



SECTION 03 01 30 MAINTENANCE OF CAST-IN-PLACE CONCRETE  
SECTION 03 01 40 MAINTENANCE OF PRECAST CONCRETE  
SECTION 03 01 50 MAINTENANCE OF CAST DECKS AND UNDERLAYMENT  
SECTION 03 01 60 MAINTENANCE OF GROUTING  
SECTION 03 01 70 MAINTENANCE OF MASS CONCRETE  
SECTION 03 01 80 MAINTENANCE OF CONCRETE CUTTING AND BORING  
SECTION 03 54 16 HYDRAULIC CEMENT UNDERLAYMENT  
SECTION 03 62 13 NON-METALLIC NON-SHRINK GROUTING

[Note to specifier: Verify above references are current and applicable.]

## **PART I GENERAL**

### **1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions, apply to this section.

### **1.2 SUMMARY**

- A. This section specifies material for general concrete repair, very rapid concrete repair and non-shrink grouting. It is suitable for use on horizontal, vertical, or overhead surfaces from featheredge to 4 inches thick.

### **1.3 SUBMITTALS**

- A. Substitutions:  
[Note to specifier: This paragraph should be included in section 01 25 13. It is shown here as a convenience for your review.] Requests for substitution must be received by Architect at least 14 days prior to bid opening and shall be accepted only from prime bidders. Request shall include: documentation from an approved independent testing laboratory showing compliance with this specification, record of past performance, list of similar installations, detailed comparison of the qualities of the proposed substitute with the specified product, statement of product costs showing all savings passed to owner if approved, and certification by the contractor that the proposed substitute is in every significant way equal to or better than the specified product.
- B. Submit 2 copies of product manufacturer's literature and Material Safety Data Sheets (MSDS). [Note to specifier: Add any other required submissions.]



## 1.4 QUALITY ASSURANCE

- A. Comply with the following unless modified by this specification.
  - 1. ASTM C109/C109M-02 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. Cube Specimens)
  - 2. ASTM C191-04 Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle
  - 3. ASTM C882-99 Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear
  - 4. ASTM C928-00 Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs
  - 5. ASTM C1107-99 Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink)
  - 6. CRD 621-82A Corps of Engineers Non-Shrink Grout

## 1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to jobsite in original, unopened, undamaged containers that clearly show the manufacturer's name, product name, and batch number.
- B. Storage: Store material in a dry area off the ground. Protect from rain, snow, and other sources of moisture.

## PART 2 PRODUCTS

### 2.1 MATERIALS

- A. Shall be Rapid Set® Cement All™ manufactured by CTS Cement Manufacturing Corp., 11065 Knott Avenue, Suite A, Cypress, CA, 90630. Phone: 800-929-3030 Website: [www.ctscement.com](http://www.ctscement.com).
- B. The material shall meet the following minimum performance requirements.
  - 1. Set time per ASTM C191 (Mod.):  
Final set 45 minutes, maximum.
  - 2. Compressive strength per ASTM C109 (Mod.):  
1 hour\* 3000 psi



3 hour      4500 psi  
7 day        6000 psi  
28 day      9000 psi  
\* after final set

3. Bond strength per ASTM C882 (Mod.):  
1 day        1400 psi  
28 day      2600 psi
4. ASTM C928 for packaged concrete repair materials.
5. ASTM C1107 and CRD C621 for non-shrink grout.

C The material shall be hydraulic cement based, non-metallic with no added chlorides. Shall be pre-blended requiring only the addition of water.

D. Material shall be applied in thicknesses ranging from feather edge to 4”.

2.2 Water: Potable.

2.3 Admixtures and Additions:

If modification of the setting time, fluidity, color, or other properties is desired, use Rapid Set® Concrete Pharmacy® additives. Add the pre-measured packets per the manufacturer’s recommendations.

Do not add other materials unless specified here or approved in writing by CTS Cement Manufacturing Corporation.

### **PART 3 EXECUTION**

#### **3.1 SURFACE PREPARATION**

- A. Remove a minimum of 1/16 inch from the application surface.
- B. Concrete must be free of materials such as paint, oil, curing compound, bond breaker, or any material that will inhibit bonding. Mechanically remove loose, unsound, contaminated concrete.
- C. Reinforcing steel shall be free from rust and other materials that will inhibit bond. [Note to specifier: Add special requirements concerning replacement of reinforcing that has lost too much cross-sectional area.]
- D. Thoroughly clean extraneous material such as dirt, loose chips, and dust from



concrete surface. If compressed air is used, it shall be free of oil.

- E. Concrete surface shall be saturated with potable water. Standing water shall be removed from surface to achieve a saturated-surface-dry (SSD) condition.
- F. For formed grouting applications, build watertight non-absorbent forms leaving sufficient room to pour the grout.

### 3.2 MIXING

- A. Organize personnel and equipment before mixing.
- B. Use 3 to 5 quarts of water per 55 pound bag of Cement All™.
- C. Follow manufacturer's recommendations for mixing in cold or hot conditions. The mixed temperature may be controlled by protecting the bags of Cement All™ from temperature extremes and using hot or cold mix water.
- D. Add water to the mixing container. While mixing in a power driven mechanical mixer, such as a mortar mixer or a drill mounted mixer, add Cement All™.
- E. Mix for 1 to 3 minutes to achieve a uniform, lump-free consistency.
- F. Do not re-temper.

### 3.3 PLACEMENT

- A. Place Cement All™ immediately after mixing.
- B. Work the mixed Cement All™ firmly into all application surfaces to achieve good bond. Consolidate to remove air voids.
- C. Do not wait for bleed water. Apply final finish as soon as material condition allows.
- D. For baseplate grouting applications, pour the grout from one side only allowing it to fill the space below the plate completely.

### 3.4 CURING

- A. Water cure installations per manufacturer's recommendations.



Product Specification for:  
**Rapid Set® Cement All™**

**Rev. 041201**

### 3.5 CLEAN UP

- A. Maintain a clean, orderly work area.
- B. Clean excess material from surrounding areas immediately.
- C. Protect adjacent surfaces that may be damaged, with drop cloths, waterproof paper, or other means to maintain surfaces free of material splashes, water, and debris.

**END OF SECTION**