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WHAT'S INSIDE

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ON THE COVER:

A new high dive tower is taking shape in Fort Lauderdale thanks to precast concrete.

Image courtesy of Cartaya and Associates

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Specifier Q&A:
Michael Tetzloff, LEED AP

In this issue, *Precast Solutions* hears from Michael Tetzloff, LEED AP, with ZGF Architects.

Images courtesy of ZGF Architects

What's your background and area of expertise?

I am a licensed architect in the state of Washington. I'm based out of ZGF Architects' Seattle office.

What types of projects do you typically oversee?

My experience is primarily within large commercial office projects with tenants from the technology sector.

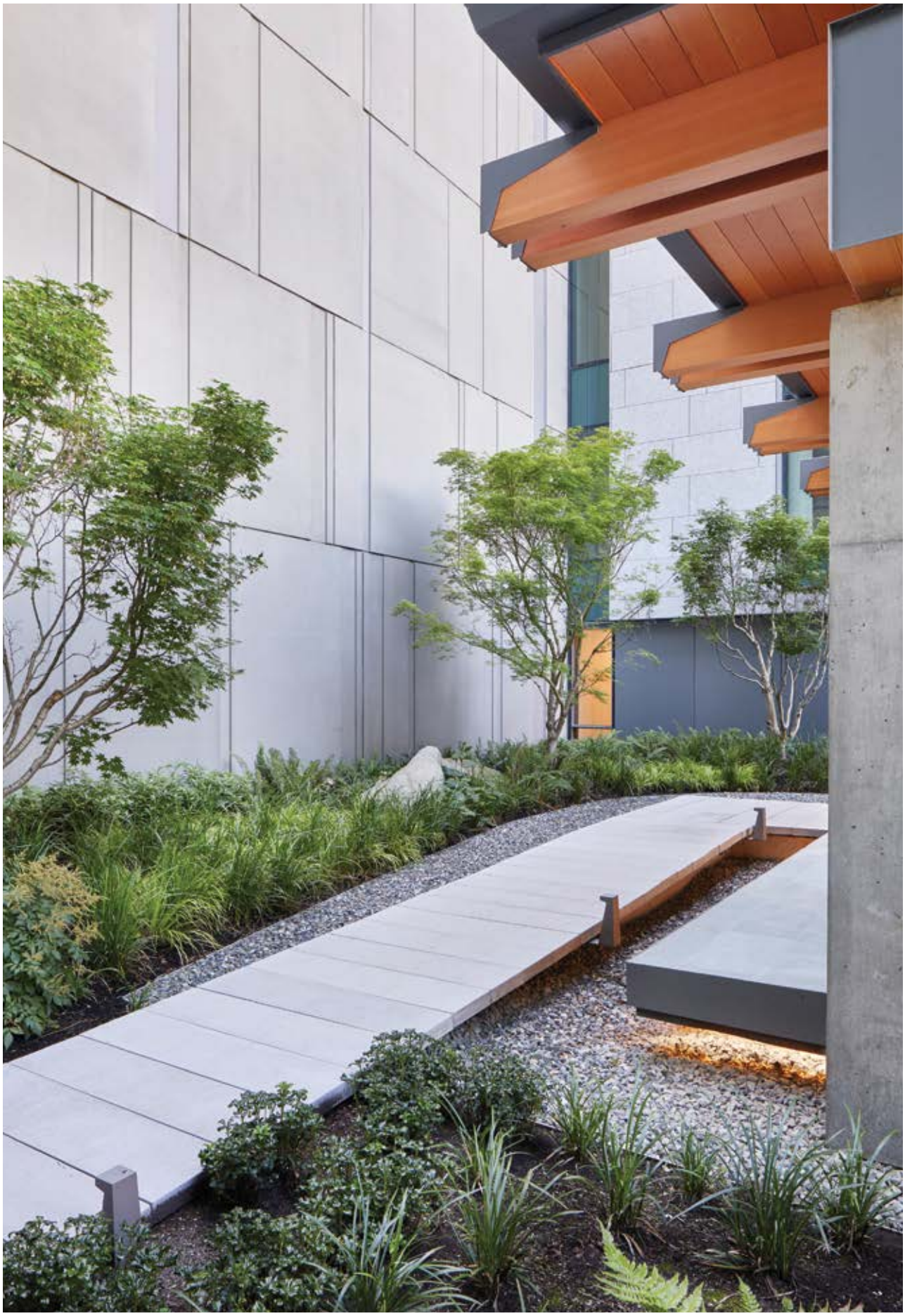
What are some noteworthy projects on which you've specified precast concrete?

