Appliance Advisor™

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FEATURED ARTICLE

UL Acquires AE Performance Lab

Acquisition strengthens UL's global expertise in appliance energy efficiency services and expands European footprint

NORTHBROOK, Ill., August 24, 2017 — UL, a global safety science organization, announced that it acquired AE Performance Testing Lab, the testing services business of AE srl – Appliances Engineering, headquartered in Varese, Italy. AE srl – Appliances Engineering will continue to operate independently as an R&D enterprise under current leadership.

AE Performance Testing Lab is a leading European energy efficiency and performance testing operation that provides energy efficiency testing, benchmark testing and market surveillance testing based on global requirements for white goods such as refrigeration, washers and dryers, dishwashers, and cooking appliances. AE Performance Testing Lab has extensive expertise in Europe, the Middle East and Africa, as well as accreditations for Asia Pacific and North America.

"We are very pleased to bring AE Performance Testing Lab's industry experience and service portfolio into the UL organization," said Todd Denison, VP and General Manager of UL's Appliances HVAC and Lighting division. "The acquisition significantly strengthens UL's global energy efficiency and performance testing solutions in the appliances sector."

"AE Performance Testing Lab customers will gain considerable advantages from the strength that comes from being part of UL's global organization," said Federica Luzardi, President of AE srl – Appliances Engineering. "The combined strength of UL and AE Performance Testing Lab will help provide our customers a more complete service offering for global energy efficiency projects."

About UL

UL fosters safe living and working conditions for people everywhere through

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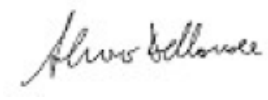
ALSO IN THIS ISSUE

A Letter From Alessio Dellanoce

The appliances industry is evolving and so is UL. Currently, we're expanding our footprint globally with two major initiatives. Foremost, UL acquired AE Performance Testing Lab, a leading European energy efficiency and performance testing operation that provides energy efficiency testing, benchmark testing and market surveillance testing based on global requirements for white goods. Additionally, UL just opened its major appliance safety and performance testing lab in Suzhou. This lab is the only UL large household appliances testing facility in Asia Pacific and the largest, most comprehensive domestic washing and drying products safety and performance testing lab in China.

All the best,



Alessio Dellanoce
Global Commercial Leader – Appliances Industry

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9/27/2017 Melville, NY – UL

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Safety and Accessibility Working Together

By: Stephen Kuscsik / UL Principal Engineer

Automatic garage doors, commercial overhead doors, and pedestrian entry doors are commonplace in today's residential and commercial building construction. Depending on the installation, they can provide convenience, enhance aesthetics, increase security, and improve accessibility.

Proper and compliant installation of these automated systems is key to helping ensure safe and reliable operation. As an architect or installer, you are faced with a myriad of requirements to understand and comply with. Customer requirements, model and local building codes, safety standards, manufacturer's instructions, insurers, licensing requirements, and federal and local laws all come into play. For residential and commercial garage doors, one question that has come up recently is, ***"What is the proper height to mount the wall button that controls the door operator?"***

Let's first address ***residential*** garage door operators. For residential garage door operators, the operator is required to comply with UL 325 safety requirements per the Consumer Product Safety Commission (CPSC) ruling, Federal Register 16CFR Part 1211, and many state and local codes. Additionally, the operator shall be installed in accordance with the manufacturer's instructions. When it comes to the wall control, you will likely find the following in the instructions:

"Locate the control button: (a) within sight of the door, (b) at a minimum height of 1.53 m (5ft) above floors, landings, steps or any other adjacent walking surface so small children are not able to reach it, and (c) away from all moving parts of the door." This is a required statement to be included in all instruction manuals for UL 325 compliant residential and commercial garage door operators. The reason for the 5ft requirement is to reduce the likelihood of children actuating the door or playing with the control buttons, as such behavior could increase the risk of injury with a moving garage door.

So, you plan to mount the door button at least 5 ft above the floor. Great! Well, almost.

You recently overheard a discussion from some industry colleagues about accessibility for compliance with the

Americans with Disability Act (ADA) and, from what you heard, the wall control button shall be mounted not higher than 48 inches (4 ft) above the floor to provide the required level of accessibility (e.g. by a person using a wheelchair). These colleagues even showed you a copy of A117.1 (ANSI Standard for Accessible and Usable Buildings and Facilities) indicating that the height of an operable control shall be maximum 48 inches high.

You're now faced with a dilemma. Do you mount the button at 4 ft (or lower) to satisfy ADA/A117.1, or do you mount it at 5ft (or higher) per UL 325/CPSC? Luckily, you picked up this magazine and read this article.

