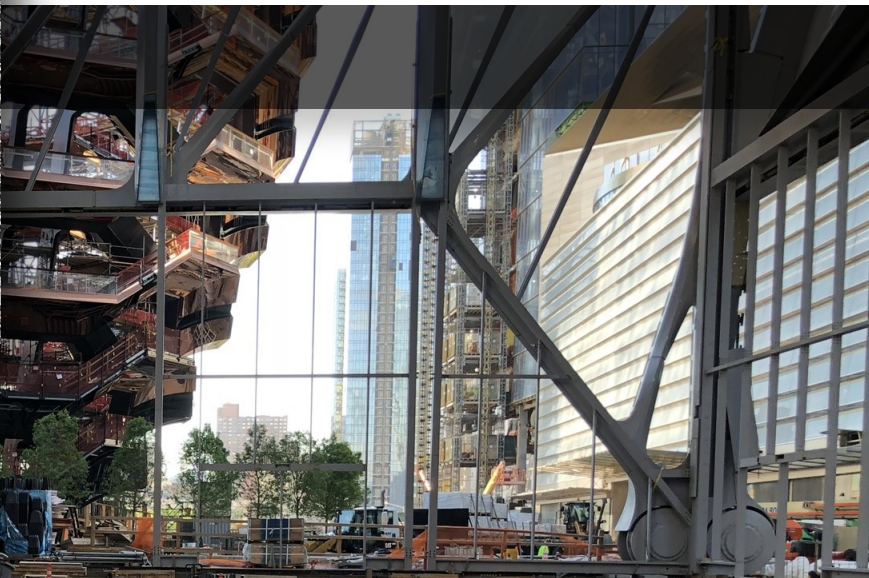




# ENGINEERED GRADE-SUPPORTED CONCRETE FLOORS



Properly cures concrete  
improving strength,  
durability, water tightness,  
and wear resistance

 CUPOLEX®

# THE CUPOLEX® SOLUTION

The concrete industry has the strongest incentives to encourage the highest standards of workmanship, because the construction of grade-supported concrete floors focuses on concrete performance. The shortcomings of most slab-on-grade construction rely more on faults or oversights of workmanship than to inherent shortcomings in concrete.

CUPOLEX® offers value engineering and cost-effective structural design solutions for the cement and construction industry to be more sustainable and resilient to climate change. Over the past three decades, engineered CUPOLEX® designs have become an increasingly popular slab-on-grade method.

## DESIGN FEATURES

- Engineered to perform under compression and not in tension when loaded on slab-on-grade applications
- Engineered to maximize control of concrete curing resulting in reduction of slab curling and shrinkage cracks
- Design of grade beams or drop panels are integrated in the design of the system eliminating the need to box form or trench haunches in the subgrade.
- Designed as a monolithically poured floor structure
- Designed for any type of high distributed and/or concentrated racking loads and forklift loads
- Post loads, concentrated loads, bearing and shear stresses for CUPOLEX® slabs are computed using design methods to verify all stresses are within allowable limits
- Engineered to retain moisture in the slab so that the concrete continues to gain strength.



## APPLICATIONS

- **Grade-supported floor slabs**
- **Slab-on-grade PT foundations**
- **Raised floor slabs on raft foundations**
- **Foundation supported structural floor slabs**

CUPOLEX® aerated floor systems can be designed for any type of building foundation construction. CUPOLEX® provides excellent flexibility in working with new construction or remodeled building layouts. The main characteristics of the forming system are speed and simplicity, with maximum benefits being realized when the CUPOLEX® system is engineered during the early design stages in assessing site and soil conditions and considering elevations of various sections of the slab area that may have to be raised. For example, if strip footings, walls or other typically formed sections can be incorporated within the system, cost savings and environmental benefits can be realized.



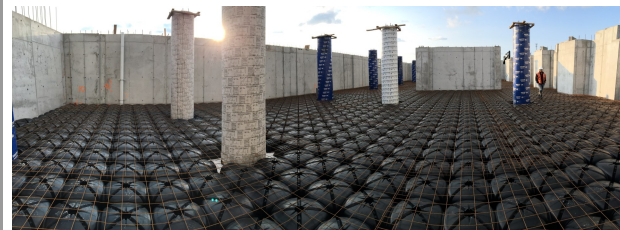
## BENEFITS

- Engineered to provide a capillary break from the subgrade and concrete to protect concrete from moisture damage
- Contributing to reduced CO<sub>2</sub> emissions.
- Replaces fill or gravel that is typically required to bring the slab to grade and eliminates the costs associated with importing, compacting and certifying engineered fill.
- One truck of CUPOLEX® replaces on average 60 trucks of gravel or fill.
- Provides an excellent moisture barrier sub-slab void that can be drained or vented in soil with high water content



## ADVANTAGES

- Thickened slab sections are integrated in the design of the system eliminating the need for trenching
- Simplify post-construction installation of new utilities below slabs
- Delays drying shrinkage until the concrete is strong enough to resist shrinkage cracking.
- Properly cures concrete improving strength, durability, water tightness, and wear resistance.
- CUPOLEX® designs do not impact the use of power troweling machinery such as a walk-behind or a ride-on trowel.
- Screed equipment such as small ride-on or walk-behind as well as Truss Screeds can be used with the CUPOLEX® concrete formwork. Large screed machines can also be used if floors are placed in long alternating strips





# EFFICIENT INNOVATIVE & GREEN

We deliver cost-effective floor slab design solutions that are engineered to maximize control of concrete curing resulting in reduction of slab curling and shrinkage cracks

CUPOLEX® is a proprietary patented plastic concrete forming system manufactured by Pontarolo Engineering Inc. The concrete forms are part of a design package provided by CUPOLEX®. Our engineers design the aerated floor slab using CUPOLEX® structural dome technology. We select the type and size of CUPOLEX® forms that will provide the ultimate performance for your specific project. CUPOLEX® supplies the forms to contractors to assemble the system as to the design and specifications provided by the CUPOLEX® design engineers.

The resulting product is an engineered concrete floor slab capable of providing any required design load-bearing capacity. CUPOLEX® concrete slab foundations can be designed at various depths to suit any site conditions or venting mitigation requirements.

## CUSTOMIZED DESIGN PACKAGE

- **Design Application Analysis** – Our firm helps clients determine the Engineered CUPOLEX® system solutions that address specific site needs.
- **Value Engineering** – CUPOLEX® works with value-engineering at the forefront of each project. We provide the best alternatives for every project.
- **Structural Systems Evaluation** – Every project is unique. Our team reviews multiple structural CUPOLEX® systems to determine the best fit for each project.
- **Preliminary Structural Design** – We work with our clients and their designers to determine the performance of a given CUPOLEX® structure under the prescribed loads and/or other effects or requirements while using principles of statics, dynamics and mechanics of materials to determine the size and arrangement of CUPOLEX® structural elements.
- **Material & Cost Estimating** – Our collective experience helps us to provide our clients with material recommendations to reduce costs while maintaining the function of the CUPOLEX® structure.
- **Engineered Design Drawings** – Issued for construction (IFC) and supported with FEA structural calculations, PE stamp, construction documents and specifications.
- **CUPOLEX® Installation Shop Drawings** – With detailed CUPOLEX® formwork installation procedures issued to contractors.
- **Onsite Support** – Construction training, monitoring and inspections for successful construction, and we present the information in a comprehensive report.
- **Construction Administration** – We provide responses to request for information and interpretation of CUPOLEX® design drawings, with completion statements and regulatory compliance reporting where required.