



NATIONAL TERRAZZO & MOSAIC ASSOCIATION

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Concrete flatness: Standards for poured-in-place terrazzo

NTMA specifications require concrete substrates not to vary more than 1/4" in a ten-foot span. This is based on ACI (American Concrete Institute) specifications for tolerances for concrete construction and materials (ACI 117-10).

ACI PROCEDURE: A ten-foot straightedge is placed on the floor parallel, perpendicular, and then again at a 45-degree angle to the joints in concrete slabs. Ten samples shall be taken for each 1,000 square feet. No sample readings shall have a gap of more than 3/8 of an inch and 90% of readings shall be 1/4 inch or less (Table 4.8.6.1 Manual Straightedge Method).

ASTM E 1155 (Standard Test Method for Determining FF Flatness and FL Floor Levelness Numbers)

In some cases, the concrete installer is asked to meet the flatness requirements as listed in ASTM E 1155. This test method is not currently recognized by the NTMA for the following reasons:

1. ASTM E 1155 restricts the measurement across any construction joint, isolation joint, block out or similar discontinuity. Terrazzo will be placed up to construction joints, isolation joints, and block-outs. Terrazzo may even be placed over some joints. These areas must also meet the 1/4 inch in 10-foot rule.
2. ASTM E 1155 restricts the measurement within two feet of the slab boundary. In most cases terrazzo is placed up against partitions. The concrete must also be flat up to the partition or boundary.
3. Per ASTM E 1155, measurements must be taken within 72-hours of concrete placement. Terrazzo can be poured over concrete that has been in place for months. Concrete can and will curl as it cures. Curing can take a month or even longer. The 72-hour requirement is not practical or acceptable to the NTMA for poured-in-place terrazzo on concrete. It is normal to expect the terrazzo veneer to follow the contour of the substrate.

Conclusion: Measurements to determine the flatness of concrete must be taken at the time when placement of terrazzo shall occur. Methods to remediate a concrete slab that does not meet flatness requirements of ACI 117-10 should be discussed with the terrazzo contractor to avoid potential conflicts. This technical paper covers the flatness and does not address the levelness of concrete.

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