

PRODUCT SPECIFICATION

Rapid Set® CONCRETE MIX

Date Issued: 17-July-2013

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 70	MAINTENANCE OF MASS CONCRETE
SECTION 03 01 80	MAINTENANCE OF CONCRETE CUTTING and BORING
SECTION 03 30 53	MISCELLANEOUS CAST-IN-PLACE CONCRETE
SECTION 03 31 00	STRUCTURAL CONCRETE
SECTION 03 33 00	ARCHITECTURAL CONCRETE

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

PART 1: 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 construction and very rapid concrete repairs from 2" to 24" 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 (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 C39/C39M-03	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
2. ASTM C78-02	Standard Test Method for Flexural Strength of Concrete (Using Simple Beam with Third-Point Loading)
3. ASTM C191-04	Standard Test Method for Time of Setting of Hydraulic Cement by Vicat Needle
4. ASTM C928-00	Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs



1.5 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials to job site 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: PRODDUCTS

2.1 MATERIALS

- A. Rapid Set® CONCRETE MIX

Manufacturer:

CTS Cement Manufacturing Corp.

11065 Knott Avenue, Suite A, Cypress, CA, 90630

Phone: 800-929-3030

Email: info@ctscement.com

Website: 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
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- 2. Compressive strength per ASTM C39 (Mod.):

1 hour*	2800 psi
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3 hours	3600 psi
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1 day	5000 psi
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28 days	6000 psi
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*after final set

- 3. Flexural strength per ASTM C78 (Mod.):

2 hours*	420 psi
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1 day	650 psi
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28 days	750 psi
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- 4. ASTM C928 for packaged concrete repair materials.

- C. The material shall be hydraulic cement-based, low-shrinkage concrete repair material that is 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 2" to 24".

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" 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. For partial depth repairs, the perimeter of the area to be repaired shall be sawcut or chipped perpendicular to the surface to a minimum depth of 2". Do not cut or damage reinforcing steel.
- D. 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.]
- E. 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.
- F. Concrete surface shall be saturated with potable water. Standing water shall be removed from surface to achieve a Saturated, Surface Dry (SSD) condition.

3.2 MIXING

- A. Organize personnel and equipment before mixing.
- B. Use 3 to 5 quarts of water per 55-lb bag of Rapid Set® CONCRETE MIX
- C. Follow manufacturer's recommendations for mixing in cold or hot conditions. The mix temperature may be controlled by protecting the bags of repair material 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 repair material.
- E. Mix for 1 to 3 minutes to achieve a uniform, lump-free consistency.
- F. Do not re-temper.

3.3 PLACEMENT

- A. Place Rapid Set CONCRETE MIX immediately after mixing.
- B. Work the mixed Rapid Set CONCRETE MIX 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.

3.4 CURING

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

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