The 5ft minimum mounting height is a requirement in UL 325 and is mandated by Federal Law per CPSC. Installing a UL 325 listed operator is required by many state or local codes. Regarding ADA, these are also important regulations you certainly don't want to ignore. To better understand exactly what is required, you might think you need to read deeper. Unfortunately, you first need to take a step back.

Is a residential garage door and the operator control button covered by A117.1 or other ADA regulations? According to information from staff at ICC, who help write A117.1, "Single family houses, duplexes and 3-unit buildings are exempt from accessibility requirements either under the International Building Code (IBC) or US Fair Housing." To

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Safety and Accessibility Working Together

begin, even if they are not exempt, the overhead garage door is usually not considered to be an "accessible route" under the regulations. In most cases, other doors (man-doors) are required for a garage, and can be configured to meet accessibility requirements if considered an accessible route. Further, if a garage door is an automatic type (with garage door operator), both ADA and A117.1 indicate the compliance with ANSI BHMA A156.10 or A156.19 are required. Both of these standards cover pedestrian type doors (swing and slide type like at the entrance to airport or grocery stores), not overhead garage doors. Finally, even if there is a requirement to provide a control for accessibility, other options exist such as using a remote control kept by the person needing access.

For ***commercial*** garage door operators (such as sectional overhead doors at a car service bay, or a parking garage at a shopping mall or apartment complex), a similar approach can be taken. The requirement for mounting the wall control button a minimum 5ft high still applies here, in accordance with UL 325. Regarding ADA, it is more likely that the building or structure where the door is installed is within the scope of the requirements, as these locations are often accessible to the public. However, one important factor must be considered: Is the overhead door within the structure considered an accessible route or are there other doors/ pathways that provide the required accessible route, meaning the overhead door is not relied upon for this purpose?

From a practicality standpoint, most commercial overhead garage doors with an automatic operator will have various methods of actuating the door, such as a facilities attendant, a ground loop to detect a vehicle, a wireless remote inside a vehicle, or a ticket/pay station. Also, a man-door to provide entrance/exit is often provided for access per other code requirements. Therefore, mounting the wall button to control the overhead door at least 5 ft above the floor should not present a conflict with ADA requirements. Additional accessible options are available without mounting the control button lower than 5 ft and compromising the UL 325 safety requirements.

As you plan for future installations, keep these questions in mind:

- Is the building you are installing the automatic door operator into one of the types addressed by ADA?
- Is the door that you are installing the operator on considered part of an accessible route?
- Is the door type specifically addressed by A117.1 or ANSI BHMA A156.10 or 156.19?
- Is there a requirement for the control button mounting height or location and, if so, what is it?
- Are there other options or features that can be installed to supplement the wall button and provide compliant accessibility options without reducing the mounting height of the wall control lower than 5 ft?

Having a discussion about this with your customers and authorities having jurisdiction (AHJs) can help enhance everyone's understanding and agreement as to how to achieve an installation that satisfies the concerns of everyone involved. For further questions regarding a particular installation, we suggest contacting the product manufacturer and the local AHJ. They can best help with the necessary guidance for your particular installation, and the building inspector having jurisdiction over your installation has the authority to approve/reject your installation.

So, by now you have finished your lunch, and completed the install for the residential installation, and have mounted the wall button 5 ft above the floor. You also left information with the homeowner about other accessories that could be purchased if additional accessibility was desired. On to your next install!

The information above is based on the codes, standards, and regulatory requirements considered as of the date of publication of this article. It does not address fire codes or means of egress requirements, and is not intended as an interpretation of any specific local codes or regulations that may preside. As technology advances, building and construction methods improve, customer needs evolve, and laws change, the relevant codes and standards are also subject to change. If you find installations in the future that cause challenges with apparently conflicting codes or regulations, feedback from the field is often a key driver for code or standard revision proposals to enable clear requirements for compliance, balancing the concerns of all involved.

(Feature Article continued)

UL Acquires AE Performance Lab

the application of science to solve safety, security and sustainability challenges. The UL Mark engenders trust enabling the safe adoption of innovative new products and technologies. Everyone at UL shares a passion to make the world a safer place. We test, inspect, audit, certify, validate, verify, advise and train and we support these efforts with software solutions for safety and sustainability. To learn more about us, visit UL.com.

