

**SECTION 04 41 11  
DRY-PLACED GRANITE**

This guide specification utilizes recommendations and formats contained in references of the Construction Specifications Institute (CSI), including the CSI Practice Guides (formerly the Project Resource Manual), incorporating SectionFormat, PageFormat and MasterFormat, latest Editions, insofar as practicable.

This Section must be carefully reviewed and edited by the user to meet the Project requirements and should be coordinated with related Specification Sections and the Drawings.

Where Specification indicates information as "shown on Drawings" or similar phrases, the Drawings are required to show this information or the text needs to be modified appropriately.

Where Specification indicates bracketed text, e.g. [text], make appropriate selection and delete the remainder of text within additional brackets, highlighting, and bold face type.

Consult Dakota Granite Company for assistance in editing this Specification guide for the specific applications.

This Specification was current at the time of publication but is subject to change. Please confirm the accuracy of these specifications with the manufacturer prior to use.

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## **PART 1 - GENERAL**

### **1.01 SUMMARY**

A. Section Includes:

*SPECIFIER: Select wall type, add backup wall construction (if any), and foundation conditions in subparagraphs below, which are applicable to Project.*

01. Dry-placed granite retaining walls.
02. Dry-placed granite free standing walls.
03. Installation accessories.
04. Miscellaneous materials.

### **1.02 RELATED REQUIREMENTS**

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Related Sections:

*SPECIFIER: Select applicable Divisions or Sections in subparagraphs below related to the Work of this Section; adjust actual Section numbers and names as necessary.*

C. Related Sections:

- 01. [Division 03 Section "Cast-in-Place Concrete"] [Section 03 30 00 - Cast-In-Place Concrete];** for concrete foundations.
- 02. [Division 31 Section "Earthwork"] [Section 31 23 16 - Excavation];** for excavation, and for earthen foundations.
- 03. [Division 33 Section "Subdrainage"] [Section 33 46 00 - Subdrainage];** for drainage systems preventing accumulation of groundwater in retained soils.

### **1.03 DEFINITIONS**

- A. Definitions contained in ASTM C119 apply to this Section.
- B. Metric conversions are shown in a table at the end of this Section.

### **1.04 REFERENCE STANDARDS**

*SPECIFIER: Use care when indicating the edition date of the referenced standards; these standards are subject to regular review, and updated accordingly. Edit list below to eliminate references not contained in the final text.*

- A. ASTM International (ASTM)
  01. ASTM A580-08, Standard Specification for Stainless Steel Wire
  02. ASTM C11911, Standard Terminology Relating to Dimension Stone
  03. ASTM C61511, Standard Specification for Granite Dimension Stone
- B. National Building Granite Quarries Association, Inc. (NBGQA)

*NOTE: For the Specifier's convenience, a copy of the NBGQA document referenced below is published in the Dakota Granite "Architectural" Catalog, available upon request.*

01. Specifications for Architectural Granite, 2010

### **1.05 ACTION AND INFORMATIONAL SUBMITTALS**

*SPECIFIER: Revise Section number in the paragraph below to match that used in the Project Manual.*

A. Submit in accordance with Section **[01 33 00] [Other]:**

01. Product Data:
  - a. For each granite type and each manufactured product shown on Drawings or specified.
  - b. For each granite variety used on Project, include physical property data.
02. Granite Samples: Submit samples of each granite type required, exhibiting the full range of color characteristics expected in the completed Work.
  - a. Submit a minimum of 2 each, 12 inches by 12 inches (305 mm by 305 mm) in size, and in each color and finish specified.
  - b. In the case of more variegated granite, submit color photos in addition to the number of samples to show the full range of color and markings.

- 03. Certificates: Submit a letter of certification from the granite fabricator, stating the material being furnished is the specified material and there are sufficient reserves available to supply the Project and furnish replacement units if needed.
- B. Quality Assurance/Control Submittals:
  - 01. Stone Test Reports:
    - a. Preliminary Test Reports: Submit test reports for proposed stones prior to final stone selection. Preliminary test reports shall be indicative of the granite to be proposed for the Project.
    - b. Material Test Reports: From a qualified independent testing agency.
      - 1) Provide reports for each granite type.
  - 02. Qualification Data: Submit qualification data specified under Article 1.06 QUALITY ASSURANCE.

**1.06 QUALITY ASSURANCE**

- A. Compliance:
  - 01. Comply with the provisions of the Building Code, these specifications, and standards referenced in Article 1.04 REFERENCE STANDARDS, except where more stringent requirements are shown on the Drawings or specified herein.
- B. Granite Supply: Each type of granite shall come from a single quarry, with sufficient reserves to satisfy the requirements of the Project.
- C. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate granite similar in material, design, and extent to that indicated for this Project, and whose work has resulted in applications with a record of successful in-service performance.
- D. Installer Qualifications: Experienced stone setters skilled in installing granite similar in material, design, and extent to that indicated for this Project, and whose work has resulted in applications with a record of successful in-service performance.

