



# Examination of Tile for Defects

**W**e are often asked about small variations in the surface of a tile and whether or not such variations constitute a manufacturing defect. Also, if one or two tiles with facial defects are found, can the entire shipment of tile be rejected?

The American National Standards Institute, Inc. (ANSI) A137.1 Standards for Ceramic Tile address both these questions.

Because the manufacture of ceramic tile uses naturally occurring clay and other raw materials, there can be variations seen from one tile to another, if the tiles are examined very closely. Rather than attempt to describe every possible variation that could exist between tiles and what would be acceptable, the standard defines a method for comparing tiles to each other and looking for tiles that stand out from the rest. In theory, under reasonable viewing conditions, acceptable tile should look the same, within parameters established by the manufacturer.

For example, a manufacturer that makes a tile with widely ranging colors will specify a range of shades that constitute acceptable production, and the samples examined must fall within that range, or they would be rejected. Similarly, manufacturers using multiple screens or double-pressing techniques are deliberately creating tiles that vary, so they are more exciting when installed.

## What are the applicable standards when inspecting a lot of tile for defects?

Accepting that an examination for defects must keep in mind variations engineered by the manufacturer, an inspector should be able to look at a sample of tiles under reasonable viewing conditions and find those that are defective because they stand out from the rest. The methodology for doing this is described in the ANSI A137.1 standard under section 10.1.2. This section specifies that tile should be inspected from 36 inches when determining Standard Grade tile.

## What if the defect can be seen from a distance of 1 foot?

Occasionally, people want to inspect tile more closely looking for variations. This is not part of the procedure, because minor facial variations are part of the manufacturing process. The method only rejects those that are of sufficient size as to be observable from three feet away.

## If a defect is found, does that mean the entire shipment should be rejected?

In Section 4 of the ANSI A137.1 standard, "Procedures for Sampling and Testing and Basis for Acceptance" are given. To summarize the text, a sample of 80 tiles should be randomly selected and if 5 or

fewer are found defective, the entire sample is deemed acceptable.

It is important to note that the 80 tile sample must be randomly selected. This is not the same as finding 5 defects in the entire shipment.

## What is the best way to reduce noticeable variation when installing tiles from multiple boxes?

Commonly, there can be shade variations between different boxes. A good installer knows to mix several boxes when installing it so variations are pleasing to the eye and do not look like an afterthought. **TILE**

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## About the Author



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