APA
ARCHITECTURAL PRECAST ASSOCIATION

ISSUE 1 - VOLUME 72

ARCHITECTURAL precaster

IN THIS ISSUE

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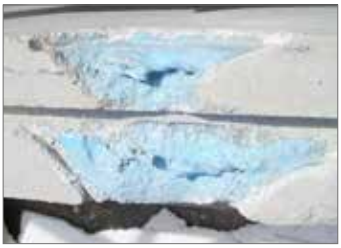

PRESIDENT'S MESSAGE

Nick Carosi IV, Arban & Carosi, Inc.

As 2022 comes to a close, I hope everyone had an enjoyable Thanksgiving with family and friends. In these unprecedented times, it gives us time to reflect upon the things that are truly most important to us, especially around the holidays; family, friends, community and the fresh start that comes with a new year.

In 2023 we are very excited about our upcoming Spring Workshop from April 1 – April 3, 2023 in Opelika, Alabama. Register and book your room now at https://www.archprecast.org/spring-workshop. For convention, we will be coming together in Delray Beach, Florida at the Opal Grand Oceanfront Resort & Spa from October 6-9, 2023.

I hope that you, your families and employees have a wonderful holiday season and happy New Year.

I very much look forward to seeing you again in 2023.

Nick Carosi IV

2023 APA ANNUAL CONVENTION

OCTOBER 6-9

Opal Grand Oceanfront Resort & Spa, Delray Beach, Florida

Via Flagler by The Breakers

An In-Depth Look at an APA Award Winning Project

VIA FLAGLER BY THE BREAKERS
PREMIER PRECAST
DAILEY JANSSEN ARCHITECTS
COASTAL CONSTRUCTION

This was a very complex and highly custom project with specialty molds and carvings. There were total of six buildings with retail and restaurants downstairs and high-end luxury residences on top. There were over 4,700 pieces of cast stone manufactured and every building had some sort of specialty carving and very elaborate scope of work. Some of the cast stone elements included; beautiful arch panels on entrances, radius arch surrounds, veneer, wainscot, wall caps, crowns, cornice, decorative panels, tapered columns, shell corbels, quatrefoil medallions, finials, Moorish style header panels, columns with Corinthian caps, Deco frieze, balcony brackets, balcony corbels, shell medallions, pilasters, dentil crowns, dentil frieze, dentil corbels, balustrade system, diamond medallions, parapet caps and banding, Cast stone running bond paver, barrel roof decorative tiles, chimney clad in rustic red brick, decorative frieze boards and Mediterranean blue ceramic decorative accent tile.

There are many custom individual cast stone pieces on this project. The are a total of 6 buildings all with different theme. There is a building with Corinthian capitals with carved gargoyles and beautiful dentil work around all windows. There is a building with egg and dart trim work and capitals with carved Dolphins. There are deco panels designed in a style of a Moorish architecture . Each building carries its own style yet, complements each other. Pedestrians can walk between the courtyards and admire different features that pull these building together.

The project is located on Palm Beach Island where the beauty of classical architecture, natural stone, and historical buildings can be seen throughout the surrounding. Located on one of the most important streets on Palm Beach Island - Royal Poinciana - chosen by Palm Beach's founding father Henry Morrison

Flagler as the island's main entrance in the late 1890's. This project incorporates a pleasing blend of natural Dominican Coral, ornate cast stone elements and , beautiful cast stone trims, veneer, and carvings. It captures a piece of history and compliments all the landmarks that surround it.

All the cast stone elements, trims, veneer, and carvings are what brings the buildings to live. It is very functional because, you could not achieve the same look using different material and it matches the rest of building on Palm Beach Island.

The precast elements were unique because, they had to be hand carved. This is a very custom project with 70 different profiles. Most striking were the capitals with carved gargoyles and dolphins. The project is very ornate and with that comes a lot of precision and detailing.

