

PRECAST

MAPA
Mid-Atlantic Precast Association

Press

Summer, 2007

Fortified Homes

The “fortified..for safer living” standards encouraged by the Institute for Business & Home Safety (IBHS) offers suggestions for affordable code-plus upgrades that focus on key components. The improvements in the design can help reduce a home’s exposure to disasters that include high winds, fires, flood, freezing weather, hail and earthquakes as well as water damage.

The fortified program sets performance standards for what the home should be able to withstand and allows the builders to achieve that standard using their best design techniques, explains Chuck Vance, Fortified Program manager for IBHS in Florida. The program has taken off in recent months - especially in Florida and the mid-west due to changes in the requirements that were made by IBHS this spring. Previously, standards had been set that required the home to withstand 130-mph winds. That proved to be too low for the dangerous coastal areas, but well above what builders would expect to face in other regions. “We revised our criteria to expand the capabilities and make it better meet the needs of everyone across the country.”

As a result the new standard



states that the home must be able to withstand winds that are 20 mph above the design speed set in the ASCE-7 Design Loads criteria. That reset the requirements to as much as 170 mph in some coastal areas and reduced it to 110 mph for interior regions. “That’s more realistic and encourages more builders to participate.”

Wind-borne debris tests were performed to test the Fortified home standards. Lengths of 2x4s were shot from an air cannon at various panel assemblies featuring either brick, drywall or precast concrete. The tests replicated the potential debris that could become missiles during a tornado or hurricane and indicated how deep into the material the stud would penetrate.

During the tests, the 2x4 penetrated vinyl siding and wood frame, not even slowed down by the materials. Two shots through different brick wall assemblies left a large hole. The precast concrete panel, with a thin brick facade withstood the 2x4 barrage and after the stud bounced off the wall was as good as new. A video clip showing the wind cannon tests is available on our web site. Go to www.mapaprecast.org and click on the wind cannon icon to see the results.

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Precast Concrete homes built in the Bronx, NY

Membership

Please join me in welcoming our newest Associate Member. The Mid-Atlantic Precast Association is pleased to have **Pennoni Associates** of State College, PA as an affiliate. Pennoni Associates are specialty engineers who also detail precast concrete projects. For information or to contact them directly go to: www.pennoni.com or call 814-238-1170 for Perry Schram.

For a complete listing of associate and producer members go to the MAPA web site: www.mapaprecast.org. Click on the "About MAPA" navigation button to find all member listings plus links to our sister associations and other resources. The web site is continuously updated with more case studies and technical resources so make sure to add it to your browser as a favorite!

Quotables

○ *"The man who makes no mistakes does not usually make anything."*

—William Connor Magee

○ *"Excellence is achieved by the mastery of fundamentals."*

—Vince Lombardi

○ *"Even the best team, without a sound plan, can't score."*

—Woody Hayes

○ *"The reason so many people never get anywhere in life is because when opportunity knocks, they are out in the backyard looking for four-leaf clovers."*

—Walter P. Chrysler

Continuing Education

MAPA offers free in-house presentation on these topics:

Presentations can be conducted at lunchtime and MAPA will provide a complementary lunch. Technical publications for the office library will be left behind. A complete description of the available presentations can be found at mapaprecast.org. To schedule an office seminar please e-mail: info@mapaprecast.org or call 800-453-4447.

√ Architectural Precast Concrete: Highlights include color and texture considerations, panelization techniques, proper detailing requirements, connection considerations and related topics.

√ Hollowcore Plank: Fabrication and installation of hollowcore plank for multi-family housing and other applications. Detailing, fire resistance, acoustical benefits are also reviewed.

√ Parking Structure Design and construction: A comprehensive overview of precast/prestressed concrete parking structures including design, durability, drainage, detailing and other considerations.

√ Total Precast Building Systems: A total precast concrete building system integrates the precast structural frame and the architectural facade of a commercial building. This program walks through the methodology as to how to deliver a project that is more economical and faster to construct.

