

**825 - CURB AND GUTTER**

**SECTION 825**

**CURB AND GUTTER**

**825.1 DESCRIPTION**

Construct concrete curb and gutter as shown in the Contract Documents. Repair curb as designated in the Contract Documents, or as directed by the Engineer.

**BID ITEMS**

- Curb, Edge (\*) (\*\*)
- Curb, Header (\*\*)
- Curb and Gutter, Combined (\*\*)
- Gutters (\*\*)
- Curb, Protection (\*) (\*\*)
- Curb, Asphaltic Concrete
- Gutters, Asphaltic Concrete
- Curb and Gutters, Asphaltic Concrete
- Curb Repair
- \*Size, height or special.
- \*\*"AE" denotes air-entrained concrete.
- No entry denotes concrete without air.

**UNITS**

- Linear Foot

**825.2 MATERIALS**

Provide materials that comply with the applicable requirements.

Concrete .....	<b>DIVISION 400</b>
HMA .....	<b>DIVISION 600</b>
Reinforcing Steel .....	<b>DIVISION 1600</b>
Structural Steel .....	<b>DIVISION 1600</b>
Expansion Joint Filler .....	<b>DIVISION 1500</b>
Joint Sealing Compound .....	<b>DIVISION 1500</b>
Asphalt Materials .....	<b>DIVISION 1200</b>
Shot-Crete Concrete .....	<b>SECTION 826</b>

Type I or II cement may be used in curb repair concrete.

Unless shown otherwise in the Contract Documents, the aggregate to be used for asphaltic curbs, shall be of the same type as that used on the other bid items in the contract. If there are no other asphalt bid items designated in the Contract Documents, use Commercial Grade HMA Type A or B. Adjust the maximum sizes and gradation of the aggregate and the asphalt content of the mixture to produce a dense workable mix, capable of being molded, pressed through the slip form without tearing or pulling, and produce a dense section with smooth and uniform surfaces free from segregated areas and with clear-cut corners and edges.

**825.3 CONSTRUCTION REQUIREMENTS**

**a. Subgrade.** Excavate the subgrade for combined curb and gutter, gutters and protection curb as shown in the Contract Documents. If the section is not shown, excavate to the curb and gutter width plus 12 inches on each side. Compact to uniform density. Excavate rock, shale or soft and yielding material 6 inches below subgrade elevation and replace with suitable backfill material. Compact the backfill material to Type A Compaction, **SECTION 205**. Roll and compact the subgrade to provide a smooth surface.

**b. Concrete.**

(1) Composition, Consistency, Proportioning and Mixing. Unless shown otherwise in the Contract Documents, construct edge curb, header curb, combined curb and gutter, gutters and protection curb adjacent to

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concrete pavement using the grade of concrete specified for the pavement. Place concrete according to **DIVISION 400**. When concrete curbs are shown to be adjacent to asphalt pavement construct concrete curb and gutters, use and place Class 3.0 concrete as shown in **DIVISION 400**.

(2) Forms. Use steel forms for edge curb or header curb placed monolithic with concrete pavement. Construct all other types of curb and gutter using steel forms, except, wood may be used for curb or gutter of unusual section or when small quantities are involved, as approved by the Engineer. Use and install forms that will remain true to line and grade. Clean and oil forms before each use.

Use slip form equipment on a satisfactory performance basis and approved by the Engineer.

(3) Reinforcement. Hold reinforcement in the position shown in the Contract Documents by pins, bar chairs or other approved devices.

(4) Expansion. Construct contraction and construction joints for curb and gutter as shown in the Contract Documents. Provide joints and materials of the type and complying with the dimensions shown in the Contract Documents.

Construct planes of weakness in curbs and gutters at locations shown in the Contract Documents by sawing through the curb or gutter section to a depth a minimum of 1 ¼ inches below the surface of the gutter, and to a maximum width of ¾ inch. These joints may be constructed by inserting a removable metal template in the fresh concrete, or by other methods approved by the Engineer. Sealing of these joints is not required.

(5) Placing Concrete. Construct edge curb and header curb monolithic with concrete pavement. At locations to be covered with curb, clean all laitance and roughen immediately after finishing. Place and consolidate concrete, shape with a steel tool to the dimensions shown in the Contract Documents.