Due the highly custom carvings, many different molds

continued on next page

had to be used. Medium such as foam, plaster clay, rubber and fiberglass were used. Every time you use a different medium, the color and/or texture can come out different. To make sure colors and textures come our consistent, everything was first pured as a mock up test then time had to be adjusted for each type of mold. When to strip, how long to cure and how fast to pour. There was a formula created for each medium to make sure the final product would match. One example to speed up the process of the mold was a use of Microballons powder mixed with epoxy. This allowed for a faster mold preparation on the simpler shapes . To keep the color and texture consistent, the company also invested in a water chiller for the plant. Concrete's workability is improved when the mix is at a lower temperature as The concrete flows better and interacts more favorably with concrete releases. Because the mix flows better, it means we can reduce the amount of water in the mix, and in broad terms, when there is less water, you get stronger and longer lasting concrete not prone to deterioration from our harsh elements of sun, wind and rain.

This was a very difficult project due to all the custom carvings, colors, and specialty molds. It was also high profile project which required precision and tremendous attention to details.

Craftsmanship

Total of 6 high profile mixed use buildings with private residences on the second floor and retail and restaurants

on the first floor. Product used; Cast Stone in both textures - Acid washed (limestone) and baking soda (keystone). There were 566 different profiles on the job and 70 different profiles involved custom hand carved molds. There were over 4,700 pieces of cast stone produced with 12 different colors and texture combinations. There were over 554 gallons of liquid rubber used . The mix design met all ASTM C1364 requirements .

This high profile and highly custom project required unparalleled craftsmanship and attention to details. It required specialty carvings and handling of the volume at the same time. It was very challenging due to the volume of highly custom pieces . The challenge also came with long custom runs as each detail had to end exactly on the corner and turn without having to cut the piece in field - the profiles needed to end exactly as whole and not in a section.

Another challenging aspect of this project was the color and making sure it blends beautifully with the natural Dominican Coral that was also on the buildings. This project was very special and highly custom, different mold techniques and mediums were used to produce artisan-quality customized molds including ; foam, plaster, clay, rubber, PVC and fiberglass. This was also a very unique project because, a new technique was developed for the limestone texture molds where Micro-balloons powder was mixed with epoxy to speed up the process.

Overall, the Via Flagler is a sophisticated luxury project capturing the history and vision of Henry Flagler. Although, considered a commercial project, it is highly specialized, complex, and custom as a high-end residential home.


THE WESTIN
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PCA


Leadership
Development in the
21st Century


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THE WESTIN

An interview with Northern Design

Can you tell us a little bit about yourself and your business?

Northern Design is a family business that was founded just over 30 years ago. The business grew and flourished under the leadership of former APA President, Bradley J. Thompson. Brad retired in 2016, anxiously handing the reigns over to his "know-it-all" son, Jesse.

We specialize in masonry trim, small panels, landscape elements and historical replication / restoration. We make all our own molds and produce architectural precast / wet pour cast stone for the New England Market.

What are your company's core principles?

Our team includes 30 hard-working and accountable players. We trust the process and take pride in the products we're producing for our customers. We buckle down and do our best to get things done accurately and quickly. If we make a mistake, we own it immediately and make it right, minimizing the impact on the other end.

I think one the best ways to sum up the team philosophy at Northern Design is "We Care." We have a close-knit team that works hard, understands the task at hand and gets things done … and done right! What we do is not easy, so we are extremely lucky to have such a great group of people on our team.

How long have you personally been in the business and what was your background before working there?

I have been in the business almost 20 years. I graduated from UC Boulder with a Business Degree in 2001, spent a few years out West and returned to New Hampshire in the Spring of 2003. I started out working on the floor and learning the process of stripping, setting up, pouring and finishing. I then started estimating and later moved up to project management.

Is there a favorite project that your company has produced?

We love all of our kids equally! There are too many

jobs and too much variety in what we produce to pick just one. The restoration work is fun. To replicate pieces made 100+ years ago and have our stone blend in seamlessly with existing (and often historic) structures is extremely satisfying.

Landscape designs have become increasingly abstract and difficult, presenting unique challenges in mold building, pouring and finishing. Walking through those outdoor spaces brings a high level of pride and accomplishment. It's a perfect example of the versatility of precast and how our products can be utilized by all designers. From fancy arches, countertops, wall caps, wall panels, signage, and decorative finials; every job is different and offers an opportunity for us to build something cool.

