



The Code Authority[®]

2009 ISSUE 1



Membrane Penetrations in Fire-Resistance Rated Walls

Focus on protecting electrical boxes

by Richard N. Walke

Fire-resistance rated wall assemblies are relied upon to help provide safety to life and property from fire, products of combustion, and similar hazards. In order to provide the anticipated hourly fire resistance rating, these assemblies must be constructed and maintained in

accordance with their design criteria (e.g. as shown in the UL design specifications). If the outer membrane of the wall assembly includes penetrations or recessed fixtures, these need to be protected to maintain the hourly rating.

There are two types of penetrations to be considered. A through penetration has an opening that passes entirely through a fire-resistance rated assembly, while a membrane penetration has an opening

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The Code Authority UL

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UL-ese

Definitions of terms frequently used at UL

Primary Designated Engineer (PDE)

UL's global technical expert for assigned product categories who is responsible for driving integrity, global consistency and engineering quality throughout all UL operations in the UL family of companies.

A Passion for Safety

My teenage daughter and I recently had a great discussion about her career and life aspirations. Out of the blue she asked, "Why do you like your job so much?" Evidently the enthusiasm I had for my job was quite evident to her. My immediate response was that I really enjoyed what I did at work.

That night I thought about this some more, and tried to identify what it really was about my job that provided such job satisfaction. Was it the money, the office environment, travel, the people, the job duties, or what? It seemed to be combination of all these factors. Then it dawned on me that much of my job satisfaction was a direct result of working with some outstanding individuals who had a real passion for public safety.

It's easy to identify these individuals. They are the ones who put in long hours on safety related activities, such as developing and presenting training classes, attending code hearings, and participating in AHJ organization meetings. Much of this work is done on their own time and at their own expense. They are also always happy to share their knowledge and experience with others. When you work with these folks their passion is contagious, and their enthusiasm seems to

rub off and stimulate the enthusiasm of others.

We all know passionate safety professionals; I could name several without having to think too hard about it. When this newsletter is published I am going to forward this column to some of them, and let them know I appreciate and recognize their passion for safety. You may wish to do the same. Take care...

Managing Editor





Industrial Motor Listing Program

New UL standard covers field installed motors

With the publication of the Standard for Safety for Rotating Machines — General Requirements, ANSI/UL 1004-1, UL is offering its Listing service for larger industrial motors.

Previously all UL certified motors were Recognized Components, only some special duty motors; motors for hazardous locations and fire pump motors were listed. The new UL program evaluates and, if the motor meets the requirements, ultimately certifies such motors as being suitable for field installation, thus eliminating many of the concerns AHJs raised about approving the installation of Recognized Component motors in the field.

These Listed motors are covered under the Motors product category (PRGY), which can be accessed in the Online Certifications Directory at www.ul.com/database. This category covers three phase motors that are:

- Intended to be field installed in unclassified locations in accordance with Article 430 of the National Electric Code® (NEC),
- 5 horsepower and larger, and
- Classified as NEMA Medium or NEMA Large as defined in NEMA Standard MG-1, “Motors and Generators”.

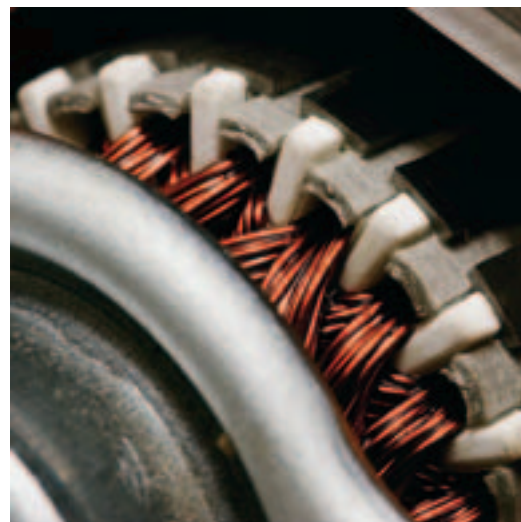
Recognized Component motors have only been evaluated for factory installation into products where the suitability of the combination is determined by UL. They may also be incomplete in certain

constructional features. For example a Recognized Component motor may have energized live parts accessible to the user, and rely on the end product enclosure to prevent the user from contacting live parts. Similarly a Recognized Component motor may not include wiring terminals or compartments that comply with National Electrical Code® (NEC) requirements for field installation, since they may be factory connected to internal product wiring that is not required to comply with NEC requirements.

