



HOLLOWCORE

Plank



POCKET GUIDE

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What is hollowcore plank?

Hollowcore plank is a prestressed concrete product for use on floors and roofs. It is machine extruded and saw cut to specified lengths for each project. Four-foot widths are standard but based on building layouts, narrower pieces (split pieces) can be accommodated.

Hollowcore planks from Oldcastle Infrastructure are made in our automated, state-of-the-art, PCI certified manufacturing facility. Production in a controlled environment using high-strength concrete and strand guarantees a product that is built to last.

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WHY hollowcore?

Thousands of residential applications throughout the Northeast have been built utilizing Hollowcore plank. Hollowcore's long, clear spans provide greater design flexibility by creating large open spaces below that can be used for additional parking, storage, shop and living space.

What will you make room for?

- Entertainment Areas
- Security Rooms
- Work Shops
- Home Theaters
- Home Gyms
- Wine or Food Cellars
- Additional Storage
- Additional Garage
- Hobby Areas
- Indoor Sport Areas

**Speed-up Construction**

The installation process takes less than a day.

**Build Safer**

Hollowcore plank + 2 $\frac{1}{8}$ " concrete topping has 3-hour fire rating.

**Dream Bigger**

Hollowcore Plank is compatible with standard construction materials such as concrete, steel, and masonry to extend project possibilities.

**Break Free**

Hollowcore Plank is unsurpassed for its ability to provide clear spans and open, column-free interior spaces.

**Worry Less**

When you choose precast hollowcore planks for your project, you are choosing a product that is resistant to termites, fire, rot, mold, and weather.

**Enjoy in Peace**

Its unique design makes hollowcore is resistant to high levels of sound transmission.



The most common size for residential applications is 8", with spans up to 30'.

Oldcastle Hollowcore Planks are manufactured in standard depths of 8", 10", and 12". The depth required for your project is dependent on plank spans and loading requirements.

Based on 100 psf design load

Refer to Oldcastle Elematic Load Tables for additional information.

Spans by size

8" plank: 30' span length

10" plank: 35' span length

12" plank: 40' span length



NOTE:

Live Load design requirements for residential garage floors are typically 50 psf and 3.0 kip concentrated wheel load. Oldcastle Infrastructure hollowcore plank is designed for additional loads such as un-bonded concrete topping, and walls and roof that are to be supported by planks. Project specific loading, such as car lifts, can also be accommodated.

Ordering hollowcore plank from Oldcastle is a simple and straightforward process.



**Provide
dimensions**



**Place
order**



**Approve
drawings**



**Schedule
delivery**

Dimensions

The General Contractor must provide Oldcastle with a plan showing all dimensions on your project; the type and thickness of bearing walls, the size and locations of any beams, as well as sizes and locations of any openings in the floors.



Ordering

When placing your order, provide a schedule and final plans with a map to properly locate your project. Oldcastle will prepare and submit for your approval, an erection drawing showing your plank layout with dimensions and details.

ORDERING





Review

Completely review and check all dimensions and details on the drawing submittal. Mark any changes and discrepancies, return promptly and provide a signature for approval on the drawings (approved, approved as noted). Your project will not be manufactured until your written approval is provided.



Schedule

Confirm the delivery / installation schedule requirements when you have assurance of a completion date for your walls. Take into consideration that concrete and masonry walls require curing time prior to plank erection.

Design considerations:

■ Notches and openings

Plank notches may be required for your project, and will be cut in the plant prior to shipping. Due to tolerances in product and field, additional trimming may be required on site.

Openings in planks for mechanical trades are accommodated during the design phases, (refer to section below on openings).

Installation

The installation process for a small residential application will take less than a day.

An experienced installation crew hoists the planks from a flatbed trailer, and places them directly on the support structure, making all necessary plank to wall connections. Plank to plank joints are first leveled and then grouted, allowing for a monolithic floor system.