What are some of the challenges you are facing as a precaster?

Labor is tough, mostly because we are in such a niche market that it's impossible to find anyone with experience. All our best people have grown with us and become a valuable part of the team. The other major challenge is aggressive schedules. Designers are rushed to get CD's on the street and the information is often preliminary and/or incomplete. We don't blame the architects since they are often under pressure from project owners and others to meet very tight deadlines, but it does create significant added time and cost with the drafting process, since most designs need to be completed through the shop drawing approval process.

Jesse Thompson
Past-President

A young Brad Thompson
President

What are some situations you have been through or projects you have worked on that have made you become a better precaster?

The problem is, we've probably been through most quality and process issues more than once! Every step of the process has its quirks and experience trumps all. From eliminating mold lines and building molds in a manner that reduces the risk of mold damage and increases pour capacity. To how the concrete is placed and vibrated and how inconsistency in that process can create quality issues that are impossible to eliminate with finishing. We are never going to be perfect, but we are always improving. Our eyes are wide open every

day, peeled for those nasty demons that always seem to sneak into the party. I credit our team for staying on the ball and catching these potential issues before they become catastrophes.

How do you see the precast industry changing in the next 5 years?

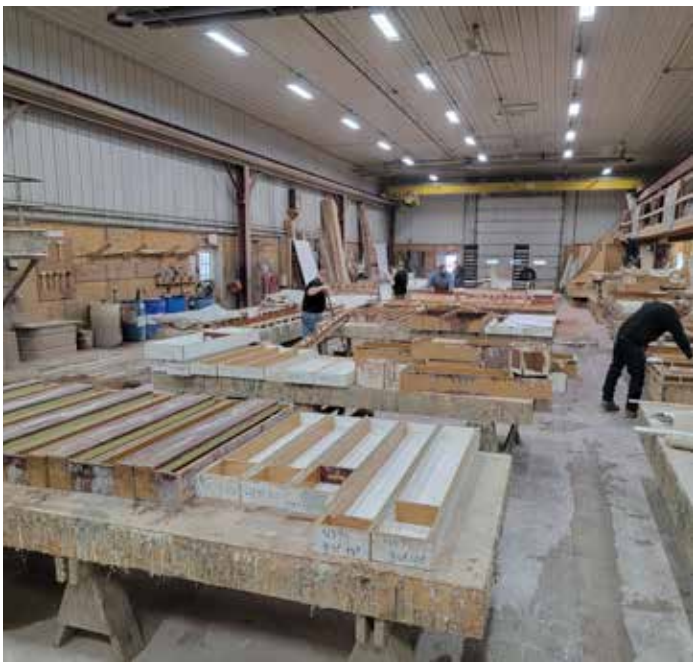
We all have or eyes on the improving technology of 3D printing and the continued capabilities on CNC form work. There's also increased interest in producing lighter / thinner precast and still seeing less joints. It will be interesting to see how UHPC settles in and how that product development makes an impact moving forward.

How has being a member of the APA helped you in challenges within the industry?

One of the main benefits is the relationships that have developed over the last 20+ years. If we run into an issue or hurdle, there are knowledgeable, experienced, kind-hearted people ready to pick up the phone. We all face challenges and APA members are willing and happy to help each other overcome those obstacles and become better producers. That's why we are here, to make the industry a better place and raise the bar so owners and designers continue to take advantage of the versatility and quality of our products.

What, in your opinion, are some of the most important aspects that the APA provides to you, as well as to its members?

There are many benefits: comradery at the meetings, access to the best industry professionals and suppliers, accountability of maintaining Plant Certification and constantly being pushed to make positive improvements with our products and processes are a few. It may sound a little cheesy, but the APA is a big family and I consider most of my APA colleagues as dear friends.



Welcome back, in this addition of the APA Precaster we will cover the steps required to install aesthetically pleasing repairs that last the lifespan of the precast.

Repairing Architectural Precast

By Kiley Marcoe, Metro Precast & Stone Services, Inc.

Before any architectural precast can be successfully repaired, three important steps must be followed. Repair mix design development, preparation of the area to be repaired, and blending of the repair. Contrary to popular belief, preparation of the area to be repaired is the most important step.

