

## SECTION 4.08 - Curb, Concrete

**4.08.1. INTENT.** This section describes construction of Concrete Curb and Integral Concrete Curb and Gutter.

**4.08.2. DESCRIPTION.** Concrete Curb shall be made of concrete six (6") inches wide on top, eight (8") inches wide on the bottom, eighteen (18") inches deep or as otherwise specified, measured on the back.

Integral Concrete Curb and Gutter shall be made of concrete and be constructed to the dimensions shown on the Contract Drawings.

**4.08.3. MATERIALS.** Concrete for curb shall comply with the requirements of **Section 3.05**, Class B-32, Type IIA. Cement shall be Type II Portland. Coarse aggregate shall be broken stone or gravel and comply with the requirements of **Section 2.02**, Type 1, Grade B, or Type 2, Size No. 57. An approved air-entraining agent shall be added at the time concrete ingredients are mixed with water.

Where proposed adjacent sidewalk is designated to be pigmented, curb shall also be pigmented to match in color. Pigmenting material shall comply with the requirements of **Section 2.19**. No additional payment will be made for the cost of pigmenting the concrete curb.

**4.08.4. METHODS.**

(A) GENERAL

The Contractor shall complete all curb construction before commencing any roadway grading operation; stripping, removing or placing any pavement; or commencing sidewalk work unless otherwise permitted by the Engineer, in writing. The Contractor will be permitted to encroach upon the area immediately adjacent to the curb only to the extent essential for curb construction.

All other provisions of **Subsection 4.07.4.** shall apply to the work to be done hereunder.

Excavation for curb shall be safeguarded and protected as provided in **Sections 1.06.44** and **6.70**, "**Maintenance and Protection of Traffic.**"

(B) EXCAVATION

Excavation shall be made to dimensions sufficient to permit the setting of forms. Where recurbing is required and there is no scheduled item for wearing course and/or concrete base, in excavating for curb trench, the removal of a width of not more than one (1') feet of roadway pavement along the curb will be permitted. At the completion of curb setting, the roadway strip shall be backfilled to the subgrade of the pavement base, the backfill thoroughly compacted to the satisfaction of the Engineer and the pavement restored in accordance with the applicable sections of these Standard Highway Specifications.

(C) UNDERLYING MATERIAL

The material underlying concrete curbs shall be satisfactory and thoroughly compacted. If unsatisfactory, the unsuitable material shall be removed and replaced with acceptable material and be thoroughly compacted.

(D) FORMS

Forms shall be either of metal of sufficient thickness, but not less than one-eighth (1/8") inch, to satisfactorily resist distortion when fastened together and secured in place, or be of acceptable planed and matched lumber of sufficient thickness to resist distortion, rigidly held in position and of such construction that a smooth surface will be provided. Forms shall have suitable metal dividing plates approximately three-sixteenths (3/16") inch thick; be of a depth including dividing plates not less than that of the curb, be properly located with tops at grade and be left in place until the concrete has hardened.

On curves, forms shall be of such construction as to provide true arcs with radial joints.

(E) WORKMANSHIP

Concrete curb shall be built in independent sections ten (10') feet long, except as otherwise specified, and shall have smooth plane ends separated by one-quarter (1/4") inch joints. Concrete shall be placed and compacted in accordance with the requirements of **Subsections 4.06.7.(C) and 4.06.7.(D)**. In depositing, the concrete shall be tamped and the aggregate shall be carefully spaded away from the front forms. Curb shall be set across driveways with the top below grade, as required, and the ends of the sections adjacent to the depressed curb shall be rounded or splayed as required, in accordance with the New York City Department of Transportation's Standard Details of Construction Standard Drawings.

(F) SHAPE

The top shall pitch one-quarter (1/4") inch downward toward the front. The back shall be perpendicular to the base. The top front edge of plain concrete curb shall be rounded to a one (1") inch radius.

(G) SURFACE FINISH

The top shall be finished by troweling and finally by using wooden floats. Upon the removal of the forms, the exposed faces shall be rubbed to a smooth and uniform surface. The color of the finished curb shall be uniform.

(H) BACKFILLING

Backfilling shall follow the removal of the forms as soon as practicable and shall be of clean earth or other approved material satisfactorily compacted.

(I) SURFACE CURING AND PROTECTION

Concrete curb shall be carefully protected against injury from rain, frost, the drying effects of the sun and wind, traffic or other causes, by means of suitable guards and covering. The concrete shall be cured in compliance with the requirements of **Section 2.14**, Type 1-D, Clear.

From the moneys due the Contractor there will be deducted the sum of one (1) dollar for each linear foot of curb which is not cured as specified.

