The Code Authority®

2015 Issue 3

Special Locking Arrangements

Achieving code compliance with UL Certified products

By Bruce Johnson */ Senior Regulatory Engineer*

The International Building Code (IBC) and the NFPA 101 Life Safety Code both include requirements for a means of egress system to be provided that includes a continuous and unobstructed way of egress travel from any accessible point in a building, structure or facility to a public way. However, there are specific situations in the codes where locking arrangements are allowed that limit immediate, unobstructed egress travel. This article provides an overview of some of these applications, and identifies products that UL certifies for use in these applications.

In the context of this article, special locking arrangements include specialized locking hardware and systems used for controlled egress doors, delayed egress doors and electrically locked egress doors. The IBC and NFPA 101 allow these locking devices under specific circumstances where there are special safety or security needs.

Controlled egress doors are most often found in assisted living facilities, nursing homes, hospitals, day-care facilities, detention or correctional facilities and prisons. Delayed egress doors may also be used in these facilities and other buildings with internal security concerns such as high-value retail stores. The IBC and NFPA 101

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UL-ese

Definitions of terms frequently used at UL

ANSI

ANSI – The American National Standards Institute (ANSI) is a private nonprofit organization that coordinates and administers the U.S. voluntary standards and conformity assessment system. ANSI also coordinates the U.S. participation in the development of international standards. Most UL Standards for Safety adopted by reference in building, fire and electrical code are ANSI designated standards.

Product Engineering Services

Recent example – expansion of combustion performance testing

Managing Editor's Column */ by Howard Hopper*

It's always gratifying to see UL provide new service offerings that better meet the needs of customers, users and/or code authorities. One recent development in this area was UL's opening of a combustion performance testing facility for appliances and equipment. This laboratory is located in Newton, Iowa, and complements existing UL service offerings with a custom-designed energy efficiency and performance testing facility.

The new facility was designed with manufacturers' needs in mind, and demonstrates UL's commitment to supporting innovation in all sectors of the combustion appliance market. In complementing existing safety testing and certification capabilities, UL is able to offer manufacturers a complete solution for their testing needs.

The services provided at this new facility are examples of UL Product Engineering Services, which include testing and integrated advisory services that help manufacturers meet the complex challenges of today's competitive global market with services that streamline the product development, reliability, safety, energy efficiency and performance testing processes. To view a short video overview of these services, please visit **ul.com/weknowproducts**.

From a code authority perspective, manufacturers that can get new products and technologies to market faster – with appropriate features, certifications (Listings) and ratings – can eliminate impediments in the code authorities' installation approval process.

Special Locking Arrangements (continued from cover)

require all special locking arrangements to be listed in accordance with the Standard for Access Control System Units, **UL 294** and/or the standard for Panic Hardware, **UL 305**.

These model code requirements strike a balance between permitting a secure environment while providing for egress during emergencies. In order to achieve this desired added level of occupant safety or security without compromising fire safety, buildings fitted with special locking arrangements will typically be required to have additional safety features, such as:

- Fire detection and suppression systems that release locked doors upon their activation
- Failsafe features to release locks in the event of a loss of power
- Emergency planning and preparedness with staff training and required drills
- Limitations on the delay time for delayed-egress doors
- Special signage requirements

Some of the code applications that allow special locking arrangements are as follows.

Access controlled egress doors

Access controlled egress doors used in institutional type occupancies such as assisted living facilities, hospitals and nursing homes are utilized to provide patients with specialized protective measures where their egress ability is controlled by the facility staff.

In these applications the locking means must release upon activation of the automatic fire sprinkler system, smoke detection system or fire heat detection system, upon loss of power, and following activation of a manual unlocking device, if provided. Procedures for unlocking these doors must be included in the emergency planning and preparedness plan and staff training as required by the International Fire Code (IFC) and NFPA 1.

