



Touchdown Cincinnati

The Cincinnati Bengals have entered the 21st Century in dramatic fashion with the opening of Paul Brown Stadium. Named for pro football Hall of Famer and NFL patriarch Paul Brown, the \$453M stadium is a major component of Cincinnati's "Rebirth of the Riverfront." The stadium, along with a new home for the Reds, will "bookend" the cities riverfront revitalization. This new chapter in Cincinnati Bengals history kicked off on August 19, 2000 with an exhibition game between the Bengals and our own Chicago Bears.

The Consulting Engineers Group began their work on the stadium in September of 1998, less than two full years prior to the opening. After contracting with Metromont Prestress Corporation of Greenville, SC, CEG began the massive undertaking of detailing the precast concrete components for the

job. By far the largest stadium project to date for CEG, the job required over 5,000 separate drawings to complete the work. These drawings included 320 structural erection drawings, 1252 details, and over 3,600 individual precast production drawings.

Erection of the precast began in December of 1998, less than three months after CEG began its work. Staffing requirements peaked in the Spring of 1999, with a crew of ten who were not only developing the remaining erection drawings but also feeding five Metromont plants with production tickets.

Besides the sheer overwhelming quantity of drawings required to complete the job, the stadium provided an opportunity for CEG to solve some unique problems. For instance, approximately 500 precast strut beams were used on the concourse levels and

were required to resist axial loads of up to 425 kips, three precast bridges connected concourse areas and party decks, and a late design change to accommodate a soccer field configuration required changes to the basic stadium geometry and seating bowl.

The culmination of CEG's fifteen month detailing effort, as well as the work of 595 other companies, is truly a state of the art facility. The 65,600 seat futuristic design places nearly 70 percent of all seating along the sidelines, with the open-ended bowl providing stunning views of the riverfront and Cincinnati skyline. The stadium also features 7,600 club seats, 114 suites, state of the art audio/visual systems & scoreboards, wider seats than typical stadiums and a heated natural grass playing surface. A great way for both the Bengals and CEG to enter the 21st century.



275 Grove Street Garage.



CEG/NECP Partnership Continues To Grow

The Consulting Engineers Group —Texas and Northeast Concrete Products (NECP) of Massachusetts have worked together for over four years. During that time span, CEG has exclusively provided shop drawings and engineering services for all NECP precast parking structures. Other projects include an Amtrak train commuter platform and 4.5 acres of deck slabs for the Boston Central Artery project. Altogether, CEG and NECP have designed and constructed 28 commercial structures including 6.1 million square feet of parking deck comprising some 26,500 spaces.

Notable projects include the prestigious Providence Place Mall Parking Structure and the innovative 275 Grove Street Parking Structure. Providence Place Mall uses steel columns and frames with precast double tees, beams and spandrels and is a highlight of downtown Providence. The 275 Grove Street Structure uses architectural exterior moment frames to support an open seven level structure

without interior shear walls.

NECP/CEG have a unique way of packaging their parking solutions by providing services early in a GMP process. The NECP/CEG parking solution is designed as a collaborative effort between the entire design team culminating in projects that meet the client's complete expectations. This joint effort creates certainty of design and economy while fostering continued innovation. A centralized design team, with a lead engineer overseeing all projects for the integrated effort between NECP/CEG and their clients, ensures a consistent and durable product.

Currently, there are five new projects in the drawing phase, one under construction, one in fabrication and three in various stages of close-out. The future continues to provide more opportunities for the relationship between the two firms to grow, prosper and lead the industry in customer satisfaction.



401 Water Street garage nearing completion.

401 Water Street – Design-build done right

Design-build worked as it has been heralded to do on this 344 car parking deck in Peoria, IL. The Developer, Huber Bros., needed additional economical parking quickly for an office building renovation pro-

(continued from 401 Water Street)

ject. Local Design-Build Contractor River City Design Group, Inc. knowing precast concrete was the best choice to meet the owner's demands, immediately brought in a trusted supplier, PBM Concrete, Inc. (Rochelle, IL) to supply the precast frame. PBM in turn retained The Consulting Engineers Group to act as Parking Consultant, Structural Engineer and Precast Specialty Engineer all rolled into one.

Over the next two weeks, a functional, attractive and economical design was developed. Schematic Drawings and a fixed cost were presented to the owner. After a few refinements the proposal was accepted and the design-build team went to work. Precast shop drawings and designs proceeded simultaneously with the permit (contract) drawings. This allowed production and erection to begin sooner. The deck was erected in 3½ weeks with an additional 2 weeks for a stair and elevator tower that was the link/transition between the garage and the office building.

