



# THE FIRE & SECURITY AUTHORITY<sup>®</sup>

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## UL Offers Testing and Certification of Exterior Wall Systems

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Changes in the 2012 International Building Code pertaining to exterior walls combined with a greater focus on energy efficient (green) construction has led UL to offer testing and a new certification program for exterior wall systems in accordance with NFPA 285, “Standard Fire Test Method for Evaluation of Fire Propagation

Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.” Certified wall systems and components are published in UL’s Online Directory and in the Building Materials Directory under the categories Exterior Wall Systems (FWFO) and Exterior Wall System Components (FWFX). Examples

of wall system components include, but are not limited to, foamed plastic insulation, other insulation products, water resistive barriers, air resistive barriers, laminates, sheathing, and composite panels.

Since around 1988, the model Codes have addressed exterior wall systems

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Scan with your mobile QR Code Reader to find out more about UL’s research on residential flooring hazards.

## Exterior Wall Systems (continued from cover)

containing combustible foam plastics. For example, the International Building Code (IBC) Section 2603.5.5 states, “*The exterior wall assembly shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.*” There are certain exceptions, such as when foam is used in a one-story building and has a flame spread index less than 25, smoke developed index less than 450, wall thickness not more than 4 inches, covered by a prescribed thickness of aluminum or corrosion-resistant steel, and the building is equipped throughout with an automatic sprinkler system.

In 2012, the IBC was updated to specifically require water resistive barriers to be tested to NFPA 285. Section 1403.5 now states, “*Exterior walls on buildings of Type I, II, III or IV construction that are greater than 40 feet in height above grade plane and contain a combustible water-resistive barrier shall be tested in accordance with and comply with the acceptance criteria of NFPA 285.*” The significance of this change is that water resistive barriers must be tested and evaluated in combination with other components for the evaluation of complete wall systems. Now, more than ever, there is a need to demonstrate compliant NFPA 285 wall designs and show how the components are matched together to comprise the system.

In addition to the Code changes, exterior wall systems are now being designed using innovative components and new methods to meet the energy efficiency requirements of the International Energy Conservation Code (IECC) and

other green initiatives. Code authorities, architects, design consultants and manufacturers recognize the need to balance the new design goals while addressing the potential for fire growth on the exterior surface of building structures. According to the Fire Protection Research Foundation, fires associated with exterior cladding containing combustible insulation materials or coatings are among the examples of reported fire incidents that are related to green issues.<sup>1</sup>

Historically, the acceptance of wall systems involved a fairly complex review of building code interpretation; Evaluation Reports (if available), individual component manufacturer’s test reports, engineering analysis, and application of the manufacturer’s installation instructions. The new UL certification categories simplify the review process by providing a public database that shows complete wall system designs and details how the components are evaluated as part of the system (similar to fire resistance approach). This meets the dire needs of manufacturers, architects, specifiers, and Code Authorities / Officials for an available, accessible, up to date method of determining compliance with Code. The illustrated designs within the UL certification reflect the precise details of the assembly subjected to the fire test. A UL certified wall system must be constructed to the specifications within the illustrated design and the details included in the associated text to achieve the anticipated performance. Critical components used in the system

are named specifically and will also bear the UL Mark.

In addition to NFPA 285, the certification categories optionally include water penetration resistance to ASTM E331, Standard Test Method for Water

Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference” and air leakage resistance to ASTM E2357, Standard Test Method for Determining Air Leakage of Air Barrier Assemblies. Other Code related requirements for exterior walls which



are not a part of these new certifications for exterior walls include:

- ANSI/UL 263 (ASTM E119), if a fire rated wall
- ANSI/UL 723 (ASTM E84) with a flame spread index of less than 25, smoke developed index less than 450
- NFPA 268 – Ignitibility of Exterior Walls
- NFPA 259 – Potential Heat

In summary, exterior wall systems need to be code compliant and yet attractive, innovative, cost and energy efficient, and air and water resistant. Building

officials, manufacturers, designers, architects, and contractors benefit from the transparency and simplicity of UL's new certification approach. This will lead to flexibility in the selection from many wall system options and the confidence that these systems meet NFPA 285 code requirements.

