
PROJECT STUDY



HOK Sport Venue Event Headquarters Kansas City, Missouri



Over 800 precast/prestressed concrete components combined aesthetically to frame HOK Sport Venue Event's new four-level headquarters with integrated parking structure in Kansas City, Mo.

The new headquarters for HOK (Hellmuth, Obata + Kassabaum Inc.) Sport Venue Event companies, which comprises HOK Sport, HOK Venue, and HOK Event, had to be something special. Not only does the building make a statement about the firm's image and its impact on the city, but it also speaks eloquently about its vision for the 21st century. After all, HOK companies are the world's premier venue and event architecture firm, renowned for its design of prestigious stadiums and a multitude of contemporary structures.

HOK's new headquarters sits majestically at 300 Wyandotte Street in the River Market District of Kansas City, Mo., an area noted for its classically ornate brick buildings. Despite the traditional surrounding architecture, the new, modern building, built predominantly with precast/prestressed concrete, blends well with the brick buildings of the historic neighborhood. More than that, HOK's designers implemented sustainable features into the building to maintain the firm's corporate policy of energy conservation and environmental consciousness (see Sustainable Design Features, p. 113).

The general contractor of the project was OPUS Northwest, headquartered in Kansas City, Mo. Assisting the contractor was the precast concrete supplier IPC Inc., in Des Moines, Iowa. On this particular project, IPC enhanced the quality and aesthetics of the precast products by using self-consolidating concrete.

Self-consolidating concrete practically eliminated bugholes in the concrete and produced an exceptionally smooth and clean concrete surface. Special care was also taken when casting and handling the columns, yielding high-quality results.

HOK's new headquarters is a total precast, prestressed concrete-framed structure with integrated parking. The L-

shaped building has four levels. The total building area of 95,000 ft² (8800 m²) will be home to about 260 employees.

The HOK principal in charge of the overall design of the project was Jon Knight. Schooled in the philosophy of Frank Lloyd Wright, he advocated precast concrete from the outset for aesthetic reasons and speed of construction. In particular, he wanted all structural elements to be exposed and visible to the eye.

The use of precast, prestressed concrete was at the center of this successful design solution. The 32-ft-long (9.8 m) bays permitted large open spans, including a two-story, open, all-employee gathering area for the office staff. This area has tiered seating similar to a stadium. Indeed, some employees refer to it as "the grandstand." The grandstand connects the

two floors that are occupied by HOK.

Both inside and outside, this project captures the essence of HOK. While the building complements its environment in terms of scale and street-edge presence, it also stands out as a bold step forward for the historic River Market District.

The exterior of the building features three balconies, which are used for casual meetings and dining areas. Inside, an organizing boulevard defines visitor and staff circulation. It runs the length of the building, connecting project teams, design laboratories, the design library, open conference areas, and the HOK café, which doubles as an employee art gallery.

The boulevard also serves as the vehicle for public display of the firm's design work. An open floor plan, which lacks private offices, fosters collabora-





tion and communication within the staff and provides the conduit for creative design synergies.

While the exterior of the building is mostly glass and anodized aluminum, this precast, prestressed concrete-framed structure remains honest to the concept of the structure. The precast concrete frame and many of the connections are intentionally visible through the glass.

The double-tee ceiling is also a design element. The tees are lit up, drawing more attention to them, rather than blacking out the ceiling in an effort to draw the eye away.

In addition, the columns are purposely exposed on the interior. HOK requested that post-production patch-

ing and rubbing be kept to a minimum in order to reinforce the honesty of the materials approach.

The structure incorporates parking and office space in an efficient manner. There have been a number of detailed aesthetic considerations with the environmentally friendly precast concrete product applications, including the use of 8-ft-wide (2.4 m) double tees, so that the stems of the tees line up with the window mullions on the building's exterior (maintaining a 4 ft [1.2 m] module throughout the building).

The precast concrete-framed structure's glass facade makes optimum use of recycled and regional materials in combination with visible natural light and user flexibility. The building's

transparent facade affords employees a 360-degree view of the city, while people outside have a unique view of the creative inner workings of the firm.

The building/parking structure contains a large variety of precast/prestressed concrete components (**Table 1**), which totals 842 products.

The shop drawings were prepared by FDG Inc., which also provided several cost-saving ideas. The various precast concrete products were transported from IPC's plant in Des Moines to the project site by tractor-trailer over a distance of about 180 miles (290 km).

Design of the project began in 2003 and lasted a little over a year. Excavation, site preparation, and foundation work started in August 2004 and lasted





five months. Precast concrete component erection took only three months and was followed by eight months of building enclosure and interior build-out. Construction was essentially completed by October 2005, and the building was occupied soon thereafter.

The total cost of the project was \$26 million.

Since completing the building, HOK has received several design and business development awards from local media and business development groups for the building's economic and community impact.

During the past couple of years, the facility has been operating with total satisfaction and the office staff has been enjoying its new office quarters. The

owner and all parties concerned with the project are pleased with the choice of materials, the method of construction, and the attractiveness of the completed building. Especially noteworthy is the architectural aesthetic quality of the structural precast components accomplished largely through the use of self-consolidating concrete.