In September 2008 the first edition of the Standard for Safety for Rotating Machines — General Requirements, ANSI/UL 1004-1 was published. It includes requirements that are appropriate for field installed motors, including construction requirements that address:

- Protection of ventilation openings,
- Accessibility of uninsulated live parts,
- Field wiring compartments, terminals, and spacings, and
- Equipment grounding considerations.

In addition, the standard includes a series of performance tests, including mechanical and strain relief tests, designed to ensure the equipment is suitable for installation in the field.



The markings for Motors complying with ANSI/UL 1004-1 requirements include a UL Listing Mark and “Electric Motor”. For authorities having jurisdiction (AHJs) the benefits are obvious. No more uncertainty about what aspects of the motor were investigated, and the peace of mind of knowing that the motor has been third party certified for field installation by the most recognized and trusted safety organization in the world.

by [Frank Ladonne](#)

For additional information on UL's Listed motor program please contact Frank Ladonne in our Northbrook, IL office at +1.847.664.1888, or at Francis.G.Ladonne@us.ul.com.

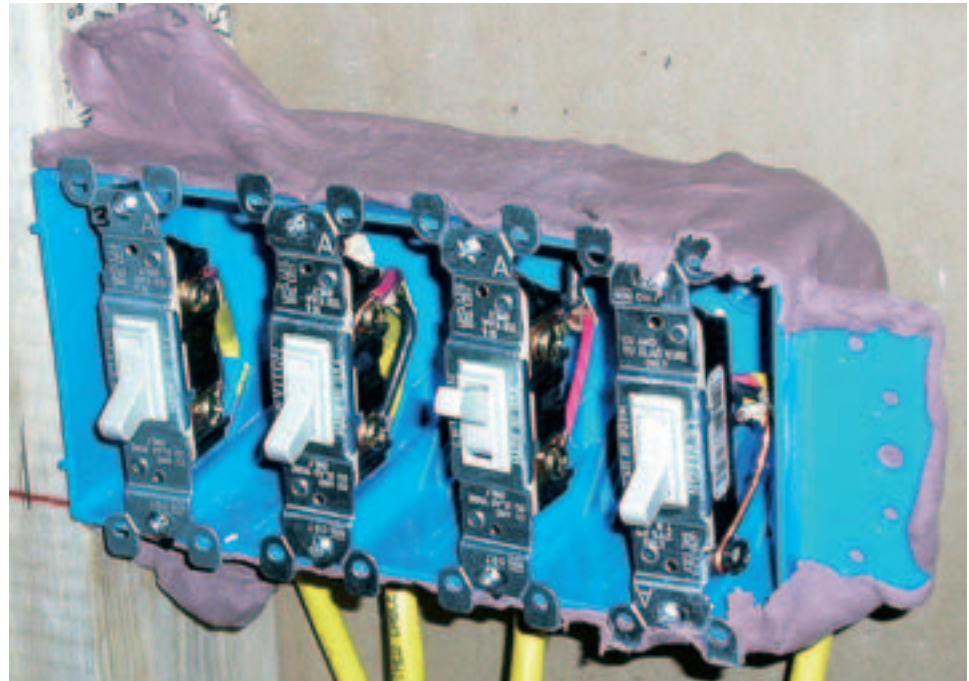
Fire-Resistance Rated Walls (continued from cover)

that only passes through one side of the assembly. For example, a recessed electrical box mounted in a gypsum board wall surface of a fire-resistance rated wall, with conductors in the wall cavity, is a membrane penetration. This article focuses on products UL certifies for protecting membrane penetrations in these walls.

Section 712.3.2 of the 2006 International Building Code requires membrane penetrations of fire-resistance rated assemblies by recessed fixtures to be protected so that the required fire resistance is not reduced. It includes specific conditions by which electrical boxes may be installed in the wall. Exceptions to the requirements in 712.3.2 recognize conditions under which recessed steel electrical boxes on opposite sides of a wall are protected with listed putty pads, or are separated by other listed materials and methods.