First a repair mix design needs to be developed that will mimic the precast in both color and texture. The repair material used to remediate architectural concrete and cast stone cannot be batched from the ratio as the original concrete mixture due to the differences in the placing consistency (water to cement ratio) and the curing environment. The repair material must be lighter in color than the original production mix.

Start by reducing the production mix design down to a repair sized batch, usually you can simply change the weights from pounds to grams. Be mindful to keep the sand to cement ratio to approximately 65% sand to 35% cement by weight not volume. The batching of materials should be performed with scales. Use the pigment in the mix design as control, do not change the pigment weight from sample color to sample color. To adjust the sample color, change the amount of the sand and cement not the pigment.

It is important to never batch material by volume. The settling of cements can dramatically affect the repair color as well as the difference in weight of sand versus cement. Using different water to cement ratios from repair batch to repair batch can also result in color variations of the repair mix. When making a repair mix use the trowel test method. Your color will be consistent if the mix always sticks to the trowel from batch to batch. Always add large aggregate in all repairs, the large aggregate is also added using the trowel test. Add as much large aggregate as possible, yet the mix will still stick to the trowel.

In the below image is freshly screened cement.

Production Mix Design		**Repair Mix Design**	
Lehigh White- Type 1 Portland Cement	752 lbs.	Lehigh White- Type 1 Cement	752 grams
Puddle Duck- Fine aggregate	1583 Lbs.	Puddle Duck Fine aggregate	1583 grams
DCS #25- Pigment	2.27 Lbs.	DCS #25- Pigment	2.27 grams
DCS #620- Pigment	0.57 Lbs.	DCS #620- Pigment	0.57 grams

In the below image is unscreened cement.

Use trowel test for consistent water to cement ratio.

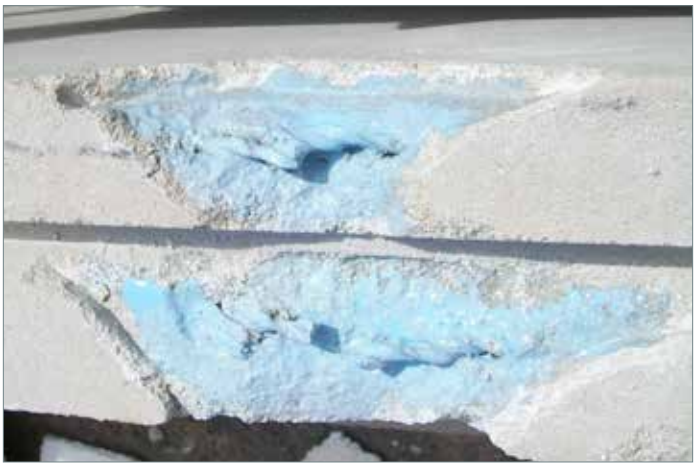
Use trowel test when adding large aggregate.

When making repair mix samples start with the reduced production mix design as starting point or sample color #1. Increase the white cement by 5% for sample #2, 10% for sample #3, and so on.

Preparation of the area to be repaired is the most crucial step in precast repair. What is the point to install an aesthetically pleasing repair that will fail. Mechanically work the damaged area to remove all loose and fractured material and to eliminate feather edges. Create a void beyond vertical to create a keyed pocket. Roughen or texture surface, remove all the dust and debris, apply a topical bonding agent, and install mechanical anchors on any repairs larger than 4" or at a caulk joint. For re-facing returns, the precast must be textured as much as possible to assure a good bond.

The below image shows smaller repair areas prepared with keyed pockets and a topical bonding agent.

The below image shows larger repair areas with keyed pockets, topical bonding agent, and anchors.



The below image shows failed repairs due to improper preparation and no large aggregate.

The below image shows a failed repair due to improper preparation and no large aggregate.

The last step of an aesthetically pleasing repair that will last the lifespan of the precast is color blending. All repairs require color blending through brush washing with a mild solution of muriatic acid to remove any smears, laitance, and efflorescence. Due to trowel and sponge installation, as well as the exterior environment, repair colors will never match the precast without blending. Most often repairs will read light before blending but on occasion repairs will read dark.

