Precast Schools – a Trend on the Rise

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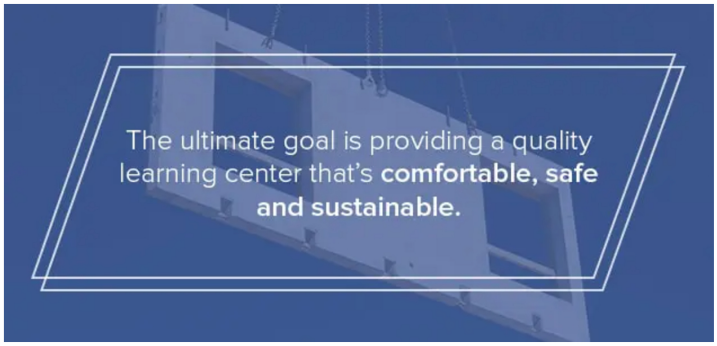

Jump-To:

Precast concrete construction for **school buildings** is a definite trend on the rise. The move toward **precast concrete** components for all sorts of **public buildings** has increased leaps and bounds over the past few decades. There are many reasons for this trend, and it's a good lesson learned for administrators and builders planning new schools.

Schools are a unique environment. They present design challenges for architects and engineers who strive to build the best facilities for students and staff. The ultimate goal is providing a quality learning center that's comfortable, safe and sustainable. Precast concrete school buildings provide that and more.

It's well-established that people learn best when surrounded by spaces designed with materials that control temperature, humidity and air quality. Equally important are aesthetics and acoustics. A calming and pleasing place has a positive effect, allowing the best attention and knowledge retention, which are vital to proper learning.

Another proven factor is available light. Students respond positively to natural light conditions, and the best way to provide it is with a large glass exposure. Large spans provided by **precast wall panels**, **beams** and **columns** easily achieve it. Like all precast concrete technology components, architectural panels used in school building are the simple solution to educational support.

School boards and districts are constantly concerned with economics. They're also extremely concerned with safety. Smart administrators stay on top of precast concrete trends. They've watched as other leading school authorities followed this trend toward new precast concrete school projects. There's no longer any doubt. Precast concrete has passed the exam and graduated as

projects. There's no longer any doubt. Precast concrete has passed the exam and graduated as today's leading choice for new school construction.

REQUEST A PLANT TOUR

9 REASONS THE CONSTRUCTION INDUSTRY IS TURNING TO PRECAST CONCRETE

Construction professionals seek to employ the best possible materials in their projects so that they can produce high-quality, long-lasting results. Using precast concrete for schools is the trend most architects, engineers and developers are turning toward to provide strength, enhance durability and be economically sound.

Sustainability is an excellent reason project owners demand precast concrete school components. In the construction and engineering industry, sustainability isn't just a trendy phrase people lightly toss around. It's a serious matter where builders and project stakeholders commit to using the best products and technology available today. That's responsible resource management for future generations.

Construction professionals sustain a building's lifecycle and service by integrating natural products like concrete. There are no health problems associated with today's concrete construction materials and technological processes like precasting. Concrete has a long lifespan – between 50 and 100 years – and, when a building's purpose is phased out, it can even be recycled.

LEED buildings are part of the overall sustainable construction movement. The well-known acronym stands for Leadership in Energy and Environmental Design, and it's a green building rating system. Many new schools are following the LEED program. They see the education system as the perfect place to set an example for social, economic and environmental development.

Students and teachers are concerned about how they're shaping tomorrow's world, which they know will be passed on to future generations. This is one of many important factors influencing architects, developers and engineers to employ precast concrete products in new school construction. Other practical reasons for the trend toward precast concrete school buildings include:

- **Saving Time:** Schools depend on strict timelines. They assemble in the fall and take a long break in the summer. Builders contracted to construct new schools are very aware of staying on schedule. Precast concrete products like architectural wall panels, columns, beams, hollow-core plank, and double-tee are made off-site and delivered to the evolving project exactly when needed. Precasting products saves an enormous amount of construction time, and that's invaluable when a school has to be open in August or September.
- **Saving Money:** All school administrators have to adhere to strict budgets. Planning new school costs is a challenge for all builders because of the variables. Precast concrete products remove a large potential for cost overruns, as precast manufacturers can give firm pricing when provided with exact building specifications. There's no variable once you order precast products. They cost

with exact building specifications. There's no variable once you order precast products. They cost less to make in a factory-controlled environment, and they can pass that savings along to the school project.

