

shall be as follows:

(a) Forms and joints. Curb forms shall be approved metal forms. They shall be securely braced and held to line and grade specified. Approved flexible forms of steel or wood may be used for construction of circular curb where radius is 200 feet (60 m), or less. The inner surface of the forms shall be clean and coated with a form release agent immediately before the concrete is placed.

All curb and combination curb and gutter not constructed integral with, or tied to, the base or pavement shall have 1/4-inch (6 mm) contraction joints constructed at 10 foot (3.0 m) intervals. The joint may be constructed with the use of metal separator plates, by the use of a grooving tool, or sawed in accordance with 451. The depth of joint shall average 2 inches (50 mm) or more for combination curb and gutter, and for curb shall average 1/5 or more of the curb height. Where expansion joints occur in the abutting pavement, they shall be provided for by separation of the section being placed with 1 inch (25 mm) 705.03 preformed filler.

When the curb is integral with, or tied to, the base or pavement, joints of the type used in the pavement shall be constructed in the curb and sealed with the same material. The joints shall be spaced identically with the joints in the base or pavement.

Curb forms shall be left in place for such length of time that the removal of same does not crack, shatter or otherwise injure the concrete.

Where the curbs built under this item are to later serve as a support for a finishing machine in the placing of a surface course, the alignment of the supporting edges shall be such that the distance between the curbs shall nowhere vary more than 1/2 inch (13 mm) from that specified.

(b) Placing. The concrete shall be placed in the forms, prepared as above described, and vibrated in such a manner as to eliminate all voids.

Concrete for curb which is to be integral with the concrete base or pavement shall be placed while the concrete is plastic, except when the presence of finishing equipment on the forms at the end of the day's run makes this impossible. When this condition prevails No. 5 (No. 15M) tie bars shall be placed vertically in the pavement at 1 foot (0.3 m) intervals and in a line 3 inches (75 mm) inside of and parallel to the edge forms. These tie bars shall extend to within 1 1/2-inches (38 mm) of the subgrade or subbase and 2 inches (50 mm) above the pavement surface when placed. Immediately before the concrete curb is placed, the surface of the pavement or base on which the concrete curb is to be placed shall be flushed with mortar which contains one part cement to two parts sand. The mortar shall be worked into the surface cavities by brushing.

(c) Curb Machine. Concrete curb or curb and gutter may be placed with a self-propelled machine. The proper density and cross section shall be obtained by forcing the concrete through a mold of the proper cross section. Where a track is used the track on which the machine operates shall be set and held to the exact line and grade given by the Engineer. The concrete shall be of such consistency that it that it can be molded into the desired shape and then will remain as placed without slumping of the vertical faces.

(d) Finishing. The top of the curb shall be floated in such a manner to thoroughly compact the concrete and produce a smooth and even surface. The addition of extra mortar to secure this result will not be permitted. The edge of the curb shall be rounded by the use of a tool especially designed for the purpose. The exposed face of the curb shall be rubbed with a float immediately after removing the forms. Unnecessary tool marks shall be eliminated. The finished surface shall be free of irregularities and waves and shall be uniform in texture.

(e) Protection. Concrete curb, and combination curb and gutter shall be cured in accordance with 451 except that membrane cure shall be applied at a rate of not less than 1 gallon per 200 square feet (1 L/5m<sup>2</sup>) of surface.

**830.05 Asphalt Concrete Curb.** The specified asphalt concrete material shall be furnished and placed to form a curb of the required cross section by one of the following methods or by any other method approved by the Engineer.

Method 1. After completion of the surface course, the area to be occupied by the curb shall be painted or sprayed with bituminous material meeting the requirements of 407.02 and applied at the rate of 0.15 gallons per square yard (0.7 L/m<sup>2</sup>). Only the area to be occupied by the curb shall be so treated. The curb shall then be placed with a hand-operated or self-propelled machine consisting of a hopper and power-driven screw which forces the material through a tube by an extrusion method. The proper density and cross section of the curb shall be obtained by forcing the material through a die attached to the end of the extrusion tube.

Method 2. The material for the curb shall be placed as an independent operation preceding the final rolling of the surface course upon which the curb is to be placed. Loose material of sufficient height shall be placed and shaped by hand methods using suitable templates or by other means that will produce the specified cross section. The loose material shall then be compacted to final cross section dimensions by use of a hand-operated mechanical vibrating tamper equipped with a compacting shoe of such shape that will produce the specified cross section of the curb.

**830.06 Concrete Median and Traffic Island.** Concrete medians and traffic islands shall be constructed on the accepted, prepared subgrade, subbase or the completed and accepted base course or old pavement. These items shall be as follows:

(a) Forms and Joints. Forms shall be approved metal forms. They shall be securely braced and held to line and grade specified. Approved flexible forms of metal or wood may be used for construction of radii 200 feet (60 m) and less. The inner surface of the forms shall be clean and coated with a form release agent immediately before the concrete is placed.

All medians and traffic islands not anchored to the pavement shall have 1/4-inch (6 mm) contraction joints constructed at 10 foot (3.0 m) intervals. The joint may be constructed with the use of metal separator plates, by the use of a grooving tool, or sawed in accordance with 451. The depth of joint shall average 2 inches (50 mm) or more.

When the median or island is anchored to the pavement per the standard drawings, joints of the same type used in the pavement shall be constructed in the median or island. The joints shall be spaced identically with the joints in the pavement.

Forms shall be left in place for such length of time that the removal of same does not crack, shatter or otherwise injure the concrete.

(b) Placing. When placing the median or island on subgrade or subbase, the subgrade or subbase shall be sprinkled with water at such times and in such manner as directed by the Engineer so that it will be in a thoroughly moistened condition when the concrete is deposited thereon.

The concrete shall be placed in the forms and vibrated in such a manner as to eliminate all voids.

(c) Mechanical Placement. Medians and traffic islands may be placed with a self-propelled