About AE srl – Appliances Engineering

Founded in 1997, A.E. srl – Appliances Engineering is a forward looking enterprise focused on research, design and development assistance of products focusing primarily on household appliances. The team has extensive experience in product development for the European, Middle East and Africa markets. For more information, visit www.ae-online.it

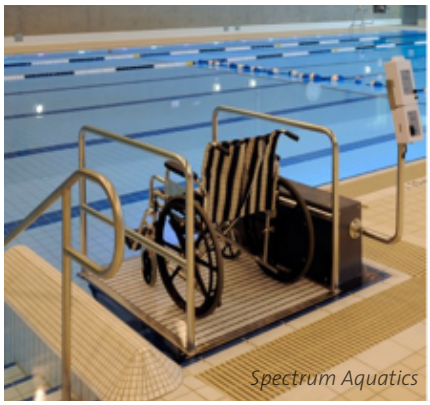
UL Publishes Electric Pool Lift Standard

By: Gary Siggins / UL Principal Engineer

UL Publishes the First Edition of UL 60335-2-1000, a standard for safety for chair and single wheelchair swimming pool and spa lifts.

SR Smith

UL announces the publication of the First Edition of UL 60335-2-1000, The Standard for Safety for Household and Similar Electrical Appliances: Particular Requirements for Electrically Powered Pool Lifts. This Standard deals with the safety and basic performance of electrically powered pool lifts intended for persons requiring assistance for safe entry into and out of a pool or spa. This new standard was created in response to additions to the 2017 National Electrical Code, ANSI/NFPA 70 (Art. 680, Part VIII, Electrically Powered Pool Lifts), as well as requests for a specific set of requirements for pool lifts separate from those used as patient lifts in medical applications.



Spectrum Aquatics

Although the majority of the lifts being produced are intended for unassisted operation, the standard allows for lifts with controls only operable from the pool deck area. Those lifts intended for unassisted operation have additional requirements for the user controls. The scope of UL 60335-2-1000 addresses portable or stationary chair type lifts as show above as well as permanent single wheelchair types as shown below.

Private or Residential vs Public or Commercial Use – Although the requirements reflect those appropriate for fixed installations in public or commercial pools where the installation would be under the scope of the Americans with Disabilities Act (ADA), the standard also addresses portable units intended for residential use.

Installation and Stability – The standard requires evaluation of the stability of the unit in simulated pool deck installations. The minimum lifting capacity rating of 300lbs, as well as the construction and dimensional requirements for the lift chair, seal, footrest and arms, reflect the requirements in The Accessible and Usable Buildings and Facilities Standard, ICC A117.1

UL now also offers the certification of both permanent and removable plastic mesh type swimming pool fencing to ASTM F1908 and ASTM F2286.

Debut of UL Asia Pacific Major Appliance Safety and Performance Testing Lab

August 24, 2017, Suzhou, China — UL, the global leader in safety science, announced its major appliance safety and performance testing lab in Suzhou. This lab is the only UL large household appliances testing facility in Asia Pacific and the largest, most comprehensive domestic washing and drying products safety and performance testing lab in China. The lab can test a variety of products including washing machines, dishwashers and dryers from North America, and those requiring the European standard for safety and energy efficiency capability. Todd Denison, UL Global Vice President and General Manager of HVAC and Lighting, Boris Feng, UL Global Vice President, Greater China Managing Director, and customer representatives from more than 20 major China-based home appliance manufacturers were invited to attend the opening ceremony.

At present, China is in the stage of upgrading its consumption. The washing machine has already entered tens of thousands of households, yet driers and dishwashers in China have only penetrated at a low rate, with a market share of only 1 percent. However, in light of the current consumer consumption environment, public health, the concept of quality consumption, the freedom gained from having such appliances, and the improved quality of life from having such home appliances, dryers and dishwashers are gradually entering the market, thus market growth rate cannot be underestimated.

Last year the dishwasher became the fastest growing category in China's home appliance industry. In the past "618" period, dishwasher sales increased by 352%, much higher than traditional home appliances. The popularity of the dryer in recent years has increased from 1% to 4%, but these figures are still far lower than in Europe and in the United States, whose market figures are between 70% and 90%. However, major manufacturers are still very optimistic about the wide room for development for dryers. For such a traditional home appliance as the washing machine, one will need to consider the most important factor: How can this appliance cater to future needs to achieve market dominance?

Concurrently, in light of China's new normal economic and social development, the "One Belt One Road" initiative is in full swing. The "Made in China 2025" strategy further deepens China's projects, bringing great opportunities to the development of China's home appliance industry. Washing and drying manufacturers have a broad domestic market, but bringing these products to the international market also presents a exciting opportunities and big challenge.