### About NFPA 285

NFPA 285 is the recognized test method for determining the fire propagation of exterior, non-load-bearing wall systems that contain combustible materials. The test method is intended to simulate the

fire performance of an entire multi-story exterior wall assembly to assess that the wall does not spread flames over the surface, through the core of the wall and from the compartment of fire origin to adjacent compartments.

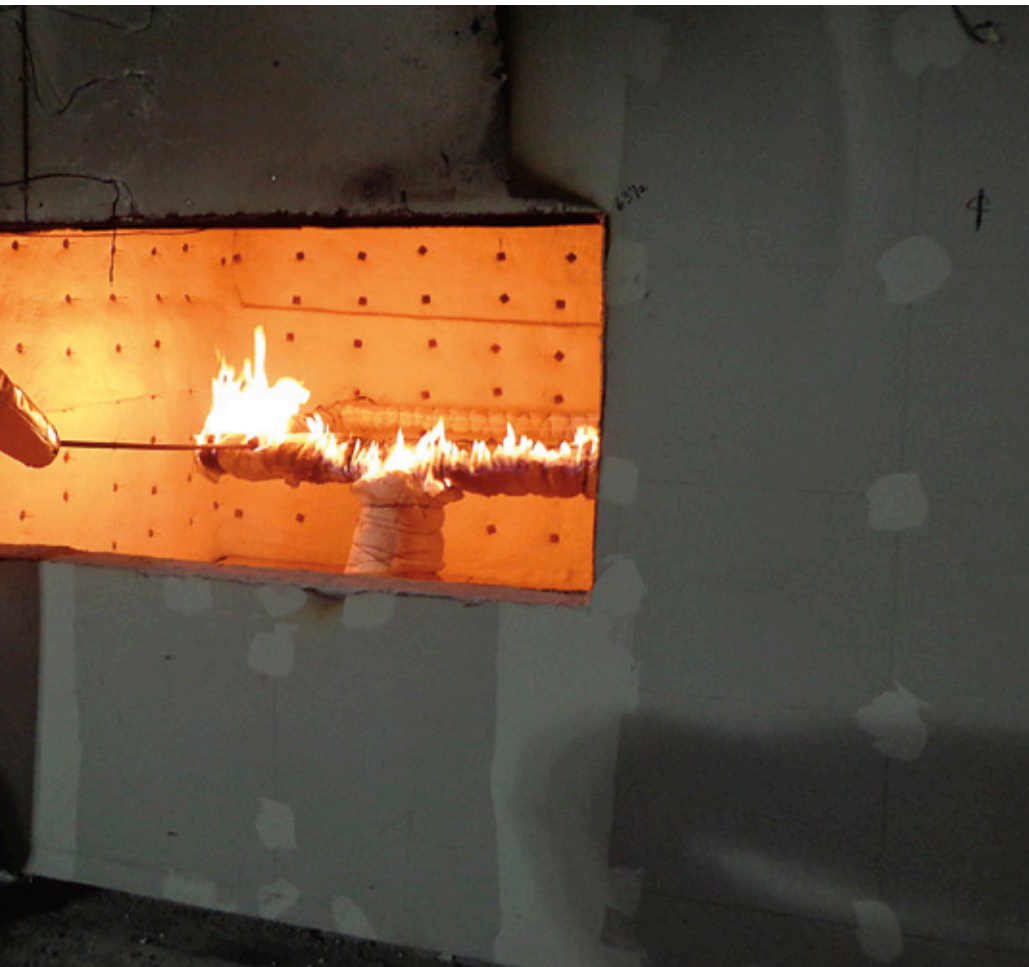
The procedure uses a 15.6 ft. high two-story test apparatus, commonly known as the Intermediate-Scale Multistory Test Apparatus (ISMA). There is a 10 ft. wide test room at each story. The test wall assembly measures 17.5 ft. high by 13.3 ft. with 78 in. wide by 30 in. high window opening at the first floor. The test employs two gas-fired burners, one inside the first story room, and one outside the first story window opening of the wall assembly. Burners are ignited to deliver specified temperatures and heat fluxes over a 30 minute test duration. The conditions of acceptance are based on vertical and horizontal flame propagation limits and maximum temperature limits as measured by thermocouples placed throughout the wall assembly.

