

Producers of COREFLOOR HOLLOW-CORE SLAB
PRESTRESSED CONCRETE SLAB SYSTEMS

CAMBER

PCI MNL 120, the PCI Design Handbook , Precast and Prestressed Concrete, 7th ed., Section 5.8 Camber and Deflection addresses camber as follows:

Most precast, prestressed concrete flexural components will have a net positive (upward) camber at the time of transfer of prestress, caused by eccentricity of the prestressing force. This camber may increase or decrease over time, depending on the stress distribution across the component under sustained loads....

....There are many inherent variables that affect camber and deflection, such as concrete mixture, storage method, elapsed time since release of prestress, elapsed time since placement of superimposed loads, relative humidity, and the like. Because of this, calculated long-term values should never be considered anything other than estimates. Non-structural components attached to members that could be affected by camber variations, such as partitions or folding doors, should be placed with adequate allowance for variation. Calculation of topping quantities should also recognize the imprecision of camber calculations.

Addressing Camber in the Design Phase

The starting point for design of structures with hollowcore plank, once the required superimposed loads are determined is to consider the span to depth ratio. PCI recommends a span to depth ratio less than 40.

For StresCore products, this equates to the following spans for each plank depth:

6" hollowcore → 20'-0" span

8" hollowcore → 26'-8" span

10" hollowcore → 33'-4" span

12" hollowcore → 40'-0" span

Even though the plank may structurally support the required design loads at a given span, the plank design may result in significant camber. Therefore, a better design choice, when considering camber, may be to specify a deeper plank.

Addressing Camber in the Field

Once the plank are set, detailed, and grouted, the placement of topping must account for the existing camber. This can be done by one of two ways 1) Place the minimum topping thickness at the point of greatest camber and pour the floors level 2) "Crown" the topping at the point of greatest camber and slope the topping to the bearing ends. If the concrete topping is composite, verify the minimum thickness necessary for the superimposed design loads with StresCore, Inc.