"Today, most traditional home appliance manufacturers are experiencing a transitional period, in light of newly-developing requirements for environmental protection, promoting enterprise for the development of new technologies. Therefore, safety and performance requirements of cleaning and drying products are escalating, and requirements for energy efficiency testing and certification are also increasing. We have noticed that many customers have focused on emerging markets such as the Middle East, Latin America and ASEAN. Thus, considering that we have global resources and reliable standards for our development capabilities, UL will embrace these opportunities with Chinese customers. Not only will we provide energy-efficient services, but we will also provide global market access, performance testing, interconnection equipment and other professional solutions. The washing and drying products safety and performance integrated laboratory in Suzhou is just a small step UL has taken to help local home appliance manufacturers win over consumers, creating more market value, and helping Chinese home

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Debut of UL Asia Pacific Major Appliance Safety and Performance Testing Lab

appliance enterprises establish global credibility." UL global vice president of home appliances and HVAC, and general manager of lighting, Todd Denison said.

UL's completion of its washing and drying products safety and performance testing lab in Suzhou conforms to the needs of the majority of white goods industry manufacturers and to development trends in China, helping "Made in China" enter the global market.

Boris Feng, UL Global Vice President, Greater China Managing Director, emphasized in his speech: "UL has been rooted in China for more than 30 years; a positive response to the international market changes at the same time, paying close attention to the domestic economic development, and has more than 100 years of professional testing and certification technology to help China's manufacturing industry enhance its core competitiveness in local and international markets, seizing the opportunity to win. Today, our magnificent launch of our washing and drying products safety and performance integrated laboratory will provide the majority of washing and drying manufacturers more convenient, localized, professional services to help customers meet the changes of products from price competition to value competition, and help enterprises to create a green future."

In the future, UL will always have a "China-made" foundation steering its operation. Further, UL's deep technical knowledge and expertise in the field of large household electrical appliances will provide a one-stop shop of multi-local services to help Chinese brands enter the global market and seize embrace greater opportunities.

New Requirements for Medium Voltage Sheathed Heating Elements

By: Maria A. Dixon / UL Engineer

UL is excited to announce that we now offer certification services for cartridge-type medium voltage sheathed heating elements that are rated between 601 V and 15 kV.

This new offering allows manufacturers of equipment powered by a medium voltage to design their products with UL Certified sheathed heating elements that are rated up to 15 kV.

Equipment that is powered by medium voltage (typically in the 5 kV to 15 kV range) is more economical to design and power due to lower primary metering rates. These devices operate at lower currents than traditional equipment with equivalent heating capability operating at 600 V or lower. This reduces design, installation, and manufacturing costs as the lower current operation allows the use of fewer circuits and smaller wire sizes.

Due to these economic advantages, more manufacturers are designing medium voltage equipment and more utilities are offering medium voltage service to manufactures, process plants, hospitals, water treatment plants, shopping malls and even schools.

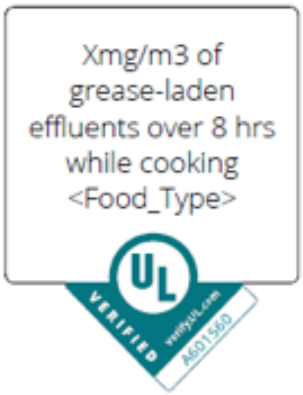
The new product safety requirements are ready to be used and will be published in UL 1030, Standard for Sheathed Heating Element. Submit your medium voltage sheathed heating element to UL today.

For more information, please contact applianceinfo@ul.com.

Grease-Laden Effluents

By: Thomas Walker / UL Appliances Business Development Manager

Marketing claims are everywhere in the global market, but it's often difficult for customers to determine which are accurate, credible and trustworthy. Providing customers with a reason to trust a claim can make all the difference. To simplify the experience, our goal is to help buyers and Authorities Having Jurisdiction (AHJs) confidently determine that your product does not require a hood for the food types you specify.



UL uses the U.S. Environmental Protection Agency (EPA) Test Method 202, Determination of Condensable Particulate Emissions From Stationary Sources, to verify your claims regarding product performance. In the past, achieving this exception may have required manufacturers to test their products outside their intended operating conditions. Alternatively, UL could and still offers to test products to their intended operating conditions resulting in a Letter Report. While a Letter Report tests products within its intended operating conditions, it also has limitations to effectively and easily communicate to buyers and AHJs that the product meets Test Method 202. A Letter Report does not allow manufacturers to place the UL Verified Mark on products in addition to packaging, online, print marketing, nor is a Letter Report published online showcasing the products verification to EPA Test Method 202.

While both paths are still available, we also offer a 3rd innovative solution to help our clients communicate that a hood is not required. UL can help set a product apart from the competition by testing to the product's intended operating conditions with the ability to market and communicate compliance to EPA Test Method 202 to a broad audience.

UL's marketing claim verification service provides independent, objective confirmation that your product will deliver what you've promised. When your marketing claim has been Verified, you earn the right to use the UL Verified Mark to communicate critical information that AHJs can use to determine whether a hood is needed.

