The Box Test for Slip Form Paving of Fresh Portland Cement Concrete

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How do we know if a concrete mixture design will perform in the field?
We need a miniature paver!!!
What part of a paver is the most critical for concrete consolidation?
* Only 12,500 vpm allowed – three listed in standard
Box Test

• Add 9.5” of unconsolidated concrete to the box
• A 1” diameter stinger vibrator is inserted into the center of the box over a three count and then removed over a three count
• The edges of the box are then removed and inspected for honey combing or edge slumping
# Box Test Ranking Scale

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<th>Rank</th>
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<td>Over 50% overall surface voids.</td>
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Measure the faces with a straight edge.
Edge Slumping

Bottom Edge Slumping

< 1/4"

Top Edge Slumping

< 1/4"
No Edge Slump

Edge Slump
The Box Test is referenced in the AASHTO PP 84 standard to be used in mix design evaluation.

The test is being used by a number of states, material suppliers, and contractors.
The Box Test examines the window of workability for concrete pavement mixtures

This is helpful when:
- mixtures are designed in the lab
- trial batching in the field
- troubleshooting field problems
- measuring variation in production

It is like having a miniature paver!!!