Moisten the subgrade before placing concrete for non-monolithic curbs and gutters. Consolidate the concrete with an approved internal type vibrator or by hand spudding and tamping. Shape the surface with a steel tool shaped to produce the cross section shown in the Contract Documents.

Use edgers to round the edges to the designated radii.

(6) Finish. Finish the surfaces of curbs and gutters with a wood float, unless the Contract Documents specifically require a steel trowel or rubbed finish. Light brushing may be required by the Engineer.

(7) Cure. Cure curbs and gutters that are monolithic with concrete pavement in the same manner as specified for the pavement.

Cure all other curbs, gutters and combined curb and gutters immediately after the concrete is finished and hardened sufficiently to prevent detrimental marring, according to **DIVISION 700**.

**c. Asphalt.** Clean all foreign material from the surface on which curbs and gutters are to be constructed. When placed on an asphalt surface, apply an asphalt tack coat as shown in the Contract Documents.

Form and compact the sections using an automatic mechanical placing machine, except in extremely short radii or through inaccessible areas. When hand placement methods are necessary, form and compact the sections with hand tools and back forms.

The maximum temperature of the asphaltic mixture at the time of placement is 335°F. The minimum temperature shall be sufficient to allow the material to be placed and compacted, to the specified density and surface tolerance requirements.

When the air temperature is below 50°F, or the surface temperature is below 55°F, to obtain an adequate bond between the curb and the surface course, heat the upper portion of the surface course by methods which will not harm the mixture in the surface course.

The Engineer will suspend operations any time that adequate bonding of the section to the surface is not being accomplished. Correct any conditions causing the deficient bonding.

On gutter sections, apply a surface treatment of asphaltic cement in an amount to waterproof the section.

**d. Backfilling.** Backfill the area adjacent to curbs and gutters with approved material to the top edges of the curbs and gutters or to the cross-sections shown in the Contract Documents. Place and compact the backfill according to **SECTION 204**, except the compaction requirements may be waived where the backfill area falls within the shoulder area which is to be compacted. If the curb and gutter backfill falls within a shoulder or other area which is designated in the Contract Documents to be compacted, backfill the curb and gutter according to the compaction provision for the adjacent material.

**e. Curb Repair.** Remove old concrete as shown in the Contract Documents, or as directed by the Engineer. Take care to prevent damage to the concrete that is to remain in place. Dispose of broken concrete as approved by the Engineer.

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After removing the old concrete in the curb, clean the existing reinforcing steel exposed before the concrete is replaced.

Repair any damage to the existing structure due to the negligence on the part of the Contractor at own expense.

Replace using one of the 2 methods shown below:

(1) Standard, Conventional Method. Repair concrete by standard, conventional procedures as shown in the Contract Documents.

Use Grade 3.0 concrete for repairing curbs unless shown otherwise in the Contract Documents. Apply concrete adhesive to existing surfaces prior to placing new concrete, as designated in the Contract Documents.

(2) Shot-Crete Method. Adhere to **SECTION 826**. Either the wet mix or dry mix process may be used.

### 825.4 MEASUREMENT AND PAYMENT

Excavation for the construction of the various types of curbs and gutters will not be measured separately for payment, but will be considered subsidiary work, except when such excavation may be considered as a part of, and may be measured in conjunction with the roadway excavation. In such instances, the excavation will be included in the quantity of roadway excavation computed as a line item on the contract according to **DIVISION 200**.

The Engineer will measure the various types of curbs and gutters, and combination curb and gutter by the linear foot along the face of the curb.

Type I and II combined curb and gutter will not be measured separately, but the Engineer will measure together as linear feet of combined curb and gutter.

The Engineer will measure gutter by the linear foot along the flowline.

The Engineer will not measure asphalt material or aggregate required to construct the work.

Payment for "Curb, Edge", "Curb, Header", "Curb and Gutter, Combined", "Gutters", "Curb, Protection", "Curb, Asphaltic Concrete", "Gutters, Asphaltic Concrete", "Curb and Gutters, Asphaltic Concrete" and "Curb Repair" at the contract unit prices is full compensation for the specified work.