

## Face Floor Profile Numbering System (F-Number System)

The NOVA Award was presented to the Face Floor Profile Numbering System, more commonly called the F-Number System, for innovation in methods of specifying and measuring flatness of concrete slab floors.

Designers of modern storage and manufacturing facilities often specify ultra-flat floors for lift trucks and robotic vehicles to operate effectively. For many applications, such as high-stacking warehouses with automated retrieval, controlled floor flatness is essential for accurate and safe operation of automated systems.

The traditional method of determining flatness of concrete slabs is to measure the gap between a ten-foot straight edge and the floor. This procedure proved to be unrepeatable, subjective-and ineffective in controlling finished-floor quality.

In 1982, Allen Face developed a new method to measure floor flatness. Based on quality control principles, this method, called the F-Number System, is considerably more accurate and repeatable.

For floors where vehicles follow fixed routes, Face developed the Profileograph to measure elevation differences along vehicle paths. For floors where traffic routes vary, Face invented the Dipstick to record the relative elevations of points on a 1' by 1' grid. Elevation differences recorded by the Profileograph or Dipstick are run through a computer, which translates the data into numbers that indicate the relative flatness of the floor.

The F-Number System has been adopted by the American Society for Testing and Materials and the American Concrete Institute as the standard method for determining floor flatness. Builders can now specify floors with a desired flatness, and contractors can measure finished floors to determine whether they meet specifications.

This innovative method for measuring floor flatness has led to new solutions for placing ultra-flat concrete floor slabs. More importantly, the F-Number System has significantly improved the construction and verification of the flatness of concrete floors while lowering construction costs.

The F-Number System introduces such innovations as equipment for measuring differences in floor elevation, software for statistical analysis of measurement data, and application of quality control principles to floor flatness.

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