UL classifies putty pads and other materials and methods under the product category “Wall Opening Protective Materials” (CLIV or QCSN). This category covers three types of technologies; putty pads, insert pads and gaskets. Putty pads are putty-like products installed on the outer surfaces of an electrical box prior to installation in the gypsum board membrane on the wall. Insert pads are for installation on the inside back surface of the box. Finally, gaskets are for installation under the cover plate of the box. These latter two products may be installed after the gypsum membrane is in place. Each of these products are classified for use in specific types of fire resistive designs when installed in accordance with the details provided in each classification. The information in each classification includes

- 1) the model numbers covered,
- 2) the type and size of electrical box covered,
- 3) a description of the fire-resistance rated wall assemblies covered,



- 4) the specific method for the installation of the product,
- 5) the type of cover plate covered, and
- 6) the required spacing between boxes on opposite sides of the wall.

Section 712.3.2 also permits the installation of nonmetallic electrical boxes in fire-resistance rated wall assemblies when the boxes are tested for use in fire-resistance rated walls and are installed in accordance with the instructions provided with the listing. Unlike metallic boxes, nonmetallic boxes intended for use in fire-resistance rated assemblies must be specifically listed for use in such assemblies.

UL classifies nonmetallic electrical boxes under the product category “Outlet Boxes and Fittings Classified for Fire-Resistance” (CEYY or QBWY). These nonmetallic boxes are classified for use in specific types of fire resistive designs when installed in accordance with the details provided in each classification. The information in each classification includes

- 1) the model numbers covered,
- 2) a description of the fire-resistance-rated wall assemblies covered,

- 3) the annular space between the box and the wall membrane,
- 4) the spacing limitations for the boxes, and
- 5) other specific requirements or limitations of the classification.

The electrical boxes covered in this category are required to be marked with the UL in a circle located in the base of the box, Class X hr, where X indicates the maximum hourly rating (i.e. 1 hr or 2 hr), and F, W, and/or C, where F = Floor, W = Wall, and C = Ceiling.

Classifications for putty pads, insert pads, gaskets and nonmetallic electrical boxes can be found in the UL Online Certifications Directory at www.ul.com/database/, or in the UL Fire Resistance Directory.

For more information on products certified for use in membrane penetration applications contact Rich Walke in Northbrook, IL., at +1.847.664.3084; or at Richard.N.Walke@us.ul.com.

Questions & Answers

UL engineers answer questions concerning UL and its operations, UL Standards for Safety, product certifications, and the code applications for which products are certified.

I understand there are new federal requirements for suction fittings used in swimming pools and spas. Does UL List fittings that comply with these requirements, and if so how are these fittings identified?

The Virginia Graeme Baker Pool & Spa Safety Act specifies that on or after December 19, 2008, swimming pool and spa drain covers available for purchase in the United States must meet specific performance requirements. Additionally, public swimming pools, wading pools, spas and hot tubs must meet requirements for installation of compliant drain covers. Among other things, the Act requires drain covers to comply with requirements in the Standard for Suction Fittings for Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs, ANSI/ASME A112.19.8-2007.

UL has investigated and listed a number of suction fittings that comply with the new ASME A112.19.8-2007 requirements. The Listing Mark for these products includes the UL symbol, the word "LISTED," a control number, and:

- "Swimming Pool Suction Fitting" (or "Sw Pool Sctn Ftn"), or
- "Suction Fitting" and either "ASME A112.19.8-2007" or "ASME A112.19.8-07".

You may also see the marking "VGB 2008" on suction fittings. This is a new marking recommended by the United States Consumer Product Safety Commission to identify the fittings evaluated to the 2007 Edition of ASME A112.19.8. The "VGB 2008" marking is not currently required by UL.

UL previously investigated suction fittings to earlier editions of the ASME standard that do not comply with the requirements included in the Virginia Graeme Baker Pool & Spa Safety Act. The Listing Mark for those fittings included the UL symbol, the word "LISTED," a control number, and "Suction Fitting," with no reference to the edition of the standard, a subtle distinction.

For additional information on suction fittings contact Gary Siggins in San Jose, CA at +1.408.754.6594 or at Gary.L.Siggins@us.ul.com

Section 605.10 of the International Fire Code requires portable electric space heaters to be listed and labeled, but does not specify that the heaters need to be provided with a tip-over switch. Are portable listed electric heaters required to have a tip-over switch to prevent them from starting a fire if they are tipped over?

