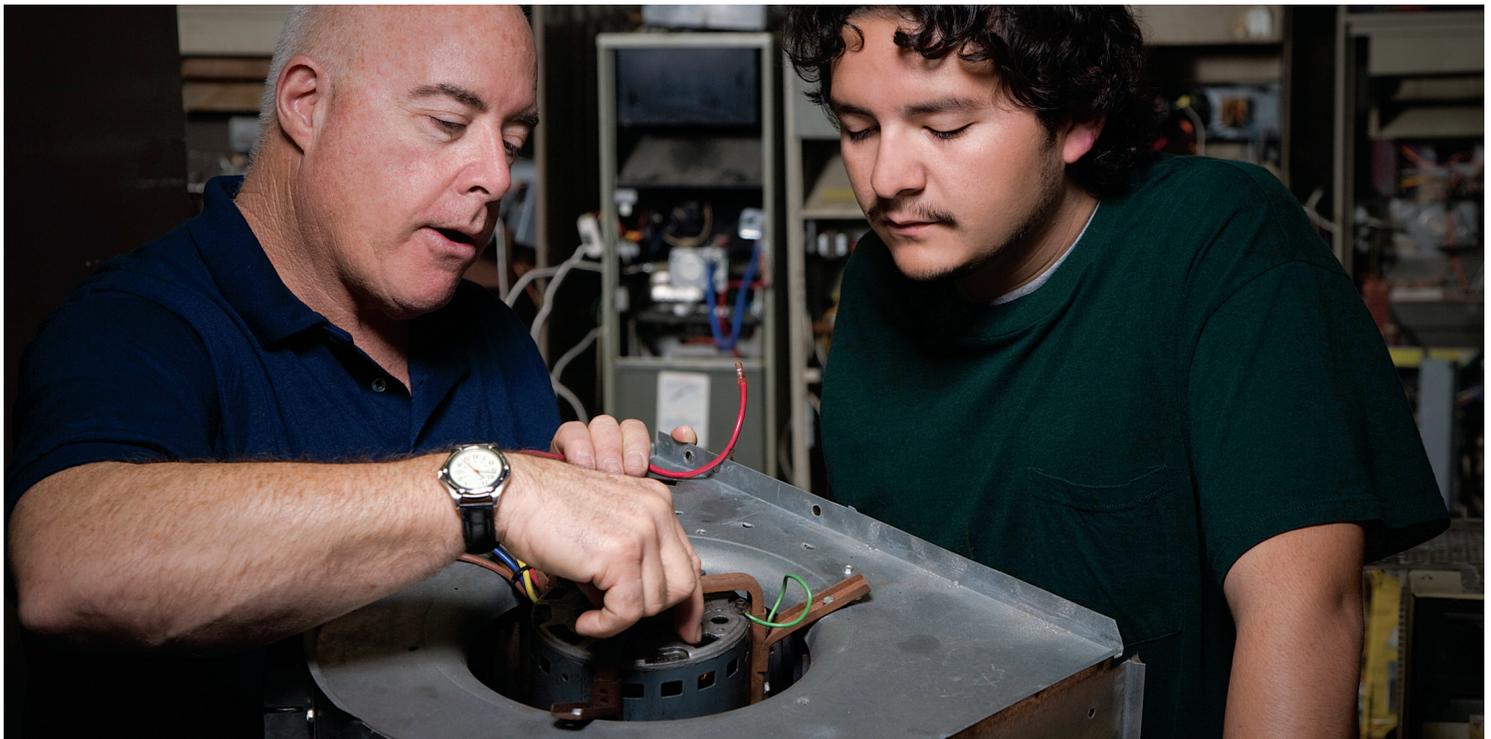


UL Rebuilt Equipment Certification Programs

Supporting green construction initiatives



Interest in green construction practices continues to increase, spurred by concerns about the environment and current economic conditions. One aspect of green construction practices involves recycling used equipment, including various degrees of rebuilding, remanufacturing, refurbishing, repairing or reconditioning of equipment. The result is commonly referred to as a “rebuilt” product.

To be viable, green construction practices need to be sustainable, but they cannot undermine the fundamental levels established for public safety.

Safety considerations

The UL Listing Mark on a newly manufactured piece of equipment is an indication that the product complies with

nationally recognized safety requirements when the product was shipped from the factory, and that it is suitable for installation and use in accordance with specific model codes. However, if a product is rebuilt, UL cannot confirm that it continues to comply with appropriate safety requirements without additional investigation.

A Field Evaluation is one way to determine if a rebuilt product continues to comply with UL safety requirements. The downside is that a separate evaluation is needed to determine the acceptability of each equipment installation.

