

PRODUCT SPECIFICATION

Rapid Set® MORTAR MIX

Date Issued: 25th September 2017

CONCRETE CANCER REPAIRS	MAINTENANCE OF CAST-IN-PLACE CONCRETE
RENDER REPAIRS	MAINTENANCE OF PRECAST CONCRETE
CRACK REPAIRS	MAINTENANCE OF CAST DECKS AND UNDERLAYMENT
STRUCTURAL REPAIR	MAINTENANCE OF MASS CONCRETE
CONCRETE REPAIR & MAINTENANCE	HYDRAULIC CEMENT UNDERLAYMENT

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, plastering and very rapid concrete repairs from 12mm to 150mm thick.

1.3 SUBMITTALS

A. *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.

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| 1. ASTM C109/C109M-02 | Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 50mm 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 |

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 REPAIR MATERIALS

A. Rapid Set® MORTAR MIX

Distributor:
CTS RapidSet Cement Pty Ltd
7/55 Pine Road, Yennora, NSW 2161
Phone: 02 9632 1900
Website: www.ctsrapidsetcement.com.au

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 C109 (Mod.):

1 hour*	17.23 MPa
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3 hours	27.57 MPa
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7 days	41.36 MPa
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28 days	48.26 MPa
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*after final set

3. Bond strength per ASTM C882 (Mod.):

1 day	6.89 MPa
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28 days	15.17 MPa
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4. ASTM C928 for packaged concrete repair materials.

5. 0.05% maximum drying shrinkage at 28 day when tested per ASTM C928.

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. Apply material in thicknesses ranging from 12mm to 150mm.

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 1.6mm 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 12mm. Do not cut or damage reinforcing steel.
- D. Reinforcing steel shall be free from rust and other materials that will inhibit bond.
Mix 10:1 ratio Prime All to Cement All and brush on exposed reinforcing steel.
[**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. Mix 50:50 ratio Prime All and water and apply to concrete wet on wet
- G. If placed directly on the subgrade, the subgrade must be well compacted.
[**Note to specifier:** State compaction requirement.]
- H. For exterior plaster repairs, chip back perimeter to expose enough surface to provide proper overlap. Do not install against a sawcut edge. Maintain an irregular, fractured edge. Reinstall any damaged surface and vapor barrier to meet building code requirements.
[**Note to specifier:** Refer to local building code for lath and vapor barrier requirements]

3.2 MIXING

- A. Organize personnel and equipment before mixing.
- B. Use 2.8 to 4.7 litres of water per 25 kg bag of Rapid Set® MORTAR 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 MORTAR MIX immediately after mixing.
- B. Work the mixed Rapid Set MORTAR 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