One of our most noteworthy projects is the Southport Office Campus in Renton, Wash. It consists of three office towers within a shared multi-leveled podium. Within this podium are amenities, including indoor and outdoor conference rooms, lobby functions, office space and an above-grade parking structure.

ZGF's Seattle office also has incorporated precast concrete into local projects, including:

- The award-winning Helen Sommers Building in Olympia, Wash. Precast-insulated spandrel and stair cladding complements the stone exterior.
- Previous projects on Microsoft's Redmond, Wash., campus, including Building 83, where we used custom-formed profile precast panels and frames, allowing us to achieve complex architectural forms. This proved to be an economical, durable strategy supporting the rapid installation of the window system without additional framing.

Michael Tetzloff, LEED AP



Using precast panels reduced construction on-site and offered an easy installation.

- Providence Regional Medical Center's Marshall and Katherine Cymbaluk Medical Tower in Everett, Wash. Precast concrete was used as an exposed structural element supporting masonry walls throughout the base of the building.

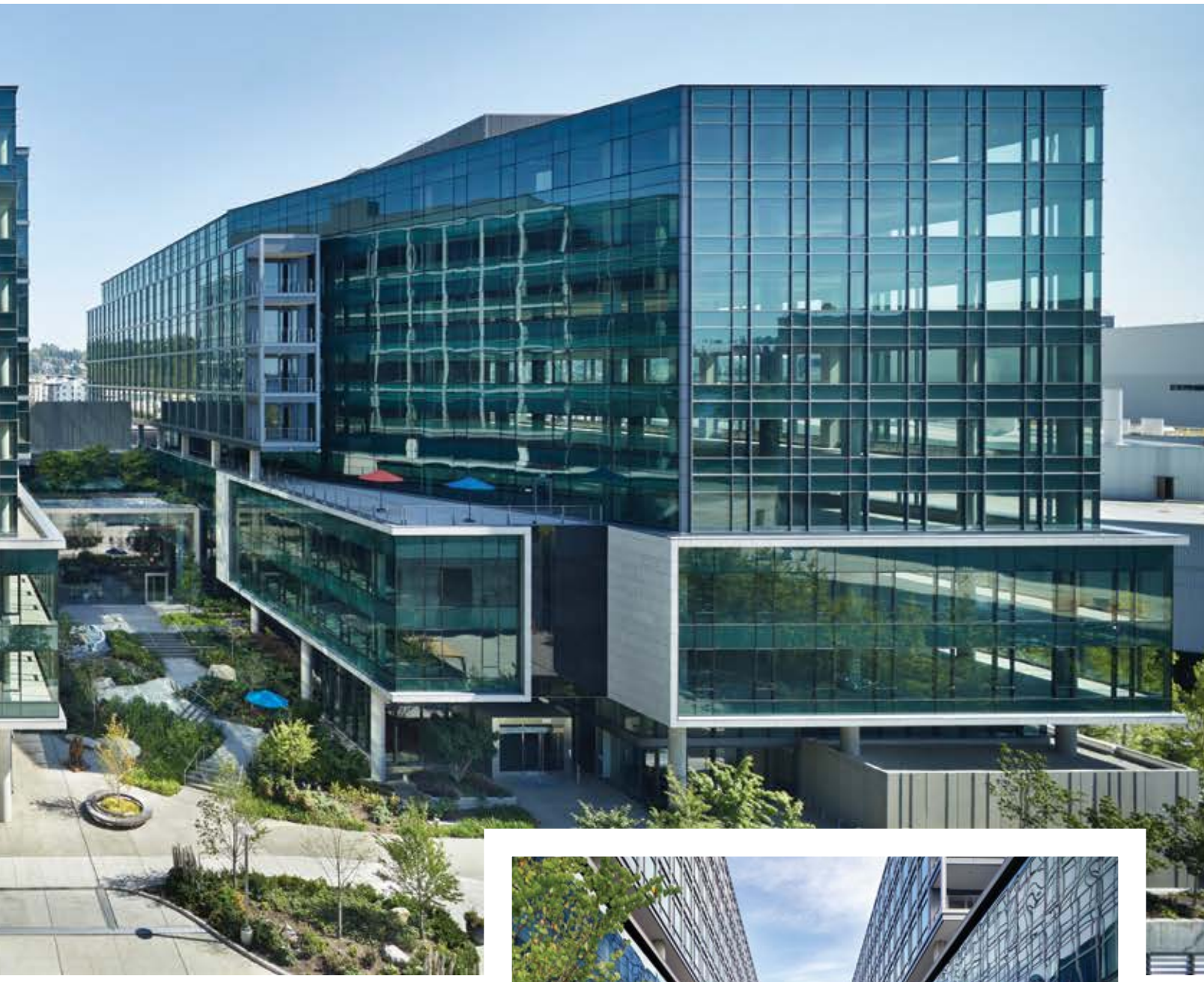
Why was precast chosen for the Southport project?