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UL Rebuilt Equipment Certification Programs (continued)

Alternatively, UL has developed programs to determine the suitability of equipment rebuilt under a more structured equipment rebuilding program.

Rebuilt equipment certification programs

UL's rebuilt equipment certification programs address both green construction and safety concerns. These programs cover specific types of products that can be fully evaluated to the same safety requirements used to evaluate newly constructed products. In order for a rebuilt product to be considered for certification, UL first needs to establish the feasibility of determining compliance of the product with all the applicable product safety requirements. Concerns that need to be addressed include the potential effects of deterioration due to normal use and aging or damage caused by fire, flood, seismic, wind or electrical faults.

UL has established rebuilt equipment certification programs when either the original manufacturer or another party has the necessary facilities, technical knowledge and manufacturing skills to rebuild products that continue to comply with UL safety requirements. These

programs require the equipment rebuilder to comply with the following requirements:

- The original UL Mark must be removed from the equipment being rebuilt, or permanently defaced.
- The equipment can only be modified using materials and procedures that are suitable for the application.
- Production line testing may be conducted to verify that the rebuilt equipment complies with specified performance requirements.
- Rebuilt equipment complying with all program requirements are plainly and permanently marked with the name of the rebuilder and a UL Mark containing the term "Rebuilt," or other terminology suitable for the product category.
- The rebuilt equipment shall be subjected to the same requirements as newly constructed equipment.

There are product categories in which UL has chosen not to establish equipment rebuilding programs due to safety considerations that cannot be adequately addressed. For example, UL does not have a certification program for rebuilding or refurbishing molded case circuit breakers.

Over the years UL has created certification programs for rebuilt cooking appliances, refrigerators, vending machines, uninterruptible power supplies, motor controllers, motors for use in hazardous locations, office furnishings and electric signs, to name a few. The guide information for each product category with a rebuilt certification program references the existence of such a program and identifies the applicable UL Mark for rebuilt products.

Evaluations of rebuilt equipment

UL certification programs for rebuilt equipment require the rebuilt equipment facility to pass an initial investigation to demonstrate compliance with all program requirements. These programs typically verify the following criteria, among others:

- Determine that the materials to be used are acceptable.
- Establish that a minimum amount of measurement and testing equipment is available to perform the required inspections.
- Review the machining and manufacturing equipment to verify that they are suitable for the type of rebuilding work that may be necessary.
- Explain the requirements of the program, including the methods and procedures to be employed during the rebuilding process.

Once equipment rebuilders demonstrate compliance with all program requirements they obtain certification under the specific rebuilt equipment program. Equipment rebuilding facilities are also covered under UL's factory surveillance program to verify ongoing compliance with program requirements.

Rebuilt hazardous location motors

A good example of a rebuilt equipment program is the program covering rebuilding of electric motors (and generators) for hazardous locations. The motor to be rebuilt is required to have been UL Listed for use in hazardous locations when new. Under this program, a motor can only be rebuilt for any one, or for any combination of the hazardous

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location Classes and Groups for which it was originally UL Listed. Certain types of motors are not eligible to be rebuilt unless the original equipment manufacturer's information is available.

All motors and auxiliary electrical circuits are required to be subjected to a dielectric voltage withstand test, using test equipment that is calibrated at least annually. The program requires the rebuilding facility to inspect motors for damage or changes that may affect their operation in a hazardous location. All damage must be repaired, and changes that could adversely affect the motor performance with regard to hazardous locations are not permitted.

As a countercheck to the work performed at the rebuilding facility, periodic, unannounced visits are made by a local UL field representative to examine the motors being rebuilt under the program. The frequency of these visits is based on the quantity of motors being rebuilt under the program.

The UL Listing Mark includes the product name "Rebuilt Electric Motor for Hazardous Locations." The UL Listing Mark applies to the motor itself, not to any equipment driven by the motor.

For more information, consult the guide information for Motors and Generators, Rebuilt for Use in Hazardous Locations (PTKQ) or www.ul.com/hazloc/rebuilt.htm.

Summary

Authorities having jurisdiction (AHJs) should understand that rebuilt equipment, even equipment bearing an original Listing Mark, may not continue to comply with the safety standards used to investigate the original equipment. It is difficult if not impossible for most AHJs to verify that the rebuilt equipment continues to comply with critical safety requirements. Because of this difficulty AHJs should require the equipment to bear a rebuilt equipment Listing Mark of an approved nationally recognized testing laboratory such as UL. Alternately a field evaluation can be conducted to verify that the rebuilt equipment complies with recognized safety standards.