

HOW to Prevent Delamination

Be wary of a concrete surface that appears to be ready to trowel before it would normally be expected. Emphasis in finishing should be on screeding, straight-edging, and floating the concrete as rapidly as possible—without working up an excessive layer of mortar.

Further finishing should be delayed as long as possible, and the surface covered with polyethylene or otherwise protected from evaporation. In initial floating, the float blades should be flat to avoid densifying the surface too early. Accelerators or heated concrete often prevent delamination in cool weather.

Delamination may be difficult to detect during finishing operations. If delamination is observed, try to flatten the trowel blades or tear the surface with a wood float and delay finishing as long as possible. Any steps that can be taken to slow evaporation should help.

If a vapor barrier is required, place a layer of damp fine aggregate over the plastic sheet (see CIP 29). Do not place concrete directly on a vapor barrier. Do not use air-entrained concrete in floor slabs which have a hard troweled surface and which will not be subject to deicing salts.



Delaminated Concrete

References

1. "Guide for Concrete Floor and Slab Construction," ACI 302.1R, American Concrete Institute, Farmington Hills, MI.
2. "Finishing," Concrete Construction, August 1976, p. 369.
3. J. C. Yeager, "Finishing Problems and Surface Defects in Flatwork," Concrete Construction, April 1979, pp. 247-258.
4. Problems and Practices, ACI Journal, December 1955, p. 492.
5. "Caution-Delamination of Industrial Floors on Grade," NRMCA Technical Information Letter No. 470, June 21, 1989.



Follow These Rules to Avoid Delamination

1. Do not seal surface early—before air or bleed water from below have escaped.
2. Avoid dry shakes on air-entrained concrete.
3. Use heated or accelerated concrete to promote even setting throughout slab depth.
4. Do not place concrete directly on vapor barriers.
5. Do not use air-entrained concrete unless it will be exposed to deicing salts.
6. Avoid placing concrete on substrate with a temperature of less than 40° F.