a given purpose.
- It is the intent of this Code that factory-installed internal wiring or the construction of equipment need not be inspected at the time of installation of the equipment, except to detect alterations or damage. This occurs if a qualified electrical testing laboratory that is recognized as having the facilities described above, and that requires suitability for installation in accordance with this Code has listed the equipment.

Hence, in 1988 the Federal Occupational Safety and Health Administration (OSHA) created the Nationally Recognized Testing Laboratories (NRTL) program to identify and authorize qualified testing labs to list and label such equipment and to promulgate them through their product listing directories.

With the assumption that an electric utilization system has been tested, listed and labeled by an NRTL, the local Authorities Having Jurisdiction (AHJ) (which may be a City or County Building/Development and Safety Department) is not required to re-evaluate the safety of the system. However, if the system has been modified from its original condition or is installed or used under conditions not stipulated in its listing, the local AHJ may deem it necessary to inspect the safety of the system on its own. The alternative is to require that a third-party accredited safety certification laboratory be called to inspect the system for compliance to the requirements of the relevant safety standards.

It is a fact that the process of testing, listing and labeling systems may be very time consuming and expensive. Hence, many manufacturers may try to avoid it altogether and hope that their customers will buy their products without any listing or labeling and the local AHJ will not notice the absence of the listing. This is particularly more prevalent with manufacturers that custom build their products and overseas importers that do not want to spend their resources to acquire the NRTL listing. Equipment that is older and was manufactured at times when the danger of lawsuits and litigation were not as prevalent are found mostly to not comply with the listing and labeling requirement.

The Challenge to AHJ Inspectors

As a matter of fact, those manufacturers and importers that bring unlisted equipment/systems to the U.S. marketplace challenge the ability of the AHJ inspectors to identify this noncompliance and take adequate action to correct it. However, over the past decade or so, an ever-increasing number of jurisdictions have come to the realization that unlisted, modified and inadequately installed systems are a liability for them and their jurisdiction. Consequently, they have sought the services of independent and accredited testing labs such as TUV to field evaluate and label such equipment as compliant to the requirements of the relevant standards. Hence, by being diligent the jurisdiction

avoids being exposed to lawsuits and other litigation-related expenses.

TUV has recognized this trend and has invested significant resources to train dozens of engineers in field evaluation-related inspections and has created the required infrastructure to address the demand for field inspections of unlisted and unique equipment. Since the initiation of TUV's U.S. operations in the early 1980s, TUV has been involved in field inspection services. Its Field Engineering Services Department was launched in the late 1990s. In the beginning the program had two main regions of operation that covered the southeastern corner of the country, operating out of the Miami, FL office, and the northwestern part of the country, operating out of the Portland, OR office. During the year 2002, TUV decided to launch an expanded nationwide program that addresses the ever-increasing demand for third-party field evaluation of unlisted and unique equipment. This program covers the following three main categories.

The Program Scope:

1. **Pre-Inspection for Field Evaluations:**
   Significant numbers of international manufacturers are selling equipment and machinery to the U.S. and Canadian businesses. Some of this equipment is custom-made while others do not have a U.S./Canadian NRTL listing, so they opt for field evaluation of their equipment. However, the manufacturer as well as the client are not willing to be surprised with any noncompliances after the equipment has been delivered to the U.S. and Canadian markets. They request TUV to perform a pre-inspection at the manufacturer's site through any one of its offices worldwide. The manufacturer can correct any required noncompliances and the pre-approved equipment will be shipped to the U.S. or Canada. The equipment is then field inspected to verify compliance at the final installation location by one of TUV's 14 North American offices. Thus the manufacturer and the importer of the equipment/ systems are able to save time, money and hassle in getting their products to comply to relevant U.S. and Canadian standards.
2. **Field Inspection of Unlisted/ Unlabeled Equipment:**
   Unlisted equipment that is custom-made, homemade or imported is evaluated at the final installation site for compliance to requirements of relevant standards in an expedient and efficient manner utilizing the most adequate North American Safety standard for the evaluation process. A serialized field label is applied to each piece of compliant equipment.
3. **Special Inspections:**
   Canadian AHJs require that an accredited testing lab like TUV approve all hardwired equipment

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connections to main power. A program has been initiated to meet the demand in this market segment and serve the interests of public safety in Canada as well.

Competitive Advantage:

Given its extended experience in the field evaluation sector, TUV will offer equipment owners and manufacturers the following advantages:

1. **Next-day Service**
   For every type of field inspection for electrical and electromechanical equipment and systems, TUV Rheinland of North America offers next-day service. This means that if TUV is called today for an inspection, TUV will be in the field the following day and evaluating the unit.

2. **Faster Turnaround Times**
   For a single unit, this means that if the unit complies with the requirements of the standards, TUV applies its label to the unit before the end of the day. A detailed report is issued within the next five working days. In case of noncompliance, the client is briefed on the same day. The detailed report of findings with noncompliant issues and suggestions for corrections is sent to the client within the next three days. Thus, TUV achieves one of the fastest turnaround times in the industry.

3. **Ease of Compliance**
   Due to TUV's experience in the global market and its presence in more than 47 countries, TUV understands the complexities of various types of equipment that are manufactured in various markets in Europe, the Far East and other parts of the world. Issues, such as reliability of components and similarities between various accreditations in different parts of the world to which components may have been tested are better translated from one environment to another. Hence, TUV is more forthcoming to alternative accreditations and approvals, as far as U.S. and Canadian standards permit. This is of significant benefit to TUV's customers, who will not need to make unnecessary, costly, complicated and time-consuming modifications to their equipment in order to comply.

4. **Competitive Prices**
   While it is not the intention of TUV to underquote or risk that corners are cut,

   TUV charges one of the more competitive prices in the industry. TUV identifies economies of scale and process efficiency improvements to reduce the amount of time spent on equipment and the cost of its field inspections.

5. **Access to Global Markets**
   Through its worldwide offices, TUV offers pre-inspections in 47 countries before the equipment is delivered to the U.S. market. Thus, TUV is able to reduce the cost incurred and the time required for modification of the equipment to comply with U.S. and Canadian standards.

6. **Detailed and Inclusive Report**
   TUV's report consists of a detailed checklist for the relevant safety standard, a test data sheet, a list of findings during the initial inspection and the enacted corrective measures, a list of all safety critical components including electrical rating and proof of reliability through an NRTL approval. The report also contains the photos of the interior and exterior of the equipment/system and the schematics as well as its operations manual. A multi-page narrative description of the inspection procedure describes some of the steps taken to perform the field evaluation. Thus, a credible and informative evaluation report is issued which is forwarded to the equipment/system owner as well as the relevant AHJ.

7. **Well-Reputed Field Label**
   TUV's field label identifies a company with nearly 135 years of experience in product safety certification. TUV's NRTL status, presence in more than 14 locations throughout North America and a network of contract laboratories, helps the customers enjoy a smooth, fast, cost-effective and highly reliable compliance experience.

Equipped with these competitive advantages, TUV is able to achieve its goal of being one of the last control instances before the workers and consumers are exposed to life endangering hazards caused by equipment/system fires, electric shock, mechanical injury and high energy/current.

TUV has recognized its role in the society as a responsible member, caring for the safety and well-being of all citizens. TUV is committed to working together with the AHJs, the manufacturers and the electrical equipment/system owners to make the U.S. and Canadian workplace a safer work environment. ▲

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