For the Southport Office Campus, we needed a cost-effective material to clad a large percentage of the exterior that could provide variability, texture and durability. We also needed a product that could be installed quickly and meet a high level of detail and quality.

What benefits does precast concrete afford you?

We were able to define multiple molds for the cladding that could be turned 180 degrees to give us truly random patterns of panels while also keeping us within an economical manufacturing range.

The quality of the shop-applied finish and the large size of the panels allowed us to reduce labor hours in the field and quickly install our beautiful exterior. The precast engineers from Olympian Precast were amazingly helpful and, along with the general contractor, Exxel Pacific, the whole team shared our vision for a beautiful application.



How do you see the role of precast concrete changing in the future?

While most of the cladding at Southport does encompass the parking garage, we also showcased it at our outdoor pavilion – considered the jewel box of the project. Using the panels more often in higher sensitivity areas challenges the mentality that this is a back-of-house product. I see precast further pushing the limits of how highly detailed forms can be installed quickly, economically and with environmentally-conscience water-to-cement ratios. **PS**

Precast concrete provided a Washington office complex with the perfect solution and flexibility in designing three towers with a shared "podium" for amenities, parking and an outdoor pavilion.

Dual-Purpose Pro
Brings Life to Bric

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Precast concrete allowed a Virginia construction company to lay a solid foundation while building a foot-and-bike bridge over a park pond.

By Joe Frollo
Photos Courtesy of Smith-Midland

There's a common thread throughout the precast concrete community.

People in the industry love their jobs and are proud of the structures they create. They drive past buildings and down highways, seeing precast concrete seemingly everywhere, knowing they helped bring it all to life.

That can be a hard concept for children to understand. Kids can be tactical rather than conceptual and learn by touching things, feeling them with their own hands and feet.

For Alex Burkhart, projects manager at Virginia-based Smith-Midland, a recent venture offered both a challenge and a personal reward. A new foot-and-bike bridge at Ben Brenman Park in Alexandria, Va., combines not just form and function, it serves as the centerpiece to an enjoyable afternoon for the entire family, including Burkhart's.

"It was a fun project," he said. "Most projects I've done are along a roadway, but with this one, I could take my kids and have them walk along what went up. It's a little different than our typical experience with construction jobs."

STARTING FROM THE BOTTOM UP

Smith-Midland supplied the precast concrete footers, posts, panels and hammerhead piers for the bridge that sits above two weirs designed to facilitate water runoff.

Work began with Avon Construction dredging the affected portion of the 290-acre pond and relocating the wildlife in and around the water to other locations. With all the runoff during decades of weather, animal and human interaction, a lot of debris had settled at the bottom of the basin.

A $1.75 million grant from the Virginia Department of Environmental Quality, which required finding new homes for all the fish and other wildlife, funded the project.

"We hired a biologist to remove all the turtles and fish, even frogs," said Kurt D. Lorenz vice president of Avon Construction. "Then they restocked everything afterward. This is a pond that kids frequent, so we were pleased to see all that happen."

Once Avon drained the affected portion of the pond, they began setting the foundation. With the surface areas being so wet, the contractor determined that it was more cost- and time-effective to use precast concrete to construct the base and the weir wall.

Avon dug an open area to put the base and precast footings down, then locked everything together with panels and piers.

Smith-Midland manufactured precast concrete footers, posts, panels and hammerhead piers for a foot-and-bike bridge. With much of the project being underwater, special consideration was given to ensuring watertight joints and connections.

SOME MAJOR WET WORK

The weirways allow water to spill safely away between the pond's three cells and prevent flooding. They serve as dams designed specifically to impound water behind a wall while the weir alters and directs the flow.

In essence, Smith-Midland and Avon diverted 35 acres of water to build two concrete weir walls that control the pond's water level, one of which has a bridge on top of it.

The biggest complications, both Burkhart and Lorenz said, was keeping everything dry during the project and maintaining watertight seals after the job was done.

"It was a little unique," Burkhart said. "I hadn't been part of anything like this before. All of the work would eventually be underwater. We've made walls before but never for that purpose."

