



### Terminal C Parking Garage in Service

With a parking capacity of 3400 cars, a beautiful and spacious parking structure is now open for business at Continental Airline's Terminal C Parking Garage at Newark Airport in New Jersey.

The design and construction of the structure was made especially challenging due to several unique requirements: site limitations of an already busy and built-up airport property, eighty-foot spans over Terminal C's roadway, an "open feel" desired for the garage's appearance, three exterior spiral ramps, and design requirements for future expansion.

To maximize the use of space on the available land designated for garage construction, an irregular footprint was utilized. The garage's north elevation follows the curve of the roadway serving the adjacent terminal. Curved, sandblasted precast spandrels bear on round, 42-inch diameter

precast columns along this elevation. The garage's south elevation is skewed alongside an existing surface parking lot.

Eighty-foot long beam spans are used for floor and roof support over the terminal roadway. Four-foot deep structural steel sections with a composite cast-in-place concrete topping are spanning the roadway and support precast, prestressed double tee members.

To achieve an "open feel" to the structure, very few shear walls were utilized. Precast moment-resisting frames provide the primary lateral stability for the structure. Large uplift and shear forces are resisted with up to forty-two #14 rebars spliced with the Lenton system. Furthermore, floor-to-floor heights of 11-feet 9-inches are provided adding to the "open" effect. Open air-spaces, termed "light-wells", are provided in two areas of the park-

ing garage. These light-wells are 40-feet wide and 180-feet long, providing abundant natural light to the garage and adding to the overall "open" feel of the structure.

Three visually stunning spiral ramps are located at the southeast corner of the structure. The ramps are cast-in-place concrete construction with curved precast spandrels wrapping the exteriors. Structurally each ramp is free-standing and provides its own stability and gravity load support independent of the parking structure. The ramps provide efficient traffic flow while at the same time add to the aesthetic appeal of the garage.

Prismatic Development Corporation, of Fairfax, New Jersey, provided general contracting for this design-build project. The Consulting Engineers Group, San Antonio, Texas served as the project's "Engineer of Record" and provided all foundation and

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superstructure design. Clarke Canton Hintz Architects from Trenton, New Jersey handled architectural design. Yu & Associates from Elmwood Park, New Jersey served as the project's Civil Engineer. High Concrete Structures from Denver, Pennsylvania supplied the precast, prestressed concrete.

Communication and cooperation among the team members was critical to the project's success. Coordination meetings were held throughout the design process. Parking layouts were modified, framing was tweaked, and

column and frame locations were shifted to accommodate each team member's requirements as well as the overall project objectives. Construction commenced in three separate stages so that no more than 400 parking spaces on the existing surface lot were taken out of service at any given time. Once completed, each portion of the staged construction was opened for public service. The overall construc-

tion phasing was a great success, resulting in a beautiful, well-functioning parking structure completed on schedule at one of the nation's busiest airports.



## ***Oak Park"ing"***

Like many municipalities, the Village of Oak Park, Illinois strives to provide safe and convenient parking for its business districts. The cost of providing those parking services, unfortunately, continues to increase. Higher fees can offset the expense increases but they also have the potential of deterring valuable customers to retail districts in nearby communities. Oak Park is a densely populated community with over 5,000 housing units per square mile. Many of its housing units were constructed prior to 1940 when the demand for automobile parking was not an important consideration in community planning. The Village has an overnight on-street parking program in designated areas to cope with the shortage of off-street parking. The fees associated with this permit program are used to purchase land for new off-street facilities. These fees must balance the need to supply parking with the willingness of the residents to pay the fee.

The Village hired CEG to review its parking operation and recommend rates for its parking

assets. The rate review included parking fines, residential overnight permit fees, on-street meter fees, and fees for parking in its off-street facilities. The study commenced with two days of interviews with business, residential, and government representatives. These discussions provided valuable insight as to the goals and objectives of the stakeholders. The next step consisted of determining the utilization of existing parking assets. CEG staff measured the use of selected lots, on-street areas, and overnight residential districts. Following the surveys, the revenue and expenses from several years of the Village parking programs were carefully reviewed. Several CEG staff members have first-hand experience in operating parking facilities and this experience proved very useful in finding potential savings for the Village.

