



WORLD OF CONCRETE 2001: THE MEGA EVENT

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May 22, 2000

SEARCH RESULTS

Concrete topping for cellular concrete

Question

We're doing a rehab job on an old building that's being converted into offices. We tore out a 2-inch-thick wood floor that was too creaky. Beneath it we found 2x8-inch sleepers on 16-inch centers. The voids between sleepers were filled with what looks like a cellular concrete. The owner wants us to place a 2-inch slab of concrete over the existing sleepers and cellular concrete. We can't place a thicker slab without removing part of the sleepers and increasing the cost substantially. The slab will be covered with carpet but will occasionally have hard-wheeled cart traffic on it (maximum load of 2,200 pounds on four 6-inch-diameter wheels). The sleepers are in good condition. Should we place a polyethylene slip sheet down before placing the concrete? Or should we try to bond the 2-inch topping to the subfloor? Is there a chance that the topping will crack badly and make the floor unusable? In places it might even be a little less than 2 inches thick.

Answer

We asked several engineers and contractors for ideas on this problem. A bonded topping would probably work better than an unbonded topping with a slip sheet because of the 2-inch thickness. Gene Boeke, an Atlanta contractor, suggests that you use what he calls the heel test on the cellular concrete to determine its bearing capacity. Put all your weight on one heel and note whether or not it makes an indentation in the material. If

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and note whether or not it makes an indentation in the material. If not, you probably have a bearing capacity of at least 2,000 pounds per square foot which isn't too bad. It should give the topping adequate support.

Boeke thinks that curling could be a problem with the thin topping. He suggests using low-slump topping concrete with a compressive strength no greater than 3000 psi to minimize shrinkage and curling. Cutting joints no more than 10 feet apart both ways will also help to control curling. Putting sheets of welded wire fabric at about midheight in the topping will keep random cracks between joints from getting wider. Don't run the wire fabric through the joints.

Another approach is to place the topping on steel decking with a 1/2-inch rib. This gives the topping added tensile strength and more uniform support. Minor cracking isn't a problem from an appearance standpoint because there's carpeting on the floor. But faulting at the cracks under the heavy cart load might cause a problem. The decking would eliminate that problem, but would cost more than just placing the topping on the fill. Boeke also warns that the cellular concrete might contain slag that could cause the steel decking to corrode.

Source: *Concrete Construction*, (May 1990)

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