- **Efficiency:** No engineer, architect or builder will argue against the fact that factory environments are far more efficient than job site manufacturing and assembly. This is especially true with precast columns, walls and floor systems. Casting them in a factory-controlled environment allows far more efficiency than site building. Concrete components have time to properly cure before being delivered. They're at or near full strength when assembled and efficiently allow the next construction phase to begin.
- **Safety:** Concrete is the perfect product for school building. It won't corrode or rot like steel or wood buildings might. Whereas other systems need to add materials to protect against fires, concrete is naturally fire-resistant. Precasting components gives them properties that can withstand other natural events, as well, including floods, windstorms and earthquakes. Students and staff can have total confidence they're safely protected inside a precast concrete school.
- **Versatility:** Precast concrete is a practical building material for almost every part of a school building's structure. Builders know this and routinely specify specialized precast components like stadium risers and stairs. This total versatility enables one major supplier to precast as many different building components, eliminating multiple suppliers and subtrades and saves time and money.
- **Quality Control:** You can't expect peak performance from field-poured or in situ-cast concrete. Precasting ensures exactly the right concrete mix in every pour. Cement, aggregate types, additives and water are tightly controlled in a factory. This ensures the best quality control possible and prevents costly onsite failures.
- **Environmental Responsibility:** Part of the trend toward using precast concrete in school construction is its green process. Everything in a concrete precast component comes from natural ingredients that have no negative environmental damage – which sends an important message to the students who are tomorrow's stewards. They know green technology isn't a far-off dream. It's here and now, which makes learning so much more efficient when young people are in a green environment.
- **Energy Conservation:** Besides eliminating pollutants from the environment, conserving energy is a main part of the green building trend. Precast concrete walls, floors and ceilings can be designed with thermal properties that control heat loss and gain. That reduces energy expenses and non-renewable fossil fuel consumption.
- **Sound Deadening:** Concrete's density and mass make it the ideal substance for acoustic control, which is one more important reason engineers are turning to precast concrete. Sound deadening contributes to a focused environment where students aren't distracted by outside noise or other inner building activities. There can be a lively basketball game going in the gym while students study for exams in the adjacent library.

TWO NITTERHOUSE PRECAST CONCRETE SCHOOL PROJECTS

Nitterhouse Concrete has supplied concrete products to the mid-Atlantic states since 1923. For more than 90 years, we've followed the trend toward green building green with precast concrete components for all types of structures. We've recently contributed to two local school construction projects that made excellent use of the precast process.

Both schools greatly benefited from time and cost savings. These quality buildings performed precisely as the architects and engineers specified. They turned out to be safe and quiet learning environments where sustainability is a key driver. Precast products allow these green-designed schools to be energy-efficient and environmentally responsible. We're proud to highlight these two examples of precast concrete technology:

Charter Arts School

Charter Arts School

The Lehigh Valley Charter School for the Arts is a stellar total precast concrete school building in Bethlehem, PA. It's a new facility catering to dance, theatrical and music students that employs 83,000 square feet of precast floor space. The Charter Arts School has a 370-seat theatre, a commons café and meeting rooms for small conferences, as well as an art exhibit area and a high-tech sound stage.

We carefully designed and engineered precast components in our environmentally controlled **Chambersburg, Pa., factory**, and shipped them to the site for fast assembly. The timeline allowed for quality construction that also included a beautiful lobby, leading to professional green rooms, rehearsal studios and workshops. Precast concrete technology accommodated long structural spans holding large glass assemblies. The windows let in soothing daylight and city lights in the evening.

The Charter Arts School is three floors built of many leading-edge precast concrete components. Students benefit from increased fire safety and sound attenuation. The school administration benefits from efficient and cost-effective material use, reduced waste and low energy expenses. This excellent learning environment is supported by:

- 69,562 square feet of **precast hollow-core plank flooring**
- 61,278 square feet of **precast wall panels**
- 11,825 square feet of **precast double tees**
- 1,454 square feet of **precast solid slabs**
- 997 lineal feet of **precast beams**
- 364.5 lineal feet of **precast columns**

Fayetteville Elementary School

Nitterhouse Concrete is also proud to supply **Fayetteville Elementary School** in our local area of Chambersburg, Pa. It's a K-5 elementary school with two levels containing 16,753 square feet of 12″ precast hollow-core plank. That amounts to 156 separate precast pieces of sound-control product.

