



GUIDELINE FOR WRITING SPECIFICATIONS WHEN USING JAHN M70, M90, M160 RESTORATION MORTARS

Select Relevant Selection

Division 4 - Masonry

Part 1 – GENERAL

1.1 SUMMARY OF WORK

- A. For repairing limestone, sandstone, brownstone, precast concrete, structural concrete or granite, bluestone.

1.2 SUBMITTAL

- A. Submit the following items in time to prevent delay of the work and to allow adequate time for review and resubmittals, if needed; do not order materials or start work before receiving the written approval:
 1. Certificates should be submitted stating that all Installers of the repair mortar have successfully completed the training workshop for installation of the mortar. (Three day workshops for Installers of Jahn Restoration Mortars are offered by Cathedral Stone[®] Products, Inc. and held at 7266 Park Circle Drive, Hanover, MD 21076; tel. (410) 782-9150; fax. (410) 782-9155.)
 2. Samples of all specified materials and Material Safety Data Sheets (MSDS) as appropriate.
 3. Install mortar samples on masonry—preferably on the building. Do not make samples in cups or apply to plywood or other non-masonry surfaces.
 4. *Written verification from the Contractor that all specified items will be used. Provide purchase orders, shipping tickets, receipts, etc. to prove that the specified materials were ordered and received.*

1.3 QUALITY ASSURANCE/TEST REQUIREMENTS

- A. *Installer certification:* All repairs should be performed by a trained installer holding a Training Workshop Certificate from Cathedral Stone Products, Inc.. Contractor shall maintain proof of this credential for each installer at the site at all times (for M70 & M160).
- B. *Mortar Samples:* Prepare a sample of each type of repair listed below, using masonry removed from the building where designated by the Owner. Prepare, install, and finish each sample repair according to the specifications. **All samples must be applied to masonry.** Prepare samples in an area where they will be exposed to the same conditions as will be present on the building during curing. **Allow samples to cure at least three days (or longer, if possible) before obtaining Owner's approval for color match.** Mortar colors will continue to lighten as they cure and are exposed to the weather, so samples should be installed as far in advance as possible. A slightly darker color will give better long-term results. **Samples should be viewed from a minimum distance of 18-22 feet.**

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Materials are to be delivered, stored, and handled to protect them from damage, extreme temperature, and moisture in accordance with Manufacturer's written instructions.
- B. Deliver and store material in Manufacturer's original, unopened containers with the production date shown on the container or packaging.
- C. Comply with the Manufacturer's written specifications and recommendations for mixing, application, and curing of mortars.

1.5 PROTECTION/SITE CONDITIONS

- A. *Cold Weather Requirements:* Do not work in temperatures below 40° F, when the substrate is colder than 40° F, or when the temperature is expected to fall below 40° F for 48 hours after installation of repair mortars. Building an enclosure and heating areas to maintain this temperature may only be done with the written approval of the Specifier.
- B. *Hot Weather Requirements:* **Protect repair mortar from direct sunlight and wind.** Do not use or prepare mortar when ambient air temperature is above 90° F.

Part 2 – PRODUCTS

2.1 MASONRY REPAIR

- A. Jahn Restoration Mortars are distributed by Cathedral Stone® Products, Inc., 7266 Park Circle Drive, Hanover, MD 21076; tel. (410) 782-9150; fax. (410) 782-9155; website: www.cathedralstone.com email: info@cathedralstone.com. Jahn Mortars are premixed cementitious repair materials formulated to match the color and texture of the existing masonry, and do not contain any acrylic, latex, or other synthetic polymer additives. Mix the mortar with clean, potable water.

Substitutions: If proposed equal is submitted, lab test to establish equivalent performance levels. Use an independent testing laboratory, as determined by the Specifier, and paid for by the submitting party.

- B. *Setting anchors in existing masonry:* Jahn Anchor Setting Mortar (M80).
- C. *Mechanical anchors and dowels:* Stainless steel threaded rod (ASTM F593) with a diameter as indicated on Contract Drawings, bent and cut to lengths required to achieve embedments shown on the Contract Drawings.

Part 3 – EXECUTION

3.1 WORKMANSHIP

- A. Do not use any additives, such as bonding agents, accelerators, or retardants in the mortar.

3.2 PREPARATION FOR REPAIRS

- A. Remove all loose mortar and masonry prior to installation of the repair mortar. "Sound" masonry with a hammer to verify its integrity. If necessary, cut away an additional 1/2" of the substrate to ensure the surface to be repaired is solid and stable. Remove any sealant residue.

