

Section 805—Rip Rap and Curbing Stone

805.1 General Description

This section includes the requirements for rip rap and curbing stone. Construction and material will be covered under the Special Provisions.

805.1.01 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

AASHTO T 96

AASHTO T 104

ASTM C 295

[GDT 64](#)

805.2 Materials

805.2.01 Rip Rap

A. Requirements

1. Aggregate Quality

All rip rap stone shall be made of sound, durable rock pieces that meet these requirements:

Aggregate Quality	Maximum Percent
Abrasion loss "B" grading	65
Soundness loss	15
Flat and slabby pieces (length five times more than the average thickness)	5
Weathered and/or decomposed pieces and shale	5

2. Gradation for Stone-Dumped rip rap Type 1 and Type 3:

Severe Drainage Conditions or Moderate Wave Action (Type 1)*		
Size By Volume	Approx. Weight	Percent Smaller Than
4.2 ft ³ (0.12 m ³)	700 lbs (320 kg)	100%
1.8 ft ³ (0.05 m ³)	300 lbs (135 kg)	50% - 90%
0.8 ft ³ (0.02 m ³)	125 lbs (55 kg)	20% - 65%
*Between 0% and 15% of the Type 1 rip rap shall pass a 4 in (100 mm) square opening sieve.		

General Use Normal Drainage Conditions (Type 3)*		
Size By Volume	Approx. Weight	Percent Smaller Than
1.0 ft ³ (0.03 m ³)	165 lbs (75 kg)	100%
0.1 ft ³ (0.003 m ³)	15 lbs (7 kg)	10% - 65%
*Between 0% and 15% of the Type 3 rip rap shall pass a 2 in (50 mm) square opening sieve.		

3. Stone for Plain Rip Rap

The stones shall be clean and free of rock dust and fines.

- a. Process the stone so that the largest pieces have a volume of 2 ft³ (0.06 m³) or less.

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- b. Ten percent or less of the total rip rap weight can consist of spalls that pass a 5 in (125 mm) sieve.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test as follows:

Test	Method
Percent wear	AASHTO T 96
Petrographic analysis	ASTM C 295
Soundness (magnesium sulfate)	AASHTO T 104

D. Materials Warranty

General Provisions 101 through 150.

805.2.02 Curbing Stone

A. Requirements

1. Type 1:

Provide Type 1 curb that meets these requirements:

- a. Curb thickness and height as shown on the Plans
- b. Cut in lengths of not less than 5 ft (1.5 m) nor more than 10 ft (3 m)
- c. Tops dressed to an even, smooth surface for the full length
- d. Have straight, even edges
- e. Top sloped $\frac{1}{4}$ in (6 mm) from back to front
- f. Have squared ends to permit joints to be constructed not more than $\frac{1}{2}$ in (13 mm) wide for the full depth of the curb.
- g. Backface hand dressed at least 4 in (100 mm) below that part of the back that will be exposed
- h. Front face hand dressed to a depth of 1 in (25 mm) below the indicated elevation of the base course, pavement or gutter
- i. Have ends of circular curb sections cut along radial lines to permit joints to be constructed not more than $\frac{1}{2}$ in (13 mm) wide
- j. Circular curb conforms accurately to the required radius
- k. Dressed surfaces do not contain projections or depressions more than $\frac{3}{8}$ in (10 mm) from the plane surface of the curb

2. Type 2:

Provide Type 2 curb that meets these requirements:

- a. Dimensions shall be 5 in (125 mm) thick, 17 in (425 mm) deep, and 5 ft (1.5 m) long, unless otherwise specified.
- b. Front face to have a top margin draught with a smooth face 10 in (250 mm) deep
- c. Have a smooth face (Note: A quarry face may be considered a smooth face if free from holes and all bumps exceeding allowed tolerances are pointed level)
- d. Tops of curbs present even, smooth faces for the full length
- e. Have squared joints that when abutted with adjacent sections, present no crack or joint exceeding $\frac{1}{2}$ in (13 mm) in width
- f. Have ends of circular curb sections cut along radial lines to permit joints to be constructed not more than $\frac{1}{2}$ in (13 mm) wide
- g. Circular curb conforms accurately to the required radius

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h. The allowable tolerances for Type 2 Curb dimensions are as follows:

Measurement Item	Dimension & Tolerance
Thickness	5 ¼ in (131 mm) +/- ¼ in (6mm)
Depth	17 in (425 mm) +/- 1 in (25 mm)
Top Surface	¼ in (6 mm) in 5 ft (1.5 m)
Side Surface	½ in (13 mm) in 5 ft (1.5 m)

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Test for Percent Wear according to AASHTO T 96

D. Materials Warranty

General Provisions 101 through 150.