The UL Verified Mark can help showcase that your commercial cooking appliances limit emission of grease-laden air to the room to under 5 mg/m3 avg. using the EPA-202 test method based on your specifications and food types used.

Buyers and AHJs need to know the amount of grease-laden emissions your product produces before deciding if your product requires a hood for the food types you specify. UL's marketing claim verification service allows you to mark and market your products with the specific amount of grease-laden effluents over 8 hours while cooking the food types of your choosing. UL's Verified Mark can be placed on your product in addition to packaging, online, and print marketing. UL also publishes the verification at verify.ul.com.

For more information about the UL Verification program for grease-laden effluents or how you can have your products verified, please visit verify.UL.com or ApplianceInfo@ul.com

By: Joe Musso / UL Standards Program Manager

Standards Corner

Click here for Standards information

Register for "What's New" to receive e-mails twice a month indicating the new published UL Standards, Outlines, and Proposals.

UL 325 – Door, Drapery, Gate, Louver, and Window Operators

- UL 325 remains active with a number of proposals in various stages of the standards development process. A number of new proposals will be circulated for STP preliminary review in September 2017. A meeting of STP 325 has been scheduled for November 15-16, 2017, at UL's Northbrook Office to discuss the new proposals.

UL 484 – Room Air Conditioners

- A proposal to revise flammable refrigerant charge size limits was circulated for STP preliminary review in November 2016. Comments were received, and it was decided to form a task group to assist in reviewing the comments, and to consider any changes to the proposal before it moves to ballot. The task group met at a face to face meeting April 24, 2017 at UL's Washington, DC office. Further discussion and consideration is planned before the proposal will be ready for ballot. The next meeting of the task group has been scheduled as a teleconference on October 10, 2017.

UL 507 – Electric Fans

- As a result of the STP 507 meeting held February 28, 2017, in Clearwater, FL., a series of new proposals will be moved to STP ballot, including several addressing new motor requirements. Additionally, other proposals resulting from the meeting were moved to STP preliminary review from August 18, 2017 to September 1, 2017.

  Save the date: The next STP 507 Meeting is scheduled for February 28, 2018, in Clearwater, FL.

STP 745 – Electric Tools

- With the IEC transition to the new IEC 62841 series of standards for hand-held and transportable tools, and lawn and garden machinery, efforts are continuing to adopt the associated UL 62841 series of standards when appropriate, as the IEC editions are published.

UL 749 – Household Dishwashers

(Bi-national standard with Canada)

- The 10th Edition of UL 749 was published March 16, 2017. A number of new proposals intended to further update the 10th edition are now under review by the binational technical harmonization committee (THC). The draft proposals are scheduled to be circulated for STP preliminary review in September/October 2017.

UL 858 – Electric Ranges

- UL 858 has been active in 2017. Revisions to UL 858 addressing improvements to the Abnormal Operation - Coil Surface Unit Cooking Oil Ignition Test were published August 30, 2017.
- New proposals covering revisions to the nichrome wire test and polymeric materials, a new test for oven rack loading, a new thermal aging test, and revisions to functional safety of smart enabled ranges, were circulated for STP ballot in August 2017. All four topics reached consensus, with comments received; comment resolution and recirculation will follow prior to final publication.

UL 923 – Microwave Cooking Appliances

- A proposal to clarify the strain relief requirement reached STP ballot consensus, with comments, in December 2016. Changes were made to the proposal based on the ballot comments, and the recirculation period of the changes closed March 2017. The revised requirement was published in UL 923 April 12, 2017. Two new proposals, including a revision to the tool interface requirement of fasteners, and a clarification of the test load for leakage current and power input tests, were circulated for STP during Q1 of 2017. A number of comments were received, which are currently under review by the proposal authors.
- In addition, a task group was formed to develop proposals intended to reduce the likelihood of a child being able to open a microwave oven door and access heated food or drink that may then injure them. This task group has been meeting regularly in an effort to develop substantive proposals to revise UL 923.

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By: Joe Musso / UL Standards Program Manager

Standards Corner

UL 982 – Household Food Preparing Machines

- Several proposals were circulated for STP ballot May 26, 2017. These proposals include new requirements related to blender accessibility, stacked blade assembly & tamper, operating controls, magnetic interlocks, clarification of important safeguards, and a new supplement for household & hospitality-use single serving cold beverage dispensers. The proposals reached consensus, with a number of comments received. The proposals covering blender accessibility, stacked blade assembly & tamper, magnetic interlocks, and a new supplement for household & hospitality-use single serving cold beverage dispensers are in recirculation as of September 1, 2017, closing October 2.