Even after dredging and partially draining the pond, Avon still had to contend with a lot of swampy, wet conditions. To solve that, crews laid large inflatable bladders that served as temporary portable dams that spanned the entire distance of the pond.

"At one point, I got to walk across the inflatable dam," Burkhart said. "It was like walking across a waterbed. You needed a cable to hold on to as you did it or else down you went. The bladders were 20 feet wide and 100 feet long. Several of those stacked on top of each other to make the dam."

EVERYTHING REMAINS WATERTIGHT

Precast footings sit spaced out at the bottom of the pond with columns attached to them. Wall panels then slide down into the footings. One weir was just that, Burkhart said – footings, columns and the weir wall. The other weir, with the bridge on

Using precast concrete products was more cost- and time-effective to construct the base for the bridge thanks to its ease of installation.

top of it, required hammerheads on top of the columns and abutments, serving the spans within the bridge.

Because much of the precast concrete would spend its time underwater, the architect and Smith-Midland created watertight joints and connections.

"The connections had to be pretty precise and, at the same time, give us the strength required," Lorenz said. "What they came up with was a bolted, grouted connection. That was a pretty unique part of the job.

"The other thing they came up with that was different and job-specific had to do with the weir wall. The joints used above ground in similar jobs are not typically watertight, so we used a water stop that applied to the panels to stop the water from leaking through."

Even with all of the precautions and preplanning, Avon Construction's biggest challenge remained being at Mother Nature's mercy. After four months from contract to casting, it took an additional two months to put it together. Heavy rain led to runoff refilling parts of the pond, and additional time was needed to pump the site dry.

"They got down there with the sump pumps and buckets getting everything out that would spill into there, including fish, frogs and turtles," Burkhart said. "It was more than I expected, but Avon has done this kind of thing before, so they were prepared."

A DESIGN TO BE PROUD OF

The final pieces of precast to be installed were the hammerheads, designed to match the look, feel and style seen throughout Alexandria.

"The city liked the architectural features you get with precast," Lorenz said. "You've seen these traffic overpasses with hammerhead tops to them, spanning

out in a big triangular shaped piece. They used the same thing on the bridge, and it looks very nice. We even put it up for some awards."

The project was a decade in the planning for the city of Alexandria, and officials are happy.

"They got a lot of great feedback from the community," Lorenz said. "They'd been wanting his bridge for 10 years, and they could not be more pleased with the outcome.

"Smith-Midland is tops in the industry. They did a great job. Their engineers and project management were very clear and in constant contact with me."

City leaders got their bridge, and Burkhart's then 3-year-old son finally got a first-hand look at what daddy does for a living.

As a second-generation precaster, Burkhart hopes one day to watch his children follow in his footsteps, taking the same pride in the ways precast concrete helps build the world around us.

Truth be told, though, Burkhart admitted that his son Ridge probably would have been happier right now with one of the turtles. PS

Joe Frollo is NPCA's Acting Director of Communications and Public Affairs and editor of Precast Inc. magazine.

Image courtesy of Cartaya and Associates

Precast Rises to t
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Once the gold standard in Olympic swimming and diving, the Fort Lauderdale Aquatic Center is getting a major facelift thanks to precast concrete.

By Matt Werner

Image courtesy of Cartaya and Associates

Fort Lauderdale is known for its beaches, boating and prominence along the historic highway A1A. Soon, something else will be there to catch the eyes of visitors, tourists and residents.

A new, first-of-its-kind, 27-meter dive tower is being constructed at the Fort Lauderdale Aquatics Center, and precast concrete is at the heart of the project.

'A SPECIAL PLACE'

The Fort Lauderdale Aquatics Center has a deep history in the swimming world, with several Olympians passing through its lanes and 10 world records set at the facility. In its heyday, the facility was home to Jack Nelson, who competed in the Olympics and coached the 1976 U.S. Olympic women's swim team. It also was the first Olympic-size swimming pool in Florida.

"It's a special place," Aquatics Center Manager Laura Voet said. "'Getting to Fort Lauderdale' is a big thing in the swimming world, and it's really the pinnacle of a swimmer's career to swim in this pool."

Over time, newer, faster pools were built, and Fort Lauderdale began to lose some of its luster. To help reclaim its position in the swimming community, the city of Fort Lauderdale commissioned a $27 million project to update the facilities. With only five acres of land on the site, swimming officials and local leaders worked to figure out a way to set the facility apart again.

The answer came in the form of a 27-meter high dive tower made of precast concrete.

