

PROJECT SPOTLIGHT

Hollow-core slabs fast-track luxury apartment construction

When property developers want to offer future renters and condominium owners quiet, highly fire-resistant homes, project teams choose precast, prestressed concrete hollow-core floor slabs in conjunction with metal stud wall panels to reduce building weight and height, foundation pile requirements, construction schedules, and, thus, overall cost.

DIGSAU, an architecture firm based in Philadelphia, Pa., and BPGS Construction, a construction management firm based in Wilmington, Del., chose this hybrid structural framework for 164 apartments at 308 Justison Street in Wilmington. Called Rowhaus, the 162,000 ft² (15,050 m²) luxury rental building is one of hundreds of new and restored office buildings, hotels, recreational facilities, restaurants, retailers, and multifamily housing units built on former brownfields along the Christina River over the past three decades. And that's where Boccella Precast, based in Berlin, N.J., came in.

PCI certified since 2010, Boccella Precast's patented Cella-Core hollow-core floor slabs, which the company calls planks, have been specified for affordable housing, dormitories, apartment buildings, condominiums, hotels, and educational facilities throughout the Northeast and Mid-Atlantic.

For seven of Rowhaus's floors and the roof, the precast concrete producer delivered more than two thousand 8 in. (203 mm), 6000 psi (41 MPa) precast concrete hollow-core slabs prestressed with five and seven 0.5 in. (12.7 mm) diameter wire tensioned to 175.5 ksi (1210 MPa). They ranged in length from 3.04 to 26.88 ft (0.93 to 8.2 m). Nearly 1800

slabs were shipped as 4 ft (1.2 m) wide units, and 343 slabs were cut to a narrower width at the plant to fit the building's geometry.

"All the pieces need to fit correctly together to build the 'puzzle'—the building—with no additional cutting on-site," says David Wan, chief engineer.

Trysler Inc. of Staten Island, N.Y., installed each floor in four days, up to 8000 ft² (743 m²) per day plus one day for joining with 4000 psi (28 MPa) fine grout with 25% slag. Boccella Precast used Ultraspan Technologies' extruders with zero-slump concrete and a shear compaction manufacturing process, which increases crew productivity and allows for more detailing options during fabrication. Rowhaus's ready-to-install slabs were cast with three thousand two hundred 6 by 4 in. (152 by 102 mm) bottom embed plates with headed studs for welding to metal stud wall panels, one hundred seventeen 6 by 6 in. top embed plates for attaching railings, and fifty-one 8 by 8 in. (203 mm) top embed plates for roof tie-off anchor posts. Also, 50 duct openings were cast at the plant to speed mechanical, electrical, and plumbing system installation by eliminating field layout.

The project team saved yet more time (and money) by developing precast concrete details to meet both final building design requirements and temporary loading demands, such as supporting scissor lifts and other construction equipment, during installation.

Hollow-core slab installation ran from December 4, 2025, through April 11, 2026. At 155,360 ft² (14,433 m²), the Cella-Core precast concrete floors compose virtually the building's entire square footage but only 3.5% to 4% of the \$56.6 million project's cost.

—Stephanie Johnston

Boccella Precast's patented Cella-Core 8 in. (203 mm) hollow-core floor slabs provide Type IIA two-hour fire rating without any topping and STC 51 noise rating to ensure a quiet living space for the new Rowhaus apartments in Wilmington, Del. Courtesy of DIGSAU.



Multicomponent wall system meets medical building design and deadline requirements

Parents, teachers, social workers, and hospitals breathed a sigh of collective relief when Michigan’s largest behavioral health provider opened the state’s first urgent care center for children and adolescents in March 2026. Nationwide, that age group is experiencing historically high rates of anxiety, depression, and suicide, and Michigan’s youths are not immune to this trend.

Wait times for in-patient treatment were lengthening, and families were increasingly relying on emergency rooms for crisis care. In response, Pine Rest Christian Mental Health Services raised \$98 million to build a 66-bed facility that’s expected to accept eight hundred 6- to-17-year-olds each year for inpatient treatment and 10,000 with specialty outpatient services.

Each stakeholder had a wish list for the 136,000 ft² (12,635 m²) Pine Rest Pediatric Center of Behavioral Health. Time was of the essence if the new facility was to begin accepting patients as promised on March 23, 2026.

The client wanted high-wear, minimal-maintenance interior and exterior finishes along with an air- and water-tight structure that could meet future thermal code requirements.

Architect BWBR of St. Paul, Minn., wanted to match the stone-and-brick buildings on Pine Rest’s 220-acre (89-hectare) campus in Grand Rapids, Mich., and to convey the whimsy of a treehouse.

Faced with a short construction window, general contractor EV Construction, based in Holland, Mich., didn’t have time

for conventional multistage masonry wall construction, which would have required installing the roof before insulating and adding a brick facade.

The solution was to use insulated precast concrete panels to provide an external load-bearing wall system for structural steel installation and multiple exterior finishes that would be fabricated and installed by the same materials supplier.

PCI-certified producer and erector Fabcon Precast worked with the design team to develop a preliminary precast concrete package for the project before it was bid. Because there was public funding involved, the project was publicly bid and awarded in March 2024. The first panels were fabricated in April 2024, ahead of ground breaking in May. Panel installation started in August 2024 and ran through October 2024. Early coordination helped keep the project on schedule.

In addition to forty-nine 8 in. (203 mm) solid panels to support hollow-core slabs in the building’s interior, Fabcon Precast supplied 316 insulated wall panels: 67 with a formliner finish mimicking tree bark, 65 embedded with thin brick, and 184 made with aggregate that complements the brick. All have a 6 in. (152 mm) inner wythe, 3 in. (76 mm) of insulation, and a 3 in. exterior wythe. Panel interiors were soft troweled and painted.

“Due to the speed at which the building envelope can be completed to start interior work, using precast allowed the schedule to improve by a significant amount,” says Judd VanBergen, EV Construction project manager. “Once a precast wall is tipped up, the exterior finish is done, the air/vapor barrier is in place, and the roof deck is ready to go down.”

At \$3.7 million, the precast concrete panels represent roughly 5% of the project’s \$68 million cost.

—Stephanie Johnston 

Building the Pine Rest Pediatric Center of Behavioral Health in Grand Rapids, Mich., with 365 insulated precast concrete wall panels that alternate embedded brick with acid wash and formliner finish saved project stakeholders time and money. Courtesy of EV Construction.