√ Sustainable Precast Concrete Construction. Learn how Precast Concrete can help work toward earning LEED certification for your next project.

Programs are accredited by AIA for Learning Units or for equivalent Professional Development Hours for engineers or others continuing their education.



Case Study: Corinthian Condominiums

Although all options and materials were considered for Corinthian, a 7-story luxury condominium on Philadelphia's chic Main Line, precast concrete was selected because it offered the best combination of durability, value and aesthetic appeal.

As Brian O'Neill, Founder and Chairman of O'Neill Properties puts it "because much of Corinthian's allure is due in large part to the exterior appearance and curb appeal, we were able to combine the elements needed for structural integrity of a high rise with visual attractiveness at a cost that was not prohibitive. With precast panels, we were able to have a real brick exterior appearance which provided a warm residential feel versus competing products."

But the choice of precast provided so much more than curb appeal for Corinthian. Because the decision to use precast was made early in the design process, the precaster, Universal Concrete Products, of Stowe, PA, was able to assist the team in the preliminary phases of planning. Universal Concrete Products provided shop drawings and made recommendations to the architect and builder on how to best maximize the benefits of precast, how to lower construction costs by minimizing the number of panels used and how to reduce joint visibility.

While look and feel played a major role in the selection of precast, schedule concerns were never far behind in the process. Precast offered the best of both worlds by providing a choice of complimentary panels and acceleration of construction time to accommodate Corinthian's aggressive schedule.

Voted the top condominiums on Philadelphia's Main Line for two successive years, Corinthian offers residents classic living in a warm and appealing condominium that reflects the distinction and sophistication of the prestigious address-- thanks in part to the versatility and appeal of precast concrete.

Concrete Facts:

Architectural Precast Finish - combination of buff color, light sandblast and half brick
7-story condominium
Two lower levels of parking
62, 980 square feet = 595 pieces
Panels are stacked up from the foundation



Brian O'Neill, Chairman, O'Neill Properties

Products Used:

Half brick cast into the precast concrete panels-- typical panels were punched windows using "pink velour" Yankee Hill brick in a standard running pattern
Architectural precast panels feature light/medium sandblast finish
Bullnose trim and roof cornices were monolithically cast within the wall panels

Project Team:

Owner: O'Neill Properties
GC: Intech Construction
Architect: Bower, Lewis Thrower Architects
Engineer: Cagley Harman & Associates
Precaster: Universal Concrete Products Corp.

Director's Chair



Monica Schultes, Executive Director MAPA

Precast concrete products are only as good as their installation. Over the past few years there has been much discussion regarding fall protection requirements for employees performing precast concrete erection operations. OSHA subpart "m" requires 100% tie-off for

crew at the leading edge. The precast industry contends that this imposes a greater hazard for personnel than implementing a controlled access zone. In a recent industry forum MAPA members discussed ideas surrounding the collaborative effort between the precast manufacturer and the erector to ensure the safety and efficiency of the project. One of the topics focused on Site Specific Erection Plans (SSEP) which includes designating access to the job, selecting the proper crane and the rigging to be used as well as the general contractor's responsibilities and overall erection safety plan for the project.

Because safety is job #1 in this industry from production through installation, MAPA precast manufacturers are very involved in confronting these important issues because they are ultimately responsible (and liable) for the success of the project. So whether they use their own in-house erection crews or a sub-erector, MAPA members will contribute and collaborate on a consistent plan for the use of a SSEP. While additional documentation will be required, it makes no sense to add to the existing burden of project administration and its associated paperwork. It seems obvious to lay out the job sequencing and an assembly/bracing plan early on in the project, however as we all know, changes in the field are common place and some flexibility is required to move the job forward.

There is no easy solution to this on-going debate. The MAPA erectors committee will continue to tackle this and other important issues on the leading edge. For further information regarding a sample SSEP please contact me.

