Precast concrete facade complements university's old world design

Located in the heart of the Hudson River Valley, 80 miles (129 km) north of New York, N.Y., Marist University in Poughkeepsie, N.Y., has seen immense growth in the past 50 years, more than doubling in enrollment and campus acreage since undertaking a strategic growth plan in 1980.

The campus has a diverse range of architectural styles beginning with the architectural aesthetic of the campus's original buildings—an estate including a mid-1800s gatehouse, gardener's cottage, and multistory carriage house built with rusticated grey fieldstone, red brick, and limestone—purchased by the Marist Brothers Catholic educational order in 1905. The structures feature French chateau–style mansard roofs with decorative detailing and Gothic-style verticality. The school's architectural style was continued in recent years with several distinct and modern collegiate gothic structures clad with a fieldstone blend indigenous to the Hudson River Valley.

As enrollment grew, the university added housing and classrooms virtually every decade. Many buildings are being replaced or renovated to complement the 240 acre (97 hectare) campus's original Gothic Revival aesthetic.

BPDL of Alma, QC, Canada, recently contributed to this renaissance. The PCI-certified precast concrete producer, precast concrete specialty engineer, and erector, BPDL, provided a precast concrete wall system with a facade that's more versatile, durable, and cost-effective than traditional stone masonry walls.

In 2018, the university announced a $60 million renovation of the Dyson Center, which was built in 1990 to house the schools of Management and Social and Behavioral Sciences. Designed by Boston-based Annum Architects (formerly Ann Beha Architects), the project incorporates portions of the existing building to double its size to 108,000 ft² (10,000 m²) using more than 31,000 ft² (2900 m²) of precast concrete components cast in a light travertine color with a sand-blasted finish to emulate traditional limestone.

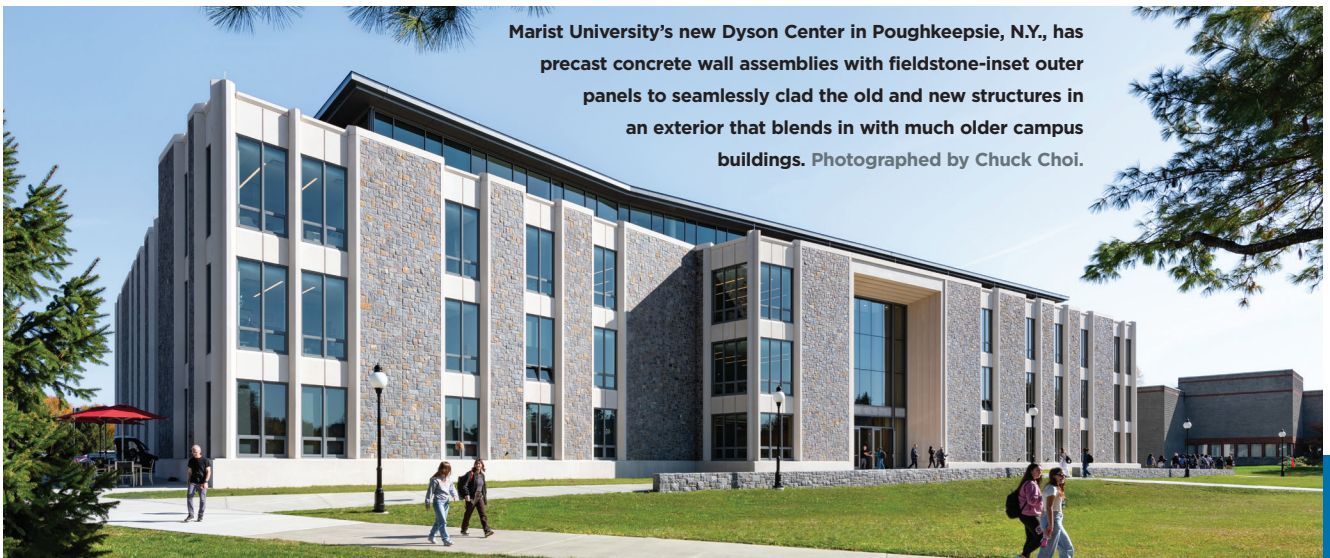
In addition to visually uniting the old and new structures, precast concrete wall panels inset with a fieldstone veneer saved time and money by accelerating construction and mitigating rising material and labor costs. At $2,384,000, the 379 components that BPDL fabricated and installed represent 4.5% of the $52,837,681 project.

