

VOIDED SLABS ARE AN ECONOMICAL PROBLEM SOLVER



**Solid slabs** are extremely heavy. This added weight puts strain on the slab itself.

It also exerts a great burden on the foundations and the framework of the building.

Fortunately, CobiaxUSA systems can provide a simple solution.

### **What if you could increase the unique advantages of a concrete structure while reducing volume and weight?**

This extreme weight not only puts a strain on the slab itself but also exerts a great burden on the foundations and the framework of the building. Creating engineered voids in concrete slabs, where most of the weight typically resides, introduces a huge opportunity to reduce cost and environmental impact without compromising performance.

Many other time and cost-saving opportunities exist through the use of this system, beginning with material production and construction and extending through the entire life of the building. From excavation to topping-out, the positive contribution of voided slab weight reduction alone delivers surprising advantages for owners, designers, and builders.

The following pages reveal examples of these solutions proven in a variety of projects across North America.



# One System. Many Solutions.



## Lighten The Load.

Just as at the University of Iowa Arts Center, pictured here, anytime weight can be reduced, time and cost will also be reduced. Voided concrete slabs accomplish this efficiently and without compromising safety, strength, stability, or sustainability. Few systems in construction have the capacity to deliver this degree of added-value by reducing dependency on natural resources.

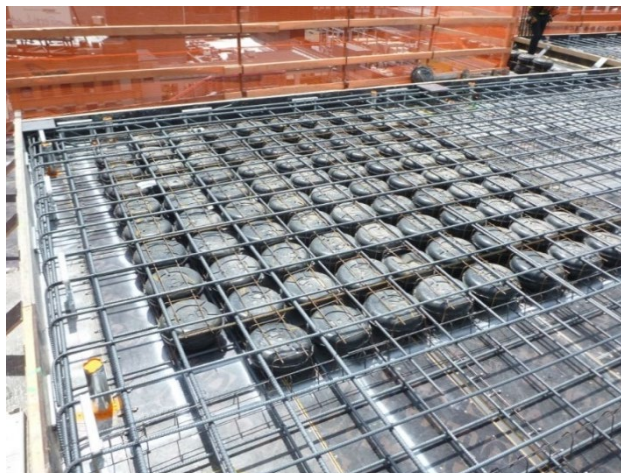
1. Longer spans
2. Lighter foundation
3. Smaller columns



## Clear Open Space.

At the Perez Art Museum in Miami, pictured here, voided concrete slabs provide an open floor plate with fewer columns and no beams to limit design and ultimate use possibilities. As needs change, your building is better prepared to adapt. If it can be imagined, voided concrete will make it happen more flexibility.

1. Fewer columns
2. Provides a flat soffit
3. Bi-axial flat plate flexibility

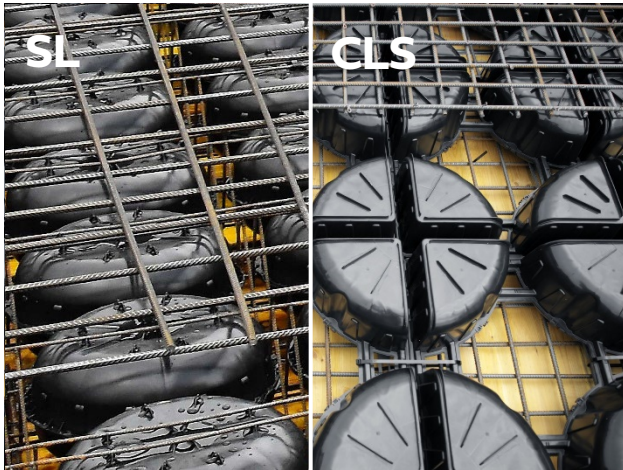


## Great Material Savings.

Voided concrete slabs means greatly reduced cost for concrete and steel as well as a large reduction in the cost and environmental impact from their production and transport to the job site. When concrete voids are combined with post-tensioning, both concrete and post-tensioning quantities are significantly reduced.

1. Lowers vertical costs
2. As much as 30% less concrete
3. As much as 10% less reinforcing weight

# Focused on Efficiency and Sustainability.



## Simple Formwork Solution.

Concrete formwork constitutes a large percentage of in-place concrete cost. Flat concrete voided slabs simplify formwork by eliminating beams and the labor required to form them. The time savings created by the use of voided flat slabs, with their simplified formwork, clearly have a beneficial impact by improving project schedules.

