

ITEM 530

CONCRETE CURB AND/OR GUTTER,
SIDEWALKS AND DRIVEWAYS

530.1 Description. This Item shall govern for curb, monolithic curb and gutter, sidewalks and/or driveways, with or without reinforcing steel, composed of Portland cement concrete constructed on approved subgrade, foundation material, or finished surface in accordance with the lines and grades established by the Engineer and in conformance with the details shown on the plans. ADA compliance is required for sidewalks and ramps.

As used in this Item the word "curb" refers to standard 6 inch, doweled, and mountable concrete curbs, and monolithic curb and gutter.

530.2 Materials. Concrete used in conventionally formed construction shall be minimum Class D2 concrete, meeting the requirements of Item 360 "Concrete Pavement". Concrete for extruded construction shall also be minimum Class D2.

Cement mortar shall conform to ASTM C270, Type M. Aggregate for mortar shall conform to ASTM C144.

Fly ash may be used with the cement. Cement plus fly ash shall be composed of Portland cement, of the type specified herein, and a maximum of 25 percent fly ash by absolute weight. It is recommended that the percent of fly ash by weight be reduced to a maximum of 20 percent during cold weather concreting (average ambient temperature, over a 24 hour period after placement, less than 50°F). Fly ash shall be Class C or Class F conforming to the requirements of ASTM C618 "Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete". Fly ash shall have a minimum CaO content of 20 percent.

Reinforcing steel shall conform to the requirements of Item 440 "Reinforcing Steel".

Membrane curing materials shall meet the requirements of the Item 526 "Membrane Curing".

Bank sand, used as bedding material for concrete sidewalks, shall meet the requirements of Item 402 "Bank Sand Backfill".

530.3 Construction Methods. Any required excavation and backfill shall be completed in accordance with Item 400 "Structural Excavation" and Backfill", except for measurement and payment, and/or in accordance with Item 110 "Roadway Excavation" and Item 132 "Embankment".

For conventionally formed concrete, the subgrade, foundation, or pavement surface shall be shaped to the line, grade and cross-section

and if considered necessary by the Engineer, hand tamped and sprinkled. If dry, the subgrade or foundation material shall be sprinkled lightly immediately before concrete is deposited thereon.

Outside forms shall be of wood or metal, of a section satisfactory to the Engineer, straight, free of warp and of a depth equal to the depth required. They shall be securely staked to line and grade, and maintained in a true position during the depositing of concrete. Inside forms for curbs shall be of approved material, shall be of such design as to provide the curb required and shall be rigidly attached to the outside forms.

The reinforcing steel and/or dowels, if required, shall be placed in the position shown by the plans. Care shall be exercised to keep all steel in its proper location.

After the concrete has been struck off and after it has become sufficiently set, the exposed surfaces shall be thoroughly worked with a wooden float. The exposed edges shall be rounded by the use of an edging tool to the radius indicated on the plans. Unless otherwise specified on the plans, when the concrete has become sufficiently set, the inside form for curbs shall be carefully removed and the surface shall be plastered with a mortar consisting of one part of Portland cement and two parts of fine aggregate. The mortar shall be applied with a template made to conform to the dimensions as shown on the plans. All exposed surfaces shall be brushed to a smooth and uniform surface.

Sidewalks shall be constructed in sections of the lengths shown on the plans. Unless otherwise provided by the plans, no section shall be of a length less than 8 feet and any section less than 8 feet shall be removed by the Contractor at his own expense. The different sections shall be separated by a premolded or board joint of the thickness shown on the plans, placed vertically and at right angles to the longitudinal axis of the sidewalk. Where the sidewalks or driveways abut a curb or retaining wall, approved expansion material shall be placed along their entire length. Similar expansion material shall be placed around all obstructions protruding through sidewalks or driveways. Sidewalks shall be marked into separate sections, each 4 feet in length, by the use of approved jointing tools. The reinforced concrete sidewalk shall be placed on a bedding material of bank sand, at a minimum of 2" thick.