The below image shows repairs before color blending.

The below image shows repairs after blending.

The below image shows repair before color blending.

The below image shows repair after color blending.

Repairs can and should last the lifespan of the precast if installed correctly. Although the repair mix color and blending are important, preparation of the area of repair is the most important step. It is mandatory to roughen the area to be repaired, apply topical bonding agents, use large aggregates whenever possible, and install mechanical anchors at caulk joints and repairs over 4" in size.

The below two images are of cracked areas repaired in 2010.

The below two images show the crack repairs in 2019, still sound and aesthetically pleasing.

The below two images show repairs installed in 1990 and after 32 years the repairs have not failed. We extended the bottom of the panels, closed the caulk joint size, repaired damage, and filled lifting pockets.

The Three Dilemmas: Engagement, Retention, and Turnover

by Mack Story

I've logged thousands of hours leading leaders and their blue-collar teams through process improvement, organizational change, and cultural transformation. I've learned a lot. But, two things were obvious from the start:

1. Every team member wants a great leader.
2. Every leader wants great team members.

I discovered many leaders were frustrated because they had disengaged team members. Employee engagement is not only the key to increasing retention, productivity, profitability, and teamwork, but it's also the key to reducing turnover, costs, and frustrations. Numerous research studies reveal only 30-35% of employees consider themselves engaged.

As a result, many leaders are facing three costly dilemmas: engagement, retention, and turnover.

"When trust goes down, speed will also go down and costs will go up. When trust goes up, speed will also go up and costs will go down." ~ Stephen M. R. Covey

The Engagement Dilemma

Employee engagement starts with engaged leadership. Disengaged employees are a symptom of disengaged leaders at one or more levels in your organization. In fact, research studies show employees are 40% more productive if they want to follow their leader compared to those who feel they have to follow their leader. In other words, the level of engagement below is determined by the level of engagement above.

Leadership development, or the lack of it, at every level determines morale, engagement, turnover, productivity,

communication, teamwork, and how your customers will be served. Unfortunately, many people are over-managed and under-led.

- People who are led well become highly engaged.
- People who are over-managed become disengaged.

Leadership development is the key to transforming the culture of your organization, improving your team's results, and reducing costs in all areas.

The Retention Dilemma

The competition wants more than your customers. Have you considered there are two types of competition? 1) Those in the same industry who want to steal your customers; and 2) Those who may or may not be in the same industry who want to steal your people.

A leader's ability to attract and retain high performance employees is a crucial factor for organizational success. Employees who are disengaged are far more likely to change jobs and even change industries because disengagement leads to dissatisfaction.

Minimizing employee turnover by increasing engagement through leadership development is critical to improving your bottom line.

High performance team members and managers are looking for more than a good salary. They are seeking growth and development opportunities that will help them become more successful personally and professionally. As Heather Huhman stated, "87% of managers wish they had more training before becoming a manager." High impact leaders understand they must offer more development opportunities in order to become the sought after employer of choice in their industry and in their area of operation.

The Turnover Dilemma

Are you tired of hiring, then firing? Employees are primarily interviewed, selected, and hired based on their competency. In this case, competency means a leader believes the candidate has the required skillset, technical knowledge, and ability to perform the task or job.

"Imagine the personal and organizational cost of failing to fully engage the passion, talent, and intelligence of the workforce. It is far greater than all taxes, interest charges, and labor costs put together." ~ Stephen R. Covey

However, most employees are terminated based on character. Character relates to who we are and how we do what we do. It's the "soft" skills, such as attitude, work ethic, integrity, behavior, and how we work with others.

In other words, employees are hired for what they know, but fired for who they are. Performance problems are almost exclusively a character issue. According to Daniel Goleman, "90% of our results as individuals and organizations is determined by character." However, most organizational training and development is focused on improving competency, not character.

If your team isn't engaged, you're likely dealing with some level of frustration, resistance, confusion, anxiety, and stagnation. It doesn't have to be this way.

This article is an excerpt from the upcoming book by Mack Story, Blue-Collar Leadership & Culture: The 5 Components for Building High Performance Teams. More information on Mack and the book can be found here: https://bluecollarleaders.com/culture/.