

SECTION 32 11 29.02

**ROLLING**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

This section shall consist of the compaction of sub-grade, sub-base, base or asphaltic concrete pavements by the operation of approved power rollers, tamping rollers, or pneumatic tired rollers as herein specified and/or directed by the Engineer.

**1.2 MEASUREMENT AND PAYMENT**

The work prescribed by this section will not be paid for directly, but shall be considered as subsidiary work pertaining to the construction of embankments sub-grade, sub-base, base and surface, as the case may be.

**PART 2 – PRODUCTS**

N/A

**PART 3 – EXECUTION**

**3.1 GENERAL**

A. This work shall be done only when ordered by the Engineer. The compaction shall be accomplished by the methods outlined in the SECTIONS 32 11 16 - SUB-GRADE PREPARATION AND COMPACTION, SECTION 32 11 14 - FLEXIBLE BASE CRUSHED LIMESTONE, and SECTION 32 12 16 - HOT-MIX ASPHALTIC CONCRETE PAVEMENT. Tracked or lugged equipment will not be allowed on pavements at any time. In the event indicated rollers are not sufficiently weighted, nor have sufficient tire inflation capacity to produce the required degree of compaction, additional larger sized rollers will be required at no additional expense to the city.

B. Sufficient rollers shall be provided to compact the material in a satisfactory manner.

**3.2 EQUIPMENT FOR SUBGRADE, SUB-BASE AND BASE**

A. PNEUMATIC TIRED ROLLERS: Large pneumatic tired rollers shall be of a type having five (5) or more tires, with each tire being inflated to a pressure of 100 pounds per square inch. Total weight of the unit when loaded shall not be less than twenty-five (25) tons. The load shall be equally distributed to all wheels and the tires shall be uniformly inflated.

1. Small pneumatic tired rollers shall consist of not less than nine (9) pneumatic tired wheels running on axles in such a manner that the rear group will not follow in the tracks of the forward group and mounted in a rigid frame and provided with a body suitable for ballast loading. The wheel base of the roller shall be not less than five (5) nor more than ten (10) feet. The front axle shall be attached to the frame in such a manner that the roller may be turned within a minimum circle. The pneumatic tired roller under working conditions shall have an effective rolling width of approximately sixty (60) inches. It shall be so designed that by ballast loading, the

load may be varied uniformly from a minimum of one hundred (100) to a maximum of four hundred (400) pounds per inch of width of tire tread.

2. The tire pressure and the compression to be provided by the pneumatic roller shall be as directed by the Engineer. Pneumatic tired rollers shall be drawn by either a suitable crawler-type tractor, a pneumatic-tired tractor or a truck of adequate tractive effort, or may be of the self-propelled type and the roller when drawn or propelled by either type of equipment shall be considered a pneumatic tired roller unit. Unless otherwise directed, pneumatic tired rollers shall be operated within a speed range from two (2) to four (4) miles per hour.
- B. **TAMPING ROLLERS:** Tamping rollers shall consist of two (2) metal rollers, drums or shells of forty (40) inches minimum diameter. Each not less than forty-two (42) inches in length and unit mounted in a rigid frame in such a manner that each roller may oscillate independently of the other. Each roller, drum or shell shall be surmounted by metal studs with tamping feet projecting not less than seven (7) inches from the surface and spaced not less than six (6) nor more than ten (10) inches measured diagonally center to center. The cross sectional area of each tamping foot measured perpendicularly to the axis of the stud, shall be not less than five (5) nor more than eight (8) square inches. The roller shall be supplemented with cleaning teeth to provide self cleaning. The roller shall be so designed that by ballast loading, the load on each tamping foot may be varied uniformly from one hundred, twenty-five (125) to one hundred, seventy-five (175) pounds per square inch of cross sectional area. The load per tamping foot will be determined by dividing the total weight of the roller by the number of tamping feet in one (1) row parallel to (or approximately so) the axis of the roller. The compression to be provided shall be as directed by the Engineer. The tamping roller shall be drawn by suitable power equipment of adequate tractive effort. Two (2) tamping rollers, consisting of four (4) cylinders, drawn by approved power equipment shall be considered a roller unit. Unless otherwise directed, tamping rollers shall be operated within a speed range of two (2) to three (3) miles per hour.

### **3.3 EQUIPMENT FOR HOT MIX ASPHALTIC CONCRETE PAVEMENT**

- A. **POWER FLAT WHEEL ROLLERS:** Power flat wheel rollers shall be of the three (3) wheel self-propelled type only, weighing not less than eight (8) tons nor more than twelve (12) tons. Power flat wheel rollers shall be operated with a speed range from two (2) to three (3) miles per hour and/or as directed.
- B. **PNEUMATIC TIRED ROLLERS:** Pneumatic tired rollers for hot mix asphaltic concrete pavement shall conform to the Specifications as noted above for pneumatic rollers.

**END OF SECTION**