UL 1017 – Vacuum Cleaners, Blower Cleaners, and Household Floor Finishing Machines (Bi-national standard with Canada)

- The proposed 10th edition of UL 1017 was circulated for STP preliminary review in July 2016. Based on the comments received, the proposed new edition was revised and circulated for STP ballot April 14, 2017. The new edition achieved consensus and is currently being prepared for final publication.

UL 1278 – Movable and Wall- or Ceiling-Hung Electric Room Heaters

- A new supplement for smart-enabled room heaters was circulated for STP ballot June 9, 2017. The proposal reached consensus, with a number of comments received. Recirculation opened August 11, 2017 and closed August 25, 2017. The proposal maintained consensus, and therefore will be published in the standard in September 2017.
- Two new proposals revising the definition of product enclosures and requirements for cautionary markings were circulated for STP preliminary review in July 2017. No comments were received and therefore preceded to STP ballot from August 4, 2017 to September 5, 2017.

UL 2157 – Electric Clothes Washing Machines and Extractors (Bi-national standard with Canada)

- The next revision cycle covering the proposed new (4th) edition is underway. The STP ballot closed June 27, 2017. Comments were received during the ballot, and resolution of these comments is nearing completion with the THC. Resolutions and changes to the proposed new edition are estimated to be recirculated to the STP in November 2017.

UL 2158 – Electric Clothes Dryers (Bi-national standard with Canada)

- The next revision cycle covering the proposed new (5th) edition is underway. The STP ballot closed June 27, 2017. Comments were received during the ballot, and resolution of these comments is nearing completion with the technical harmonization committee (THC). Resolutions and changes to the proposed new edition are estimated to be recirculated to the STP in November 2017.

UL 60335-2-8 – Shavers, Hair Clippers and Similar Appliances

- The next revision cycle is underway, with the proposed new (6th) edition circulated to the STP for preliminary review on July 27, 2017 (closing September 18, 2017). The changes occurring are intended to align the standard with the latest editions of IEC 60335-2-8 (Ed. 6.1) and UL 60335-1 (Ed. 6). An STP meeting is scheduled for November 29, 2017 at UL's Northbrook office to resolve comments received during preliminary review and to discuss the changes proposed to the standard.

UL 60335-2-34 – Hermetic Refrigerant Compressors

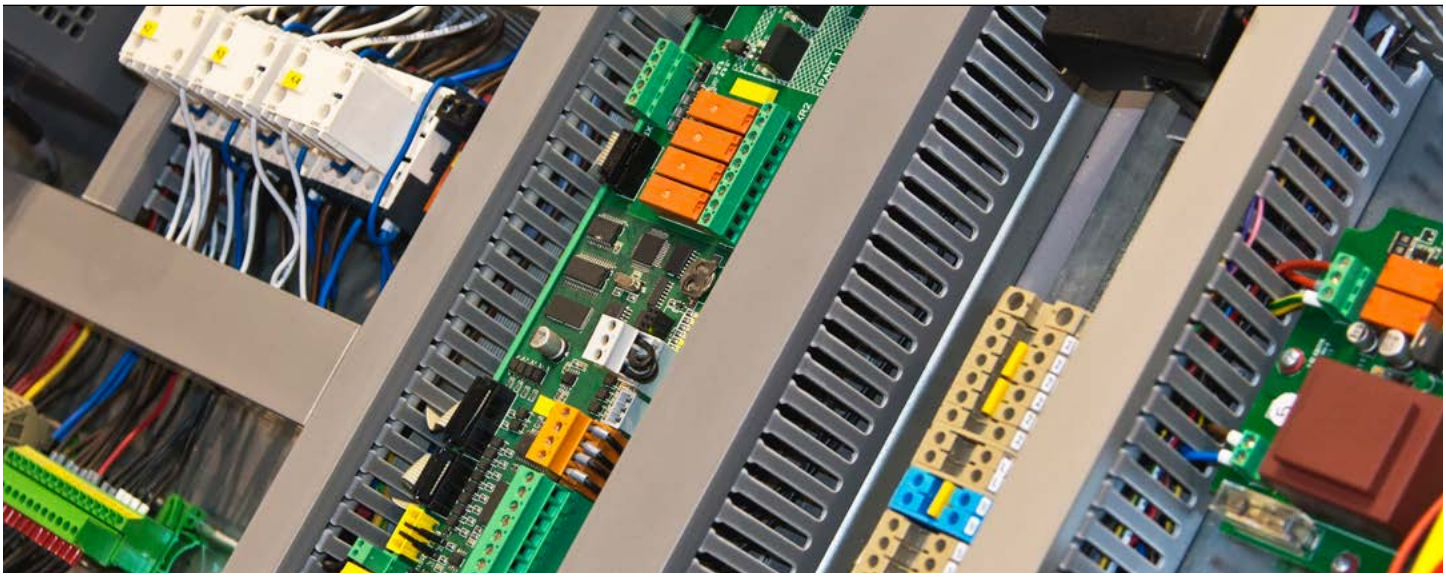
- The proposed 6th edition of UL 60335-2-34 was circulated for STP ballot March 24, 2017, closing May 23, 2017. Consensus was achieved, but with a number of comments. The THC resolved comments and recirculated changes to the STP closing August 7, 2017. The new edition maintained consensus and is now being prepared for final publication.

