



Fire Protection: Is Your Home ‘Ignition Resistant’?

New building codes, product tests—and wildfires—point up need for fire-safe construction

Reston, VA (November 15, 2006) – It’s hard for people to imagine that their homes, and lives, could be destroyed by fire. Yet it happens to thousands of Americans each year. According to the National Fire Protection Association (NFPA), some 381,000 home fires in 2005 resulted in more than 3,000 deaths and \$6.7 billion in property damage.

To combat this, new building codes are being developed to enforce ‘ignition resistant’ construction practices and materials. The 2006 International Wildland-Urban Interface Code was created specifically to advocate fire-safe building practices for rural areas vulnerable to wildfires, as well as for suburban and urban areas where housing density, cluster zoning and “zero lot line” development have increased the threat of fires spreading from house to house.

Recognizing this, some building material manufacturers are stepping up research and development of new products that can meet or exceed the current industry standard for fire-resistance: a grueling test that exposes the materials to direct flame and destructively high temperatures for a period of no less than one hour.

Fire tests demonstrate ignition resistance

The Brick Industry Association (BIA) recently sponsored testing of two new types of “hollow” brick, designed to meet today’s demand for sustainable or “green” building materials, in an independently certified fire test that also compared the

performance of two competing residential exterior cladding materials—premium grade vinyl siding and fiber cement siding.

The fire tests, conducted at the Southwest Research Institute in San Antonio, were done in accordance with ASTM E 119, the “Standard Test Method for Fire Tests of Building Construction and Materials.” Each of the tested materials was used to construct a typical exterior house wall section, which was then subjected to fire for one hour or until one of the failure criteria was met. Failure takes place when the wall collapses, flame or hot gas penetrates the wall, or when the temperature rises to 250°F or greater on the unexposed (interior) side of the wall.

The hollow brick were the only materials to pass the test, achieving a one-hour fire-resistance rating for the wall. The vinyl siding burned away, failing the test after only 18 minutes and exposing the underlying house structure to the flames. Surprisingly, the fiber cement siding, which homeowners and builders often assume to be adequately fire-resistant because of its concrete-like composition, also failed the test and could not withstand the flames for a full hour.

“Brick is already well known for its fire-resistance,” said Gregg Borchelt, vice president of engineering for BIA. “However, this is the first time that the new hollow brick have been tested to verify that they provide a one-hour fire rating for exterior walls. These tests proved conclusively that hollow brick maintain the expected level of protection.”

Although the results of the BIA tests have not been publicized to date, many municipalities are already taking steps to reduce the danger of fire-spread in their areas. The Gwinnett Daily Post, which covers Atlanta’s fast-growing suburbs, reported earlier this year that building officials were investigating fire hazards and building density to determine whether requirements for building materials and setbacks should be changed. Although the report specifically stated that county commissioners were in favor of brick, stone and stucco over vinyl siding on homes built closely together, no action was taken.

The Post quoted Raymond Mattison, Fire Department chief in Winder, Georgia, who stated, “Part of the problem is the proximity of houses. We need more separation between structures, more fire-retardant materials between structures. Building houses out of stone or brick is helpful because it slows flames.”

Taking steps to prevent fire loss

People don't have to live in a high-density suburb, or in a fire-prone rural area, to exercise good sense regarding home fire safety. Experts recommend that homeowners not only choose ignition-resistant materials but also use proper landscaping techniques when building or remodeling. Such actions create a "perimeter of safety" around a house, decreasing the possibility that flames or airborne embers from a nearby fire can spread to the home.

Ignition-resistant construction is defined by one of the leading advocates of home fire safety, the California State Fire Marshal's office, as "using currently available building materials to create an 'envelope' around the house to decrease ... burning embers that enter the building and ignite fires." Building homes in a way that diminishes the threat of such fires "can reduce the main cause of home loss."

While other fire-resistant exterior siding materials are available, the fire tests conducted by BIA demonstrate that brick siding may be the best option for protecting a home. The tests, announced in October, firmly establish brick's ability to meet local, regional and federal fire safety and building code requirements for withstanding direct exposure to fire for one hour.

"Perhaps more than ever, it is critical that buildings, old and new, measure up to the most stringent fire codes," said Dick Jennison, president and chief executive officer of the Brick Industry Association. "Brick is a key material that can be used in the prevention of building damage, injury and death due to home fires."

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The Brick Industry Association is the national trade association representing distributors and manufacturers of clay brick and suppliers of related products and services. BIA is involved in a broad range of technical, research, marketing, government relations and communications activities. It is the recognized national authority on residential and commercial uses of brick.