

Precast Press

Quarterly Newsletter for the Mid-Atlantic Precast Association

First Quarter, 2002



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YOUBETHEJUDGE

Part of a \$92.5 million courthouse expansion, the Fairfax Judicial Center parking structure will feature precast concrete from the **Shockey Precast Group**.

The 604,000 square foot structure will be located on

Page

Avenue at the Public

Safety

Complex in

Fairfax,

VA. The

precast

concrete

system

includes

durability

features

such as

galvanized

hardware,

stainless

steel double tee flange connections,

corrosion inhibitor and a 0.38 water/

cement ratio.

The \$20.6 million finished parking struc-

ture will have seven levels of precast

prestressed concrete. Two levels are

partially below grade. Shockey will

provide more than 1,700 precast compo-

nents including architectural exterior

columns, stair and elevator walls, shear

walls, beams, and spandrels with thin-

brick accent bands. The main stair tower

will include precast sills, lintels, water

course, copings, cornices and wall panels

covered with field-placed brick.

Completion is scheduled for November 2002. The new garage includes a pedestrian sidewalk that will provide sheltered access



over Page Avenue to the existing precast concrete facility. The original plan provided for two parking structures, one with 1,600 spaces and one with 500 spaces. The final design combines the two structures into one larger facility at a savings of approximately \$3 million.

MAPA associate members involved in the project include Consulting Engineers Group (CEG), Charles W. Karper and WR Grace to name a few.

Membership

Look who has joined us!!!
We are pleased to announce that **Tindall Corporation (VA)** has joined MAPA as a producer member. Tindall's Virginia plant is located in Petersburg, VA. They design, manufacture and erect precast/prestressed concrete for a variety of structural projects from furnished precast prison cells to double tees for parking structures and industrial wall panels.

Welcome!!

For a complete member listing, contact MAPA for a 2002 Directory or visit our webpage www.mapaprecast.org

Quotables

"The most important trip you may take in life is meeting people halfway."
---Henry Boye

"Character consists of what you do on the third and fourth tries."
--James Michener

ASSOCIATE SPOT-LIGHT



Did you know that MAPA has over 70 associate members? They supply everything that goes into a successful precast/prestressed concrete project --from admixtures, aggregates and accessories to erection or engineering services and steel forms. Each issue will include an in-depth look at a new product or service, an innovation or just the basics of one of these suppliers. Look for the Associate Member Spotlight in the next issue for some news you can use.

Live and Learn

Free lunch! MAPA offers qualified architects and engineers lunch time seminars on a variety of topics. Programs include Architectural Precast Concrete, Hollowcore, Industrial Wall Panels, Parking Structures and Sports Facilities. Contact MAPA today to schedule a program in your office and earn 1 AIA Learning Unit. Contact us via email info@mapaprecast.org or 800-453-4447.



Plant Tours

Back by popular demand! MAPA's Architectural Precast Concrete Committee will be hosting three plant tours throughout the region. The first will be held in **Charlottesville, PA** on **May 14th**. Subsequent dates and locations: **August in Denver, PA** and **Fredericksburg in October**. Mark your calendars now! Upcoming events can always be found on our website: www.mapaprecast.org



Details, Details, Details - coming soon on www.mapaprecast.org



Director's Chair

What's the buzz in the precast industry? Seismic Seminars: "Translating Research into Practice". PCI is kicking things up a notch -- after 10 years of research, PRESSS (Precast Seismic Structural Systems) seminars are being held around the country that will allow you to design tomorrow's structures with seismically proven precast systems today.

The program includes such topics as: *The PRESSS Structural Systems; Overview and Behavior, Seismic Code Issues Related to Precast/Prestressed Concrete Structures and Design of Structures Using the Newly Developed PRESSS Frame and Shear Wall Systems.*

So, where and when can you get a firsthand look at this exciting program? PCI was greeted with sellout crowds in early venues in Seattle and Atlanta. The tour continues around the country with stops in Chicago and Boston in March. Plans are in the works to bring this outstanding program to Philadelphia in the fall of 2002.

For more information contact me here at MAPA 800-453-4447 or info@mapaprecast.org.

THE PARKING SPACE: KNOW YOUR NOSINGS

When specifying precast stairs and landings in your parking structure the number one priority is a safe and durable surface that provides the acceptable ASTM static coefficient of friction under all conditions (between 0.45 and 0.55). Consider specifying cast aluminum or extruded aluminium metal nosings to armor plate the nose of the stair units during construction and to give each tread a permanent slip resistance. *(See photo at right for precast stair unit with cast aluminium nosings in place.)*

