



STADIUMS & ARENAS



HIGHWAYS & BRIDGES



MARINE & INDUSTRIAL



COMMERCIAL BUILDINGS



Doing Big Things

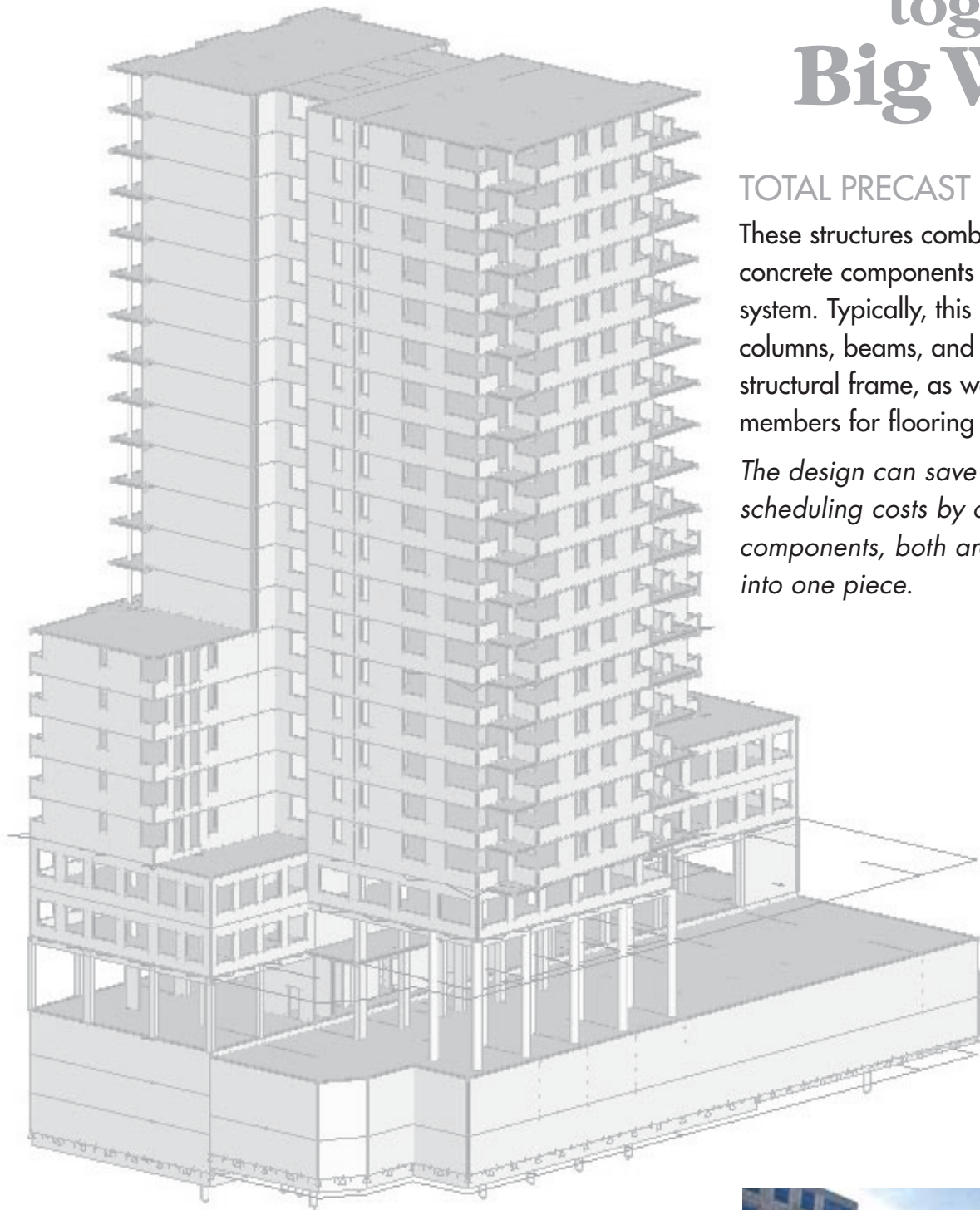


## Putting it all together in a Big Way.

### TOTAL PRECAST BUILDING SYSTEMS

These structures combine a variety of precast concrete components into an entire structural system. Typically, this includes precast concrete columns, beams, and wall panels to create a structural frame, as well as horizontal span members for flooring and roofing.

