

Hollowcore 101



Topping can contribute to your hollowcore project

Toppings are sometimes used as part of a total hollowcore plank system. They can be used for Cosmetic (non-structural) purposes or for Structural reasons that contribute to the design capacity of the floor system.

Structural Topping thicknesses vary with a minimum of 2" to 2 1/2" depending on your code requirements. Structural topping must be bonded to the planks, continuous from support to support uninterrupted by walls or expansion joints.

The intent of using a structural topping is that it works with the plank as a composite system. This adds stiffness and strength for gravity loads and can act as a diaphragm if properly reinforced. The integrity of the hollowcore may be compromised if walls are placed directly on top of the plank and not on top of the topping.

Vibration can also be minimized and fire ratings improved with the use of a structural topping.

Common Practice: Topping

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, openings, applications, finished floors, specifying and more.

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Non-structural toppings are considered fill toppings (lightweight, concrete and gypsum based materials) that are separated from the top of the hollowcore by a bond-breaker, waterproofing membrane, and vapor or moisture barrier. The intended use of non-structural toppings are to compensate for camber and differentials (level floors), create slope and pitch, increase fire rating and provide a wearing surface. By considering the topping as non-composite we must include this material as added dead load to the design of the plank. This does not add to the overall load capacity of the plank.

Underlayment

Underlayment can be a cost effective way in which to prepare the hollowcore plank for pad and carpet. Typically, the material is troweled on top, using a thin layer of latex or epoxy modified sand and cement mix. Skim coat underlayment can minimize the differential camber between precast units but is not intended to level the floor.



Get to know more about Topping and its effect on plank design



Toppings

Toppings are frequently used in conjunction with hollowcore plank floor systems. You can select either a structural or non-structural topping depending on your design.

A skim coat underlayment can minimize the differential camber between precast planks

Important Considerations on Toppings

There is no such thing as a carpet ready floor system.

Without a separation from the top of the planks to the topping material, the system will try to work compositely.

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 of the plank where camber is minimal.

Oldcastle Precast does not specify or design the topping system. The use of reinforcement for shrinkage control is recommended. Selection of mesh or fiber reinforcement is at the discretion of the engineer of record.

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

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

A typical 28 day structural topping mix design is 3,000 psi. Water cement ratios must be controlled in order to minimize shrinkage cracking in the topping concrete. Admixtures should be minimized in order to reduce shrinkage.

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

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 keyway's ability to function.

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