SIMPLY ELEGANT

Mario Cartaya, founder of architecture firm Cartaya and Associates, knows the facility well as a Fort Lauderdale resident. Being part of the project is something Cartaya relishes.

"There was a time this facility was considered the 'it' facility," he said. "To make this facility the best facility in the world again – that was the task that was given to our office."

When designing the tower, Cartaya's team looked to the wind, sun and waves for inspiration to create a simple, yet elegant, structure.

"We wanted it to be simple, so the focus was on the divers and the functionality of it," said Teen Woon, who helped design the tower. "But the whole thing is very elegant so that when the divers step away, you are looking at a beautiful piece of art."

The final tower features concave curves, angles and other design elements to give it a striking look. Gate Precast helped bring the vision to life, producing 60 precast concrete panels used within the structure.

"If a facility is going to be the best facility in the world, this building had to be the best building the world," Cartaya said. "The only way to make the curves be perfect and the building to look perfect was to use precast."

MARRYING ARCHITECTURAL, STRUCTURAL

Hensel Phelps, who serves as general contractor for the project, also pushed for concrete. Manufacturing a tower was nothing new to Gate Precast's Kissimmee, Fla., facility, which has produced pieces for several air traffic control towers.

"When we thought about what this was going to look like, we always wanted to do concrete," Hensel Phelps Project Manager Greg Jennings said. "We do a lot of airport work and thought it looked a lot like a spruced-up air traffic control tower. We engaged with Gate early, and they were able to show us how to do it with precast."

Getting the precaster's buy-in early and seeing what was possible was instrumental in moving the project forward.

"Any time someone had an idea, our team could give input and provide our recommendations," Gate Sales Manager Michael Trosset said. "We had weekly meetings with BIM modeling so we could talk them through everything in real time, show them what we were thinking and address any concerns they threw at us. It gave everyone a lot of confidence."

Photo courtesy of Gate Precast

Gate Precast crews prep a form for the new high dive tower in Fort Lauderdale. The 27-meter tower will be the first of its kind in North America.

Gate got to work with different samples, colors and designs to create the precast elements that will define the look of the tower. The entire structure is made of precast – from beams to wall panels to stairs – and will have glass-fiber-reinforced concrete elements applied to the outside of it as well.

While the design is similar to an air traffic control tower, it is anything but a standard product.

"We've done a lot of tower work, but often times these towers have such an emphasis on functionality and structural integrity that the architectural design and aesthetics are secondary," Trosset said. "This was clearly not the case with the dive tower and therefore one of the biggest challenges about this project was marrying such a structural product with higher-end architectural elements and finishes."

Gate used a white cement with specked aggregate and a sandblasted finish to give the tower a different look. Each piece for the exterior is custom as the tower curves and skews as it gets taller. Fortunately, Gate has plenty of experience in creating custom pieces.

"Gate takes a lot of pride in being involved with challenging projects, especially projects with such customization and complexity. Most importantly our facilities have the craftsmanship and flexibility, which allows us to build customized wooden forms to meet the design intent from project to project," Trosset said. "This is critical, as all of the components on this project are custom, integral-colored and factory-finished. There is no covering up of the panels in the field by others. Once it flies, it's done. Everything exposed to view is an architectural-level finish."

Photo courtesy of Gate Precast

STRENGTH, DURABILITY SHINE

Cartaya noted several benefits in using precast for the tower. With salt, sand and humidity a constant part of South Florida weather, being able to stand up to harsh elements is crucial. Since the tower is essentially a 90-foot-tall cantilever, strength and weight are top of mind as well.

"Precast concrete was the perfect selection in order to allow our dream design to happen," he said. "I don't think anything else would have allowed us to be successful in our expression of this tower.

"We have concave curves, moving in two directions, and only with precast can we get that."

Woon pointed out the quality-controlled environment as another benefit.

"You don't have to worry about the rain or the elements, and there's so much quality control," he said. "If a piece is not

beautifully made, it's not brought to the site."

Voet was able to tour the Gate facility to see the inner workings of manufacturing precast concrete and came away impressed.

"It's really fascinating to see the level of detail and professionalism and passion they have for what they do," she said. "I'm fascinated by construction and what they do from the amount of labor that goes into it to how much careful detail."

Gate manufactured 19 glass fiber-reinforced concrete panels to create the architectural feature of the tower. The company also manufactured 24 structural walls.

Jennings didn't have much experience with precast and also enjoyed the site visit to see the emphasis on safety, quality control and efficiency.

"It's been interesting just to see it all come together from the concept meetings to now seeing it in real life," he said. "Seeing the plant was all new to me, and it was really great to see that commitment."