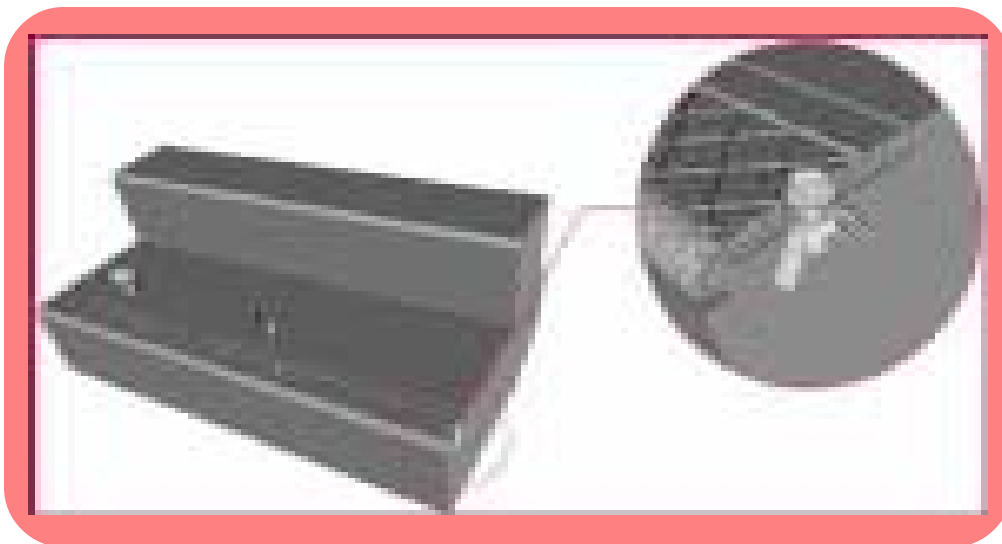


Suggested slip resistant finishes include a medium sandblast finish and light broom finish which runs parallel to the nose of the stairs. These finishes are equivalent in their slip resistance and allow for the various casting techniques of the precaster on the project. The slip resistant finish on the landings should match the specified finish of the treads.

Metal nosings, when properly installed, should last the life of the precast stair unit. When specifying nosings be sure to check the profile of the sample nosing and the recommendations for use in the manufacturer's catalog. Some metal nosings are designed for cast-in-place concrete stairs and therefore do not fit in the precaster's steel forms due to a differential

in the radius of the nose. Nosings for cast-in-place stairs also typically have integral concealed dart-shaped anchors, which allow for no provision for the precaster to secure them to their forms. This leads to concrete seeping under the nosing during the casting process and causing the nosing to become skewed in the forms.

There are many aluminum nosings that are designed specifically for precast stairs. These nosings come in custom colors in an extruded frame. Another very cost effective solution is a simple cross hatch pattern in cast aluminum. The new BOCA code indicates that a contrasting color such as safety yellow may be used at the bottom and top tread of each stair unit. *(The rendering below shows the proper type of radius and anchor.)*



Would you like to learn more about precast/prestressed parking structures? Call MAPA at 800-453-4447 or find a parking space at our web page:
www.mapaprecast.org.
email:
info@mapaprecast.org.

FAQ: Efflorescence

Cladding Corner

Panel finishing is a complicated process subject to influences that range from weather conditions to concrete age. Sometimes efflorescence appears which complicates the process of approving architectural precast for color and texture as compared to the approved mock-up.

What is efflorescence



During early stages of curing, the hydrated cement contains some calcium hydroxide (lime), which is a soluble product of the reaction between water and cement in the concrete mix. When the calcium hydroxide migrates to the surface as the concrete cures, it combines with carbon dioxide in the air to form calcium carbonate. The result is the appearance of a white colored, crystalline deposit on the concrete surface known as efflorescence. After this occurs, there is a second reaction, in which the calcium carbonate slowly reacts with additional carbon dioxide and water to form calcium hydrogen carbonate. This second substance is soluble in water, and thus the efflorescence wears away when subjected to periodic precipitation.

Why does it occur



Efflorescence is most common during the winter months since it is affected by temperature, humidity and wind when a slower rate of evaporation allows migration of salts to the surface. Falling temperatures increase the solubility of the calcium hydroxide, which in turn increases the likelihood of efflorescence. Relative humidity has the greatest influence on efflorescence. A long curing time is needed to reduce the risk when the relative humidity is below 65%. Also, efflorescence is affected by newly cast concrete becoming wet and remaining damp for several days. At early concrete strengths the compounds have not had enough time to carbonate to any appreciable extent into the surface layer. Precast/prestressed concrete has lower water/cement ratios, which improve durability and strength ($w/c < 0.4$), but this often results in lower resistance to efflorescence if the mix is cement-rich beyond the optimum content needed for hydration, in contrast with concrete of higher w/c ratios.

After carbonation occurs, the quantity of calcium hydroxide that reaches the surface of the panel is too small for visible efflorescence to be formed. In

the summer, even after long rainy periods, moisture evaporates so fast that comparatively small amount of salts are brought to the surface. With the passage of time, efflorescence becomes lighter and less extensive unless there is an external source of salts. Also, the atmosphere often contains acid, which can dissolve the deposits on the panel surface. For this reason, efflorescence disappears faster in industrial climates as compared to that of a marine or mountain environment.

