CASE STUDY

FIRELAKE BALL FIELDS CHAMPIONSHIP STADIUM

The FireLake Ball Fields Championship Stadium in Shawnee, Oklahoma, built by Crossland Construction for the Citizen Potawatomi Nation, marks a first for ICF construction. Inside the stadium's conventional structural steel frame, BuildBlock Building System's Insulated Concrete Form (ICF) walls fill the bays between the structural steel members and serves as the building's shear walls, taking over the lateral support that would normally require steel bracing. In one assembly, the ICF walls deliver the structure, the insulation and a surface ready for finishes, replacing the steel shear system, metal stud framing, sheathing and insulation of a conventional design.

In the press box, every piece of structural steel was removed and the ICF walls carry the structure on their own. That value-engineered approach came in 13% below the conventional steel design and led the team to choose ICF. The project includes 24,000 square feet of wall built with 8-inch core BuildBlock ICFs and BuildBlock Hardwall.

To BuildBlock's knowledge, ICF has never been used this way inside a structural steel building of this type, but it is common to use ICF to eliminate structural steel in a rigid steel frame. The finished stadium will seat up to 4,100 fans, making it one of the largest softball venues in Oklahoma, and is designed to meet NCAA Division I guidelines.

ABOUT

LOCATION: Shawnee, OK
OWNER: Citizen Potawatomi Nation
GENERAL CONTRACTOR: Crossland Construction
ARCHITECTURAL FIRM: Citizen Potawatomi Nation
ICF CONTRACTOR: Red Prairie Construction
DATE: Construction began spring 2026; completion targeted for early 2027
PRIMARY SCOPE: BuildBlock's ICF shear walls infilled between the structural steel frame of a stand-alone, 4,100-seat championship softball stadium, providing lateral support, insulation and finish-ready walls in a single assembly.





PROJECT COMPLEXITIES

ICF SHEAR WALLS IN A STEEL FRAME – ICF walls infill between the red iron and carry the lateral loads normally handled by structural steel bracing.

STEEL-TO-ICF CONNECTIONS – Custom connection details tie the concrete core of every ICF wall to the surrounding steel columns and beams.

STEEL-FREE PRESS BOX – Every piece of structural steel in the press box was removed from the design, with ICF walls taking its place.

VALUE ENGINEERING – One ICF assembly replaced steel shear framing, metal stud walls, sheathing and insulation, cutting cost by 13%.

4,100-SEAT CAPACITY – Spectator seating on a scale rivaling the state's largest on-campus softball venues.

NCAA DIVISION I GUIDELINES – Playing field and facilities designed to the standard required to host collegiate tournaments. The stadium will also become the home of a professional softball team that is based in Oklahoma City.

ACTIVE TOURNAMENT COMPLEX – Construction proceeds alongside a ten-field complex that hosts events nearly year-round.

TOURNAMENT-DRIVEN SCHEDULE – Completion is targeted for early 2027, allowing the stadium to host events for the coming softball season.



ICF AS THE SHEAR STRUCTURE

Like most large sports venues, the FireLake Stadium is framed in conventional structural steel, with red iron columns and beams carrying the gravity loads of the building. What sets this project apart is how it resists lateral forces. In a typical steel building, wind and lateral loads are handled by steel lateral bracing or moment frames, and the walls between the steel are then framed with metal studs, sheathed, insulated and prepared for finishes, trade by trade.



On this project, BuildBlock ICF walls fill in between the red iron and serve as the building's shear walls. Once poured, each ICF wall becomes a continuous, steel-reinforced concrete panel locked into the surrounding frame, giving the structure its lateral stiffness. The structural support that would normally come from additional steel is provided by the ICF instead. ICF walls have been tested seismically (Chicago Testing Laboratory – 2013) and have demonstrated up to eight (8) times the lateral force resistance of conventional stick framing.

The project uses 8-inch core BuildBlock ICFs and BuildBlock Hardwall concrete-faced ICFs across 24,000 square feet of wall. Located in central Oklahoma's severe weather corridor, the stadium gains a monolithic concrete envelope that resists high winds and impact while doubling as its lateral load system.



A STEEL-FREE PRESS BOX

The press box takes the approach a step further. Rather than infilling between steel, the project design team removed all of the structural steel from the press box design and let the ICF walls take its place. The 8-inch reinforced concrete core carries the press box's dead and live loads, eliminating the steel members along with the infill framing, sheathing and insulation that would have surrounded them.



