



TEX-207-F, PART IV

Establishing Roller Patterns (Control Strip Method)



Why

Determine the number of passes from each roller to achieve the maximum density of the compacted mat.

Adequate density of hot mix asphalt will provide a less permeable, smooth, and stable roadway.



When

Contractor establishes a rolling pattern at the start of placement. It is recommended to establish a new rolling pattern when there is a change in the job mix formula (JMF), temperature, thickness, rollers, or subgrade/base support.



How

Equipment

- Nuclear Density Gauge
- Electrical Impedance Gauge (Non-Nuclear)
- Construction Marker Paint or Crayon

Control Strip

- Approximately 300 feet long
- At least 12 feet wide or width of paver
- Two coverages of the entire strip before testing
- Three test sites

Procedure

1. Refer to the manufacturer's instructions to operate and, when applicable, to standardize the density testing gauge.
 - *When using a nuclear density gauge ensure all applicable regulatory certifications are current and requirements are met.*
2. Choose three test sites, one in each 100-foot area within the control strip.
3. After two coverages are completed, place the gauge on the hot mat and outline the gauge with paint or crayon so all readings are taken from the same position.
4. Measure the density of the compacted mat as quickly as possible.
 - *One reading only, as erratic readings may result from the hot surface.*
 - *Nuclear gauge is used in backscatter mode or thin lift and in the 30-second mode of testing.*
 - *Impedance gauge is used in continuous mode.*
5. Record the density and make note of the type of roller used and the number of coverages.
6. Allow the rollers to complete additional coverage.
7. Repeat the density tests at the marked positions and make note of the number of roller coverages.
8. Continue this process of rolling and testing until there is no significant increase in density.
 - *Generally a decrease of 0.5 pcf will indicate maximum density has been achieved.*
9. Construct another section using the rolling pattern from the control strip without interruption.
10. Take random density tests to verify the results from the control strip.