Bearing

Hollowcore plank requires minimum 3" bearing on concrete and masonry. For masonry bearing, a bond beam is required. A multi-monomer plastic strip is placed on the wall ½" from the inside edge to ensure proper bearing.

Cold weather

Cold weather locations may require insulation at the entire perimeter of the floors. Consult your designer.

Waterproofing

For garage and/or roof: A waterproofing membrane is recommended to be installed on top of the plank prior to placement of concrete topping. This membrane is commercially available and should be capable of flexibly bridging the insulation and small gaps around the perimeter of walls. It should return up the walls and terminate at the top of the topping slab.



■ Garage floors

For garage floor applications, a minimum concrete topping thickness of is 2" and must slope to the garage door to ensure drainage and prevent ponding of water.

■ Grout

Grout keyways with 3,000 psi concrete (1:3 ratio of cement to sand). Grout mixes should not contain any stone aggregate.

Perimeter spaces more than 1" wide can be filled with grout or with the concrete topping pour.





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Planning

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Proper planning is key to ensuring that any project using hollowcore plank is completed safely, successfully, and on-schedule.



Have you considered:

- Site conditions
- Access routes
- Permitting
- Schedule/sequencing
- Crane placement
- Overhead obstructions
- Underground utilities
- Trade dependencies

If you plan to receive the hollowcore plank FOB (furnishing only) to your job site:

-  You are accepting full responsibility for installing the planks properly.
-  Oldcastle Infrastructure will not be responsible for any problems or damage which results from incorrect procedures once material is delivered to the job site.

Have you considered:

- Adequate access routes:
 - 45' flat bed delivery trailers
 - Crane
- Required crane size/rating
- Properly rated rigging equipment:
 - Slings
 - Cables
 - Shackles
 - Spreader bar (if necessary)
- Bearing Pads

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Delivery

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NEED ASSISTANCE?

Call us directly (518) 767-2116

If you need to cancel for any reason:

- Cancellations shall be done no later than 11am the day before the scheduled delivery.
- Oldcastle shall provide a confirmation of the cancellation.

At time of delivery, Oldcastle allows for two hours of off-loading time.



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Installation

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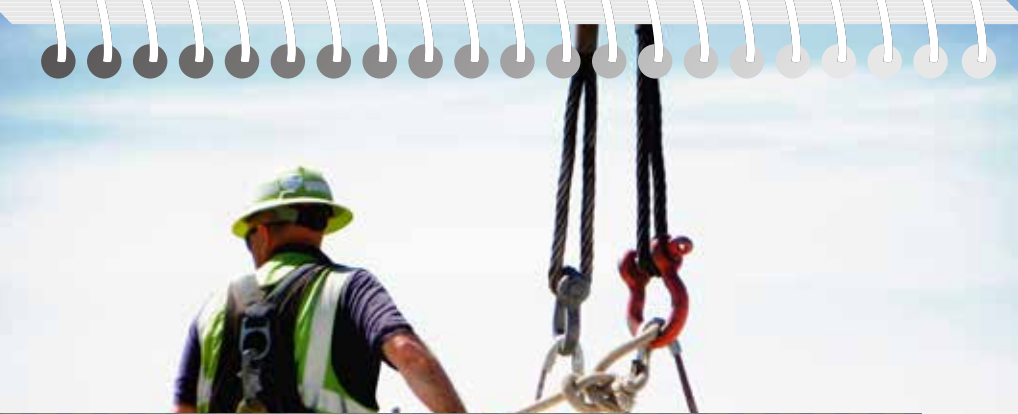
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BE AWARE:

Due to product being prestressed, proper handling of the hollowcore planks during installation is critical to avoid potential cracking. To properly handle, sling plank approx. 12" from each end, (18" maximum).

Building with hollowcore is faster than traditional methods and installation can be completed in less than a day.



Before you begin:

- Install bearing pads

For masonry or concrete bearing surfaces, (where plank is to be set and supported), install bearing pads prior to plank installation.

- Check Supports

All required supports should be in place before plank erection begins.