Curbs, gutters and curb and gutters shall be placed in sections of 80 foot maximum length unless otherwise shown on the plans. Joints shall be constructed at such locations and of the type as directed and specified on the plans.

All concrete placed under this Item shall contain 4% + 1-1/2% entrained air. The completed work shall be cured for a period of not less than 72 hours in accordance with the requirements of the Item 526 "Membrane Curing". Color of concrete shall be in accordance with Item 531 "Coloring Concrete for ADA Ramps".

Extruded Concrete Curbs:

For extruded concrete construction, the concrete shall be placed by an extrusion machine approved by the Engineer. When placement is directly on subgrade or foundation materials the foundation shall be hand-tamped and sprinkled if considered necessary by the Engineer. If the concrete is placed directly on the surface material or pavement, such surface shall be thoroughly cleaned. If required by plan details, the cleaned surface shall then be coated with an approved or other coating as specified at the rate of application per vendor recommendations.

The horizontal alignment shall be maintained from a "guide" line set by the Contractor. The alignment shall strictly conform to the details shown on the plans. The forming tube of the extrusion machine shall be readily adjustable vertically, during the forward motion of the machine to provide variable heights necessary to conform to the established grade line. To provide a continuous check on the grade, a pointer or gauge shall be attached to the machine in such a manner that a comparison can be made between the extruded work and the grade line. Other methods may be used if approved by the Engineer.

The mix shall be fed into the machine in such a manner and at such consistency that the finished work will present a well compacted mass with a surface free from voids and honeycomb and true to the established shape, line and grade.

Any additional surface finishing specified and/or required, shall be performed immediately after extrusion. Joints shall be constructed at such location as directed by the Engineer and to the details shown on the plans.

530.4 Measurement. Work and accepted material as prescribed by this Item for concrete curb, will be measured by the linear foot, complete in place.

Work and accepted material as prescribed by this Item for concrete sidewalks shall be measured by the square yard of surface area, complete in place including bank sand bedding material, as indicated on the plans.

Work and accepted material as prescribed by this Item for ADA curb ramps shall be measured by units of each, or square yard of surface area at specified depth, complete in place. When required, the Contractor's coordination of a TDLR inspection shall be an integral part of each ADA compliant sidewalk construction site.

Work and accepted material as prescribed by this Item for concrete driveways, shall be measured by the square yard of surface area, at specified depth complete in place.

530.5 Payment. The work performed and the materials furnished as prescribed by this Item and measured as provided under measurement will be paid for at the unit price bid for:

- "Concrete Curb" of the type indicated on the plans
- "Concrete Sidewalks" of the width, and type indicated on the plans.
- "ADA Curb Ramps"
- "Concrete Driveways"

The price for each item shall be full compensation for:

- Cleaning and coating the base
- Furnishing and applying all water, mortar, adhesives or other material, including reinforcing steel and dowel bars, if required
- For furnishing, loading and unloading, storing, hauling and handling all ingredients, including all freight and royalty involved
- For mixing, placing, finishing, sawing, cleaning and sealing joints and curing all concrete
- For furnishing all materials for sealing joints and placing joints and joint filler material in proper position
- For all manipulations, labor, equipment, appliances, tools, traffic provisions and incidentals necessary to complete the work.

There are line code(s), description(s), and unit(s) for this Item.

NOTE: This Item requires Standard Civil Drawings that shall be incorporated into the contract documents.

NOTE: This Item requires other Standard Specifications.

Item 110 "Roadway Excavation"
Item 132 "Embankment"
Item 360 "Concrete Pavement"
Item 400 "Structural Excavation"
Item 402 "Bank Sand Backfill"
Item 440 "Reinforcing Steel"
Item 526 "Membrane Curing"
Item 531 "Coloring Concrete for ADA Ramps"

END OF ITEM 530