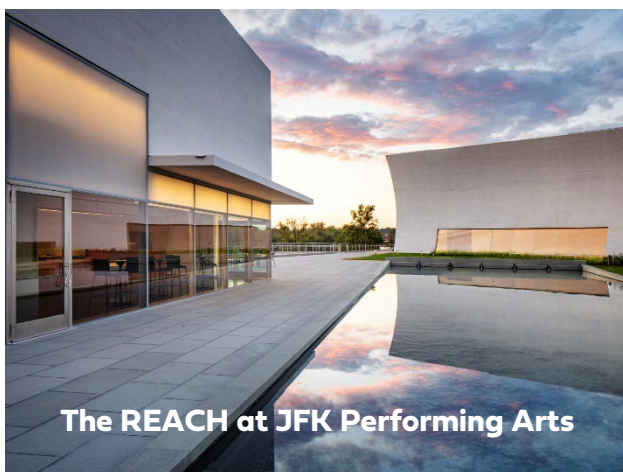
1. Simplifies forming
2. Faster framing cycles without beams
3. System use is simple and highly reliable



## Positive Impact on the Environment.

Voided concrete slabs rely on recycled materials and generate far less waste. Beginning with voids made of 100% recycled plastic, this approach lowers the building's carbon footprint and makes good use of abundant materials. Material reduction extends to both concrete and steel in construction and at the end of a structure's useful life.

1. 100% recycled void formers
2. Reduces carbon impact
3. Contributes to LEED certification



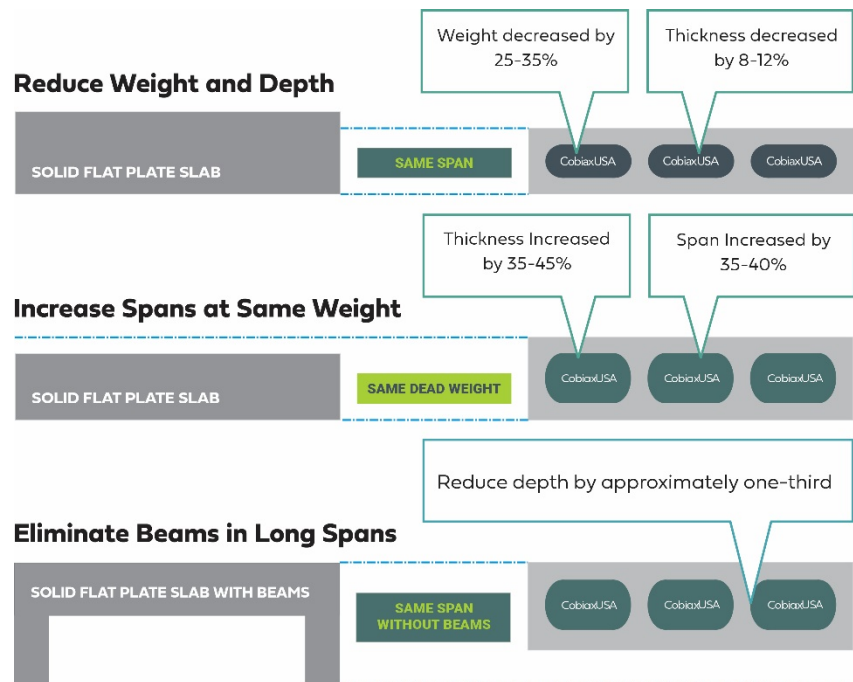
## Life Cycle Benefits.

Setting an example at The Reach in Washington DC, pictured here, concrete buildings last and voided concrete slabs maximize the flexibility of these buildings to meet ever-changing demands. This unique capability can dramatically extend a building's useful life and ROI. Voided concrete slabs and post-tensioning systems complement each other to efficiently reduce structural depth.

1. Lowers ongoing energy costs
2. Reduces maintenance
3. Reduces structural depth

# Solutions In Common System Applications.

**See for yourself.** In these illustrations, we compare solid reinforced concrete slabs and Cobiax® reinforced concrete slabs. You'll immediately notice several considerable differences.



- **Reduced vertical loads** reduce column and foundation sizes and earthquake reinforcing.
- **Flat plate design** minimizes costly/time-consuming vertical formwork, a major cost component.
- **Reduce weight up to 35%** from that typical with solid slabs.
- **Expect up to 15% less load** on building foundations.
- **Gain design freedom** from greater floor planning flexibility.
- **Achieve up to 65 ft span length** with post-tensioning.
- **Longer spans with reduced deflections.**
- **Require fewer columns.**
- **Resource efficiency** through reduced concrete and reinforcement throughout.
- **When voided concrete slabs and post-tensioning team up**, the required post-tensioning is 25% less than for solid slabs.
- **Lower floor-to-floor heights** reduce vertical costs.
- **Achieve more effective retrofitting.**



# Proven Project Success Stories.



## Columbia University Medical and Graduate Education Building, New York, NY

“With no two floors alike, the Cobiax voids helped realize the vision of the project by enabling the use of simple, flat formwork to construct the long spans and cantilevered slabs. The voids also reduced the slab’s concrete volume, which saved weight and resulted in less PT and rebar.” — Michael Hopper, Associate Partner, LERA

