

## Appendix V

### Sample Random Traffic Floor Flatness/Levelness Specification Visit the Flat Floor Library at [www.Dipstick.com](http://www.Dipstick.com) for More Helpful Documents

#### F<sub>F</sub>/F<sub>L</sub> -RANDOM TRAFFIC FLOORS

##### A. RANDOM TRAFFIC FLOOR

###### 1. Designation:

The floor area bounded by column lines (\_\_\_\_), (\_\_\_\_), (\_\_\_\_), and (\_\_\_\_) is designated the Random Traffic Floor. Any floor slab comprising part of the Random Traffic Floor shall be designated a Random Traffic Slab.

*This describes what part of the floor is to be measured for compliance with these specs. For example, sometimes part of the floor will not require measurement, or will be measured as a "Defined traffic floor", which uses a different measuring and reporting method.*

###### 2. Local Flatness/Levelness Tolerance:

All Random Traffic Slabs shall conform to the following ACI F-Number requirements:

Specified Overall Value: F<sub>F</sub> 35/F<sub>L</sub> 27\*  
Minimum Local Value: F<sub>F</sub> 24/F<sub>L</sub> 18\*

*These are the values of floor flatness and levelness that the owner wants. These are checked against the "Project Summary" F-Numbers for this floor.*

*These are the values of floor flatness and levelness that the owner says he cannot live without. If any Section of the floor does not reach this value, that Section is useless to the owner, and must be repaired or removed and replaced. These values apply to the Minimum Local Areas. (Sections) These are checked against the "Combined Section" F-Numbers for this floor. The Face Company recommends that these values be 2/3 of the overall value, but never less than F<sub>F</sub> 15 F<sub>L</sub> 13.*

###### 3. General Conformity to Design Grade:

The entire Random Traffic Floor shall fall within + or - 3/4"\* of the as-built floor elevations shown on the plans.

###### 4. Expectations and Modifications:

F<sub>L</sub> levelness and conformity to design grade tolerances shall not be applied to any elevated floor slab installed over a support structure that deflects more than 3/8" at any location upon application of the floor slab's deadweight.

All floor tolerance measurements shall be referenced to the as-built design grades shown on the plans, even when (as with slopes-to-drain and pre-deflection cambers) such grades are not horizontal.

*This means that the F-Numbers for sloped floors should be calculated on a plane parallel to the sloped floor.*

###### 5. Floor Tolerance Measurements:

Floor flatness and levelness tests on the Random Traffic Floor shall be conducted in accordance with the provisions set forth in ASTM E 1155 using a Dipstick® Floor Profiler manufactured by Face Construction Technologies, Norfolk, VA. Floor tolerance measurements shall be made by the Owner within 16 hours after completion of the final troweling operation - and in all cases before forms and/or shores have been removed. Results of all floor tolerance tests - including a written notice of acceptance or rejection of the work - shall be provided to the Contractor within 24 hours after data collection.

(Note: Weekends and holidays shall be ignored when computing the testing and reporting deadlines specified above.)

*The specification should state the maximum time allowed for measurement after placement completion of each slab and the maximum time after measurement for the reports to be distributed to the people or companies on the distribution list.*

*The specification should state who is responsible for the burden of proof of flatness and levelness contract compliance. It should also state which instrument is allowed to be used to measure the flatness and levelness to prove contract compliance.*

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#### 6. Remedy for out-of tolerance work:

*The contract should include a statement here that explains what happens if the floor does not meet spec.*

All Random Traffic Floor Sections measuring at or above both of the specified Minimum Local F-Numbers shall be accepted for tolerance compliance as constructed.

All Random Traffic Floor Sections measuring below either (or both) of the specified Minimum Local F-Numbers shall be removed and replaced (in the case of slabs-on-grade), or (in the case of elevated slabs) ground and/or re-topped as directed by the Owner.

*If any Section of the floor does not reach both Minimum Local values, that Section is useless to the owner, and must be repaired or removed and replaced. These values apply to the Minimum Local Areas. (Sections) These are checked against the Combined Section F-Numbers for this floor.*

*Here are the Face Company's suggestions for remedies for various type floors:*

- *Industrial Floors Not Receiving a Floor Covering - 1) Removal and replacement or 2) Grinding the entire surface of the defective area with a grinder that has the capability of achieving the specified tolerances.*
- *Floors destined to receive a Floor Covering such as wood, vinyl tile, ceramic tile, linoleum, etc. - 1) Skim coat to bring the floor into tolerance (Spec writer to choose the product) or 2) Grinding the entire surface of the defective area with a grinder that has the capability of achieving the specified tolerances.*

NOTE: For the purposes of this paragraph, a Floor Section shall be any rectangular area bound by column and/or half-column lines (i.e. minimum section area = approximately \_\_\_\_ sq.ft.).

*The specification should describe what is meant by a "Section" or "Minimum Local Area". A Section (Minimum Local Area) may be conveniently designated by column lines and half-column lines, if the project uses columns. If not, then the specification should describe the intended area of Sections as approximately \_\_\_\_ square feet. Unless there is some overriding reason to do so, we recommend that Test Sections should not be smaller than 2,000 sq ft or larger than 10,000 sq ft.*

If the entire project Random Traffic Floor, when completed, fails to meet or exceed either of the Specified Overall F-Numbers, then the contractor shall rebate to the Owner an amount equal to:

\$ 0.50\* x (Total balance of square feet measuring below  $F_F$  36\*) or

\$ 0.50\* x (Total balance of square feet measuring below  $F_L$  24\*)

... whichever is more.

*If the Project Summary F-Numbers for this floor do not reach both specified Overall F-Number values, the contractor rebates a specified amount per square foot, such as 50¢ per square foot.*

(end of section)

*\* The numbers in this sample specification are sample values only. The actual tolerances and rebates to be used on a particular project should be derived from surveys of satisfactory floors having similar uses and constructions and rebates employed on similar projects.*

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