

**OKLAHOMA DEPARTMENT OF TRANSPORTATION**  
**SPECIAL PROVISION**  
**FOR**  
**RAILS, PARAPETS, AND CURBS**  
**PROJECT NUMBER, JP NO. 00000(04), COUNTY**

These Special Provisions amend and where in conflict, supersede applicable sections of the 2009 Standard Specifications for Highway Construction, English and Metric.

*(Replace Section 504.04(I), "Rails, Parapets, and Curbs" with the following:)*

**I. Rails, Parapets, and Curbs**

For concrete rails, parapets, and curbs, comply with Sections 509 and 511. For cast-in-place superstructures, such as, slab spans, pan girders, and post tensioned spans, do not place railing, parapets, and curbs until the falsework for the span has been released and the span swung.

- (1) Method of placement for cast-in-place methods comply with Section 502. For slip form methods comply with Section 502 and the following:
- (a) Submit specifications on equipment to be used including the following:
- Identify rates of placement
  - Cover needed over reinforcement for the equipment
  - Proper vibration frequency and amplitude
  - Clearance to edge of deck
  - Concrete slump limitations
- (b) Submit plans in accordance with section 105.02 for any details that must change to accommodate slip form equipment or processes.
- (c) Conduct pre-placement conference and dry run in the presence of the Engineer. Check equipment operation, reinforcement stiffness, reinforcement, and preformed joint clearance for the entire length of rail to be placed. Do not start placement until the Engineer approves dry run.
- (d) Assure that all placement rates, reinforcement cover, vibration frequency and amplitude, and concrete slump are maintained throughout the placement. Make sure preformed joints remain vertical during slip form operation. Saw cut joints within four hours of placement. Stop placement and address any deficiencies that may cause lack of cover over reinforcement, reinforcement cage to move, concrete to honeycomb, joint movement, or rail misalignment.
- (e) Take a minimum of three 2 inch (50 mm) diameter cores per 100 feet (30 m) of rail or parapet. Each core must penetrate at least  $\frac{3}{4}$  of the thickness of the rail or parapet, and at least one of the 3 cores must be in the bottom  $\frac{1}{4}$  of the rail or parapet height. Equally distribute the three cores along the length of each placement. Separate parapets or rails placed on the same date shall be considered separate placements. Cores will not be measured for payment.

- (f) The Engineer will mark additional locations for cores where, in the sole opinion of the Engineer, the quality of the slip formed rail or parapet is suspect. Any cores taken from parapet sections where the quality is suspect that are later shown to be sound, free of defects, and accepted will be paid for according to Section 109.04.
- (g) Any cores showing voids of any size adjacent to the reinforcement bars, or voids not adjacent to reinforcement bars of 1/4 square inch (160 square millimeters) in area or more, or showing signs of segregation or cracking shall be considered failures and the rail or parapet section from which it was taken will be rejected. A rail or parapet section shall be defined as the length represented by the cores.
- (f) Remove the entire section of rejected rail or take additional cores at a maximum of 10 foot intervals at no additional payment to determine the longitudinal extent of removal and replacement. After additional coring, the minimum lengths of rail or parapet removal and replacement will be 3 feet (1 m). Remove and replace any rail or parapet section in its entirety with more than one half of its length rejected. Remove segments less than 10 feet (3m) long from failed areas to expansion joints or the end of rail.
- (h) Replace damaged reinforcement and ensure minimum splice length by performing additional concrete removal if necessary. Repair damage to epoxy coating in accordance with Section 511.04.
- (i) Fill all core holes with a non-shrink grout meeting the requirements of Section 509.04(h). Grouting will not be measured for payment.