

5. SHIPPING AND HANDLING

5.1 Packing and Loading:

Finished granite curb shall be carefully loaded for shipment using all reasonable and customary precautions against damage in transit. No material which may cause staining or discoloration shall be used for blocking or packing.

5.2 Site Storage:

Upon receipt at the site or storage yard, the granite shall be stacked on timbers or platforms at least four (4) inches above the ground, and care shall be taken to prevent staining during storage. If storage is to be for a prolonged period, polyethylene or other suitable plastic film shall be placed between any wood and finished surfaces, and shall be used also as an overall protective covering. Dowel holes in bridge curb shall be plugged during freezing weather to prevent the accumulation of water.

6. APPLICATION/INSTALLATION

The members of the A.G.C.P. are quarriers and fabricators, not setters. Through our associations with curb setters in various geographical locations, we find that the installation techniques vary greatly due to the inconsistency of the soil in grass-lined suburban streets to the rigid pavements and sidewalks of urban streets and bridge decks. However, we must express the critical importance of sub-surfaced material. A granular compacted material tamped around fixed structures to a uniform subgrade is highly recommended. Grade lines should be strung for the entire length of the section to allow for a visual inspection before installation.

After curb stones are set to a line and driven to grade, we recommend expansion joints at approximately every thirty (30) feet.

A variety of concrete backings and beddings are common to curb installations and add directly to the cost of installation. We do recommend that a stiff concrete be used at intervals to stabilize and keep the curb at the proper grade and alignment. This, of course, is unnecessary with bridge curb which normally has a one-half (½) inch mortar bed and is stabilized by anchor bars.

The joints between curbstones are either left open or filled with a flexible pointing mortar with care taken to keep the mortar off exposed faces of the curb.

7. NOTES & DEFINITION OF TERMS

Arris: The sharp edge or exterior corner formed by the meeting of two surfaces, whether plane or curved.

Face: The exposed major surface of the curb with its specified finish.

Joint: a) the end or side surface of a piece which is covered when the piece is set in place.
b) A filled or open space extending the full width of the top and vertically down the face between adjacent pieces set in place.

Seam: A crack or fissure in a rough quarry block.

Start: The beginning of a crack, caused by quarrying, fabrication, or other handling.

Finish: The final surface texture of exposed faces as follows:

Sawed: Relatively plane surface with texture ranging from wire sawn (a smooth surface with occasional slight “trails” or scratches) to shot sawn [with scorings three-thirty-second ($\frac{3}{32}$) inches in depth.] Wire saws produce long curved markings; rotary diamond saws produce circular scorings and gang saws produce parallel scorings.

Thermal: Finish produced by application of high temperature flame to the surface. Large surfaces may have shadow lines caused by the overlapping of the torch.

Hammered: Coarse finish with interrupted parallel marking not more than seven-thirty-second ($\frac{7}{32}$) inches apart.

Specifications for Granite Curb

A M E R I C A N G R A N I T E C U R B P R O D U C E R S



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GRANITE CURB

Traffic control for the protection of motorists and pedestrians has increased proportionately with the increase of motor traffic. Granite curbing permits highway designers and engineers to combine safety, appearance and economy in the scheme of modern highways and streets.

Years of use and evaluation have shown that curbing is as important and as necessary as the pavement itself. The performance of granite curb vividly reflects and exactly defines, under all types of driving conditions, the channel through which all traffic flows; thereby providing maximum safety and appreciably decreasing accident rates.

Granite curbing will endure the ever increasing battering from more and heavier traffic. It is not affected by temperature extremes or from the constant use of salts and other chemicals used for snow and ice removal. Although snow plows could have a detrimental effect, the damage to granite curb is not nearly as severe as with other curbing material.

The members of the American Granite Curb Producers Association have the most modern facilities for producing and shipping large quantities of curbing to meet the most demanding project schedules. Inquiries regarding any proposed use of granite, whether conventional or innovative, are invited by member companies of the Association.

This brochure will familiarize its readers with the common terms and definitions used throughout the American Curb-producing industry. It is intended to be as objective as possible and include the most common finishes and types of granite curb produced by its member companies.

SPECIFICATIONS FOR GRANITE CURB

These specifications are intended to provide standardization within the industry based on practices deemed to be acceptable from the standpoint of appearance, durability, and safety. The Association does not recommend or endorse any modification which would result in these minimal specifications not being maintained on a particular project. The Association makes no representation or warranties with respect to appearance, durability, or safety in the event of any variation from or failure to comply with these standards. As industry standards, the following information must also, at times, be considered subject to architectural modification in light of these minimal specifications to achieve appropriate levels of appearance, durability, and safety.

1. GENERAL

1.1 Scope:

The work to be done under this section shall consist of furnishing all labor, materials, and equipment required for setting in place curbstone as indicated on the plans, as directed by the engineer and as described in these specifications.

1.2 Definition of Terms:

The definition of trade terms used in this specification shall be those published by the American Granite Curb Producers Association.

1.3 Source of Supply:

All granite shall be obtained from one quarry having adequate capacity and facilities to meet the specified requirements. Cutting and finishing shall be done by a firm equipped to process the material promptly on order and in strict accord with specifications. Evidence to this effect shall be provided by the supplier if required.

1.4 Shop Drawings:

The granite supplier shall submit, if required, copies of all necessary shop drawings to the designers for approval. These drawings shall show geometrical sections; tolerances for top, face, ends, and back; finishes for each face; site locations with radii and degree of radii and approximate lengths. Anchoring details and locations shall be shown for bridge curbing. No final cutting or finishing shall be done until the shop drawings are approved and returned to the supplier. The granite curb supplier shall not be responsible for determining, making, or verifying; 1) engineering estimates; 2) plans or specifications; 3) field measurements; 4) sizes or types of anchors for bridge curbing.

