

Hollowcore 101



Engineer your Openings for a Successful Plank Project

A wide variety of opening sizes and configurations can be accommodated using an Oldcastle Precast hollowcore floor system. They range from “large” openings (>10-inches) to small core drills.

Most common large openings include: HVAC, plumbing and electrical chases, hatch access at roof, trash chutes and skylights.

Small core drill openings include single plumbing risers, electrical lines, radiant heat tubing risers and roof drains.

The general contractor and other trades are responsible for design coordination and field layout of all openings. Oldcastle will show openings larger than 10-inches square on shop drawings if supplied early. Additional openings not shown on returned approved shop drawings must have written approval from Oldcastle’s engineer.

General contractors and other trades must field locate all openings prior to cutting them. Oldcastle can cut large openings if included in the scope of work.

Common Practice: Openings

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.

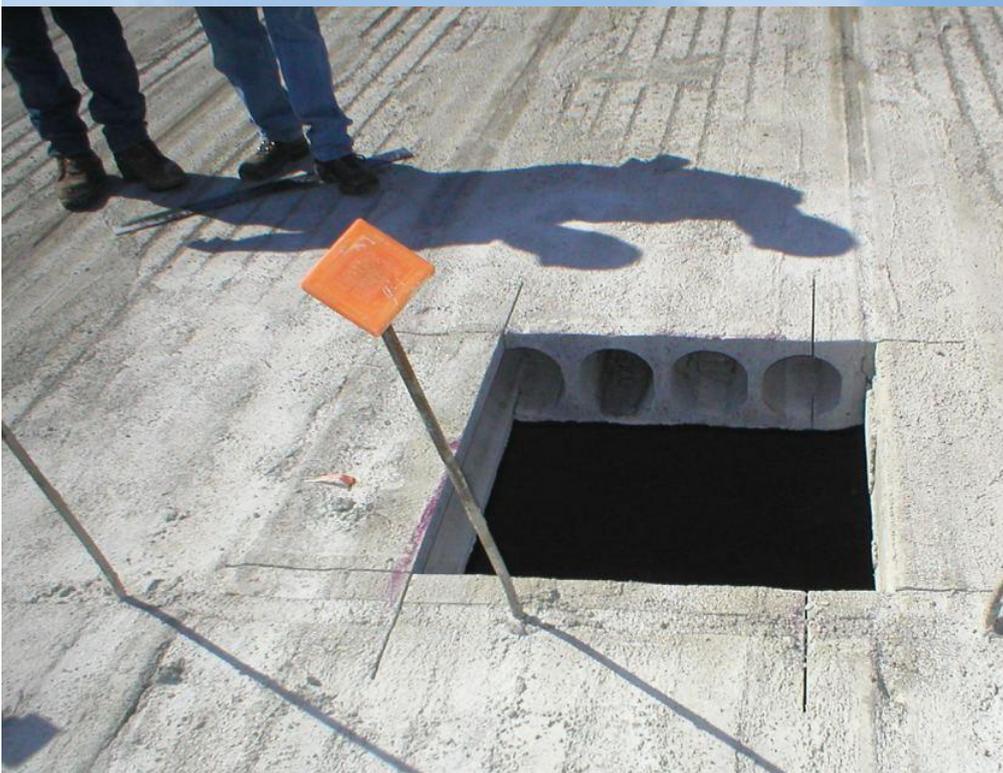
See our web site for additional topics on hollowcore plank: camber, toppings, finished floor systems, specifying, installation and more.

Locations:

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The best place to locate large openings is near the bearing point. This location has the least design impact to the floor system. Large openings near the bearing may require solid concrete areas that are done either in the plant prior to shipping or in the field after installation. Large openings near the mid-span of the plank will require more prestressing and will impact camber.

Small core drilled openings can be placed anywhere provided they are located in the hollow void of the plank and are small enough that they do not cut any prestressing strand. Any core drilled openings that cut through the strand must be accounted for in the design of the plank and carefully monitored in the field. Any core drilled opening that cuts prestressing strand that was not accounted for in design needs the immediate review of Oldcastle's engineer. For multiple cores concentrated in one area, it is recommended that these are aligned and bunched together in order to reduce the amount of coring perpendicular to the spans.

Important Considerations for Openings

Keep openings away from areas where the plank supports wall and point loads.

Headers are only intended to assist the construction process, and should not be misconstrued as the primary support component of the opening.

Minimize the length of the opening transverse to the plank span. A longer narrower opening is almost always better than a shorter wider one. Minimize the amount of corner overcut. Excessive overcutting may cut more strand than is feasible. In some cases this may require coring of the corners at a large opening to ensure that there is no over cut potential.



Get to know more about

Openings in Hollowcore Plank

Locating Openings

Openings are a critical component to the design and layout of hollowcore plank. It is extremely important to give Oldcastle Precast all required opening sizes



and locations as early as possible in the design process. It is also recommended that the locations of penetrations are properly coordinated early enough so that the precast can be properly designed. However, it is possible that some openings may need to be moved or re-sized for structural reasons. Penetrations can affect the following design aspects: thickness; amount of prestressing; fire ratings; camber; composite topping; solid cores; redistribution of loading; steel headers; and layout of plank.

Layout all openings prior to cutting and verify if additional strands are going to be cut.

Continually monitor other trades that are doing core drilling in the plank. A series of core drills may inadvertently cut consecutive strand if not properly located. Verify that every penetration is actually needed prior to cutting. Filling in of unnecessary holes can be costly and may have structural implications.

Penetrations can affect fire rating; camber; prestressing strand; steel headers; solid cores; topping; thickness; redistribution of loading and plank layout.