PCI MIDWEST focus

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fall 18

How Precast Concrete Builds

Capitol Federal Hall - University of Kansas

How Precast Concrete Builds - Versatilely

The most versatile of building systems is precast concrete construction. Its ability to adapt to many different functions makes it a favorite of architects, engineers, and contractors alike. From its fluid state in a form to its varied use in and on a structure, precast concrete is adaptable and serves multiple purposes. Whether you value the wide spectrum of colors, textures, and finishes, or rely on its stability, strength, and durability, it all comes down to the versatility of precast concrete construction.

How Precast Concrete Builds - Efficiently

Precast concrete minimizes wasted effort or expense from cradle to grave. From the planning phase, efficient design uses thinner sections: skinny columns, reduced beam sizes, and slim wall panels. In production, precast concrete plant operations use the least amount of labor and materials to meet building specifications. During construction, fewer trades are involved, limiting on-site duration, wasted effort, and cost of financing. The operation of a precast concrete building involves less maintenance and lower insurance costs.

How Precast Concrete Builds - Resiliently

How do we build a structure that can withstand whatever natural or man-made disasters life can throw at it? Precast concrete construction is the top choice of owners who need durable, reliable structures. A resilient building is one that rolls with the punches. To maximize the future resilience of buildings, they should be designed for durability, robustness and continuity and use materials and construction methods that are durable in the face of natural and man-made events. Precast concrete construction is designed to last the test of time.

Mike Johnsrud, Executive Director

Phone: 952-806-9997

How Precast Concrete Builds: Talo Multi-Family Housing

The Twin Cities, MN apartment boom has spread from the urban core to suburbia, where new buildings chock full of amenities are reshaping neighborhoods and challenging the primacy of the single-family home. Apartment construction has been ramping up in the suburbs, which last year collectively permitted 2.5 times more multifamily housing units than Minneapolis and St. Paul, according to new Metropolitan Council data. Not since the early 1970s, during the first wave of suburban apartment construction, have multifamily units accounted for such a large share of overall suburban development.

Molin designed, produced and installed the structural precast products for the Talo multi-family housing project which is currently under construction in Golden Valley, MN. The Talo project required one level of underground parking and two levels of above grade precast which will support five additional levels. Molin's scope of work included 3,642 LF of precast columns, 10,546 LF of pre-stressed beams and 144,418 SF of hollow core plank.

MOLIN
Quality Concrete Solutions since 1897

www.molin.com

Architect: **Tushie Montgomery Architects** • Structural Engineer: **Hanusschak Engineering** • General Contractor: **Greiner Construction** • Location: **Golden Valley, MN**

How Precast Concrete Builds: Onyx Mixed Use

Molin Concrete Products designed, produced and installed over 161,000 square feet of Hollow Core and solid slabs, 263-prestressed beams, 145-precast columns and 12,000 square feet of wall panels for this six-story mixed use luxury apartment and retail development in Edina, MN. The project features 10,000 square feet of retail space with 133 retail parking stalls, 240 residential units with 394 residential parking stalls, and totals over 450,000 square feet of floor space.

MOLIN
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Developer: **CBRE Group** • Architect: **Elness Swenson Graham Architects, Inc.** • Engineer of Record: **Meyer Borgman Johnson** • General Contractor: **LMI Construction Services** • Location: **Edina, MN**

How Precast Concrete Builds: Expansion of the SDSU Performing Arts Center

The expansion of the South Dakota State Performing Arts Center was made possible through the use of precast components which saved time and labor costs and helped keep the $50 million, 95,025-square foot project on schedule.

The highly anticipated build, which includes a full-scale, professional caliber proscenium theatre, is constructed on both sides of the existing facility and will add dedicated facilities to serve both the local community and SDSU's growing arts education programs.

The project was designed by New York City-based Holzman Moss Bottino Architecture. The architect of record is Architecture Incorporated of Sioux Falls. According to Holzman Moss Bottino, "Locating Music, Theatre, and Dance programs into one building allows for cross-disciplinary artistic collaboration at South Dakota State University's Performing Arts Center."

The 200-seat recital hall accommodates ensemble and solo performances and features a professional-grade pipe organ. Large rehearsal spaces for band, orchestra, and choir give students the appropriate acoustical environments for practice. Performing arts takes place in the full-scale, professional-caliber theater. The center provides enhanced experiences and opportunities for university students and members of the community.