UL 60335-2-40 – Household Electrical Heat Pumps, Air-Conditioners, and Dehumidifiers

The STP ballot for the proposed 2nd Edition of UL 60335-2-40 closed Q4 2016. Consensus was not reached on all the proposal topics included in the new edition, and a number of comments were received. The technical harmonization subcommittee (THSC) met several times to resolve the ballot comments. Changes were recirculated May 26, 2017, closing July 10 and all proposal topics achieved consensus. The new edition is currently being prepared for final publication, scheduled for September 15, 2017.

UL 60335-2-89 – Commercial Refrigerating Appliances with an Incorporated or Remote Refrigerant Condensing Unit or Compressor

- TheThe proposed 1st edition of UL 60335-2-89 was circulated for STP ballot February 24, 2017. Consensus was achieved, but with a number of comments. The THC resolved the comments and the recirculation material (comments resolution and proposal changes) were recirculated to the STP June 16, 2017, closing July 17, 2017. Consensus was maintained, and the first edition is currently being prepared for final publication.



Changes in the Control Standard's Landscape

By: Joseph Antony / UL Principal Engineer

Many of the UL appliance standards reference one or more control standards to address the safety of electronic circuits or controls used in appliances, but have you ever wondered why there are so many different options? The primary reason is that each application industry (ex: water heater, large appliances, HVAC, etc.) had their own safety criteria, based on their acceptable level of risk, that warranted a separate standard. However, as technology evolved and manufacturers became aware of the global market, the end-use application requirements became less distinct from one another, facilitating the establishment of a single set of standards to address a fairly large application market globally.

In response to this growing trend over two decades ago, and at the request of the NEMA 3-DC Residential and Commercial Controls Section, UL initiated the development of requirements for controls that were based on IEC 60730-1, Part 1 and the respective Part 2 standards. The result of this activity was the publication of UL 60730-1 and the corresponding Part 2 standards. UL published the 5th edition of UL 60730-1 (part 1 – general requirements) on August 3, 2016. This part 1 standard is based on edition 5.1 of IEC 60730-1. Each of the part 2 standards are currently being updated to align with the latest IEC versions.

The planned transition of control devices from the legacy standards (such as UL 873, UL 244A, UL 353) to the UL 60730 Series was driven by the industry's interest in harmonizing requirements rather than by any known safety issues. This article addresses two ways in which the end-product appliance standard references controls.

Situation 1 – The appliance standard references UL 873 for temperature sensing controls (thermostats, temperature limiters) or other miscellaneous control functions (e.g. timers, water level detection) and/or UL 353 for limit controls:

- UL 873, UL 353 – These standards are scheduled to be withdrawn on **October 19, 2018**. From an appliance perspective, what is the impact to appliance standards and manufacturers?
  - It should be noted that the scope of UL 873 and UL 353 covered a large variety of products which are now placed under discrete part 2 standards under the UL 60730 series of standards. See the list below for some of the more common UL 60730 part 2 control standards that may be referenced in UL appliance standards.
    - » UL 60730-1 – Part 1: General Requirements plus one or more of the following:

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Changes in the Control Standard's Landscape

- » UL 60730-2-5 – Particular Requirements for Burner Control Systems
- » UL 60730-2-6 – Particular Requirements for Pressure Sensing Devices
- » UL 60730-2-7 – Particular Requirements for Timers and Time-Switches
- » UL 60730-2-8 – Particular Requirements for Electrically Operated Water Valves
- » UL 60730-2-9 – Particular Requirements for Temperature Sensing Controls
- » UL 60730-2-11 – Particular Requirements for Energy Regulators
- » UL 60730-2-12 – Particular Requirements for Electrically Operated Door Locks
- » UL 60730-2-15 – Particular Requirements for Electrical Air Flow, Water Flow and Water Level Sensing Controls
- » UL 60730-2-22 – Particular Requirements for Thermal Motor Protectors

- ◦ Proposals are being made to remove references to UL 353, UL 873, UL 917, and similar control standards from the end-use appliance standards.