UL's ISMA apparatus and testing capabilities are located at the fire testing complex in Northbrook, Illinois.

For more information on testing or UL's new certification services, please call 877.854.3577 or email [FireSafetyQuote@ul.com](mailto:FireSafetyQuote@ul.com).

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<sup>1</sup> Fire Safety Challenges of Green Buildings, Fire Protection Research Foundation, November 2012



# UL Firefighter Research Training Saves Civilians and Firefighters

*Firefighting tactics are ever evolving. Some are planned and some are made during active fires. The Wilmette (IL) Fire Department recently faced an operational decision while responding to a house fire during the early morning hours on Monday April 8, 2013. As fire department personnel arrived on the scene of a heavily involved residential home fire responding crews were notified there was at least one occupant trapped by the fire inside the home.*



Lieutenant Tony Bucci of Engine 27 immediately ordered firefighters to knock down (darken) the fire from the exterior while a separate crew prepared to enter the structure to fight the fire and search for the trapped occupant. The firefighters were able to extinguish most of the fire from the exterior using a hose line in about 30-40 seconds. Upon darkening the fire from the exterior, Wilmette firefighters entered the building and advanced with a hose line to extinguish the remainder of the fire and vent as needed. The conditions upon entry were untenable due to dark black smoke and zero visibility at the floor.

A search of the first floor located the occupant, unconscious, in the dining room. Within a week of the fire, the victim, who initially suffered from smoke inhalation, was well enough to breathe on her own, and was soon released from the hospital.

The recent education that Wilmette firefighters received from the UL Firefighter Safety Research Institute led them to darken down the fire from the outside, which is not a tactic that they had deployed previously due to misconceptions surrounding that choice. “The decision by the first arriving engine officer undoubtedly prevented the first floor from flashing over,” said Wilmette Fire Chief Jim Dominik. “Had flashover occurred, the victim would not have survived and the crew making their way up to the second floor would have been placed in a very dangerous and potentially deadly situation.”



UL Firefighter Safety Research Institute Director Steve Kerber stated, “Our goal has always been to develop knowledge with the fire service so that they can decide for themselves which tactics to employ at the time of response. Coincidentally, UL Fire Research executive sponsor Chris Hasbrook, UL Vice President of Fire, Life Safety & Security Industries is a Wilmette resident. “Helping to create behavioral change in the fire service to improve safety is directly in line with UL’s mission,” said Hasbrook. “We are very happy to see a successful outcome so close to home”.

For additional information on the Wilmette Fire Department visit <http://www.wilmette.com/departments/fire/default.aspx>.

For information on UL Firefighter Safety Research Institute visit [ULfirefightersafety.com](http://ULfirefightersafety.com).

# ENHANCED UL CERTIFICATION MARK

## Providing greater clarity and acceptance

*Products in today's international environment must meet a diverse spectrum of certification and compliance requirements. In response to evolving customer needs, UL has introduced an enhanced UL Certification Mark and Certification Badge system to deliver greater clarity and acceptance in today's marketplace. The new Mark and Badge system anticipates changing market needs and the evolving nature of product safety.*

The enhanced UL Certification Mark enables manufacturers to bundle multiple certifications for multiple geographies into a single mark. It includes a unique identifier that provides more details on the scope of certification for a particular product; allows for growth and inclusion of new types of certifications; and provides enhanced Mark intelligence and traceability for the future. In the past manufacturers used separate or dual UL Listing and Classification marks to cover a product's evaluation. Now there is only one mark. All currently existing

versions of UL's Listing and Classification Marks remain valid and will continue to be accepted as an indication of certification. UL expects the transition to the enhanced Mark to happen over time, to allow time for an adequate transition for manufacturers, specifiers, designers, customers and code authorities.