*The design can save material, labor, and scheduling costs by combining several components, both architectural and structural, into one piece.*



### COMPONENTS

Precast concrete components are reinforced with either conventional reinforcing bars, with high tensile strength strands, or a combination of both. The strands are pretensioned in the form before the concrete is poured. Once the concrete has cured to a specific strength, the strands are cut (detensioned). As the strands, having bonded to the concrete, attempt to regain their original untensioned length, they apply a compressive force. This "precompression" increases load-carrying capacity of the components and helps control cracking to specified limits allowed by building codes. Precast components are used in various applications and projects of all types.

### KEY COMPONENTS INCLUDE:

WALL PANELS, which can include an encapsulated layer of insulation and be load-supporting if desired.

SPANDRELS, which generally span between columns and are used with window systems in office buildings or in parking structures.

DOUBLE TEES, so named due to the two perpendicular "stems" under the flat horizontal deck. These tees are often used as deck / floor slates for parking structures and buildings where long open spans are desired.

COLUMNS AND BEAMS, various sizes of rectangular or square columns and numerous beam shapes.

PIERS, PILES, CAPS and other supporting foundation components.

STADIUM SEATING, which provides seating riser platforms for public venues such as arenas, performing arts centers and theaters.





## FOUNDATIONS

Precast Foundations are an excellent solution for poor soil conditions and eliminate the need for select fill. Suspended foundations are quickly and economically constructed with precast beams and double tee slabs. HEI's solution results in fewer piers and elimination of pier caps. Precast piles are used in place of drilled piers and support either suspended or cast-in-place slabs.

- Grade Beams
- Slabs



## FLOORING & ROOFING

Double Tees and Slabs form the intermediate floors and roof enclosures. Double tees provide long span capability enabling a more open floor plan. Moreover, floor penetrations are easy to position due to the extensive deck area available for coring. The overall result is maximum flexibility for tenant finish out.

- TT Double Tees
- Slabs
- ↘ Stairs



## STRUCTURAL FRAMING & WALLS

Precast Framing consists of columns and beams and is complemented by the use of load bearing exterior walls which eliminate the need for perimeter columns. Exterior load bearing walls, whether solid or insulated, support intermediate floors and roof as well as shear loads. Interior walls provide the same function and are typically used for stair and elevator towers and fire walls.

- CarbonCast® High Performance Insulated Wall Panels
- ▨ Load Bearing Exterior Walls
- Interior Shear Walls
- ▬ Spandrels
- ↑ Columns
- ▬ Beams & Girders



## STADIUM SEATING

Whether it's an outdoor stadium, an enclosed arena or a small theater or auditorium, precast seating risers and raker beams are versatile and supply the perfect solution for fast and economical construction of tiered seating platforms. They can be easily incorporated into a total precast building design.

- ↘ Seating Risers
- ▨ Vomitory Walls
- ▬ Raker Beams

### EXAMPLE HEI STADIUM PROJECTS:

- Cowboys Stadium, Dallas
- Reliant Stadium, Houston
- Minute Maid Field, Houston
- Toyota Center, Houston
- AT&T Center, San Antonio
- Kyle Field, North Endzone, College Station





## PRODUCTS & SERVICES

### Conceptual Design

There is no better time to consider the use of precast structures in your building than during the conceptual design phase. Decisions can be made with regard to concrete mixes for varying strengths, longer spans with less column intrusions, repetitive components, efficient shipping sizes, seismic considerations, finishes, costing, sustainability, LEED consideration, and project timing. Coordination between the architect and Heldenfels Enterprises at the onset of the project will allow the architect's vision to become a constructible reality.

