



Filling in the voids

Volume #11

Ceiling finishes

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The difference between drywall and a block wall is obvious. Tell me then why a lot of folks have the impression that they can and should be able to finish the underside of a pre-stressed hollow core concrete slab as though it's anything but a structural member?

Here are 10 things to keep in mind when considering a ceiling finish for hollow core plank:

1. Its concrete, NOT drywall. Don't assume knockdown, orange peel, smooth coat, or any other texture that you'd normally apply to drywall can be applied to precast plank without a significant amount of prep. There is only a marginally greater chance of success than if you were to apply any of those techniques to a bare block wall without prep. The joints in precast plank have hard, fixed edges unlike drywall which is quite soft and has edges designed specifically for taping and filling. The best hollow core can hope to offer is a relatively flat plane on the underside with standard tolerances that are huge compared to drywall.
2. Akin to the expectation that drywall finish practices will suffice is the idea that simply painting will work. And just like number 1 above preparation is key. Bear in mind that you're dealing with concrete so a block-filler type primer and a healthy amount of pragmatism at a minimum are required. A painted block wall does after all look like painted concrete block, and painted hollow core will look like painted hollow core concrete.
3. Tolerances. It's well known that there are tolerances in all construction trades and structural precast is no exception, not to mention the tolerances in the preceding scopes of work. It is unreasonable to assume that a hollow core plank erector can level a ceiling to make it acceptable for a finish when the quality of the block work on which it sits has been largely overlooked. That same block wall which ironically is almost always covered in hat channels and drywall. True and level block-work, and poured concrete beams, or plumb and level structural steel will make a world of difference as a starting point for any deck.
4. Manufacturing processes. The bottom surface of hollow core plank is not the same for all manufacturers. The accepted method of casting for decades was to use concrete beds. Currently many producers have switched to steel beds, but not everyone. Also, the extruders (casting machines) that make hollow core plank use differing mechanical processes to physically place the concrete imparting dissimilar levels of consolidation and therefore porosity yielding surfaces that may be more, or less, smooth.
5. Raw materials. The best part about working with a local producer is that they are 'local' and can usually easily meet your basic needs. Depending on what part of the country or world you find yourself, there might be an abundance of raw materials from which to choose or very few. The type of aggregate alone will change the surface finish of any concrete product.

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6. Standards. Some building materials like plywood, structural steel, dimensional lumber, masonry block, and yes drywall are manufactured to very specific industry-wide standards. So you know that, within reason, there is not likely to be a huge variation from producer to producer. That isn't quite the same with structural precast. While all precasters must comply with strict local, national and international codes, industry standards, governing bodies, and inspection processes much like those for other building materials, those guidelines are broader allowing for variation while still being compliant. Things like cross section, mix design, aggregate type, and strand choices, just to name a few, can be totally different among producers and still fulfill those codes requirements and standards.
7. Local practices. This one might be a bit harder to quantify, but what works in the Caribbean for instance might not fly in Europe or vice versa. Even on the North American east coast, building practices differ greatly between south Florida and Newfoundland, so just because you might see an online resource from a manufacturer in British Columbia you shouldn't assume that a producer supplying material to a project in Savannah, Georgia is going to be set up to offer the same services.
8. Don't expect the finish to match other precast members, even if they came from the same producer. Machine extruded hollow core was created to be mass produced and relatively inexpensive. Comparing the surface of such a product to that of a beam, wall panel, or double tee costing many times more per square foot or per linear foot is unreasonable.
9. Consider furring down the ceiling. Not only does this open up your options for finish choices, increase flexibility for lighting, running conduit, plumbing, HVAC, etc., it also might entice more competitive bidding. Some producers, having been burned, favor bidding projects with dropped ceilings and their pricing reflects it.
10. Visit a precast plant. Often the real source of a perceived miss-match between expectations and performance is communication. I encourage you to visit the precast plants in your area and take a look at some finished product in their yard. Anyone not delighted to host you is not worth your consideration in the first place, but I am sure that any would be pleased with your interest. Have a frank and open conversation about your concerns and try to sniff out a producer that might overpromise and under-deliver.

After all this, talk with the rest of the design team, owner, contractor, etc. and specify a ceiling finish that takes as much of what you have learned as possible into account. You will absolutely raise the chances of a successful outcome several fold.