In special cases such as psychiatric treatment areas or infant nurseries, the doors do not need to automatically release because of the need for special supervision or security of these patients. In these occupancies, the codes impose additional requirements, such as the ability for staff to unlock these doors and supervised smoke detection and fire suppression systems.

Delayed egress locking systems

Delayed egress doors are allowed in buildings – with the exception of certain occupancies, such as assembly, education and high hazard. Delayed egress locking systems are utilized where there is a special need for internal security, such as institutional and health care occupancies or retail stores with high-value merchandise. The limited delay in occupant egress is evidently not considered detrimental to occupant safety when the requirements of the code are followed.

Facilities with a delayed egress system must have an approved automatic fire sprinkler system or an approved smoke or heat detection system where the door locks release upon activation of the system. These locking systems must be listed and the door locks must release during a power failure and be installed with a release switch at the fire command center or other approved location, such as a security office. The door may have an audible alarm that sounds when an occupant pushes on the exit (panic or fire exit) hardware. The time delay for egress is limited to 15 seconds or 30 seconds when approved by the code official, and specific signage must be placed on the door to let occupants know the door will open in 15 or 30 seconds. With an exception for certain institutional occupancies, egress must be designed so that occupants only need to

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UL PRODUCT SPEC™ Update

New enhancements to this powerful search engine reflect user suggestions

By Jonathan Roberts */ Lead Regulatory Engineer*

UL PRODUCT SPEC, a next generation online tool with a portfolio of user friendly, intuitive features was launched in 2014.

This tool is actually a combination of five tools in one, and includes customized searches:

1. by installation code requirements,
2. by product names using common industry terms,
3. for fire resistant designs and firestop penetration systems using construction parameters, ratings, and materials,
4. for certification information based on traditional UL product category codes, and
5. using the Construction Specifications Institute's Master Format section numbers.

UL Product Spec is not an App that can be purchased online, rather it is a web based tool available at **ul.com/productspec** that requires no special login access or training to use and, designed to fit the screen of any device, works equally well on laptops, notebooks and iPads, and smart phones since it right sizes to fit the screen of any device.

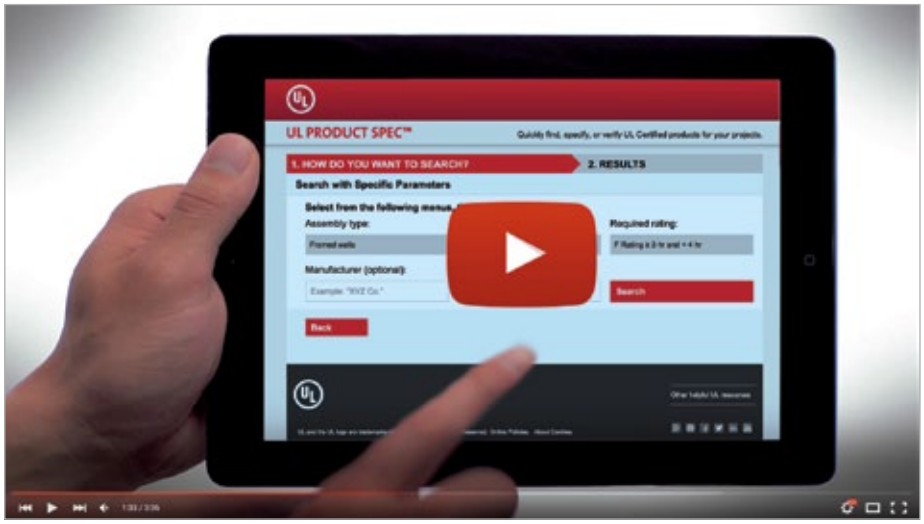
Since its initial launch, users have been extremely pleased with the functionality and user-friendly platform. But, they have also suggested changes to improve it even more. In response, UL recently provided two significant upgrades to improve the user experience.