SUSTAINABLE DESIGN FEATURES

HOK's new office had numerous sustainable design features. The following list discusses the sustainable design aspects of the project from the perspective of precast concrete:

- Reducing the heat island effect: 100% of the on-site parking spaces are underground and/or covered by building structure.
- Optimized energy performance: the thermal mass benefits of an all-precast concrete solution (even non-insulated) are extensive, which allow the building's energy performance to be optimized.
- Recycled content (5%): Recycled materials in this project's precast concrete include fly ash and manufactured sand and reinforcing bars, prestressing strand, and embeds or connection plates with recycled steel content. Fly

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HOK COMPANIES: PIONEERING THE WAY PEOPLE GATHER

HOK Sport Venue Event, the world-renowned public assembly architecture firm, has been a pioneer in the total design of sports and meeting facilities from both the owner and user viewpoints, as well as the community at large. As a result, HOK's innovations have transformed the way people experience sporting events, conventions, and meetings.

The firm was founded in 1983 when a group of five enterprising architects foresaw the need for a design firm exclusively specializing in sports facilities. Much of the firm's early experience came from its work on the Truman Sports Complex.

Today, HOK has a staff of more than 400 employees in offices in Kansas City, Mo.; Nashville, Tenn.; Denver, Colo.; London, U.K.; and Brisbane, Australia. The firm has been involved in more than 850 projects worth nearly \$15 billion in many major baseball, football, and soccer stadiums in this country and overseas. It has also played a big role in the design of national convention centers.

Among the high-profile projects it has been responsible for are the Anaheim Convention Center in Anaheim, Calif.; Busch Stadium in St. Louis, Mo.; Washington Nationals Stadium in Washington, D.C.; United Center in Chicago, Ill.; Emirates Stadium in London, U.K.; Hong Kong Stadium in Hong Kong; Nanjing Olympic Sport Center in Nanjing, China; Millennium Stadium in Cardiff, U.K.; and Wembley National Stadium in London. In recognition of these achievements, HOK has received more than 100 national and international awards. Despite a brilliant record, HOK believes its best years lie ahead.





Clockwise from upper left:

- Emirates Stadium (London, U.K.)
- Sprint Center (Kansas City, Mo.)
- Phoenix Convention Center (Phoenix, Ariz.)
- University of Phoenix Stadium (Glendale, Calif.)
- Nanjing Sports Park (Nanjing, China)



ash made up approximately 12% of the concrete. This amounted to about 2.5% of the overall finished precast concrete product. In addition to the fly ash, the steel products' recycled content contributed to approximately 3% of the overall product. Therefore, the overall recycled content of the finished precast concrete product exceeds 5%.

- Regional materials: 100% of the precast concrete product was manufactured regionally (within a 500-mile radius [810 km] of the jobsite). The primary source plant was approximately 200 miles (320 km) from the jobsite. The secondary source plant was approximately 296 miles (480 km) from the jobsite.
- Regional materials: Approximately 95% of the overall precast concrete product was extracted regionally (within a

500-mile radius [810 km] of the jobsite). This includes use of local aggregates and close cement/fly ash sources. The only portion of the concrete product that was not considered regional was some of the steel products, namely, prestressing strand, reinforcing bars, embeds, plates, and a few other items.

- Innovation in design: This precast concrete-framed structure has a glass facade, making optimum use of recycled and regional materials in combination with visible natural light and user flexibility. The single structure incorporates parking, office space, and retail in an efficient manner. There have been a number of detailed aesthetic considerations with the environmentally friendly products, including the use of 8-ft-wide (2.4 m) double tees so that the stems will line up

with the window mullions on the building exterior, maintaining a 4 ft (1.2 m) module throughout the building.

CREDITS

Architect/Designer: HOK Sport Venue Event; Kansas City, Mo.

Owner/Developer: OPUS Northwest; Kansas City, Mo.

Engineer of Record: OPUS Northwest; Kansas City, Mo.

Contractor: Opus Northwest; Overland Park, Kans.

Precaster: IPC Inc.; Des Moines, Iowa

Precast Specialty Engineer: FDG Inc.; Arvada, Colo.

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[GDN]

Table 1. Precast/Prestressed Concrete Components

Product Designation	Product Description	Number of Components	Linear Length, ft	Gross Area, ft ²	Weight, ton
BM1	Transfer beams	3	174	—	34.72
BM2	Rectangular beams, 24 in. × 36 in.	117	4063	—	26.04
CM1	Columns, 24 in. × 24 in.	39	1670	—	18.70
CM2	Columns, 24 in. × 32 in.	2	89	—	19.65
DL1	DLBs, 24/40 × 32/40, galvanized	29	865	—	22.10
DT1	Double tees, 8 ft wide × 32 in. deep	305	15,915	127,323	17.19
DT3	Double tees, 12 ft wide × 32 in. deep, galvanized 855	57	3075	36,897	21.18
DT4	Double tees, 12 ft wide × 28 in. deep	62	3277	39,325	19.77
HC1	Hollow-core, 4 ft wide × 10 in. deep	18	431	1723	2.73
RS1	Precast stairs	40	510	2550	3.98
SP1	Interior spandrels, 10 in. thick	6	174	—	17.21
SS1	Solid slabs, 10 in. thick	6	43	258	3.27
SS2	Solid slabs, 8 in. thick	8	144	1443	9.63
WP1	Stair/elevator panels	75	2022	24,264	22.16
WP2	Exterior wall panels, 12 in. thick	64	1827	23,146	37.80
WP3	Interior wall panels, 12 in. thick	11	267	3224	23.80
Total		842			

Note: 1 in. = 25.4 mm; 1 ft = 0.3048 m; 1 ft² = 0.093 m²; 1 ton = 0.907 tonne.