If a problem arose, the design-build team worked together to resolve it. For instance, several weeks into construction the owner requested a portion of the lower level be enclosed and outfitted as a car detailing shop. The additional work was priced and approved by the owner and his request was incorporated into the project at once.

The owner dealt with one firm, had one contract, no hassles and ended up with a great garage at an economical price. Design-build as it was intended.



7 cranes at work on the Midfield Terminal Parking Garage.

7 Precasters Join Forces On United States Largest Parking Garage

The Midfield Terminal Parking Garage in Detroit, Michigan will become the largest parking garage in the United States upon its completion. The 11,500 space garage is part of a \$1.2 billion expansion by Northwest Airlines that also includes a new 99 gate terminal.

CEG is providing engineering and drafting services to seven separate precast producers that have combined their efforts to fabricate the 10,300 precast pieces required on the job. CEG, the seven producers, and the General Contractor's coordination team have worked closely throughout the project to meet the demanding schedule and insure the timely delivery of product to the three erection crews working simultaneously on site. Meeting the demands of seven producers, coordinating several other disciplines, and accommodating some special design criteria have provided plenty of challenges to CEG's staff. For instance, there are 13 elevators, 5 escalators, three 300' moving walkways and a large baggage handling system all incorporated within the garage. A large Ground Transportation Area, requiring HVAC equipment to be routed among the precast components, is also included. Two helix ramps provide access to the garage, interior speed ramps assist with traffic flow and four lanes within the garage will accommodate both HS15-44 and fire truck loading.

The coordination efforts of the entire team will culminate in the opening of the United States largest parking garage in the fall of 2001.

Owner: Northwest Airlines
General Contractor: (Joint Venture) J.S. Alberici, Walsh Construction, PBM
Structural Engineer: Rich & Associates/Paragon Structural Design

CEG & TINDALL – Collaborate on Parking Deck “Bridge”

The Crystal Springs Parking Deck in Roanoke, VA has a 91' x 244' section at the top level which clear spans a roadway below and serves as a connecting bridge to the shopping center adjacent to the garage. Designed for the prescribed seismic loads, this 45' high free-standing “bridge” has twin 72" deep bulb-tee girders spanning 85' and supporting 60' pretopped double tees. The girders are tied rigidly to 4' square, 45' high cast-in-place columns to form moment frames over the roadway. 8" x 8'-6" spandrels spanning 60' are also tied into the columns to create moment frames in the opposite direction as well.

(continued on back page)



Girder to column connection prior to cast-in-place pour.

News Bites

CEG

The Consulting Engineers Group Inc.

- In May, the University of Nebraska Department of Civil Engineering conferred a Distinguished Alumnus Award on **Norm Scott** “in recognition of his outstanding professional achievement in civil engineering and commitment to civil engineering education.” *Congratulations, Norm!*
- **Ray Schlitt** retired in July after many fine years at CEG as a senior project coordinator. He and his wife Janet will be making their home in Galena, IL. *Ray, we miss ya man!*
- CEG is pleased to introduce and welcome **Matt Huslig**, **Claudia Langarica** and **Ronak Shah** to the Illinois office and **Elizabeth Hamner** and **Juan Rizo** in the Texas office.
- **Armand “Gus” Gustafarro** received the first ever award for Excellence in Seminars from the ACI Education Committee at the fall convention for his longtime involvement with ACI’s seminar on troubleshooting concrete problems. *Congratulations, Gus!*

(continued from CEG & TINDALL – Collaborate on Parking Deck “Bridge”)

Originally conceived as 20" x 87" deep ledged girders, these 150,000 lb. pieces proved cost prohibitive to transport and erect. Tindall Corporation Virginia, Division convinced the Engineer to use the bulb tee solution and CEG set about the task of designing the members and connections and detailing everything to fit. The cast-in-place joints were loaded with reinforcing; some projecting from the columns below, some from the bulb tees, some that had to be welded in place and still other that was loose and had to be fit around everything else as the final operation.

Everything fit “for the most part” and the structure was completed on time and within the budget. It was a true collaboration between Tindall and CEG and a success story for the owner.

Main Offices:
55 East Euclid Avenue
Mt. Prospect, IL 60056
Tel: 847-255-5200
Fax: 847-255-5271
800-755-5201

2455 NE Loop 410
San Antonio, TX 78217
Tel: 210-637-0977
Fax: 210-637-1172
800-827-1906

Other Offices:
1000 SE Fourth St. #105
Ft. Lauderdale, FL 33301
Tel: 954-523-8347
Fax: 954-523-1831

46 Chelmsworth
Bella Vista, AR 72714
Tel: 501-855-4563
Fax: 501-855-4599

Website:
www.cegengineers.com