As part of the mark system, the Certification Badge provides an optimized, concise way for companies to promote compliance in the marketplace through use on marketing, advertising and packaging materials.

In addition, the UL Marks Hub was developed to provide tools for UL customers and other stakeholders to access information related to the evolving Certification Marks and Badges. UL Listing and Classification Marks will continue to appear in the marketplace and remain valid as indications of UL certification.

For more information please visit the Marks Hub at [markshub.ul.com](http://markshub.ul.com) and click on **Register for Access** today.

The **UL Certification Badge** is designed to promote and advertise new UL Certifications, providing an attractive way to share this information with the marketplace.



Every UL Certification Mark will have a unique identifier or a file number that appears at the end of the module. The unique identifier aids with traceability and enables access to more information about a product's Certification.

## Questions & Answers

**What impact does current and future construction methods have on life safety for both occupants and emergency responders?**

Many current and future construction methods have been examined by UL because of their proven or potential impact on occupant and fire responded safety. There has been a steady change in the residential fire environment over the past several decades. Some of these changes include larger homes, different home geometries, increased synthetic fuel loads, and changing construction materials. Several experiments were conducted to compare the impact of changing fuel loads in residential houses. These experiments show living room fires have flashover times of less than 5 minutes when they used to be on the order of 30 minutes. Other experiments demonstrate that the failure time of wall linings, windows and interior doors have decreased over time, which has an impact on fire growth

and firefighter tactics. Each of these changes alone may not be significant, but the all-encompassing effect of these components on residential fire behavior has changed the incidents that the fire service is responding to. The *Analysis of Changing Residential Fire Dynamic and Its Implications on Firefighter Operational Timeframes* paper examines this change in fire dynamics and the impact on firefighter response times and operational timeframes ([ul.com/global/digitalassets/hcpages/newsience/images/fire-safety/docs/Analysis\\_of\\_Changing\\_Residential\\_Fire\\_Dynamics\\_and\\_Its\\_Implications\\_on\\_Firefighter\\_Operational\\_Timeframes.pdf](http://ul.com/global/digitalassets/hcpages/newsience/images/fire-safety/docs/Analysis_of_Changing_Residential_Fire_Dynamics_and_Its_Implications_on_Firefighter_Operational_Timeframes.pdf)).

For more information and additional studies please visit [ul.com/fireservices](http://ul.com/fireservices).



## Spotlight: GSA Award

UL has been awarded a General Services Administration (GSA) Contract; offering U.S. Federal Agencies a Firm-Fixed Price Delivery Order under GSA Schedule Number GS-10F-0426Y for in-service inspection of:

- Fire apparatus pumps and aerial devices in accordance with NFPA 1911; Standard for the Inspection, Maintenance, Testing, and Retirement of In-Service Automotive
- Fire department ground ladders in accordance with NFPA 1932; Standard on Use, Maintenance, and Service Testing of In-Service Fire Department Ground ladders

UL has mobile test equipment for conducting fire apparatus at domestic and oversea military bases.

UL's GSA Advantage contract can be found at <http://www.gsa.gov/ElibMain/contractorInfo.do?contractNumber=GS-10F-0426Y&contractorName=UL+LLC&executeQuery=YES>

For additional question contact Tom Hillenbrand by email at [Thomas.A.Hillenbrand@ul.com](mailto:Thomas.A.Hillenbrand@ul.com) or by telephone at 1.847.664.2603.





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## WHAT'S HOT



### Introducing UL's Firefighter Safety Research Institute

As a major part of UL's long-standing commitment to the safety of the fire service, we are proud to establish the Firefighter Safety Research Institute (FSRI). With a team of experts and access to UL's leading infrastructure, equipment and vast knowledge, FSRI collaborates with fire departments and agencies around the world to conduct and disseminate cutting-edge research and training programs that focus on the changing dynamics of residential, commercial and industrial fires, and the impact they have on fire service tactics and strategies.

For additional information and to find out how FSRI is increasing firefighter knowledge to reduce injuries and deaths in the fire service and in the communities they serve visit [ULfirefightersafety.com](http://ULfirefightersafety.com).

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