Precast concrete also increased interior floor space by providing a thinner backup wall assembly than traditional masonry cavity walls. Large-format panels reduced the number of joints, reducing heating and cooling costs by providing a weathertight facade.

Fifty-seven 41 ft (12.5 m) tall wall panels and twenty-five 41 ft tall pilasters emulate Gothic Revival's soaring verticality. The wall panels rest on 44 base panels that run along the building's entire perimeter. Eighty crowning caps were fabricated with roof membrane tie-ins to prevent leaks from a green roof beyond a precast concrete parapet. BPDL also provided 170 spandrel panels for above and below each window.

While the cladding blends in with other campus buildings, old and new, the main entrance is a stunning focal point. Fluted side wall panels and a fluted precast concrete soffit suspended from a steel structure create an entrance portal reminiscent of a cathedral.

Precast concrete components were manufactured at BPDL's Abington, Mass., plant. Construction began in September 2022. Precast concrete erection ran from May to October 2023. The September 13, 2024, ribbon cutting was right on time for the new academic year for 6400 students.
—Stephanie Johnston



Marist University's new Dyson Center in Poughkeepsie, N.Y., has precast concrete wall assemblies with fieldstone-inset outer panels to seamlessly clad the old and new structures in an exterior that blends in with much older campus buildings. Photographed by Chuck Choi.

Precast concrete columns support new civic landmark

On March 3, 1863, at the height of the Civil War, the U.S. Congress created the Medal of Honor as the highest award for valor during military service. Three weeks later, on March 25, six Union Army soldiers who had destroyed bridges and railroad tracks in Confederate territory received the first six medals.

Since then, more than 3500 men and women have received the medal, 19 of them twice. The medal is bestowed every year on March 25, National Medal of Honor Day. It recognizes U.S. Army, Navy, Marine, Air Force, and Coast Guard members who went above and beyond the call of duty, even at risk of death, demonstrating the medal's core values of courage, sacrifice, commitment, integrity, citizenship, and patriotism.

On March 25, 2025, a museum dedicated to sharing their life stories opened in Arlington, Tex. Roughly 400 artifacts and interactive exhibits displayed throughout the 100,000 ft^2 (9290 m^2) building reveal National Medal of Honor recipients as ordinary Americans who did extraordinary things when called to do so.

Architect Rafael Vinoly's design represents the heavy burden that these men and women carried. The museum comprises a windowless 200 by 200 ft (61 m) aluminum-clad box perched on five precast concrete columns, one for each branch of the U.S. military, that form a star.

War is as old as humans, but only modern technology could design and produce these columns with such precision, speed, and strength. They carry dead, live, wind, and seismic structural loads; house building utilities; and visually contrast thmonlithic structure they support by tapering from 12 ft 4 in. (3.76 m) at the base to 6 ft 4 in. (1.93 m) at the top.

Think of each column as a stack of seven increasingly smaller 6 ft (1.83 m) tall rings, each 14 in. (356 mm) thick, with 2 by 3 ft (0.61 by 0.91 m) doors cast into the base for mechanical, electrical, and plumbing system maintenance access. Their placement was coordinated using Autodesk Revit building information modeling software. Each ring is reinforced with no. 11 (36M) bars, with the team using finite element analysis to determine reinforcement strategy and placement of steel embed plates cast into the top rings to manage load transfer.

The columns' taper angle required PCI-certified precast concrete producer Gate Precast (now Wells–Hillsboro, Tex.) to design and fabricate unique formwork for each ring, which was cast inverted and flipped postcure.

The company used Rhino three-dimensional computer-aided design modeling software with a Grasshopper fabrication plug-in to run computer numerical control machines. Each ring was match cast and test fit in the yard to meet tolerance requirements of less than ⅛ in. (3.2 mm) across the full column height.

Precast concrete production ran from August to November 2022, at which point S'N'S Erectors Inc. of Burleson, Tex., took over. In less than four weeks, the PCI-certified erector precisely aligned the rings using total stations—electronic surveying instruments that measure angles and distances—before connecting them with grouted NMB Splice Sleeve connections.

An *Arlington Report* article listed the project cost as $270 million meaning that the $1,222,861 cost for the precast concrete columns represents less than 1% of the project's cost.

—Stephanie Johnston

The project team for the National Medal of Honor Museum in Arlington, Tex., initially considered supporting the monolithic building with full-height precast concrete columns. Through engineering analysis, the precast concrete specialty engineer determined that only hollow columns could meet all load requirements while accommodating utilities. © Corey Gaffer Photography.