BACK TO PROMINENCE

All in all, the project has been a success. It is scheduled to complete this spring.

"When you have the type of collaboration we had on this, that is really helpful," Trosset said. "The entire team was engaged and took a lot of pride in doing something that was the first of its kind."

Voet looks forward to seeing the events and competitions Fort Lauderdale will be able to host once the project is complete.

"Having this tower will allow us to reclaim our position within the aquatics industry as a leader and pioneer of the sport," she said. "This will also be something iconic for Fort Lauderdale as we establish our position within the global swimming community." **PS**

Matt Werner is the managing editor of Precast Solutions magazine and is NPCA's communication manager.

Precast Earns Top Grades on Campus

Photo courtesy of LMN Architects, by Adam Hunter

Using precast panels helped a design-build team achieve a uniquely patterned facade that was quick and easy to install.

By Shari Held

The newest addition to Washington State University's (WSU) research and education complex is the striking, 82,400-square-foot, four-story Plant Sciences building. Its facade features an intricate three-dimensional, undulating design created with embedded thin-brick precast concrete.

The massive, two-story glass and metal cantilevered entry for the L-shaped building provides shelter and a welcoming openness to the facade. On a campus where brick facades predominate, this building, which was two years in the making, stands out.

Early collaboration and input from all team members were the keys to success for this design-build project.

"The design-build process allows you to explore all kinds of ideas about product materials, architectural expression and budget and installation efficiencies," said Eric Marsh, project executive of Skanska USA Building, the project's design-builder. "I'm not sure we could have achieved some of the elements on this building without it."

Photo courtesy of Olympian Precast Inc., by Adam Hunter

ACHIEVING NEW HEIGHTS WITH PRECAST

The Plant Sciences building needed to blend in with the existing campus buildings, which are predominantly red brick, but WSU in Pullman, Wash., was amenable to exploring innovative construction methods and materials.

Both traditional brick and precast panels were considered. Precast won out for several reasons.

Seattle-based LMN Architects recently completed a Hyatt Regency hotel clad in insulated precast panels and was impressed with the efficient panel installation.

"We wanted to take it a step further with this project and see if we could deliver a full-finished wall, inside to outside," LMN partner Stephen Van Dyck said.

Thin-brick embedded precast panels also provided ample opportunity for creating a unique exterior design, plus precast was less expensive overall than traditional brick.

Another advantage thin-brick embedded precast panels offered was a safer installation. An existing utility tunnel ran underneath the footprint of the proposed building. Rather than move it, the design-build team opted to design around it, creating a long, flat elevation, adjacent to the tunnel. A traditional brick installation would have called for scaffolding and other equipment on a job site with spatial constraints.

"From a construction standpoint, we looked at what makes sense as far as installation, material availability and how it fit with the overall budget," Marsh said. "Precast is quick and easy to install. That's a benefit in this region, where you get a lot of snow and very cold winters."

OVERCOMING CHALLENGES

As part of the design process, LMN created initial panel mock-ups to prove the concept was doable.

"We are architects who like to get our hands dirty," Van Dyck said. "We're interested in what materials can do and how technology can influence that. At the end of the day, it gives us different and exciting results and helps us push the envelope of what is possible."

Olympian Precast embedded thin brick at full tilt at the bottom of each precast concrete panel to give the building a striking look.

Now, it was up to Redmond, Wash.-based Olympian Precast to execute the plan.

In addition to the 460 thin-brick, insulated precast panels, the project called for 120 precast stair treads and landings. Olympian manufactured 217 patterned panels and 243 that were flat. The largest panels measure 26 feet by 8 feet and weigh 8 tons. A typical panel was about 16-feet-tall and 4-1/2 tons.

To create LMN's unique design in the patterned panels, embedded thin brick was placed at full tilt – out-of-plane by one-and-a-half inches – at the bottom of the panels. Some bricks tilted left to right and others right to left. Each column, which consisted of three to four panels, featured two bell-curve transitions from full tilt at the bottom edge to flat brick at the top edge.

"We've never seen anything like it," said Mike Yore, senior project manager for Olympian Precast. "We spent about six months working out how we were going to make that vision work. There were so many things to consider."

The bell-curve transitions presented the biggest fabrication challenge, requiring the concrete be cast on urethane liners. And the plastic formliner, which Olympian used everywhere else, needed a rigid backing to support the weight of the concrete and the brick. In addition, the panels came in three widths – ranging from 8 feet wide to 3-feet, 4-inches. In all, the job required 16 different liner sizes, which were supplied by Broomfield, Colo.-based Innovative Brick Systems. The initial backing setup was like "building a puzzle."