UL Listed portable electric heaters must pass a tip-over test that simulates the most severe tip over orientation. This is one of many abnormal operation tests that listed heaters must pass without creating a risk of fire, electric shock or injury to persons. For this test, a risk of fire is created if there is any emission of embers, flame or molten metal from the heater, or if there is any glowing or flaming of the combustible material (terry cloth) upon which the heater is tipped.

Manufacturers of portable electric heaters may use temperature limiting controls or a switch to satisfy the requirements of the "tip-over" test. The Standard specifies that if a switch is employed in a heater to de-energize the heating elements in the event the heater is tipped over, the "tip-over" switch shall function before the heater has tipped in any direction beyond the angle of critical balance. Critical balance is defined as the minimum angle through which a heater must be tipped to cause it to tip over due solely to the force of gravity.

Portable electric heaters are Listed under the product category "Air Heaters, Movable and Wall- or Ceiling-Hung Electric Room Heaters." The standard used to

investigate products in this category is ANSI/UL 1278, "The Standard for Safety for Movable and Wall- or Ceiling-Hung Electric Room Heaters."

For additional information on movable electric room heaters, please contact Robert Wozniak in Melville, NY at +1.631.546.2454, ext. 22454; or at Robert.Wozniak@us.ul.com.



UL Anti-Counterfeiting Operations Committed to Protecting Public Safety

Product counterfeiting is a thriving multi-billion dollar global industry. Counterfeiters will copy and sell anything that turns a profit, without regard to quality, safety or the law. They manufacture goods as cheaply as possible with the single goal of maximizing their return. UL is very concerned about the threat that products bearing a counterfeit UL Mark pose to the public safety.

UL has a zero tolerance policy for counterfeit goods, does not consent to the import, export, or manipulation of seized merchandise carrying a counterfeit UL Mark, and have full time staff who are dedicated to our anticounterfeiting program. For almost fifteen years, we have taken an aggressive stance against counterfeiting through a comprehensive program that involves law enforcement agencies around the world. We work closely with U.S. Customs and Border Protection, U.S. Immigration and Customs Enforcement, the FBI, the RCMP, INTERPOL and other law enforcement agencies to provide them with the information necessary to distinguish between authentic and counterfeit UL Marks.

Since 1995, there have been thousands of seizures of counterfeit products at entry ports, and from storage and mercantile establishments that successfully prevented millions of products bearing counterfeit UL Marks from reaching contractors and consumers.

We are often contacted by code authorities who suspect that a product being sold or installed in their jurisdiction bears a counterfeit UL Mark. Fortunately, we have a number of resources to help them address their concerns, including the following:

Reporting products with a suspected counterfeit UL Mark — You are encouraged to contact our anti-counterfeiting operation staff if you suspect that a product bears a counterfeit UL Mark. Please contact us via email at anticounterfeiting@us.ul.com for assistance. If you suspect that a product bears a counterfeit mark of another certification organization, you should contact that organization for assistance.

Anti-Counterfeiting related web pages — Some valuable information on topics related to our efforts to eradicate counterfeit UL Marks is included on our website at www.ul.com/ace/. This includes:

- The impact of counterfeiting is described at www.ul.com/ace/counterfeiting.html
- You can learn more about organizations who combat counterfeiting at www.ul.com/ace/counterfeiting.html
- UL's anti-counterfeiting program and related FAQs are described in more detail at www.ul.com/ace/program.html
- Guidance on how to spot fake UL Marks is provided at www.ul.com/ace/fake.html
- News releases describing our zero tolerance in action and related seizures are included at www.ul.com/ace/action.html
- Information on our new holographic labels (see side bar on next page) is included at www.ul.com/marks_labels/hologram.html

As can be seen UL does not merely talk about our anti-counterfeiting efforts, we actively pursue all reports of products bearing suspected counterfeit UL Marks.

by [Howard Hopper](#)

For additional information on our anti-counterfeiting programs contact Andy Vourlos in Melville, NY at +1.631.546.2739, or at Andrew.N.Vourlos@us.ul.com.



New Holographic Labels

Since UL first introduced a holographic label in 1996, we have continually redesigned it and added security features, each time making it increasingly difficult for potential counterfeiters to reproduce. In June 2008 we introduced a new holographic UL Mark that will be required in 32 common

consumer product categories, including power supply cords, nightlights and ceiling fans. The redesigned label incorporates cutting-edge technology, elevated security features and a unique hologram design, making it easy to identify and validate, yet incredibly difficult to replicate.