### ARCHITECT:

- Gensler
- Diller Scofidio + Renfro

### ENGINEER:

- Leslie E. Robertson & Associates (LERA)

### BUILDERS:

- Sciami
- DiFama Concrete



SCAN ME



## 24 Second Avenue, New York, New York

“The use of the Cobiax USA voids allowed us to have larger spans and keep the building off caissons. The developer wanted an open layout that we were able to accommodate with the voided flat plate.” — Borys Hayda-Partner, DeSimone Consulting Engineers

### ARCHITECT:

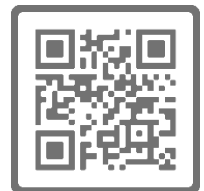
- RSVP Architecture Studio
- N-Plus Architecture

### ENGINEER:

- DeSimone Consulting Engineers, PLLC

### BUILDERS:

- Aore
- IBN Construction Corporation



SCAN ME

# Proven Project Success Stories.



## The REACH at JFK Performing Arts Center, Washington, DC

“Cobiax void forms were used extensively throughout the REACH to help achieve the Kennedy Center’s and the Architect’s vision. The use of void forms with and without post tension provided the design team with the flexibility to achieve the form and function of the interior spaces, creating long-span, column-free spaces, all while supporting landscape and plaza loading.”

— Jeffrey A. Beane, PE, SE, Silman Engineers

### ARCHITECT:

- Steven Holl Architects

### ENGINEER:

- Silman Engineers

### BUILDERS:

- Lane Construction



SCAN ME



## Jorge M. Perez Art Museum, Miami, Florida

“The voided slab approach economically stretched the limits of concrete construction on this project. The resulting long spans enabled the large spaces envisioned by the architect, for example, a 45’ x 100’ open gallery. The use of voided slabs was key to meeting the challenge of controlling the self-weight of the concrete structure. This approach held the structure’s weight within the limits of the auger pile foundation.”

— Mike Mota, Ph.D., P.E., S.E.

### ARCHITECT:

- Herzog and de Meuron

### ENGINEER:

- Arup USA

### BUILDERS:

- John Moriarty & Associates
- Baker Concrete/RSI
- Titon Builders, Inc.

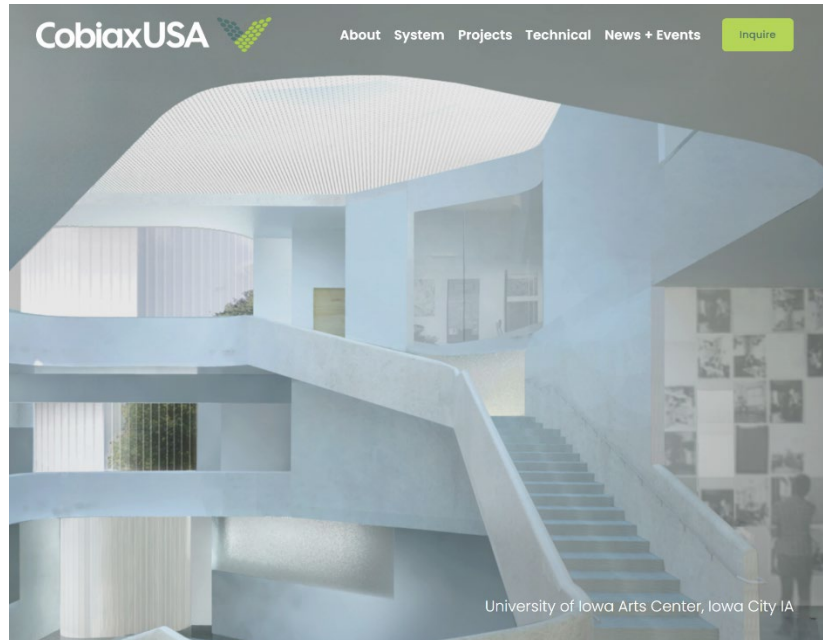


SCAN ME

# There Is More to Know About Voided Concrete Slabs. You'll Find It Here.

## CobixUSA Website

A convenient system information resource for design and construction professionals.



## CobixUSA Design Professionals

System expertise and experience you can draw upon to create the most economical solution for your project.

**Michael A. Russillo, P.E.,** President

Mobile: 201- 390-3188

[mrussillo@cobixusa.com](mailto:mrussillo@cobixusa.com)

**Mike Mota, Ph.D., P.E.,** Vice President,

Director of Engineering – Partner

Mobile: 856-264-3851

[mmota@cobixusa.com](mailto:mmota@cobixusa.com)

**Headquarters**

90 Pleasant Street, Dedham, MA 02026

**781.381.0111**

**CobixUSA**   
COBIAXUSA.COM