Getting started: Sling plank from ends

Sling plank approximately 12" from each end (18" maximum). **It is not suitable to handle the planks from one location and/or from the middle.**

 Set plank

Set plank atop bearing surface, onto bearing pads.

Due to the location of the lifting cables and adjacent walls or plank, set the piece down about one inch from the designated location in order to remove the lifting cables.

 Position plank

Remove cables and slide plank into proper location.

 Repeat

Lift the next piece of plank, repeating until all plank is installed per approved shop drawings.

As you go: Check for levelness

Level the plank with plates through the joints, keeping the plates in place until the grout has fully cured.



Additional installation notes:

- ⊘ **Do not** lift planks in any other location than specified within.
- ⊘ **Do not** rotate planks or turn upside down.
- ⊘ **Do not** set planks on ground prior to final destination

Oldcastle Infrastructure does not recommend setting planks on the ground prior to final destination. Please contact us as situation permits.

If you must set planks on the ground temporarily due to an unforeseen situation:

- ✓ **Do** be sure that the surface is level and can accommodate the weight of the hollowcore plank.
- ✓ **Do** use proper dunnage.
- ✓ **Do** properly grout planks.

The plank is designed to have a drafted keyway joint for grout – the bottoms should touch, and the topside should have approximately $\frac{3}{4}$ " open joint.

**NOTE:**

Properly grouting planks allow for a monolithically designed floor to carry necessary loads.

Split Planks

When less than 4' widths are required, Oldcastle will cut the plank from split locations. Consideration should be made at the undersides as to location of the split edges.

The split edge will be rough from the cutting and require patching after the plank is installed, if desired and exposed to finish space.

Camber

Camber is the upward deflection at the middle of plank due to prestressing and shall be taken into consideration for topping thicknesses.

To minimize the camber between adjacent planks, and prior to grouting:

- Use temporary shoring to jack up low planks
- Use sandwich plates and bolts at mid-span
- Keep until grout is fully cured

BE AWARE:

Optimal storage time for plank in the yard is 2-3 weeks. Extensive job schedule delays and increased storage time can lead to camber growth.





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Grouting

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The grouting of hollowcore plank joints is required after install in order to ensure the floor system is fully monolithic.

Prior to grouting the plank keyways and after installed:

- Level the plank
- Clear any debris from keyways and wet down the keyways to ensure a good bond.



BE AWARE:

If outside temperature is below freezing, heating and tarping must be provided prior to the grouting process.

- Install any required formwork at perimeter and end conditions and at split joints if necessary.
- Install any required reinforcement in grout joints.

Grouting:

- Place Grout.

Grout should to flow easily to assure complete filling of keyways.

Standard Concrete Grout Materials: Cement Grout: Portland cement, ASTM C 150, Type 1, and clean, natural sand, ASTM C 404. Maximum Ratio of 3.0 parts sand to 1.0 part cement, by volume, or as required to attain specified strength. Recommended 28-day strength 3,000 psi.

- Clean the undersides of the planks to remove any grout that might have seeped through.
- Make sure the grout has cured prior to placing heavy loads on the plank surface.
- Openings should not be cut in planks until joints are grouted and fully cured.



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Welding & Patching

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BE AWARE:

It is standard practice for the installer to assume a certain amount of patching on the project.

Welding

- If weld plates are designed for attachment to steel members and cast in the underside of the planks, perform welding after plank is secured into position and leveled after grouting.

Patching

- After plank is installed and grouted, patch any chips and spalls with Prospec BlendCrete or similar concrete/mortar patching material.

Refer to product specification for proper temperature requirements.

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Openings

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A variety of opening sizes and configurations can be accomplished using hollowcore planks.

Sizes range from openings larger than 10" down to small core drilled openings.

Common types of openings:

- HVAC
- Electrical chases
- Plumbing chases
- Roof hatch accesses
- Trash chutes
- Skylights
- Single plumbing risers
- Electrical lines
- Radiant-heat tubing risers
- 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" square on shop drawings, if supplied early enough.
- Additional openings not shown on returned approved shop drawings must have written approval from Oldcastle Engineering.



