PRODUCT SPECIFICATION

Rapid Set® VO Repair Mix

Date Issued: 22-June-2015

SECTION 03 01 30	**MAINTENANCE OF CAST-IN-PLACE CONCRETE**
SECTION 03 01 40	**MAINTENANCE OF PRECAST CONCRETE**
SECTION 03 30 00	**CAST-IN-PLACE CONCRETE**
SECTION 03 31 00	**STRUCTURAL CONCRETE**
SECTION 03 41 00	**PRECAST STRUCTURAL 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 vertical overhead or horizontal patch and repair of existing substrate from featheredge to 6" 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 C928	Standard Specification for Packaged, Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs
2. ASTM C348	Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars
3. ASTM C469	Standard Test Method for Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression
4. ASTM C496	Standard Test Method for Splitting Tensile Strength of Cylindrical Concrete Specimens

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: PRODUCTS

2.1 MATERIALS

A. Rapid Set® VO REPAIR 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. Compressive strength per ASTM C109 (Mod. by ASTM C928):

3 hours	3040 psi
1 day	5130 psi
7 days	6330 psi
28 days	6760 psi

2. Bond strength per ASTM C882 (Mod. by ASTM C928):

1 day	1690 psi
7 days	2070 psi
28 days	3410 psi

3. Length change per ASTM C157 (Mod. by ASTM C928):

Air storage at 28 days	-0.017%
Water storage at 28 days	+0.022%

4. Scaling resistance per ASTM C672 (Mod. by ASTM C928):

25 cycles	0
50 cycles	0

5. Flexural strength per ASTM C348

7 days	540 psi
28 days	1095 psi

6. Static Modulus of Elasticity per ASTM C469

28 days	2.80 x 10^6 psi

7. Splitting tensile strength per ASTM C496:

7 days	375 psi

28 days	450 psi

C. The material shall be hydraulic cement-based, low-shrinkage mortar 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 featheredge to 6”.

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 spalled and unsound concrete from application surface.

B. Concrete substrate 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. If rusty reinforcing steel is present, it must be abrasively blasted to remove rust. Do not cut or damage reinforcing steel. [**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.

3.2 MIXING

A. Organize personnel and equipment before mixing.

B. Use 4 to 4.5 quarts of water per 50-lb bag of Rapid Set® VO Repair 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. Place the desired quantity of water into the mixing container. Use less water to achieve higher strengths.

E. While mixing, add VO Repair Mix. Mix for the minimum amount of time required to achieve a lump-free, uniform consistency (usually 1 to 3 minutes).

F. Do not re-temper.

3.3 PLACEMENT

A. Place Rapid Set® VO Repair Mix immediately after mixing.

B. Work the mixed Rapid Set® VO Repair 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.

D. VO Repair Mix may be troweled, floated, shaved, or broom-finished.

E. On flat work, do not install in layers. Install full depth sections and progress horizontally.

F. Do not install on frozen surfaces. VO Repair Mix may be applied in temperatures ranging from 45°F to 90°F.

3.4 CURING

A. VO Repair Mix does not require water curing or curing compound under normal conditions at 70°F.

B. If used in excessively dry, windy, or hot conditions apply a fine water mist to VO Repair Mix installations. Begin curing as soon as surface starts to lose its moist sheen. Keep exposed surfaces wet for a minimum of 1 hour if water curing is necessary.

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

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