

Hollowcore 101



Hollowcore is the most versatile of all Oldcastle Precast concrete products

Speed of construction for hollowcore plank is unprecedented. No other flooring system can match the installation rate per day.

Versatility. You can design plank to work with steel, masonry, CIP, metal stud or precast building components.

Clear spans. Column free interior space provides design freedom and lets you maximize the use of your space now and in the future.

Durability. Hollowcore plank is resistant to nature from termites or

hurricanes to high winds and seismic events.

Fire safety. Concrete does not burn and can never be turned off or malfunction. Hollowcore plank has a minimum 1.5 hour fire rating. A structural topping can increase that up to a 4-hour rating.

Efficiency. Run the numbers and estimate your next project in Oldcastle Precast hollowcore plank. Savings in cost and time will keep your project on time and under budget.

Common Practice: Camber

Whether you know it or not, floors are the

key element when it comes to architectural freedom and design: their load bearing capacity has a direct influence on the need for partition walls and other structural elements of a building. Hollowcore slabs are prestressed floor elements with voids. The excellent load-bearing capacity and structural efficiency allows you to build large areas with fewer partition walls. Ultimately, this means greater freedom in design and architecture during and after construction as well as savings in material costs.

See our web site for additional topics on hollowcore plank: installation, toppings, openings, finished floors, specifying and more.

Locations:

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Camber is inherent in all prestressed precast products. It is the upward deflection created by the prestressed forces in the strands located below the center of gravity. This is required to resist design loads and in the hollowcore plank it compresses the bottom more than the top. Span length, plank thickness and design load requirements will determine the amount of prestressing force needed in the plank, from which the engineer can calculate an estimated camber. The benefit of camber in prestressed precast concrete products is that it allows for longer spans, shallower depth sections and higher load carrying capabilities than conventional building materials. Camber should not be specified as a design parameter.



Get to know more about Hollowcore design and its effects on camber.

Differential Camber

Differential camber refers to varying amounts of camber between adjacent hollowcore planks. Camber differences occur because no two planks have the same exact strength gain, creep and exposure to the elements in storage. Planks in the yard exposed to direct sunlight will experience more camber growth than plank in the shade. Adjacent planks with different span lengths will differ in camber as will those with different prestressing strand patterns.

Specify realistic design loads to avoid overly conservative load requirements.

Limit plank span to depth ratio to 45. Increase plank thickness if necessary.

Increase 2-inch topping overlays if maximum plank camber exceeds 3/4 inch. Plan finished floor elevations accordingly.

Theoretical Camber

Theoretical camber is the calculated upward deflection based on relevant design parameters. It is time dependent due to the curing of concrete and can vary significantly from actual camber on site.



The optimal storage time for plank in the yard is 2 to 3 weeks. Extensive job schedule delays and increased storage time can lead to camber growth. This is especially true in the early summer where warmer temperatures and low humidity accelerates the curing process.

Minimize differential camber by one or more of these methods: jack up low pieces; shim shorter planks at bearing; flash patch ; apply self-leveling course.

Important Considerations about Camber

Minimize differential plank camber prior to grouting keyways by one of more of the following methods: use temporary shoring to jack up low planks; use sandwich plates and bolts at mid span to draw planks vertically together; shim shorter and low planks at bearing points; flash patch (feather) joints between adjacent planks; apply self-leveling coatings (gypcrete) or use structural topping.

Advise subcontractors installing door frames to account for plank camber and topping if any.