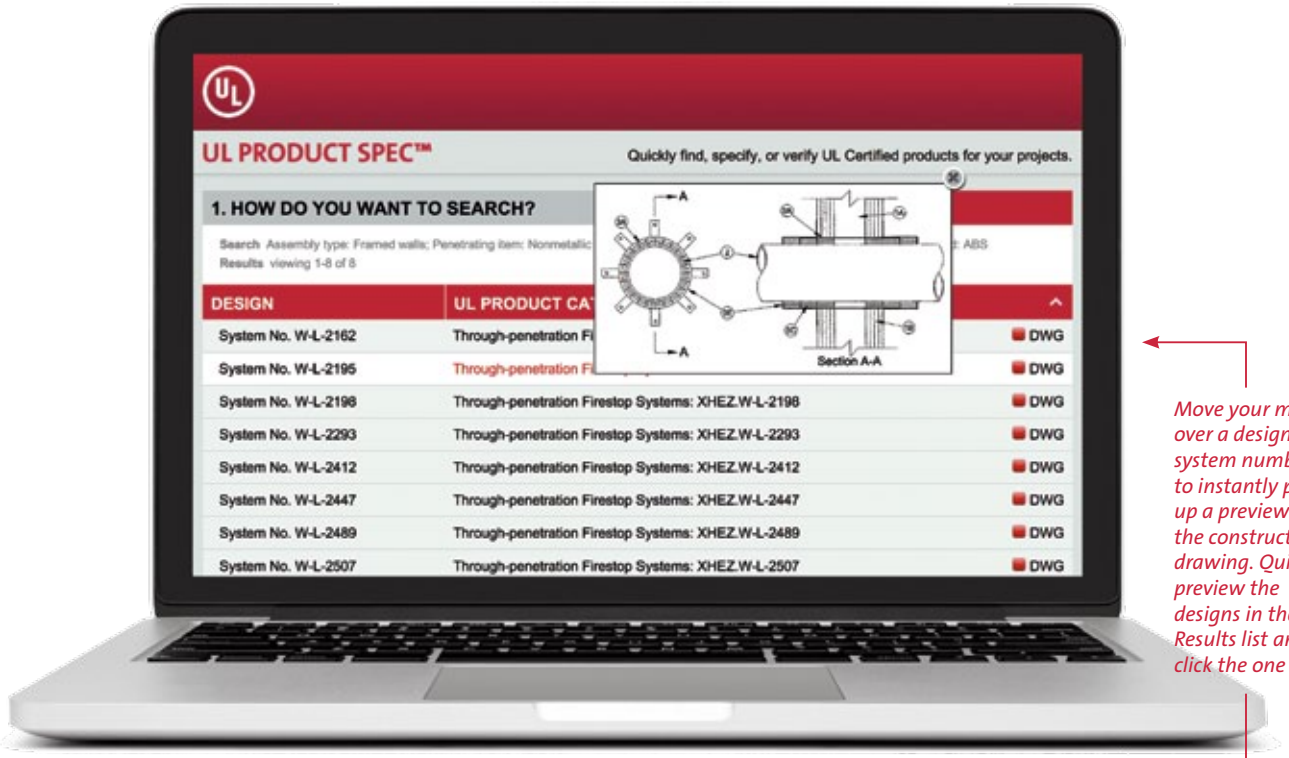
Preview fire-resistance rated designs and firestop systems

Many changes have been made to improve UL Product Spec, but one of the most widely requested enhancements is a new preview feature for fire-resistance rated designs and through-penetration firestop systems. This feature is useful when you search for fire-resistance rated designs or firestop systems using specific parameters, and get multiple matching results displayed on the search results screen. The new feature allows you "mouse over" a design or system number, which brings up a preview window that displays the construction drawing related to the design. This saves time and effort in trying to locate an optimum design without having to click and open each design to view the construction details.