When to look for efflorescence



Efflorescence may take place immediately or within a few months of casting, but since precast concrete decreases in porosity as it cures, efflorescence is more of a short-term condition than in masonry construction. Increased cement contents and lower water/cement ratios greatly decrease permeability, thereby reducing the magnitude and duration of efflorescence. Unwashed sand should never be used as it may contain soluble alkali sulfates.

What to do



The removal of most types of efflorescence is relatively easy. Most efflorescing salts are water soluble and many will disappear with normal weathering. Most efflorescence can be removed by dry brushing followed by flushing with clean water. If this is not satisfactory, it may be necessary to wash the surface with a dilute solution of muriatic acid, but since this may change the color and texture of the concrete it must be used with caution. Dry cleaning such as sand blasting is preferred during winter weather in order to eliminate the application of water, which only exacerbates the problem. Excessive sandblasting, however, may also change the color and texture of the finished panel and must be avoided. Application of a clear, water-repellant surface treatment is not recommended since it is a barrier for moisture attempting to escape the panel and traps efflorescence at the surface beneath the sealant.

Need more info?

For more information on this topic or any related to architectural precast concrete, contact MAPA via email: info@mapaprecast.org or call 800-453-4447.

WALLSTORIES

Anyone who has shopped for eyeglasses recently knows the market has gone decidedly upscale with designer frames that combine fashion with function. New York-based Lantis Eyewear, a leading designer and distributor of sunglasses and optical frames, wanted its new headquarters to reflect that sense of style. Developer Hartz Mountain Industries turned to **Strescon Industries, Inc.** to construct a new 320,000 square-foot precast concrete facility in Secaucus, NJ to serve as the Lantis corporate headquarters.

Hartz Mountain senior project architect John Prince says the Lantis building is the first of a new generation of high-end precast industrial properties being erected by Hartz. "In the past, the offices in these type of buildings held a secondary function to the warehouses. Now, with Lantis merging three facilities into one, we're combining a corporate office center with an industrial facility."

Prince explains that a traditional masonry approach to the

building, which stands 45 feet high, would have been cost prohibitive. "Precast, in my opinion, is the only solution with the budgets available to build these industrial properties. It's almost impossible to do it without precast," Prince adds, pointing to timeliness of erection and low maintenance costs over the life of the building.

The distinction between the office and the warehouse was made using panel types and finishes. The office portion features 19,200 square feet of architectural panels, with a combination of white cement and a sandblasted finish. All window penetrations were made with the panels. The back of the



Producer Members

Architectural Precast, LLC

Middleburg, PA

contact: Steve Schaffer 570-837-1774

n

Concrete Building Systems, Inc.

Delmar, DE

contact: Jay Ewan 302-846-3645

n

High Concrete Structures, Inc.

Denver, PA

contact: Tom Holmes 717-336-9300

n

Newcrete Products

Racing Spring, PA

contact: Randy Romani 814-

n

Nitterhouse Concrete Products, Inc.

Chambersburg, PA

contact: John Jones 717-267-4505

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Oldcastle Precast, Inc.

Hatfield, PA

contact: Mark DiPietro 215-822-3341

n

Schylkill Products, Inc.

Glessana, PA

contact: Dennis Campbell 570-335-2352

Strescon Industries

Towson, MD

contact: Bob Adams 215-945-9880

n

Tindall Corporation (VA)

Petersburg, VA

contact: Murray Speer 804-861-8447

n

Universal Concrete Products Corp.

Douglasville, PA

contact: Donald Faust, Jr. 610-323-0700

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HOLLOWCORE HELP

Not all hollowcore is created equal. Ask questions--get the facts before your next hollowcore project.

PCI Certified? PCI plants are independently audited twice each year to ensure their product and quality-control standards are top-notch. PCI producers manufacture a uniform product within recommended tolerances.

Engineering expertise during the pre-planning design phase? This expertise will speed approval, ensuring that fabrication will begin on schedule.

Final finish requirements clarified? Manufacturing tolerances alone will not address this critical aspect. Overlooking this important detail can have significant cost implications after the precaster has completed their work. For example, if the specs call for feathering the joints between flooring members, this

might be adequate if a 50 oz. pad then carpeting is to be applied. A leveling coat may be appropriate for tile or vinyl. Having a clear understanding of the final finish early in the project can help control costs and minimize the potential for "extras".

Connections in the field? It is important that items such as weld plates, special inserts, dapouts, etc. be handled at the right time so that they do not impede jobsite progress. Plant casting these items whenever possible can help.

Field service reps? If a problem with the hollowcore installation should occur, having properly trained personnel at the site is invaluable.

OSHA Safety covers? Installing safety covers at the plant guarantees a safe working deck for field personnel.

UL Fire ratings? Many hollowcore products provide a 1-hour unrestrained assembly rating and a

2-hour restrained rating. Be sure that your precaster's product meets the minimum UL ratings and is listed in the Directory under the specific company name.

For more answers about hollowcore contact MAPAI: info@mapaprecast.org.