### Budgeting, Scheduling and Estimating

Heldenfels Enterprises will assist in preliminary budgeting exercises at the beginning of the project and continue to quantify the cost-saving aspects of value engineering ideas throughout the preliminary design phase of the project. Component repetition, mix design, and combining architectural features with structural elements can result in significant cost reductions. Our estimators will work with your design team until the final budget is established.

### Engineering

Once the conceptual design and budget have been established, Heldenfels Enterprises assumes full responsibility for precast engineering; ensuring that integration of precast structures with the requirements of mechanical, plumbing, lighting, HVAC and other systems is readily achieved. Because of the uniformity of precast structures, detailed Building Information Modeling (BIM) can be effective. BIM allows enhanced project communication and streamlines the processes of structural component design, detailing, fabrication and erection.

### Fabrication

Precast production can begin as soon as the final design is complete, even as the site preparation is ongoing, thereby greatly accelerating the project schedule. By choosing a precast product, you have the assurance of superior production quality. Our controlled environment allows tighter tolerances and more stringent material testing. Heldenfels Enterprises is proud to be a Precast/Prestressed Concrete Institute (PCI) certified manufacturer. This certification is your confirmation that our plant has an ongoing quality assurance plan, meets stringent PCI audit requirements, and is committed to best practices.

### Delivery & Erection / Installation

A precast construction site requires expertise in logistics, planning, and safety. Heldenfels Enterprises is ready to assist you through the process of delivery and installation of your precast components. We begin with site assessment, routing, and scheduling to make sure that the components you need are available, on time, and meet your specifications.



## ADVANTAGES

- Speed of Erection
- All Weather Construction
- Project Coordination from Concept Through Completion
- Improved R-value for Reduction in HVAC Requirements
- Blast Resistance
- Minimal Maintenance Through Product Lifecycle
- Sound Dampening
- Mold Resistance
- Maximize Floor to Area Ratio (Long Clear-Spans)
- Fire Resistance (Lower Insurance Costs)
- Sustainability/Green Building (LEED Points)

## AWARDS & RECOGNITIONS

PCI Design Award - John F. Kennedy Bridge - 1973

PCI Design Award - Zulu Pier, Naval Station Ingleside - 1989

Aggie 100 - 2005 & Aggie 100 - 2006

PCI Design Award - Loop 340 Overpass (Four Bridges) - 2007

PCI Design Award - County Rd. 453 over Battleground Creek - 2007

Green Building of America - Excellence in Green Building - 2009

## HELDENFELS ENTERPRISES, INC.



Heldenfels Enterprises, Inc. provides great value in price, quality and service for precast/prestressed concrete structures that satisfy our customers' needs. Our company practices good stewardship by emphasizing our core values of integrity, dependability and innovation with our customers, team members, families and communities.

Heldenfels Enterprises has both the experience and infrastructure to tackle a wide range of projects working with innovative contractors and designers who have come to realize the flexibility, cost-efficiency and durability of our products. In addition to producing quality structures, it is a point of pride that Heldenfels Enterprises is known for taking on challenging projects that others may be unwilling to attempt because of complexity, scale, schedule, or risk.

## LEED - The Future of Stainability

### LEED 2009 Project Checklist

LEED CATEGORY	CREDIT OR PREREQUISITE	POINTS AVAILABLE
Sustainable Sites	Credit 5.1: Site Development—Protect or Restore Habitat	1
Sustainable Sites	Credit 7.1: Heat Island Effect—Nonroof	1
Energy and Atmosphere	Prerequisite 2: Minimum Energy Performance	-
Energy and Atmosphere	Credit 1: Optimize Energy Performance	1-19
Materials and Resources	Credit 2: Construction Waste Management	1-2
Materials and Resources	Credit 4: Recycled Content	1-2
Materials and Resources	Credit 5: Regional Materials	1-2
Indoor Environmental Quality	Credit 3.1: Construction Indoor Air Quality Management Plan—During Construction	1
Innovation In Design	Credit 1: Innovation in Design	1-5
Innovation In Design	Credit 2: LEED Accredited Professional	1