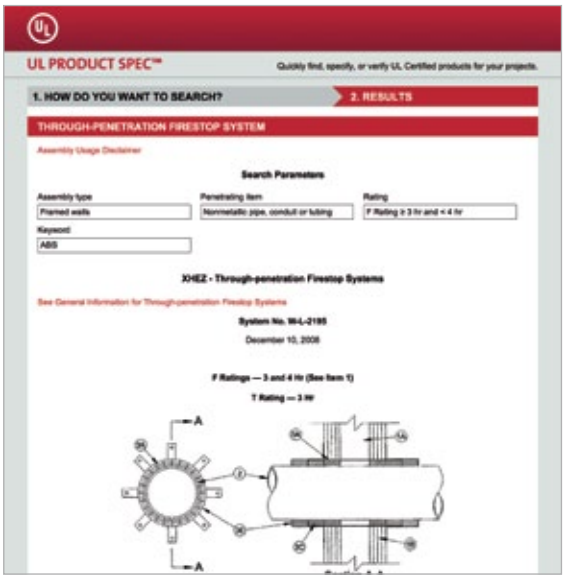
Instructional video

In order to help you take advantage of the many features and functions provided by





Move your mouse over a design or system number to instantly pop up a preview of the construction drawing. Quickly preview the designs in the Results list and click the one need.



Complete specifications, including your search criteria in the header.

UL Product spec, UL created short online instructional videos that will walk you through using the Product Spec search tool and increase the overall understanding of this useful tool through easy to follow step by step instructions. A link to the instructional video can be found at **ul.com/psvideo**.

For more information on UL Product Spec please contact Jon Roberts in Oklahoma City, Okla., at **Jonathan.Roberts@ul.com** or +1.405.760.6724.

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pass through one controlled egress door to exit the building.

Electrically and electro-magnetically locked egress doors

Electrically or electromagnetically locked egress doors have safety requirements, such as motion sensor activation (release), automatic release with operation of the panic or fire exit hardware, failsafe operation and/or a manual release and must be listed to UL 294 to ensure code compliance and safe operation.

Product certifications

There are several UL product categories covering special locking arrangements, locks, and access control systems that can be used in the above referenced applications. Certifications for these products and systems can be found in the UL Online Certifications Directory at **ul.com/database**.

Over 20 companies have products listed under the Special Locking Arrangement (**FWAX**) product category. This category covers assemblies intended to be mounted on door frames of outward-swinging exit doors for the purpose of locking, such doors against unauthorized egress.

Products listed under this product category are investigated in accordance with the Standard for Access Control System Units, **UL 294** and applicable IBC and/or NFPA 101 requirements. Products are intended for installation in accordance with the manufacturer's installation instructions.

UL certified products under this category include a UL Mark that includes "SECURITY", "LISTED" or "CERTIFIED", and "Special Locking Arrangement."

The Controlled Exit Panic Devices (**FULA**) product category covers devices intended for mounting on outward-swinging exit doors to facilitate the egress of persons. When the system is activated, it is intended to protect against immediate unauthorized egress and allow exiting within 15 seconds, or 30 seconds when approved by the local code authority. These devices allow immediate egress in case of power failure or upon activation of an automatic fire-alarm system.

Products listed under this product category include releasing devices, such as panic hardware, fire exit hardware and exit locks, that are actuated by an actuating bar (crossbar or push pad) or actuating paddle for outward-opening doors, designed to facilitate the egress of persons from buildings in the event of an emergency.

The basic standard used to investigate products in this category is the Standard for Panic Hardware, **UL 305** and applicable IBC and/or NFPA 101 requirements. Products are intended for installation in accordance with the manufacturer's installation instructions. UL certified products under this category include a UL Mark that includes "CERTIFIED" and "SAFETY," and "Panic Hardware."

Also, products and systems that provide a means of regulating or controlling physical entry (ingress) into a building or area by electrical, electronic and/or mechanical means are Certified (Listed) under the Access Control System Units (**ALVY**) product category in accordance with UL 294 requirements.

