Greenstreak’s SPEED PLATE reduces the number of dowels required when compared with conventional doweling systems. SPEED PLATE allows the installer to increase the center distance between dowels, further reducing labor and material costs. The spacing charts below are conservative and are based on spacing recommendations in accordance with ACI 360-06.

<table>
<thead>
<tr>
<th>Slab Depth</th>
<th>SPEED PLATE Dimensions</th>
<th>Center-to-Center Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>5” – 6”</td>
<td>1/4” thick X 4” wide X 6” long</td>
<td>18”</td>
</tr>
<tr>
<td>7” – 8”</td>
<td>3/8” thick X 4” wide X 6” long</td>
<td>18”</td>
</tr>
<tr>
<td>9” – 11”</td>
<td>3/4” thick X 4” wide X 6” long</td>
<td>20”</td>
</tr>
</tbody>
</table>

Note: Values are based on a maximum joint opening of 0.20”

Spacing is variable and is determined by the individual requirements of each project. Consult a Greenstreak Engineer for recommendations.

U.S. Patent Number 6,145,262 and patent pending
**Testing and Research**

Greenstreak’s Technical Engineering Department has dedicated countless laboratory hours and research funds to investigate load transfer systems. **Independent tests** were conducted to provide an unbiased evaluation of the current doweling methods available, including **round**, **flat plate**, **square**, and **diamond plate**. The test procedure utilized a modified version of the AASHTO T253 test for load transfer devices and was designed to determine the following:

- Total joint deflection under load
- Bearing stresses imparted to the concrete at the joint face
- Failure mode of each doweling system

**Modified AASHTO T253 Test Diagram**

- All dimensions are in inches.

**Test Results**

<table>
<thead>
<tr>
<th>Deflection (inches) @ 2,000 lb dowel load</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.005</td>
</tr>
<tr>
<td>¼&quot; X 4&quot; X 6&quot; SPEED PLATE</td>
</tr>
</tbody>
</table>

- 0.025” joint deflection or less is typically acceptable
- ACI Seminar – “Minimizing Floor and Pavement Curling and Shrinkage Problems”
- Las Vegas, NV Jan.16, 2006
- Less is best

**Conclusions**

- Tests of **ALL DOWEL SYSTEMS** resulted in a tensile “pop-out” failure of the concrete.
- All dowel types provided deflections well less than the typically accepted value of 0.025” when loaded to 2,000 lb per dowel (equivalent to a 10,000 lb axle load). Deflections greater than 0.025” can lead to joint failure due to impacts from wheeled traffic. **MINIMIZING DEFLECTIONS** is key to insuring the durability of the joint.
- Dowels with rectangular cross sections and larger widths are effective in reducing bearing stresses on concrete. Adding sleeves to dowels of all types also reduces the bearing stress on the surrounding concrete. **SPEED PLATE** provides the lowest stress on the surrounding concrete of all Greenstreak Dowel Systems. **Bearing stress alone, however, does not predict ultimate dowel loads.** All dowel systems tested failed at a wide range of bearing stress but at similar applied loads.
- Flat plates or square dowels with sleeves that allow movement in the direction of the joint, are effective in eliminating lateral restraint between concrete sections. The **SPEED PLATE** sleeve incorporates an integral, custom insert that provides lateral movement capability between concrete sections.
- It is critical to use internal vibration to consolidate the concrete around **ALL** plate dowel systems.