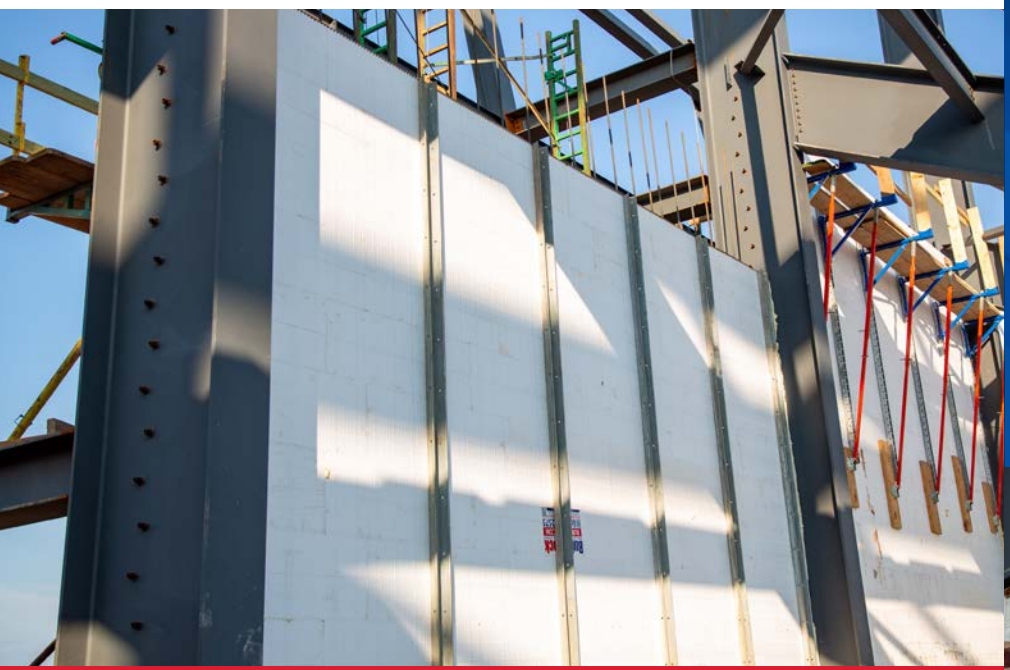
CONSTRUCTION & ENGINEERING

The stadium builds on an established partnership between the Citizen Potawatomi Nation and Crossland Construction, which previously delivered the Nation's $20.8 million, 50-acre turf softball complex on the same site. That project offered hard-won lessons for the stadium team. The entire complex sits below the 100-year floodplain, and record rainfall in 2024 flooded the adjacent parking lot during construction. Crossland used temporary drainage systems and protected work areas to keep progress moving, and when floodplain permitting delayed one side of the site by six months, the construction team revised the construction work sequence and finished the other side four (4) months ahead of schedule so CPN could host its planned tournament on time.

CONNECTING THE ICF TO THE STEEL

The key engineering challenge was making the ICF and the red iron act as one system. For the ICF walls to work as shear walls, every wall had to be positively tied into the steel columns and beams around it so lateral loads could transfer from the frame into the concrete. With the connections set, the forms were stacked and braced between the steel, reinforced, and poured, locking each concrete core to the frame.

The stadium also carries the same site demands Crossland managed on the earlier complex: a floodplain site, an active tournament complex next door and a firm deadline tied to the softball season.



VALUE ENGINEERING: WHY ICF WON

ICF was chosen because it came in 13% below the conventional structural steel design. When the team priced the conventional approach, it focused on steel shear framing plus every layer that has to be built around it. BuildBlock ICFs replaced that stack of trades with a single wall that provides the structure, the insulation and a surface ready for finishes.

CONVENTIONAL STEEL APPROACH

- Structural steel shear bracing
- Structural steel framing the press box
- Metal stud framing in and around the steel
- Exterior sheathing
- Separate insulation
- Wall prep before finishes

BUILDBLOCK ICF APPROACH

- ICF walls act as the shear structure
- Eliminated; ICF walls carry the press box
- Replaced by the ICF wall
- Replaced by the ICF wall
- Built into the ICF forms
- ICF wall arrives ready for finishes

Fewer materials, fewer trades and fewer steps on site added up to a 13% savings over the conventional steel design.



DESIGN, FUNCTIONALITY, AND FAN EXPERIENCE

A championship venue has to work as well for fans and broadcasters as it does for players. Reporting on the plans describes elevated bleacher seating, modern broadcast capabilities and fan amenities geared to college-level competition, anchored by a 24′ x 32′ digital scoreboard. The stadium is also being promoted as a multiuse venue for showcases and non-softball events, giving it a role well beyond local league play. As a stand-alone field inside the existing complex, it shares parking, concessions and lodging with the ten surrounding turf fields, so a single weekend can bring youth, high school and collegiate games to the same site.

Because the ICF walls are also the building's insulated envelope, the stadium gains performance benefits on top of the structural ones. The concrete core and continuous insulation help stabilize interior temperatures, dampen crowd and equipment noise, and stand up to heavy, year-round use.

COMMUNITY & ECONOMIC IMPACT

The stadium is the latest step in a steady build-out of the FireLake Ball Fields, which opened in March 2012 with six fields and expanded to ten synthetic turf fields in 2025. Demand is already proven: in May 2026, the NCAA South Central District Tournament filled the complex's parking almost to capacity, with many teams and families staying at the nearby FireLake Hotel. The Citizen Potawatomi Nation sees the stadium as part of a long-term push to grow tourism and amenities in Shawnee and across south central Oklahoma, with visiting teams supporting local hotels, restaurants and businesses. As FireLake Ball Fields Director Kelly Reavis put it, the goal is to become "a premier host for softball."

At roughly 4,100 seats, the stadium will sit just behind the University of Oklahoma's Love's Field among the state's largest softball venues, about 40 miles from Devon Park, home of the Women's College World Series. That positions FireLake to compete for college, showcase and regional events in one of the country's strongest softball markets.



PROJECT SUMMARY

The FireLake Ball Fields Championship Stadium is a one-of-a-kind project. By filling the bays of a conventional structural steel frame with BuildBlock ICFs, the team turned the walls themselves into the building's shear system, then let those same walls deliver the insulation and finish-ready surface. The result replaced steel shear framing, metal stud walls, sheathing and insulation with a single assembly, eliminated the structural steel in the press box entirely, and significant reduced cost through value engineering. Built on a floodplain site, inside an active tournament complex and on a season-driven schedule, the stadium opens a new path for ICF in steel-framed sporting structures, public assembly and commercial buildings.

