QUIKRETE® Guide Specification

Precision Non-Shrink Grout (No. 1585-00)

High Strength, Non – Metallic, Portland Cement Based, Precision Non-Shrink Grout

General Purpose Non-Shrink Grout (No. 1585-01)

High Strength, Non – Metallic, Portland Cement Based Non-Shrink Grout

Section 036200 – Non-Shrink Grouting

PART 1 – **GENERAL**

1.10 **SUMMARY**

A. Provide high strength, non-metallic, Portland cement based non shrink grout..

B. Related Sections: Other specification sections which relate directly to the work of this section include the following:

Section 033000: Cast-In-Place Concrete
Section 034100: Pre-Cast Structural Concrete

1.20 **SUBMITTALS**

A. Product Data: Submit manufacturer's product data and installation for each material and product used. Include manufacturer's Material Safety Data Sheets.

1.30 REFERENCES

A. ASTM C 109: Compressive Strength of Hydraulic Mortars.

B. ASTM C 191: Setting Time of Hydraulic Cement.

C. ASTM C 827: Change in Height at Early Ages of Cylindrical Specimens of Cementitious Mixtures.

D. ASTM C 939: Flow of Grout for Preplaced – Aggregate Concrete (Flow Cone Method)

E. ASTM C 1107: Packaged Dry, Hydraulic Cement Grout (Non-Shrink)

F. ASTM C 488: Pull-Out Strength

G. Army Corps of Engineers CRD – 621: Non-Shrink Grout

1.40 **QUALITY ASSURANCE**

A. Manufacturer's Qualifications: The manufacturer shall be a company with at least fifteen years experience in the manufacture pf pre-packaged cementitious repair materials.

B. Installer's Qualifications: The contractor shall be qualified to perform the work specified by reason of experience.

1.50 **DELIVERY, STORAGE AND HANDLING**

A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.

B. Store products in a dry area. Protect from direct sunlight.

C. Handle products in accordance with manufacturer's printed recommendations.

PART 2 – **PRODUCTS**

2.10 **MATERIALS**

A. High Strength, Non – Metallic, Portland Cement Based Non-Shrink Grout. Comply with the following:

1. Manufacturer: Precision Non-Shrink Grout (No. 1585-00), General Purpose Grout (No. 1585-01), as manufactured by the QUIKRETE® Companies, One Securities Centre, 3490 Piedmont Road, NE, Suite 1300, Atlanta, GA 30305; telephone (404) 634-9100.

2. Performance and Physical Properties at 73 degrees F and 50 percent relative humidity:

a. Non-Shrink Grout: Precision Non-Shrink Grout

1. Compliance: ASTM C 1107; CRD 621

2. Working Time, ASTM C: 25 minutes @ 50°F (10°C), 25 minutes @ 73°F (23°C), 15 minutes @ 90°F (32°C).

3. Compressive Strength, ASTM C: 109 Modified

Plastic: 3000 psi (20.7 MPa) @ 24 hours, 9500 psi (65.5 Mpa) @ 3 days, 10,000 psi (68.9 MPa) @ 7 days, 14,000 psi (96.5 MPa) @ 28 days.

Flowable: 3000 psi (20.7 MPa) @ 24 hours, 9000 psi (62.1 MPa) @ 3 days, 9,500 psi (65.5 Ma) @ 7 days, 12,500 psi (86.2 MPa) @ 28 days.

Fluid: 2500 psi (17.2 MPa) @ 24 hours, 5000 psi (34.5 MPa) @ 3 days, 6000 psi (41.4 MPa) @ 7 days, 8000 psi (55.2 MPa) @ 28 days.

4. Height Change, ASTM C 1090: 0 – 0.2% at 1, 3, 7 and 28 days

5. Pull out Strength, ASTM C 488: 35,000 psi (241 MPa) (1 1/4" (31 mm) bolts embedded 9" (225 mm) deep in 3" (75 mm) hole in 2000 psi (13.8 MPa) concrete)

b. Non-Shrink Grout: General Purpose Non-Shrink Grout

1. Compliance at 73ºF (23ºC): ASTM C 1107
Working time at 73ºF: > 10 min

2. Compressive Strength, ASTM C 109 Modified:

Plastic: 3000 psi (20.7 MPa) @ 1 day, 9000 psi (62.0 MPa) @ 7 days, 10,000 psi (68.9 Mpa) @ 28 days.

Flowable: 3000 psi (20.7 Mpa) @ 1 day, 8000 psi (55.1 MPa) @ 7 days, 9,000 psi (62.0 MPa) @ 28 days.

Fluid: 2000 psi (13.8 MPa) @ 1 day, 6000 psi (41.3 MPa) @ 7 days, 8000 psi (55.1 MPa) @ 28 days.

3. Height Change, ASTM C 1090: 0 – 0.2% at 1, 3, 7 and 28 days.

PART 3 – **EXECUTION**

3.10 **EXAMINATION**

A. Examine substrates and conditions under which materials will be installed. Do not proceed with Installation until unsatisfactory conditions are corrected.

B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas landscaping from contact due to mixing and handling of materials.

3.20 **SURFACE PREPARATION:**

Comply with manufacturer's printed instructions and the following:

A. Clean surface to receive grout of all materials including dust, oil, dirt, and grease or Efflorescence.

B. Dampen with clean water before patching and remove standing water.

3.30 **FORMS:**

Comply with manufacturer's printed instructions and the following:

A. Forms must be water tight, strong, properly braced, and properly coated.

B. Allow a minimum clearance of 2 inches (50 mm) between forms and baseplate for grout entry.

C. Allow a minimum grout head of 6 inches (150 mm).

D. Slope form on placing side to assist in grout movement and to prevent trapping air.

E. Allow 1 inch (25mm) horizontal clearance and 1 inch (25 mm) vertical clearance for height above bottom of baseplate.

F. Provide venting of forms to avoid entrapment of air.

3.40 **MIXING:**

Comply with manufacturer's printed instructions and the following:

A. Material should be mechanically mixed for a minimum of 5 minutes using a five gallon (19L) bucket with a ½″ (12mm) drill and paddle mixer. For large grouting applications a standard mortar mixer should be used.

B. Add approximately 1 gallon + 3 pints (5.2L) of clean water for each 50lb (22.7 kg) bag to achieve a fluid consistency. For a Flowable consistency add about 1 Gallon + 1 Pint (4.3L). For a plastic approximately 1 Gallon (3.8L) is needed. Add the powder to the water and mix to a stiff gel-like consistency. Add water sparingly to reach the desired consistency. Do not exceed a flow of 20 seconds per ASTM C 939. Do not mix more material that can be placed in 15 minutes.

C. Do not re-temper with additional water.

3.40 **APPLICATION:**

Comply with manufacturer's printed instructions and the following:

1. The area to be grouted should be thoroughly flushed and soaked with clean water prior to grouting. Leave no standing water.

2. Place the grout quickly and continuously use light rodding or strapping to eliminate air bubbles.

3. Grout temperature should be maintained from 50°F to 90°F (10°C - 32°C) to achieve specified results. Use cold water in hot weather or hot water in cold weather to achieve desired grout temperature. Do not use if temperature is expected to go below 32°F (0°C) within a 12 hour period.

3.50 **CURING**

A. A damp cure of at least 3 days is necessary to control the Non-Shrink characteristics and maintain strength levels.

3.60 **CLEANING**

A. Remove excess material before material cures. If material has cured, remove using mechanical methods that will not damage substrate.

END OF SECTION