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Whether it is a tornado, earthquake, flood, hailstorm, wind or hurricane, virtually every region of North America is susceptible to nature's fury. To help raise awareness of precautions that can limit the impact of these disasters, Chicago-area organizations, including the Portland Cement Association, used new and emerging technologies to create a state-of-the-art **Fortified...for Safer Living@ Home** in Aurora, Ill. The home was designed with insulated precast concrete walls from Dukane Precast for enhanced durability and protection against inclement weather, earning it the designation of a "Fortified...for Safer Living" home from the Institute for Business and Home Safety.



The *Fortified...for Safer Living* program specifies construction, design and landscaping guidelines to increase a new home's resistance to natural disasters from the ground up. This is done by adding protection to windows and doors, providing better connections between the roof, walls and foundation, and installing a thicker, stronger roof that is designed to stay drier and resist hail damage.

Precast walls are a preferred choice for "Fortified" homes because they offer superior protection against natural disasters and can withstand earthquakes, tornadoes, straight-line winds, hurricanes and fires. The precast walls in the Aurora home provide a structure that stands up to nature and gives added benefits to the homeowner, such as enhanced energy efficiency and reduced insurance rates.

The groundbreaking for the home took place on April 2 and was supported by a wide range of organizations from the Chicagoland business and academic communities. Twenty separate businesses and non-profit associations donated their resources and students from East Aurora, Waubonsie Valley and Neuqua Valley high schools worked with construction professionals to help build the home.

The choice of precast walls enabled students and building professionals working on the project to benefit from a simplified construction process. Precast wall systems are made from pre-assembled concrete panels that are shipped to the construction site ready to be set in place. This expedites the construction process and decreases the number of labor hours necessary to complete the project. A streamlined assembly process also limits disruptive noise and dust associated with construction.

In addition to providing a sturdy envelope for the home, precast concrete wall systems also help reduce energy usage. Structures built with concrete benefit from high thermal mass and low infiltration. Compared with those constructed with wood and steel, concrete structures better moderate daily temperature fluctuations. Consequently, heating, ventilating and air-conditioning in buildings like the Aurora precast home can be designed with smaller-capacity equipment, saving money and reducing energy consumption and carbon dioxide emissions.

A continuous layer of high R-value insulation is injected between two layers of precast components to provide monolithic insulation for improved energy efficiency throughout the structure of the Aurora home. Dukane Precast is the first U.S. supplier that offers this type of insulated precast wall system.

The building community came together and reached out to others in order to make this project a reality. The cement and concrete industry companies that donated their time and materials include the Portland Cement Association, Precast-Pre-Stressed Concrete Institute, Pre-Stress Engineering Corp, Symons, Dukane Precast, Buzzi Unicem USA, Lafarge North America and St. Marys Cement Company. This is yet another example of how the industry supports sustainable development projects. With

unmatched durability and enhanced benefits for energy efficiency, precast concrete walls helped make the dream of a state-of-the-art "Safe Home" a reality for a deserving family.

Organizations that Participated in the Aurora Fortified...For Safer Living Home:

- Joseph Corporation
- Allstate Insurance
- Portland Cement Association
- Lafarge North America
- International Fire Resistant System
- St. Marys Cement Company
- FEMA
- Grace
- Buzzi Unicem USA
- United Way
- Safe Home Illinois
- Simpson Strong-Tie
- Institute for Business and Home Safety
- Owens Corning
- HBIS
- Therma Tru Doors
- Neighbor Works
- Prestress Engineering Corporation
- American Red Cross of Greater Chicago
- Dukane Precast
- Rathje & Woodward. LLC
- Sika Paint
- Bricks, Inc.
- Symons
- Anderson Windows
- Precast/Prestressed Concrete Institute
- National Storm Shelter Association
- Underwriter Laboratories
- IEMA

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