"I don't think we've run into anything this complicated and so unique before," Yore said. "We could not have completed the job without working with Innovative Brick Systems."

The insulation system also proved challenging. The 3-inch-thick insulation needed to be reduced in the areas around the windows and the connectors. Cutting the insulation to fit was more than Olympian was prepared to do in-house. Thermomass out of Boone, Iowa, manufactured all insulation sheets to size, labeled them and delivered them as needed.

READY TO ROLL

Olympian tried several mix designs before getting the look they wanted. The self-consolidating concrete mix is different than their standard design with less coarse aggregate and increased fine aggregate. The panels feature a 3-and-a-half-inch face, and 3 inches of concrete form the back of the panel, which serves as the interior wall.

"We wanted to add a new sensibility to the interior," Van Dyck said. "Exposed concrete in an office space was unexpected and unconventional."

Since the patterned panels weren't flat, Olympian developed special foam insulation strips to protect the panels for the nearly six-hour journey to the job site.

It was a slick handover. Olympian's truck dropped the loaded trailer at the staging area, picked up an empty trailer and returned to the plant. When Skanska was ready for panels, workers hitched a truck to the trailer and hauled it to the logistics area.

"We were never holding them up, and they weren't holding us up," Yore said.

FULL SPEED AHEAD

Based on the configuration of the building, Skanska used a mobile crane, versus a tower crane, to pick and place the panels.

It was all straightforward with a few exceptions. The 25 panels that made up the "spine" connecting the Plant Science building to the existing Biotech building were challenging to place.

"Not only were they large, but we had to pick them and swing them into very tight locations next to the existing building," Marsh said.

In addition, the small, flat panels above and below the windows were offset and connected to adjacent panels rather than to the slab. Skanska installed 15 panels per day on average. Instead of the six months a standard brick installation would have required, Skanska installed the precast panels in 30 days.

"Being able to install the exterior cladding as quickly as possible was a big benefit," Marsh said. "Pullman gets a lot of snow."

CONTINUING SATISFACTION

The Plant Sciences project showcases what can be achieved when the client is open to exploring alternative construction methods and the team works hand-in-hand from the beginning. Everyone involved with the project is proud of the end result.


Photo courtesy of Olympian Precast Inc.,

"This project went well from all aspects – the design, the installation and the budgeting," Marsh said.

The project may be complete, but the knowledge and growth the partners gained and the relationships built will continue.

"There's a lot of pride in being able to innovate in collaboration with others, to take a challenging path and find a way to solve those challenges," Van Dyck said. PS

Shari Held is an Indianapolis, Ind.-based freelance writer who has covered the construction industry for more than 10 years.

Precast Concrete Gets Modular

Modular construction with precast products offers reduced installation times and enhanced aesthetic appeal.

By Mason Nichols

Whether you're a child stacking Legos to build an impenetrable fortress or a homeowner crafting a fire pit in the backyard, there's something satisfying about creating a finished structure using individual components.

Beyond the fun, modular building continues to take the construction industry by storm. From healthcare to industrial buildings to multi-family homes and beyond, modular construction methods can benefit nearly any project.

But the true power of the approach is unlocked by selecting the right building material for the job.

Precast concrete products aren't just durable and resilient. Precast components are quick to install, meeting and exceeding the needs of project owners. These attributes make precast a popular choice for modular building.

STANDING STRONG IN SOUTH DAKOTA

Wind is a powerful natural resource that can be harnessed to generate clean energy. Such is the case in eastern South Dakota, where the 14,000-acre Tatanka Wind Farm – the largest renewable-energy project in North and South Dakota – produces enough energy to power more than 60,000 homes.[1]

Excessive wind can be a devastating force, impacting homes and businesses alike. With tornadoes a regular seasonal threat at the Tatanka Wind Farm, owners needed an on-site storm shelter with the ability to protect their team members during extreme weather events. The answer was precast concrete.

Minnesota-based Crest Precast Concrete partnered with local general contractor Huff Construction on the job. According to Brett Andrews, project manager for Huff Construction, the storm shelter was constructed for the wind farm's operations and maintenance building.

"They were originally going to go with an interior design, but to maximize space inside their building, they shifted gears and went with a separate building for the precast concrete storm shelter," he said. "This is a 3-acre site, so they decided to use some of their lay-down area for the shelter."