1.5 Defective Work:

Any piece of granite showing flaws or imperfections upon receipt at the storage yard or jobsite shall be referred to the designer for determination as to responsibility and decision as to whether it shall be rejected, patched, or redressed for use. If rejected, the supplier shall replace said curbstones at no charge to the contractor. Likewise, no back-charges shall be made by the contractor without prior notification to the supplier.

1.6 Site Cutting:

Curbstones are generally supplied in random lengths and require cutting for length adjustment of closure pieces. Granite curb supplier shall not be held responsible for field trim work.

2. MATERIALS

2.1 Granite:

Stone curb shall be granite. The granite shall be sound and durable, free from seams which impair its structural integrity, and of a smooth splitting and machining character. Natural color variations that are characteristic of the deposit will be permitted.

2.2 Mortar:

Mortar for pointing joints shall be composed of equal parts of cement and clean sand with sufficient water to make a workable mixture. The material shall conform to the requirements of A.S.T.M. C-91 and C-144.

2.3 Anchors/Dowel Holes:

Anchor holes are provided at no additional cost if the curb is specified as bridge curb. Holes are normally drilled in the back of the curb, minimum of two (2) holes per stone; pitched downward on approximately forty-five (45) degrees, three (3) inches deep, at least three (3) inches from the top, and twelve (12) inches from each end.

2.4 Anchors and Dowels:

Quality of metal shall be at the discretion of the designer. It is suggested that stainless steel, galvanized, or other nonferrous metal be used. Anchors shall be one-half (½) inch in diameter, have a three (3) inch hook on one end and a three (3) inch forty-five (45) degree bend on the other end, both pointing downward. Anchors shall extend at least six (6) inches into the concrete behind the curbstone.

2.5 Protection:

The contractor shall protect the curbstones and keep them in first-class condition until completion of the entire contract. When placing concrete behind the curbstones and after pointing of joints, curbstone shall be satisfactorily cleaned of all excess mortar. Particular care must be exercised to prevent discoloration of exposed surfaces.

3. DIMENSIONS

3.1 Width:

This dimension shall be stated as the net measurement from the front arris line to the back arris line. Normal widths begin at four (4) inches with increments every inch. The front arris line shall be straight and true with no variation greater than one-eighth (⅛) inch measured from a two (2) foot straight-edge placed along the front arris line. Back arris lines shall be straight and true with no variation greater than one-fourth (¼) inch measured in the same manner.

3.2 Depth:

This dimension shall be stated as the measurement from the top front arris line to the bottom front arris line. Highway curbs shall have a tolerance of plus or minus (±) one (1) inch and bridge curbs shall have a tolerance of plus or minus (±) one-fourth (¼) inch.

3.3 Length:

Minimum lengths of straight segments of sloped curb shall be two (2) feet. All other straight curb types shall have three (3) feet minimum lengths. Generally, curb segments on curves with radii of one hundred (100) feet or less shall be shaped to the required curvature and the ends cut on radial lines. Curves of over one hundred (100) feet radii shall use straight curb segments.



4. FINISHES

4.1 Top:

Generally, top surfaces shall be sawed to an approximate true plane with no projections or depressions greater than one-eighth (⅛) inch. Saw marks normal to the sawing process will be permitted if within the one-eight (⅛) inch tolerance. Other finishes are available, such as thermal or hammered. See definitions for description.

4.2 Face:

Generally, front face shall be specified as either sawed or split.

Split face: Vertical face curb shall be at right angles to the plane of the top and shall be smooth quarry split with no projections greater than three-fourth's (¾) inch or depression greater than one-half (½) inch down to grade line, measured from the vertical plane of the face through the top arris line. Remaining distance below grade line shall have no projection or depression greater than one (1) inch. Batter face curb shall be finished to the same tolerance and method measurement shall be on a plane parallel to the slope of the batter.

Saved Face: Vertical face curb shall be at right angles to the plane of the top and shall be sawed to an approximately true plane with no projections or depressions or greater than one-eighth (⅛) inch to grade line. Below grade line shall have no projection or depression greater than one (1) inch. Batter face curb shall be finished to same tolerances and method of measurement shall be on a plane parallel to the slope of the batter. Saw marks normal to the sawing process will be permitted if within the one-eighth (⅛) inch tolerance. Other face finishes, such as thermal or hammered are available. See definitions for tolerances.

4.3 Back:

Back surfaces shall be parallel to the face and have no projections or depressions which exceed a batter of one inch in three (1 in 3) inches for a distance of four (4) inches from the top. Dressed back surfaces shall have no projection or depression greater than one-fourth (¼) inch for a distance of four (4) inches down. Remainder of the back face shall have no projection or depression that shall exceed a batter of one inch in three (1 in 3) inches.

4.4 Ends:

Ends of curbs at joints shall be approximately square with the planes of the exposed curb faces and shall be sawed or hand trimmed so that when curbs are set, no space greater than three-fourths (¾) inch shall show in the joints for the full width and length of the exposed joint. The curb ends behind joint and the ends below grade line will be allowed to break from the plane of the joint. Below-grade shall not break back over eight (8) inches and back joint shall not be over four (4) inches wide. Bridge curbs shall have full face joints but will be allowed to have a four (4) inch back face joint.