*SPECIFIER: Delete Paragraph below if fabricator and installer are 2 different entities.*

- E. Single Source Responsibility for Granite Work: Engage a qualified installer to assume complete responsibility for fabrication and installation of granite to comply with specified requirements.
  - 01. For granite types that include same list of varieties and sources, provide same variety from same source for each.

*SPECIFIER: Delete Paragraph below if a mock-up is not required.*

- F. Mock-up: Provide a mock-up of the granite installation in the approved colors and finishes, erected at the site in a location determined by the Architect, and agreed upon by the Contractor, and the fabricator.

*SPECIFIER: Indicate size of mock-up or reference Drawings for location of mock-up in subparagraph below; approved mock-ups which are subsequently removed on or before Substantial Completion, and not incorporated in the Work, shall be provided at the Owner's expense.*

- 01. Size: **[Insert dimensions] [Refer to Drawings for size and location]** .
- 02. Include typical components.
- 03. When approved, the mock-up will become the standard for the Project.

*SPECIFIER: Select removal or incorporation of mock-up in subparagraph below.*

- 04. [Remove mock-up(s) at Substantial Completion or when requested by the Architect.] [Approved mock-up(s) may become part of completed Work if undisturbed at time of Substantial Completion.]**

**1.07 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store and handle materials to prevent deterioration or damage.
  - 01. Carefully pack and load granite for shipment using reasonable care and customary precautions against damage in transit. Do not use material for blocking or packing, which may cause staining or discoloration.
  - 02. Stack granite on timber or platforms at least 4 inches (102 mm) above the ground. Use care to prevent staining or discoloration during storage.
  - 03. If storage is to be for a prolonged period, use polyethylene or other suitable plastic film placed between wood blocking and finished surfaces of completely dry granite.
- B. Store installation accessories, including metal items, to prevent corrosion and contamination.

**PART 2 - PRODUCTS**

## 2.01 GRANITE SOURCE

- A. Varieties and Source: Subject to compliance with requirements, provide granite from the following source:
  - 01. Granite Source: Dakota Granite Company; 1(605) 4325580.
- B. Substitutions: Suppliers seeking approval of their products are required to comply with the Owner's Instructions to Bidders.
- C. Granite Supply Examination: Make quarried blocks available for examination by Architect prior to fabrication.

## 2.02 GRANITE MATERIAL

- A. Granite: ASTM C615; match Architects's samples.

*SPECIFIER: Indicate individual Types in paragraph below, including applicable characteristics; add information necessary to meet Project requirements.*

- B. Granite Type [**Insert Drawing Designation Type**]:
  - 01. Granite Variety: [**Insert granite variety**].
  - 02. Finish: [**Split-face**] [**Other**]; with sawn beds.
  - 03. Thicknesses:
    - a. Unless otherwise indicated, provide units with not less than the following thicknesses: 8 inches (203 mm), plus or minus 1/4 inch (6 mm).

## 2.03 INSTALLATION ACCESSORIES

- A. Stainless Steel Anchors and Pins: ASTM A580, Type 304, as recommended by granite supplier for use with granite.

## 2.04 MISCELLANEOUS MATERIALS

- A. Cleaner: A neutral cleaner capable of removing soil and residue without harming granite and grout surfaces, specifically approved for materials and installations indicated by granite producer and grout manufacturer.

## 2.05 GRANITE FABRICATION

- A. Fabricate granite to comply with requirements indicated and with NBGQA's "Specifications for Architectural Granite".
- B. Select granite for intended use to prevent fabricated units from containing cracks, seams, and starts that could impair structural integrity or function.
- C. Cut granite from one block or contiguous, matched blocks in which natural markings occur.
- D. Cut granite to produce pieces of thickness, size, and shape indicated, and to comply with fabrication and construction tolerances recommended by applicable granite association.
  - 01. Clean sawed backs of granite to remove rust stains and iron particles.
  - 02. Dress joints straight and at a 90-degree angle to face.
- E. Fabricate granite units in sizes and shapes required to comply with requirements indicated, including details on Drawings and final shop drawings.
- F. Shape granite for type of masonry (pattern) as follows:

*SPECIFIER: Select one of the patterns specified in subparagraphs 1 through 3 below, as applicable for Project.*