In addition to the new proscenium theatre, the performing arts expansion also adds large rehearsal spaces for band, orchestra and choir and a recital hall for ensemble and solo performances.

Founding partner Malcolm Holzman led the PAC expansion. His buildings were described in a national publication as having a "brash beauty," and are acknowledged for their evocative nature, technical vision and singular character. This is the first commission within the Mount Rushmore State for Holzmann, a 1992 Interior Design Hall of Fame inductee.

Preconstruction efforts for Gage Brothers began late in 2012. The building plans called for 78,000-sq. ft. of Gage Brothers precast architectural and insulated panels, grey slabs and corefloor. Gage Brothers also provided precast products for SDSU's current facility, which was constructed for $10.2 million in 2002. The 54,705-square foot venue consists of Larson Memorial Concert Hall, Fishback Studio Theatre and Roberts Reception Hall.

According to Dennis Papini, Dean of SDSU's College of Arts and Sciences, the need for the PAC expansion rests on four pillars: "Destination Brookings"; the value of attracting visitors and patrons of the arts; enhanced opportunities for Brookings schools and community arts organizations; and the economic impact of student recruitment.

The campaign to expand SDSU's performing arts center is aimed at cultivating academic innovation across its schools and colleges, investing in recruiting and retaining the finest teacher-scholars and continuing to build a premier living-learning environment on the university's 261-acre campus.

Gage Brothers has been awarded more than 50 South Dakota State University building projects since the mid-1960s. "Gage Brothers is proud to have deep and longstanding ties with South Dakota State University," said company president Tom Kelley. "I think this facility expansion is a testament to the university's commitment to both performing arts and the community of Brookings."

The target completion date for the PAC expansion is January of 2019.

Architect: **Holzman Moss Bottino Architecture/Architecture Inc.** · Engineer: **SEA, Inc.** · Contractor: **Journey Group** · Location: **Brookings, SD** · Photo Credit: **Gage Brothers**

Gage Brothers

www.gagebrothers.com

How Precast Builds: Starr Elementary School

When a community approves a 70 million dollar bond issue for the Grand Island Public School District, the patrons expect quality products that are produced in a timely manner. The 85,000 Square Foot Starr Elementary School was the first of three new elementary buildings to be constructed from the passing of the bond issue. The exterior walls utilize 12" thick load bearing precast concrete panels which include 4" of continuous ridged insulation. Interior precast walls support 12" hollowcore roof plank creating "Areas of Refuge" and mechanical mezzanines.

With over 70,000 square feet of wall panels on the project, the exterior appearance was a critical feature to the owner. "The floor plan of the building has a complicated shape and we needed to find a way to identify access points to the building for parents to drop off and pick up their children." According to Principal Architect Brad Kissler. "We decided that we wanted each entrance to have a visual identity that would be easily recognized by visitors, so we decided to give each a bold primary or secondary color. We were able to use a staining process on the smooth panels to create entrances that were unmistakable."

The brightly colored and smooth surface entrance panels are a visual variation from the remaining exterior façade. The 16' tall exterior walls at the classrooms included a buff colored wainscot base with an acid etch finish that gives way to a horizontal pattern of random dimensioned recesses. These ¾" deep recesses are highlighted with a dual finish of smooth acid etch at the raised face and an abrasive blast finish at the recessed locations. Endicott modular thin brick adds a touch of traditional school house feel at various locations of the exterior.

The central portion of the facility includes the gymnasium and commons areas. The 33' tall wall panels support large span trusses and joists which create column free floor plans. These large panels resist both the gravity and diaphragm loads from the roof and floors. The results of the quality, schedule, budget, and aesthetics of this project warranted the owner to mandate that architectural precast concrete be used on the remaining two elementary schools related to this bond issue.

ENTERPRISE PRECAST CONCRETE

www.enterpriseprecast.com

Owner: **Grand Island Public Schools** • Architectural Precast Producer: **Enterprise Precast Concrete** – Omaha, NE • Structural Precast Producer: **Concrete Industries** • Architect and Structural Engineer: **CMBA** – Grand Island, NE • Location: **Grand Island, NE**

Learn & Earn Box Lunches

PCI Midwest provides continuing education programs on a variety of topics. These programs are easily tailored to conference room or classroom lunch programs. Architects and engineers can learn about precast concrete hollow-core floors and walls, architectural precast concrete, precast parking structures, glass fiber reinforced concrete, high performance precast concrete and much, much more. Contact mike@pcimidwest.org to request a program for you or your company.

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