With the information gathered in the previous steps, the task of establishing rates began. The majority of stakeholders expressed a desire for a rate structure that would encourage turnover in retail areas. To meet

this objective, a progressive rate structure was recommended with economical fees for parking durations of three hours or less and much higher fees for vehicles parking longer periods of time. Rates for parking meters would vary depending upon the area of town. Core retail districts would have a higher hourly rate to discourage repeat metering. The rate for overnight on-street parking would be adjusted every three years to reflect changes in property values. The report also recommended a series of steps for the improvement of services and the reduction of expenses.

The report is currently under review by Village Officials. Once approved, it will provide the foundation of the Village Parking System.



## Tom D'Arcy Riding into the Sunset



It was on July 1, 1982 that Tom D'Arcy and Norm Scott renewed a business relationship that had begun over 20 years previously. As the first employee

of PCI in Chicago, Tom had worked for Norm getting the Prestressed Concrete Institute off and running from 1960 to 1964. Their friendship continued over the years, marked by competitive tennis matches, which Norm always won.

The San Antonio office of CEG opened in July 1982 with no work in hand, but big expectations. The office grew slowly and cautiously. In the early days, moonlighter Tomas Lopez did the drafting. Tom would drop marked up drawings in Tomas' mailbox in the evening and pick up the corrected ones the next morning. The first job was the design and detailing of a series of steel Monopole Transmission Towers spread throughout the Southwest. As the work load increased, Walt Korkosz was the first engineer hired, transferring from the Chicago office to the Texas frontier. Tomas Lopez, an old friend of Tom's

from San-Vel days in the late 1960's, then abandoned his moonlighting duties and joined the firm full time. With these solid men as the staff foundation, the work came in and the office eventually grew to a well performing crew of thirty. Focusing on parking structures throughout the United States, projects ranged from the Florida Keys to Maine to California. The work was balanced between specialty engineering on precast projects, Engineer of Record projects and investigations.

A signal structure in the growth of CEG was the redesign of a cast-in-place stadium in St. Petersburg, Florida. Norm, Tom, Jerry Goettsche and Les Martin spent an entire weekend together converting the cast-in-place domed structure, which was way over budget, to an all precast structure. Teaming with a Florida precaster, a presentation was made to the contractor. The precast solution was accepted and CEG was in the stadium design business. Over the next dozen years, in both the Texas and Chicago offices, CEG has engineered over 40 stadiums, including virtually every professional team stadium. In 2001 – 2002, CEG Texas completed the Texas "Tri-fecta-plus-one" providing the precast concrete engineering for the Spurs,

Rockets, Astros and Texans stadiums, all engineered by Walt. Other notable structures have been the specialty engineering for the two 2,500 car Mall of America parking structures and the complete structural frame design of the Detroit Metro 11,600 car parking structure.

A new client and structure type was added in 1990 with the design of the first prison for the Corrections Corporation of America, an INS Facility in Laredo, Texas. CEG Texas quickly became a leader in the design of all precast prisons, particularly the application of precast cell modules which they pioneered in the 1980's. Today, CEG has engineered over 100 precast prisons all across the United States, 30 alone with Corrections Corporation of America and good architect friend DLR Group of Omaha.

Over the years, the client base grew and continues to grow under the capable hands of Walter Korkosz who will assume the role of President this spring. Walt has long been the solid anchor of CEG's engineering efforts and will easily fill Tom's shoes as Tom slowly retreats to his home in Horseshoe Bay, Texas.

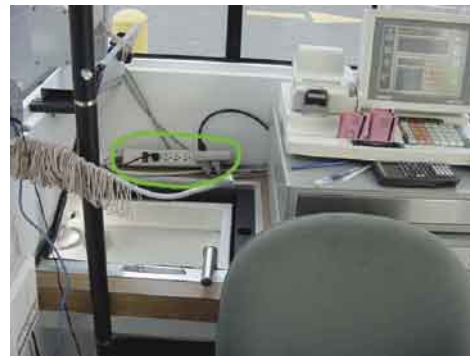
## Teaching Important Parking Secrets (T.I.P.S.)

The staff of CEG has been involved in hundreds of parking projects. This experience better enables staff members to assist parking administrators and developers with planning and operational issues. Over the years, staff members have assembled a collection of "TIPS" that we use when evaluating parking operations. A few TIPS are presented below. If you are facing operational challenges with your parking facilities, contact CEG for knowledgeable and cost-effective advice.