- 01. Sawed-bed, ashlar with uniform course heights and uniform lengths as indicated on Drawings.
- 02. Sawed-bed, ashlar with uniform course heights as indicated on Drawings, and with random lengths.
- 03. Sawed-bed, ashlar with random course heights and random lengths (interrupted coursed).
- G. Finish exposed faces and edges of granite (except sawn reveals) to comply with requirements indicated for finish, and to match approved samples and mock-ups.
  - 01. Cap Units: Provide cap units with smooth surfaces.
  - 02. End and Corner Units: Match field units.
- H. Provide cap units, corner units, end units, and other shapes needed to produce walls of dimensions and profiles shown.
- I. Inspect granite at quarry and fabrication plant for compliance with requirements for appearance, material, and fabrication, prior to delivery to the Project site. Replace defective units which do not comply before shipment.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine surfaces indicated to receive granite units and conditions under which units will be installed, with installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.

01. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION PREPARATION

- A. Clean dirty and stained granite surfaces by removing soil, stains, and foreign materials before setting. Clean granite by thoroughly scrubbing with nonmetallic fiber brushes and then drenching with clear water. Use only mild cleaning compounds that contain no caustic or harsh materials or abrasives.

### 3.03 INSTALLATION OF DRY-PLACED GRANITE

- A. Sort granite before it is placed in wall to remove units that do not comply with requirements relating to aesthetic effects, physical properties, or fabrication, or that is otherwise unsuitable for intended use.
- B. Arrange granite with color and size variations uniformly dispersed for an evenly blended appearance.
- C. Field trim granite as granite is set.
- D. Set granite to comply with requirements shown on Drawings. Set granite accurately in locations shown with edges and faces aligned according to established relationships and indicated tolerances.
- E. Pattern:

*SPECIFIER: Select desired pattern(s) in subparagraph below.*

01. Ashlar Pattern: Arrange granite for accurate fit in ashlar pattern with **[uniform] [random]** course heights, **[uniform] [random]** lengths, and with offset between vertical joints as shown.
- a. Insert small granite pieces into spaces between larger pieces as needed to support larger pieces and to produce joints as uniform in width as practical.
- F. Protect granite during installation as follows:
01. At the end of each day's work, cover top of walls with nonstaining waterproof covering. Protect partially finished work when not being worked on.
02. Protect base of walls using coverings spread on ground and over wall surface.

### 3.04 ADJUSTING

- A. Remove dry-placed granite units and related work with the following defects, and replace with new units to match adjacent units, unless otherwise specified herein:
01. Broken, chipped, stained, and otherwise damaged units. Granite may be repaired if methods and results are approved by Architect.
02. Defective joints, including misaligned joints.
03. Granite units and joints not matching approved samples and mock-ups.
04. Granite units not complying with other requirements indicated.
- B. Replace in a manner that results in dry-placed granite walls which match approved samples and mock-ups, comply with other requirements, and show no evidence of replacement.
01. The Architect will make final decision on acceptance, at their discretion.

### 3.05 CLEANING

- A. General Clean granite in accordance with recommended guidelines in NBGQA's "Specifications for Architectural Granite", and granite producer.
- B. Final Cleaning: Clean granite using clean water and soft rags or stiff-bristle fiber brushes. Do not use wire brushes, acid-type cleaning agents, cleaning compounds with caustic or harsh fillers, or other materials or methods that could damage granite. After cleaning, rinse with clean water.
- C. When cleaning is completed, remove temporary protection.

END OF SECTION

NOTE: The following metric conversions shall apply where English measurements are indicated in the text:

1/64 inch	(0.40 mm)
1/32 inch	(0.80 mm)
1/16 inch	(1.5 mm)
1/8 inch	(3 mm)
3/16 inch	(5 mm)
1/4 inch	(6 mm)
5/16 inch	(8 mm)
3/8 inch	(10 mm)
1/2 inch	(13 mm)
5/8 inch	(16 mm)
3/4 inch	(19 mm)
13/16 inch	(20 mm)
1 inch	(25 mm)
13/16 inches	(30 mm)
11/4 inches	(32 mm)
11/2 inches	(38 mm)
15/8 inches	(41 mm)
2 inches	(51 mm)
3 inches	(76 mm)
4 inches	(102 mm)
6 inches	(152 mm)
7 inches	(178 mm)
8 inches	(203 mm)
10 inches	(254 mm)
12 inches	(305 mm)
16 inches	(406 mm)
18 inches	(457 mm)
24 inches	(610 mm) (0.6 m)
48 inches	(1220 mm) (1.2 m)
8 feet	(2440 mm) (2.4 m)
10 feet	(3 m)
20 feet	(6 m)
40 feet	(12 m)