



GREGORY J. LAKOTA, SE, PE Principal

Gregory Lakota has over fifteen years of structural design and construction phase service experience for a variety of project developments including: office, residential, hotel, retail and industrial facilities. In recent years, he has been instrumental in the preservation and reconstruction of Chicago's historic skyline. From concept through construction, Mr. Lakota's problem solving abilities have made him an integral part of Chicago's mission to build for the 21st century.

EDUCATION

Master of Science in Structural Engineering, University of Illinois – Urbana-Champaign, 1992
Bachelor of Science in Civil Engineering, University of Illinois – Urbana-Champaign, 1991

PROFESSIONAL REGISTRATIONS

Licensed Structural Engineer in Illinois
Licensed Professional Engineer in IL, MI, and MN

PROFESSIONAL ASSOCIATIONS

American Society of Civil Engineers
American Institute of Steel Construction
American Concrete Institute
Structural Engineers Association of Illinois
Chicago Building Congress

SELECTED PROJECTS



THE INDEX BUILDING Dubai, United Arab Emirates

Optimal structures for this mixed program were explored with the architect, Foster + Partners, before selecting this clear, architecturally expressed scheme. Six major 'fins' carry the weight of the entire 85-story tower and resist all wind loads — their tapering form is a direct response to the need for increased area and breadth at the building base. In the upper half of the tower, residential floors economically use conventional concrete flat slabs by introducing intermediate columns between the fins. At the mid-height lobby level, these columns stop and transfer their loads out to the fins, leaving the office floors below to span an incredible 85 feet (27 m) column-free between the fins. Expected completion 2008.



THE CHANDLER Chicago, Illinois

As part of the ongoing Lake Shore East Development, this 35-story concrete residential tower sits atop a five-level podium structure which will connect adjacent building bases to create a multi-level parking complex topped with new city streets and green space. Coordination of the new structure with existing and future neighbors, both above and below grade, proved challenging. HP's creative problem-solving and consideration of future structures helped develop a structural 'master plan' for the remaining development; streamlining the future coordination effort. Completed 2007.



CAJA MADRID Madrid, Spain

Working closely with Foster and Partners, an astonishing column-free base was created by supporting the entire weight of the building on only its two end cores. These heavily loaded cores allow the slender tower to efficiently resist wind loads. With a height-to-width ratio of 12 to 1, this 820 foot (250 m) tower is the ultimate in structural efficiency. To achieve this unique structure, steel trusses at intermediate mechanical levels channel loads from the floors above to the cores and serve as beams in a 'mega-frame' to stiffen the tower. Special attention was given to redundancy, insuring structural stability should localized damage fail components of these trusses. Expected completion 2008.



LOYOLA INFORMATION COMMONS Chicago, Illinois

Transparency is key in this new bookless library on the Loyola University Lake Shore Campus. The four-story, 80,000 square foot building will provide seminar rooms, computer terminals, group study and meeting spaces. The design intent, to maximize views from and through the building, challenges HP to develop a thin and attractive concrete structure. Concrete shear walls wrap the north and south "bookends" providing lateral stability and a backing for the traditional stone facade. Post-tensioned girders and custom precast floor planks create the thin barrel vault framing system. The thermal mass of the concrete barrel vaults is being used to heat and cool the building as part of a green mechanical system designed to help achieve a LEED certification. Completed 2007.



U-505 SUBMARINE RELOCATION, MUSEUM OF SCIENCE AND INDUSTRY
Chicago, Illinois

This complex project demanded transparent communication. The subterranean museum addition was fit between the historic museum, an underground parking garage, Chicago Department of Transportation's new Lake Michigan cut-off wall and the Lake Shore Drive renovation project. HP worked with multiple entities to address technical issues, including cutting existing garage wall tiebacks and underpinning museum foundations at the addition. Issues during construction also needed HP input, such as water retention challenges that arose related to adjacent work and the new basin walls that had to be analyzed for the temporary load conditions during the submarine's final descent. Completed 2005.



THE PINNACLE Chicago, Illinois

Minimizing the visual impact of structural elements on the building's exterior was a major focus in the design of this 50-story condominium tower. All lateral loads and roughly 50% of the gravity loads are carried by a small central core at the center of the building plan. Overturning forces due to wind are resisted by four shear walls extending from the core to the perimeter of the building. These shear walls are aligned with internal partition walls. The structure continues down through the parking levels without a costly transfer level. The structural form minimized the cost of the tower and visually reduced the scale of the large building. Completed 2003.



GATEWAY CENTER Chicago, Illinois

Located at the terminus of the CTA Red Line, this 400,000 square foot mixed-use facility includes retail, residential, parking, office, theater space and a new CTA station. The biggest challenge for this site was the requirement that over five million cubic yards of backfill material be placed on the site to achieve the required project grades. In addition to the expense, this solution would have resulted in unacceptable building settlements of up to eight inches over approximately five years. After exploring several alternatives, Halvorson and Partners devised a solution utilizing a structural polystyrene product; the first use of the product at this scale in Chicago, at a savings of over \$1,000,000. Structural systems for the building vary and include conventional cast-in-place reinforced concrete, post-tensioned concrete, structural steel and precast plank/masonry bearing wall systems. Completed 2003.



KOYANG INTERNATIONAL EXHIBITION CENTER Koyang, Korea

This winning international competition submission for an exhibition center incorporates five different structures. Each features an efficient structural and lateral system appropriate to its needs — a long span structure, a below grade structure, a tall structure with steel trusses and conventionally framed back-of-house spaces. The long span steel trusses elegantly and efficiently span the main exhibit areas, while the utilitarian spaces utilize columns, beams and slabs. Thermal stresses became a major analysis and design consideration for the expansive steel structures. Completed 2002.



REGENSTEIN AFRICAN JOURNEY Chicago, Illinois

The Lincoln Park Zoo's Regenstein African Journey was a complete renovation of its Large Mammal House. Built in the early 1970's, the original bare-bones facility had become outdated with current philosophies for animal conservation and display. The existing concrete structure was completely gutted — many existing columns, walls and roof framing members were removed and large roof openings for skylights were introduced throughout. HP's creative design for strengthening the existing concrete roof beams accommodated these changes, allowing the architect flexibility to reconfigure and open the space to create the new environment they envisioned. Completed 2001.