- Revenue is down. Missing tickets are up. You suspect a weakness in your revenue control equipment so you go out and purchase the latest fee computer. To further improve your revenue control, you also add a new barrier gate, loops, and detectors. The result – no decrease in the number of missing tickets. It's not until you notice that the fee computer, the heart of your revenue control system, is simply plugged into an electrical outlet that you suspect the real problem. The

next day, the fee computer is hard wired into the electrical system so it cannot be unplugged. Suddenly, the number of missing tickets rapidly decreases. Important revenue control equipment should be hard wired to prevent intentional misuse.

- Loops are the "hidden" component of a revenue control system. Usually buried and out of sight, they work in conjunction with detectors to provide counts and/or interface with other equipment. Loops are insulated wire and the wire can be damaged during installation. They can also break from earth movement. Sometimes the insulation surrounding the wire can deteriorate over time. To ensure your loops are working properly, check their operation at least once a year. Many digital loop detectors have a self-diagnostic feature that can identify loop problems. You can also physically count the vehicles passing over a loop and compare that number against the associated counter.



- Yes, it's important to keep barrier gates locked to prevent unauthorized entry or exit. It's also important for staff members to quickly raise the gate arm in the event of an equipment failure. To maintain revenue control and customer service, keep a key in a single-use security bag. These bags are available from several sources. The supervisor places a key in the bag and seals it. At each shift change, the security of the bag is checked. If the key is removed, a written explanation must be required. The supervisor must then investigate the incident and place the key in another bag. If the number of incidents becomes too frequent, further investigation of the cause is warranted.

# News Bites



The Consulting Engineers Group Inc.

- Congratulations to the following employees who received service pin awards at their respective Christmas parties: **Tom D'Arcy** 20 years, **Tomas Lopez** 20 years, **Peter Troiani** 20 years, **Richard Perez** 15 years, **Mike Malsom** 15 years, **Jeff Carlson** 15 years, **Kurt Gaerditz** 15 years, **Barbara Rauschuber** 5 years, **Tien Nguyen** 5 years.
- **Larbi Sennour** has been elected to the Chairmanship of the PCI Connection Details Committee. Larbi was also elected to be the Vice Chairman of the Civil Engineering Advisory Board at the University of Iowa.
- CEG is pleased to welcome **Siobhan Mooney** and **Brittney Curtis** to our Illinois office and **Al Contreras** to our Texas office.
- All of us at CEG would like to thank **Marge Rady** for her 22 years of service and dedication to CEG. Marge recently retired from her duties as our Administrative Assistant. *Enjoy Marge!*
- **Tomas Lopez**, one of CEG Texas' first employees, retired on February 15 after 20 years of service. He will take a much deserved one month sabbatical and then return on a limited basis to assist in transition planning. Tomas – you will be missed. *Enjoy your retirement!*

## CEG's New Philadelphia Office

In downtown Philadelphia, Pennsylvania, The Consulting Engineers Group, Inc. has opened up the doors of a new office. Christopher Kercksmar, P.E. will head the office. Chris recently relocated from CEG's San Antonio, Texas office. In an effort to better serve our existing clients, work with new clients and to further promote the use of precast, prestressed concrete in the area, CEG-Pennsylvania was established as an extension of our other offices.

CEG-PA is located adjacent to Center-City, Philadelphia's primary train station, which allows for easy access to and from the airport as well as access to the Amtrak National Rail System. Please feel free to contact and visit our new office. The Consulting Engineers Group looks forward to continuing to provide quality engineering services that exceed our clients' expectations.

With the addition of CEG-PA, The Consulting Engineers Group now has a total of eight offices.

### The CONSULTING ENGINEERS GROUP, Inc.

1800 JFK Blvd. • Suite 300 • Philadelphia, PA 19103  
Phone: 267-238-3827 • Fax: 267-238-3727 • Cell: 267-240-4770  
Email: ckercksmar@CEGpa.com • web: www.CEGengineers.com



**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:**  
Apple Valley, MN  
Tel: 952-240-1101  
Fax: 952-423-5061

Fort Lauderdale, FL  
Tel: 954-523-8347  
Fax: 954-523-1831

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

Cincinnati, OH  
Tel: 513-519-7979  
Fax: 513-231-6977

Horseshoe Bay, TX  
Tel: 830-598-6100

Philadelphia, PA  
Tel: 267-238-3827  
Fax: 267-240-4770

Website: [www.cegengineers.com](http://www.cegengineers.com)