(J) SIDEWALKS TO BE CUT OFF

Existing concrete sidewalks, adjacent to or abutting new curbs and interfering with the setting of said curbs shall be cut off to a line two (2') feet back of the curb concrete and parallel thereto, unless otherwise provided or directed by the Engineer. Cutting shall be done by means of an approved power driven cutting machine with a carborundum cutting wheel. Cuts shall be a minimum depth of one and one-half (1-1/2") inches. The space between the curb and sidewalk shall be filled with concrete sidewalk colored to correspond to the adjacent walk.

No concrete sidewalk shall be cut off or otherwise disturbed until the same has been examined by the Engineer.

(K) CURB JOINTS

In constructing concrete curb in areas where existing concrete sidewalk abuts the curb or new concrete sidewalk will be laid immediately behind the curb, curb joints shall be made to coincide with sidewalk expansion joints. Also, all joints between sections of curb shall be filled with preformed expansion joint material in accordance with the requirements specified for filling sidewalk expansion joints.

(L) INTEGRAL CONCRETE CURB AND GUTTER

Integral concrete curb and gutter shall be formed to the size and shape shown on the Contract Drawings. Expansion joints one-quarter (1/4") inch or one-half (1/2") inch in width shall be filled with an approved preformed joint filler, at intervals specified by the Engineer. Filler shall completely fill the joint and shall be cut flush with all curb and gutter surfaces.

All materials and construction methods used are to conform to the requirements of **Subsections 4.08.3. and 4.08.4.(A) through (K)**, above, unless otherwise specified herein.

The Contractor may use either conventional or machine formed integral curb and gutter.

Where the Contractor proposes to machine form integral curb and gutter, the following additional requirements shall be complied with:

- 1) The Contractor's concrete mix design formula, to be submitted to the Engineer for approval, shall include the design air content and design slump.
- 2) Machine forming of curb and gutter shall be done to the proper line and grade. The Engineer may require the Contractor to demonstrate that the specific equipment proposed for use is capable of satisfactorily placing the concrete mix.

Any curb and gutter placed outside of tolerance of 1/2 inch of the established line or 1/4 inch of the established grade shall be removed and replaced at the Contractor's expense.

Maximum placement slump shall be 2-1/2 inches. Air content shall be  $\pm 2\%$  of design.

- 3) Contraction joints shall be formed or sawcut to depths slightly below the surface of the adjacent pavement every 20 feet or as ordered by the Engineer. The sawcut or formed joints shall be left unfilled.

**4.08.5. MEASUREMENT.** The quantity to be measured for payment shall be the length of concrete curb or integral concrete curb and gutter, constructed, complete, in place, as required, measured along the top of the exposed face of curb, and adjusted in accordance with **Section 5.04**.

**4.08.6. PRICES TO COVER.** When the proposed adjacent sidewalk is designated to be pigmented, no additional payment will be made for the cost of pigmenting the concrete curb to match the proposed adjacent pigmented sidewalk in color.

(A) CONCRETE CURB

The contract price per linear foot of Concrete Curb, of the depth specified, or Integral Concrete Curb and Gutter shall cover the cost of all labor, materials, equipment, insurance, and incidentals required to construct the curb complete in place, including, but not limited to, excavation (other than rock excavation) and backfilling, in full compliance with the requirements of the specifications, to furnish such samples for testing and to provide such testing equipment, laboratory space and facilities, as may be required, and the cost of maintaining the curb in good condition as specified in **Section 5.05**.

(B) RECURBING, UNSCHEDULED ITEMS

The contract price, in addition to the coverage listed under (A), above, shall also include the removal of not more than one (1') feet width of roadway pavement along the curb line and the restoration of all removed pavement in full compliance with the applicable sections of these Standard Highway Specifications. The restoration of pavement, removed beyond the above defined limits, shall be done by the Contractor at no additional cost to The City.

*Payment will be made under:*

Item No.	Item	Pay Unit
4.08 AA	CONCRETE CURB (18" DEEP)	L.F.
4.08 AC	CONCRETE CURB (19" DEEP)	L.F.
4.08 AD	CONCRETE CURB (20" DEEP)	L.F.
4.08 BA	CONCRETE CURB (21" DEEP)	L.F.
4.08 AE	CONCRETE CURB (22" DEEP)	L.F.
4.08 AF	CONCRETE CURB (23" DEEP)	L.F.
4.08 AG	CONCRETE CURB (24" DEEP)	L.F.
4.08 AH	CONCRETE CURB (25" DEEP)	L.F.
4.08 AI	CONCRETE CURB (26" DEEP)	L.F.
4.08 AJ	CONCRETE CURB (27" DEEP)	L.F.
4.08 CG	INTEGRAL CONCRETE CURB AND GUTTER	L.F.