Finally, doors controlled by UL 294 access control systems units or special locking arrangements are typically provided with listed burglary-resistant electric dead bolts (**CVXS**), burglary-resistant electric door strikes (**CVXY**), or burglary-resistant electromagnetic locks (**CVYT**). These locking devices are listed in accordance with **UL 1034**, the Standard for Burglary-Resistant Electric Locking Mechanisms.

For more information on special locking arrangements, please contact Bruce Johnson in New York at **Bruce.Johnson@ul.com** or +1.631.680.5174.

Questions & Answers

Several sections in Chapter 10 of the IBC require door locking system units to be listed in accordance with UL 294. In addition Chapter 7 of NFPA 101 requires hardware for new installations of electrically controlled egress door assemblies to be listed in accordance with UL 294. Does UL 294 address electromagnetic locks? If not, what is the appropriate standard to which electromagnetic locks should be listed?

The Standard for Access Control System Units, **UL 294**, is used to list Access Control System Units (**ALVY**), which can be found in the UL Online Certifications Directory at **ul.com/database**. UL 294 applies to control units, power supplies, card readers, sensors and other electronic components that are necessary for proper operation of the access control system, which provide a means of regulating or controlling physical entry into an area, or access to or the use of a device by electrical, electronic and/or mechanical means. Access control systems are investigated as a complete configuration based upon the manufacturer's specified system components. UL 294 is also used as a basis for Listing Special Locking Arrangements (**FWAX**).

Doors controlled by UL 294 access control systems are typically provided with listed burglary-resistant electric dead bolts (**CVXS**), burglary-resistant electric door strikes (**CVXY**), or burglary-resistant electromagnetic locks (**CVYT**). These locking devices are listed in accordance with **UL 1034**, the Standard for Burglary-Resistant Electric Locking Mechanisms. These locks are not listed in accordance with UL 294 – however, the electronic load (or characteristics) of the door locks are considered during tests which involve normal operation and electronic loads as specified by the access control system.

For more information on electromagnetic door locks and related equipment and systems, please contact Kelly Nicolello in Fort Worth, Texas, at **Kelly.Nicolello@ul.com** or +1.602.201.8938.

Is it acceptable to plug an outlet strip (relocatable power tap) into a current tap that is secured in a duplex wall receptacle with a screw?

The answer to your question is no. To begin, a current tap is a male and female contact device that, when connected to an outlet receptacle or cord set, provides multiple outlets or outlet configurations. The outlet configuration may consist of a slot configuration, or provision for the connection of flexible cord.

A relocatable power tap, often referred to as an outlet strip, is listed in accordance with the Standard for Relocatable Power Taps, **UL 1363**. Listings for these devices can be found under the Relocatable Power Tap (**XBYS**) product category, which can be found in the UL Online Certifications directory at **ul.com/database**.

UL 1363 indicates that relocatable power taps are intended to be connected to a permanently installed branch circuit receptacle outlet. These devices are not intended to be connected to other devices, including current taps installed in permanently installed receptacles. If there is interest in changing the intended use of these products, this would first necessitate a change to UL 1363.

UL LLC
333 Pfingsten Road
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Calendar of Events

January 11 – 16
Building Innovation 2016
Washington, D.C.
nibs.org

January 19 – 21
NAHB International Builders' Show
Las Vegas, Nev.
buildersshow.com

January 27 – 29
FLASH 2016 Annual Conference
Orlando, Fla.
flash.org/2016meeting

February 17 – 19
International Roofing Expo
Orlando, Fla.
theroofingexpo.com

To include your upcoming events, email Howard Hopper at **Howard.D.Hopper@ul.com**. Please add "TCA Calendar" in the subject line.

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W: ul.com/codeauthorities
T: 1.800.595.9844
E: ULRegulatoryServices@ul.com

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

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E: ULRegulatoryServices@ul.com

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