Producer Members

Architectural Precast, LLC
Middleburg, PA
Stephen Kenepf 570.837.1774
www.apjprecast.com

Fabcon
Mahanoy City, PA
Robin Brown 610.530.4470
www.fabcon-usa.com

High Concrete Group
Denver, PA
Gary Reed 717.336.9300
www.highconcrete.com

High Concrete Group
Williamsport, PA

High Concrete Group
Buena, NJ

Newcrete Products
Roaring Spring, PA
Randy Romani 814.224.2121
www.newcrete.com

Nitterhouse Concrete Products
Chambersburg, PA
Daryl Wenger 717.267.4505
www.nitterhouse.com

Oldcastle Building Systems
Morrisville, PA
Jim Sowden 800.523.3747
www.oldcastleprecast.com

Oldcastle Building Systems
Edgewood, MD

Schuylkill Products, Inc.
Cressona, PA
Dennis Campbell 570.385.2352
www.spibeams.com

The Shockey Precast Group
Winchester, VA
Marshall Sorenson 540.667.7700
www.shockeyprecast.com

The Shockey Precast Group
Fredericksburg, VA

Universal Concrete Products Corp.
Douglassville, PA
Don Evans 610.323.0700
www.universalconcrete.com

Universal Concrete Products Corp.
Folsom, NJ

A complete directory listing of member contact information is available at www.mapaprecast.org

Case Study: Symphony House

The residents of Philadelphia's Symphony House are truly at home with the arts. Rising 32 stories from one of Philadelphia's premiere cultural districts, residents enjoy a luxury reminiscent of the high style elegance of the 1920's. Marble and granite grace the living areas, while an attached five-story Broadway-style theater offers live, professional entertainment without ever leaving the building.

Developer Carl Dranoff of Dranoff Properties is noted for his track record of renovating historic properties and converting them into luxury residences. For this highly prominent high rise condo tower, just steps from the Kimmel Center for the Performing Arts, he wanted to create a classic design that was distinctive, yet would also blend with the character and tradition of nearby structures along Philadelphia's Avenue of the Arts.

Lightweight precast panels with a red textured finish complemented by smooth brown sections and trim were used on the exterior walls to give the building its grand character-- and a 60% lighter weight load. Twenty-four floor decks utilized lightweight precast concrete, but conventional precast panels were chosen to meet the functional impact requirements of the decks on the facility's eight-level parking structure.

"Precast construction offered us more design options at no greater construction costs," noted Dranoff. "Plus we stayed on schedule completing erection in just five months." 804 exterior lightweight precast panels were manufactured for Symphony House by High Concrete Group of Denver, PA. The panels were manufactured under quality controlled factory conditions and shipped ready for erection. The 7-inch thick panels, reinforced with carbon fiber mesh, produced deep aesthetically pleasing reveals, recessed planes and window recesses adding a pleasing balance of light and shadow. Symphony House is the first major precast concrete skyscraper built in Philadelphia in the 21st Century.

The success of Symphony House proves that precast is a viable player on Philadelphia's Avenue of the Arts and anywhere owners, developer, builders and architects want flexibility of design, speed of construction and cost effective quality. "Precast panels gave us exactly the look and feel we wanted for the structure and for the prominent urban location. We really couldn't have made a better choice," notes Dranoff.

Concrete Facts:

- ◆ 32 story condominium tower with retail, parking and 365-seat live theater
- ◆ Seven levels of parking with a total of 400 spaces
- ◆ 804 lightweight precast panels on the exterior

Products Used:

- ◆ Lightweight architectural precast concrete panels
- ◆ Architectural precast panels featured a textured red finish, complemented by smooth brown hued sections and trim

Project Team:

Owner: Dranoff Properties

GC: Intech Construction

Architect: Bower, Lewis Thrower Architects

Engineer: Cagley Harman & Associates

Precaster: High Concrete Structures



Carl Dranoff, President, Dranoff Properties



Mid-Atlantic Precast Association

a quarter century **25** *of precast prowess*

PO Box 831
Hockessin DE 19707

800.453.4447
www.mapaprecast.org

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