- B. Where cramp anchors, threaded rod anchors, or dowels have been cut and pieces remain embedded in the substrate: Anchors that are free of rust, solidly embedded, and do not project beyond the surface of the masonry unit may remain. All others should be removed.
- C. Cut the edges of the repair area to provide a minimum depth of 1/4". The edges of the repair should be square cut. **Do not allow any feathered edges in the repair area.**

**FOR DEEP OR OVERHANGING REPAIRS OR FOR USE IN HIGH RISE CONSTRUCTION,
PROCEED WITH D-F, OTHERWISE SKIP TO G**

- D. Install mechanical anchors in all repair areas if specified on the Contract Drawing or as otherwise directed by the Specifier.
- E. *Install anchors as follows:*
 - 1. Drill holes to diameter specified on Contract Drawing.
 - 2. Clean holes using compressed, oil-free air, and bristle brushes, until no dust cloud is produced when a brush, inserted the full depth of the hole, is pulled out of the hole.
 - 3. Embed anchors in back-up using Jahn M80, mixed according to Manufacturer's instructions.
 - 4. Anchors should be covered with a minimum of 3/4" repair material.
- F. Clean all dust from surface and pores of the substrate, using clean water and a scrub brush.
- G. For very dry or porous surfaces, pre-wet the substrate ahead of time to prevent the substrate from drawing moisture out of the repair too quickly. Re-wet the surface immediately before applying the repair material.

3.3 MIXING MORTAR FOR REPAIR

- A. It is recommended that a dust mask be worn during mixing. Do not mix more material than can be used within 30 minutes. Discard any mixed material that has been unused for 30 minutes or more.
- B. Mixing ratios for limestone, sandstone, granite, precast concrete, and structural concrete are as follows:
 - 1. Approximately 5 parts dry material to 1 part water:
 - M70 - Limestone, Sandstone, Brownstone
 - M90 - Structural Concrete
 - M160 - Granite, Bluestone
- C. Add water to dry ingredients and mix well. Adjust amount of water according to the weather and the porosity of the substrate.
- D. The next step of the application is what CSP has termed the "Peanut Butter" coat. The Jahn mortar should be mixed with water to the consistency of wet putty. Apply the "Peanut Butter" coat to the glistening wet substrate approximately 1/8 inch thick. **Important – To achieve proper bond, the "Peanut Butter" coat must not dry out prior to application of Jahn Mortar (5:1) mix!**

3.4 APPLICATION OF REPAIR MATERIAL

- A. Apply the mortar mix (see data sheet) using a trowel to place and compress the mortar into the repair ensuring not to leave any voids. For overhead repairs thicker than 2", apply mortar in layers, allowing the first layer to cure for a two to four hours before applying the second layer. If applied in layers, scrape off any cement skin that has formed and continue application. Dampen the surface and before applying the next layer. Work mortar firmly into the surface of the masonry, including the corners, and under and around all mechanical anchors.
- B. Build up repair material so that it is slightly above the adjacent masonry surface. Allow mortar 30 to 60 minutes to set slightly (wait time will vary with temperature and humidity—longer in cool weather), and then scrape off excess material using a straight edge (a plasterer's miter rod is good for this). Do not press down or "float" the repair. Where repairs occur at panel edges or corners, form mortar to match the profile of the surrounding masonry. In all cases, finish and texture repair so that it is as indistinguishable as possible from the adjacent masonry.

3.5 FINISHING TECHNIQUES

- A. To obtain a smooth finish repair should be scraped down to the original profile then trowelled to leave a smooth surface. This may cause the repair to lighten and may need to be stained to match.
- B. When finishing a granite repair, do not scrape the repairs as described above. The larger aggregate in the granite material will follow the screed, tearing the surface. Trowel the mortar even with the surrounding surface. Coarse aggregate or colored granite chips may be applied to the top surface only to match surrounding granite or precast concrete. Aggregate should be sifted and rinsed to ensure it is free of dust. Dampen the aggregate and press it firmly into the repair while the mortar is still damp. Allow patch to set (approximately 4-6 hours) scrub the repair with a bristle brush and water to remove excess mortar to expose aggregate. Some experimentation will be necessary to achieve the desired texture.
- C. Patching mortar can be textured to match rough surfaces using a variety of finishing tools. (Contact Cathedral Stone Representative)
- D. Clean any mortar residues from area surrounding the repair by sponging as many times as necessary with clean water. This should be done before repair material sets.
- E. After the repair has been cured and allowed to dry for at least one week, if the appearance of a repair does not meet the specifications of the job, the surface color of the repair may be enhanced by applying a vapor permeable, mineral based pigmented stain. (masonRE Coatings, a mineral based pigmented stain is available from Cathedral Stone[®] Products, Inc., 7266 Park Circle Drive, Hanover, MD 21076; tel. (410) 782-9150; fax. (410) 782-9155.)

3.6 CURING PROCEDURE

- A. Lightly mist the repair with water to wet the entire surface of the finished repair approximately 30 minutes to 1 hour after completion on hot sunny days, and approximately 2 hours or longer, on cool or cloudy days. Time will vary with temperature and humidity. Mist several times a day on the three days following the repair installation. Should access to the repairs be impossible for a period of time, plastic may be used to cover them temporarily. The application of plastic, however, does not remove the need for normal curing techniques. *Never cover repairs with plastic immediately after finishing—the water in the repair will be trapped on the surface, causing it to lighten.*

3.7 CLEAN UP

- A. Remove uncured mortar from the perimeter of the repair before it dries using clean water and a rubber sponge. Repeat several times with clean water to prevent a halo effect (staining of adjacent masonry). Cured mortar may only be removed chemically or mechanically.
- B. Remove uncured mortar from tools and equipment with water as soon as possible. Cured material may only be removed chemically or mechanically.

END OF SECTION

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