Throughout the design phase, Crest Precast and Huff Construction collaborated closely to ensure the 20-person storm shelter was compliant with appropriate codes. Initially, the shelter was designed to adhere to the International Code Council's ICC 500 standard. After client review, the team determined that the Federal Emergency Management Agency's P-361 standard was more appropriate. With the new, more stringent standard in place and all partners on the same page, Crest Precast got to work manufacturing the shelter.

Photo courtesy of Crest Precast Inc.

Kevin Thicke, drafting manager with Crest Precast, said the 48,000-pound shelter, which provides each person 5 square feet of space at max occupancy, is 16-feet tall by 8-feet, 6-inches wide. The shelter also boasts 56 weld plates between the floor, walls and roof.

"This storm shelter is a six-sided structure," Thicke said. "We pour the individual panels, erect it in our yard and then ship it to the client in one piece."

Because the shelter was preassembled at Crest Precast's plant, installation time at Tatanka Wind Farm was reduced considerably. As Andrews said, the process was just about as simple as it could get.

"The only thing we had to provide Crest was a foundation for the structure to sit on," Andrews said. "Beyond that, the shelter showed up on a lowboy, and we had a crane lined up. We picked it up with slings, put it in place and anchored it down."

Installation was completed in just one day. Choosing precast gave the owners several advantages, including enhanced structural integrity, ease of assembly and heightened aesthetics. Andrews noted that because of the weight of the structure, less anchorage was required than if the shelter had been built with a competitive material, such as metal. Steve Mader, president of Crest Precast, also emphasized the shelter's resilience.

Photo courtesy of Crest Precast Inc.

A precast concrete storm shelter provides security and safety for the Tatanka Wind Farm.

"We trust our engineering completely," he said. "When the engineer says to us, 'This shelter will not slide, tip or flip in a major weather event with 250 mph winds,' we're confident if that day comes, there will be no issues."

Using a modular precast concrete building gave an Illinois park a quick and easy solution for its restrooms and storage unit.

SIMPLE SOLUTION IN SWANSEA

Modular construction opens a world of possibilities for other structures as well, including utility buildings, classrooms and more. At the Boul Avenue Trailhead Park in Swansea, Ill., a modular precast solution was the material of choice for a combined restroom and storage unit. To manufacture the building, McCann Concrete Products of Illinois partnered with Easi-Set Worldwide, a Midland, Va.-based company, that licenses a variety of precast building designs to precast manufacturers throughout the industry.

The need for the combined structure was spurred by Swansea's new bike trail, installed to provide additional transportation options for commuters and a safer means for students at the local High Mount School to access nearby sporting fields and subdivisions. McCann Concrete and Easi-Set met frequently to discuss the design as they identified the best possible approach.

"This particular building required a custom layout, which led us to some design and construction situations that we had not encountered before," said Matt McCann, vice president at McCann Concrete. "But the Easi-Set team was able to pull knowledge and experience from a vast array of projects they've worked on around the U.S. and locally to help us find solutions that we may not have been able to find on our own."

The team ultimately decided on a two-piece modular solution with a men's and women's restroom on one side and a storage unit with roll-up door on the other. The combined structure measures 16 feet high by 28 feet wide and weighs approximately 100,000 pounds.

According to Jeremy Smith, building products manager for Easi-Set, the process for installing the two modules on-site was straightforward thanks to the work accomplished ahead of time.

"Besides having the pad ready and stub-ups for the plumbing, essentially the building was ready to go once it arrived at the project site," he said. "The water and sewer could be hooked up and ready to use on the same day as installation."

The Easi-Set building does not require a separate footing for installation, as the post-tensioned floor slab functions in that role. McCann referenced this as a major advantage for precast

concrete, noting that his crew was on-site for less than two days to fully install the building. He added that his team completes other operations prior to installation, also helping to accelerate the process.

"We don't just cast the panels at our production facility – we assemble, apply coatings and install the fixtures," McCann said. "We will even have electrical and plumbing inspections at our plant ahead of time to ensure that the building will be to code before it arrives on the job site."

The structure in Swansea also features a split-face block design, giving it an attractive appearance that would not be attainable with other products.


Photo courtesy of Swansea

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As modular construction methods continue to gain popularity in the industry, more architects, engineers, contractors and project owners are turning to precast concrete solutions. With myriad advantages, including durability, resilience and ease of installation – along with the flexibility that enables it to be a part of nearly any imaginable project – precast is the ideal building material for embracing the modular approach. PS

Mason Nichols is a Grand Rapids, Mich.-based writer and editor who has covered the precast concrete industry since 2013.

Endnotes

[1] https://www.acciona.com/projects/tatanka-wind-farm/



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