

ENGINEERED CONCRETE FLOORS



Commercial
Warehouses
Manufacturing

 CUPOLEX[®]

The CUPOLEX® SOLUTION

Industrial CUPOLEX® floors are designed for very high distributed and/or concentrated racking loads and forklift loads. CUPOLEX® offers engineered concrete-designed structural systems for industrial and manufacturing warehouse floors. Both grade-supported concrete floors or structural deep pile/geo-pier foundation supported floors can be designed, as well as non saw cut and super-flat floors. Screed equipment as well as Truss Screeds can be used with the CUPOLEX® formwork

ADVANTAGES

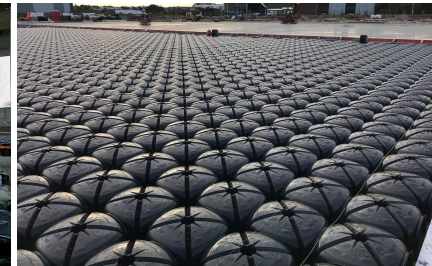
- Provides an excellent moisture barrier sub-slab void that can be drained or vented in soil with high water content
- Simplifies post-construction installation of new utilities below slabs
- Simplifies placement of reinforcing during construction
- Thickened slabs sections are integrated in the design of the system eliminating the need for trenching
- 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



CUPOLEX® DESIGN FEATURES

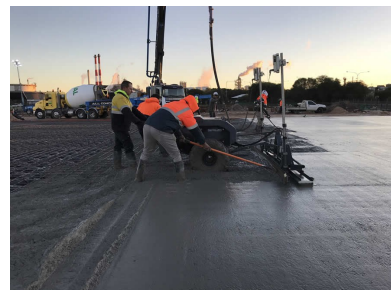
In commercial or industrial settings slabs usually have special requirements based on the loads or flatness or levelness required. To get a slab that meets these requirements, the contractor will use special techniques in placing and finishing the concrete. Commercial or industrial floors can also have special requirements for surface hardness, finish, and even colour. Some large box stores such as Walmart, for example, have a specification for their exposed concrete floors that incorporates colour, surface densifiers, and a hard troweled finish. These type of clients have high expectations for everything and their concrete floors are no exception.

Commercial / Industrial (C/I) CUPOLEX® floors can be designed as grade or deep foundation-supported floors. Suspended CUPOLEX® floors on grade are designed as one-way or two-way joist ribbed floors. These types of floors are designed with integrated reinforced ribs, grade beams and/or drop panels which are supported by a deep foundation scheme. CUPOLEX® forms allow the contractor to achieve flatness and levelness values on these floors since the forms do not deflect under the weight of the concrete.



DESIGN PERFORMANCE

- Designed for any type of high distributed and/or concentrated racking loads and forklift loads
- Designed to perform under compression and not in tension when loaded on slab-on-grade applications
- Designed to maximize control of concrete curing resulting in reduction of slab curling and shrinkage cracks:
 1. It retains moisture in the slab so that the concrete continues to gain strength.
 2. It delays drying shrinkage until the concrete is strong enough to resist shrinkage cracking.
 3. Properly curing concrete improves strength, durability, water tightness, and wear resistance.
- CUPOLEX® floors are typically placed in long alternating strips to achieve flatness and levelness values
- CUPOLEX® designs do not impact the use of power troweling machinery such as a walk-behind or a ride-on trowel.
- Screenshot 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.
- Post loads, concentrated loads, bearing and shear stresses for CUPOLEX® slabs are computed using design methods to verify all stresses are within allowable limits





STRUCTURAL SYSTEMS FOR INDUSTRIAL AND MANUFACTURING WAREHOUSE FLOORS

We design industrial concrete floors that have special requirements based on the loads or flatness or levelness

The CUPOLEX® Floor 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®. CUPOLEX® engineers design the concrete floor by sustainably engineering the geometry of concrete using CUPOLEX® structural dome methodology. On a site-specific basis, CUPOLEX® engineers select the type and size of CUPOLEX® forms necessary to meet the required voids and elevation and that will provide the ultimate performance for your project. The forms are supplied to contractors by CUPOLEX® to assemble the concrete cast-in-place floor, as to the design and specifications provided by the CUPOLEX® design engineers.

CUPOLEX® forms are custom made to meet your site-specific requirements such as varying depths, weather, special accommodations for ventilation, special requirements for delivery and logistics, supporting working-load capabilities and any special impact resistance during installation and placement of the concrete.

CUSTOMIZED DESIGN PACKAGE

- **Value engineering**
CUPOLEX® engineers review each project, provide value engineering, and identify the type and size of CUPOLEX® forms for every project
- **Preliminary drawings**
Design coordination, conceptual designs, sections and details provided to designers
- **Engineered design drawings**
Issued for construction (IFC) and supported with FEA structural calculations, PE stamp, construction documents and specifications
- **CUPOLEX® installation shop drawings**
Issued to contractor with detailed CUPOLEX® formwork installation procedures
- **On-site Support**
Construction training and inspections, with completion statements and regulatory compliance reporting where required