Distinct features of the new hologram label include:

- Gold background to help customs officers and others to quickly identify the new label.
- Color shifting ink similar to that in the new U.S. paper currency.

- Repeating pattern of floating UL symbols, a distinctive burst pattern around one of the floating UL symbols and wavy lines.
- Additional covert security features to assist with the authentication of a UL holographic label.

Additionally, UL has added another level of security via the UL Authenticator, a special credit card-size device that authorities can use to better identify counterfeit products.

The new holographic label is available for manufacturers as of July 1, 2008. It will be required worldwide on all new production in the 32 hologram categories starting July 1, 2009.



News Briefs

NFPA 101 — The latest addition to the Code Correlation Database

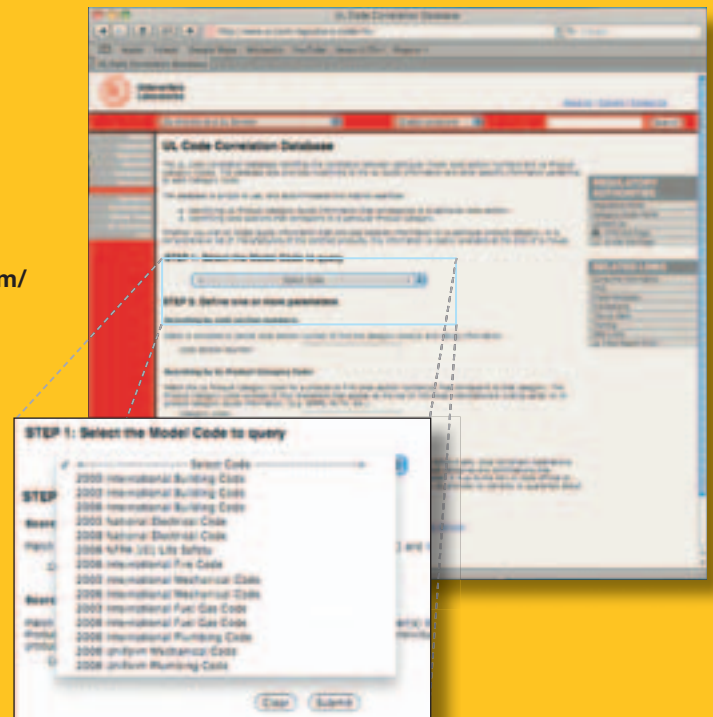
UL is pleased to announce the addition of the NFPA 101 Life Safety Code®, 2006 edition, to the UL Code Correlation Database. NFPA 101 is enforced in many locations around the world, and is the ninth model code to be included in this database. This online database is one of the complimentary services that UL is pleased to offer as a valuable tool for regulatory authorities and others.

The UL Code Correlation Database is a powerful search engine that enables the user to readily find and obtain links from code section numbers of selected model codes to UL Product Categories, Guide Information, Listings and other information specific to the relevant UL Category Codes are just a

mouse click away. Simply enter a Code section from the model code selected through a drop-down box and get the corresponding UL product category and Listing information.

To use the Code Correlation Database, visit: www.ul.com/regulators/codelink

UL piloted this service in November 2006, and it has since been expanded to include several commonly used codes published by the International Association of Plumbing and Mechanical Officials, the International Code Council and the National Fire Protection Association.





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Available to assist regulatory authorities

W: ul.com/regulators
T: +1.800.595.9844
E: ULRegulatoryServices@us.ul.com

Managing Editor
Howard Hopper
T: +1.408.754.6609
E: Howard.D.Hopper@us.ul.com

Address changes and additions
Diane Fonzino
E: Diane.E.Fonzino@us.ul.com

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Calendar of Events

If you would like *The Code Authority* to consider publishing your upcoming events, contact Howard Hopper, by email at Howard.D.Hopper@us.ul.com. Please type "Calendar" in the subject line.

March 23-24
BOMA International National Issues Conference
Washington, D.C.
www.boma.org

March 23-25
ICC 2009 Codes Forum
New Orleans, LA
www.iccsafe.org/index.html

Various Dates and Locations
NFPA Professional Development Seminar Weeks
www.nfpa.org



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