Situation 2 – The appliance standards may reference UL 244A, UL 991 and/or UL 1998 for the control and management of appliance functions:

- UL 244A, UL 991, UL 1998 – These standards are not scheduled to be withdrawn since they are referenced by other end-product standards outside of the appliance industry. Though these standards will remain active, proposals will be made to the end-product standard to remove references to these standards since the requirements in UL 244A, UL 991 and UL 1998 are covered under UL 60730-1, part 1.

Impact: The impact is anticipated to be minimal since all steps are being taken will allow the control industry to transition to the UL 60730 series as quickly as possible to avoid issues in the end-use application. As stated earlier, the transition of the legacy standards to the harmonized standards was driven by harmonization and not safety. Therefore, under UL's Continuing Certification Program (CCP), it is possible that there may be electromechanical products (bi-metal type of devices) certified under UL 873 or UL 353 in warehouses or products still being manufactured under UL 873 or UL 353. Control devices that have been previously certified under the legacy standards may be used provided no changes are made that would impair the safety or certification of the product.

As the appliance standards are being updated to reflect the transition to the UL 60730 series of standards, manufacturers are encouraged to start sourcing components that have shown to be compliant with the appropriate standard under the UL 60730 series of standards.

3D Printed Parts for Use in Prototypes and Production

By: Darrin Conlon / UL Engineer Manager

With the incredible growth of 3D printing, more commonly referred to as Additive Manufacturing (AM) in commercial and industrial segments, manufacturers are challenged to consider how this technology will impact their market, supply chain, operations and products.

Since the 3D Printing process introduces variability which significantly impacts properties and performance based on how the part is printed, one of the challenges is determining if a material's properties will be affected based on the specific printing process selected to print the part. For example, if a manufacturer selects a Vo flame rated material with certain tensile impact properties for the end-use part, will the material maintain these properties after being 3D printed?

Dr. Thomas Fabian, UL Research Manager, is leading a UL research project to assess the effects of 3D printing on polymeric materials. From the 2017 Summit on the Safety Science of 3D Printing, Dr. Fabian stated the following:

"Mechanical properties of 3D printed materials have repeatedly been demonstrated to significantly vary based on how test specimens were printed. These variations are substantially greater than for conventional injection molded samples. Furthermore, there is a lack of research on the influence of 3D printing on ignition, flammability, and electrical material properties associated with UL safety standards. Yet, thermal mass and surface roughness- which is expected to differ for 3D printed parts- are known to influence ignition and flame spread."

Results from this UL research project have provided insights on the effects of 3D printing on ignition, flammability, electrical and thermal distortion material properties relied upon by UL and product design engineers.

Another challenge a manufacturer faces is selecting the appropriate material that meets the end-use specifications after it is 3D printed.

To help industry with these challenges, UL introduced the new "Plastics for Additive Manufacturing Program" (Blue Card Program) specifically targeting materials for 3D Printing. Serving as an extension of the existing Plastics Recognition Program (Yellow Card Program), the new program defines the additional requirements necessary to recognize plastics intended for 3D printing and 3D printed components and products. The results from the UL Research project have been used to guide the development of these requirements to address the gap in performance between 3D printed parts and traditional injection molded parts.

Based on this gap in performance, it is important to note that the Yellow Card data does not apply to 3D printed parts. None of the performance properties/ratings from a UL Recognized material (Yellow Card) can be applied when that material is used in a 3D printing process to print a 3D part.

The Blue Card Program provides end-use manufacturers the opportunity to select materials suited for their 3D printing end-use applications. Whether the end-use application is 3D printing a polymeric prototype to determine whether the design meets the relevant end-use specifications and requirements, or the 3D printed part is intended to be used in production, the Blue Card Program can help you accelerate your time to market using 3D printing.

The Blue Card adds value to the non-traditional UL industries, beyond the electrical and flammability properties. The UL research team is also working with other organizations at UL to bring in critical properties around performance.

If you have any questions, please contact Darrin Conlon at (631) 546-2872 or Darrin.Conlon@ul.com

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  In a series of four 1-hour webinar sessions, UL's HVAC/R experts will provide an in-depth introduction to the topic, will review the regulations, standards and codes for refrigeration and air conditioning equipment, will discuss the science of refrigeration leaks, detection and mitigation, and will finally hold an expert panel discussion on where the US market stands and what else needs to be considered as flammable refrigerants become part of where we work, shop and live.
- *Tools & Garden Machinery: Keeping You Informed*
  During this 1-hour webinar, UL will cover the innovative and evolving Tool and Gardening Machinery developments.
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