Hollow-core planks can span long distances and be put in place quickly. These factors allowed this state-of-the-art school project to stick to a tight 12-month schedule, from groundbreaking to student occupancy. The architect had a strict "Smart School Design" criterion, for which our precast concrete hollow-core plank floor perfectly suited the maximum load capacity on the second floor. These planks also offer excellent fire-resistance, especially when combined with a precast framing system.

Our client was extremely satisfied and provided a flattering testimonial for how Nitterhouse Concrete was able to meet an aggressive timeline while delivering quality in manufacturing, delivering and installing precast concrete components. It was on time and within budget. They report students, faculty and staff find their facility exceptionally quiet and comfortable.

ARCHITECTURAL FINISHES ALLOW COLOR AND TEXTURE SELECTION

Many clients and their building team are significantly concerned with how their finished projects appear architecturally. Here's another main advantage to using Nitterhouse precast concrete projects: Every precast component we manufacture is capable of presenting a finished and exposed surface. We don't just make precast products strong. We also make them attractive.

All precast concrete flooring and precast concrete columns can be manufactured with pleasing surfaces that catch the eye while doing their job of supporting the building. But nowhere is architectural finish more important and visible than in precast concrete wall panels. Our customizable precast concrete structures allow architects and engineers to specify the exact finishes they require to get the right appeal.

To give professional designers the flexibility to meet their clients' architectural needs, we've developed a range of colors and finishes. These beautiful surfaces bring creative vision to life by allowing complete customizing with our three standard mix designs, which are made from local and readily available aggregates.

Mix shades aren't the only customized precast concrete features we supply. We know that architects and clients demand more than color in school buildings and other construction projects. To meet that demand, we've developed these four different surface finish textures:

- Light sandblast
- Medium sandblast
- Heavy sandblast
- Exposed aggregate

By mixing and matching our proven colors and surface textures, we offer infinite choices to serve the majority of demanding architectural styles. However, some builders go the extra mile, and that's where Nitterhouse Concrete accommodates them with truly custom colors and textures. We also offer different veneer products, such as thin brick. This product can be cast into the panels, creating the look of hand-laid brick without the high field labor and material use requirements.

Through the use of these design elements, your precast concrete can act as both a structural component and an architectural feature.

NITTERHOUSE PRECAST CONCRETE PRODUCTS

Nitterhouse precast concrete products are the ideal solution for all large, medium and small-scale new construction projects. All of our precast concrete products can be integrated in school buildings, as well as any conceivable standing structure. Every architect, engineer, builder and project client can benefit from precast components. Here are the main precast concrete pieces we supply:

- **Architectural Precast Concrete Panels:** These structural wall panels are a cost-effective and sustainable way to give architectural accent to exterior and interior finishes. They're perfect accents to all school buildings.
- **Precast Concrete Double-Tee Beams:** Long lateral support is easy to obtain with strong and lightweight precast beams. Lengths of 75 feet or more make double-tee beams perfect for school gymnasiums, cafeterias or the main flooring in classrooms.
- **NiCore Hollow-Core Plank Flooring:** There's no better application for NiCore precast concrete than on school floors. Precast hollow-core floors are light, noise-resistant and fireproof. They're also attractive.
- **Precast Concrete Columns and Beams:** Floors are strongly supported by precast concrete columns. These posts blend in with other school architectural features when custom-finished with the right **color and texture**.
- **Precast Concrete Stadium Risers:** School gyms and outdoor stadiums are the perfect fit for Nitterhouse precast concrete stadium risers. They let students and sports fans sit on elevated stacks for the best view and strongest support.
- **Precast Concrete Stairs:** Every two-story or taller school must have stairs meeting or exceeding fire codes. Precast concrete stairs are the right choice for school safety. They're durable for heavy traffic and completely safe from fire damage.

NITTERHOUSE PRECAST CONCRETE IS THE PERFECT PRODUCT TREND FOR SCHOOLS

Today's and tomorrow's schools across the nation are following the trend toward sustainability, safety and security. Students and staff understand the benefits they get from green technology and LEED-certified buildings. Precast concrete products offer a main support for moving this trend from design to reality.

Nitterhouse Concrete is a leading supplier of precast concrete construction materials. We don't just understand this sustainable and environmentally responsible movement. We support the trend and supply it. We also do our part to make schools pleasing and prosperous places to learn.

To learn more about Nitterhouse Concrete and our sustainable precast products, call our headquarters and service facility in Chambersburg, Pa. **Give us a call at 717-267-4504**, or **contact us online**.

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BACK TO TOP ↑