BE AWARE:

Planks do not come with openings cast in. These will be required to be cut by others in the field, after planks are grouted. Please be sure to follow OSHA Silica Guidelines.

Design & Placement:

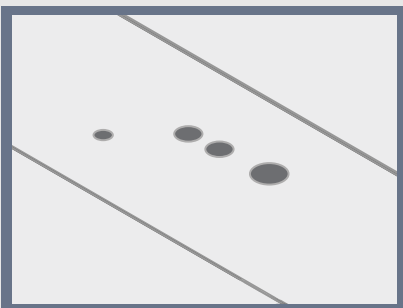
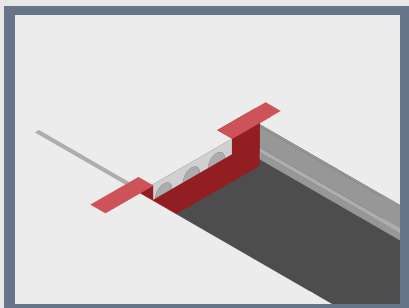
■ Large openings

It's best to locate large openings 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 or field. Large openings near the mid-span of the plank will require more prestressing and impact camber.

■ Small openings

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 don't cut any prestressing strands. 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.





Other considerations:

Multiple small openings

For multiple core holes concentrated in one area, it is recommended that these are aligned and bunched together to reduce the amount of coring perpendicular to the spans.

Approvals

If openings are detailed on the approved shop drawings, then we have engineered the product to accommodate the openings. There is no need to check with Oldcastle before you cut, follow the details and layout.

Reinforcement

If we indicate to place any additional reinforcement for the openings:

- Make sure you coordinate your grouting to allow sufficient room to place the rebar.
- If shoring is required, place shores prior to cutting, then leave shores in until hole is cut, and conditions are grouted and cured at minimum 24 hours.

If there are no reinforcement details for the openings, you may grout first then cut without shoring.

■ Structural integrity

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

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Toppings

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There are two types of toppings: **STRUCTURAL** and **NON-STRUCTURAL**

Structural topping:

- ❑ Vary 2"-3" depending on code requirements
- ❑ Must be bonded to planks
- ❑ Contribute to the overall floor design
- ❑ Tops of plank will be roughened to bond

(Oldcastle Infrastructure designation with "T")



NOTE:

Maximum topping thickness can be up to 6" for sloping topping for drainage. Oldcastle Infrastructure engineering will still base the floor design on minimal topping thickness.

Non-structural topping:

- Fill toppings
(lightweight concrete or gypsum based materials)
- Used to level surface
- Can add to fire rating
- Acts as additional dead load to floor design
- Tops of planks will have machine screed finish

Oldcastle does not specify or design topping system.

Design considerations:

- Reinforcement
The use of reinforcement for shrinkage control is recommended. Selection of mesh or fiber is at the discretion of the architect, engineer of record, or general contractor.
- Thickness
Thickness of the topping should be measured at the high point of camber in the plank. Allowances for additional concrete must be included at bearing ends where camber is minimal.



■ Floor systems

Thickness considerations should be reviewed for applications using tile floor systems (i.e.- ceramic). It is not recommended that tiles be placed directly on the precast slabs without a floating base.

Installation and prep:

■ Keyways must be grouted and cured

Keyways in hollowcore plank must be grouted and cured before topping is applied. Topping cannot be used to fill the keyways and will compromise the keyways ability to function.

■ Preparing the surface

Surfaces of the hollowcore plank must be clean and thoroughly damp, with no standing water in order for the topping to bond properly.

■ Mix Design

A typical 28-day strength structural topping mix design is 3,500 to 4,000 psi. Water cement ratios must be controlled in order to minimize shrinkage cracking in the topping concrete. Admixtures can be used to reduce water and shrinkage.

■ Control Joints

Control joints should be cut promptly after initial set of the concrete and located over hollowcore joints.

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