

RePoint

Division 4: Masonry

Meets ASTM C387 and C270 for the respective strength of Type O or Type N mortars.

SECTION 040140.91 – STONE RESTORATION

PART 1 GENERAL

1.1 SUMMARY

Provide labor, materials, equipment and supervision necessary to complete the application of product to brick, brownstone, sandstone, limestone, terracotta, cast stone and other masonry substrates.

1.2 SYSTEM DESCRIPTION

The products shall meet or exceed the following performance standards:

Type N:

Physical state and appearance		Dry, pigmented powder
Base		Portland/Lime Blend
pH	Wet mix	>12
Aggregate Type		Graded sand
Compressive strength at 28 days	ASTM C109	>750 psi
Flow	ASTM C230	110 percent +/- 5 percent

*Data presented applies to non-pigmented base material where noted

Type O:

Physical state and appearance		Dry, pigmented powder
Base		Portland/Lime Blend
pH	Wet mix	>12
Aggregate Type		Graded sand
Compressive strength at 28 days	ASTM C109	>350 psi
Flow	ASTM C230	110 percent +/- 5 percent

*Data presented applies to non-pigmented base material where noted

1.3 SUBMITTALS

- A. Manufacturer's current product data bulletin.
- B. The trained applicator shall prepare a test panel of the repair installed on the actual building as a submittal for approval of proper application and adhesion.
 1. These panels are prepared by the contractor using the same techniques that will be used on the remainder of the project. Several panel locations—preferably not on the front or other highly visible location of the building—may be necessary to include all types of masonry, joint styles, mortar colors, and other problems likely to be encountered on the job.
 2. If cleaning tests, for example, are also to be undertaken, they should be carried out in the same location. Usually a 3 foot by 3 foot area is sufficient for brickwork, while a somewhat larger area may be required for stonework. These panels establish an

acceptable standard of work and serve as a benchmark for evaluating and accepting subsequent work on the building.

- C. The trained applicator shall submit to the specifier a list of five projects that he has completed within the last five years, exhibiting the applicator's skills. The list shall include project name, location, and description of work and completion date.

1.4 QUALITY ASSURANCE

Products shall be installed by a trained applicator with a minimum of five years' experience and meet the requirements of the specifier.

1.5 DELIVERY, STORAGE & HANDLING

- A. Deliver all products and all accessories in original labeled, sealed, and undamaged containers or bundles.
- B. Store all products in accordance with manufacturer's printed instructions.
- C. Handle products in accordance with manufacturer's printed instructions.

1.6 PROJECT/SITE CONDITIONS

All products shall be applied at substrate and ambient temperatures of 40 degrees F or above. A minimum temperature of 40 degrees F shall be maintained 24 hours after completion of work. Protect products from weather and other damage for a period of 24 hours after installation. Do not apply products to frozen surfaces.

1.7 SCHEDULING

The work requires close coordination with related sections and trades.

PART 2 PRODUCTS

2.1 MANUFACTURERS

The following manufacturers are approved for the project.
Conproco

2.2 MATERIALS

RePoint: A Type N or Type O, color matched, single component pointing repair mortar for unit masonry repair.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Installation shall be performed strictly in accordance with manufacturer's current product data bulletin.
- B. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.

- C. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas and landscaping from contact due to mixing, handling and application of materials.

3.2 JOINT PREPARATION

- A. Prior to application of the product, inspect the substrate for proper cleaning and treatment of structural cracks, texture differences, damage, etc. Work shall not proceed until unsatisfactory conditions are corrected.
- B. Old mortar should be removed to a minimum depth of 2 to 2-1/2 times the width of the joint to ensure an adequate bond and to prevent mortar "popouts." For most brick joints, this will require removal of the mortar to a depth of approximately 3/4 to 1 inch; for stone masonry with wide joints, mortar may need to be removed to a depth of several inches. Any loose or disintegrated mortar beyond this minimum depth also should be removed.

Although some damage may be inevitable, careful joint preparation can help limit damage to Masonry units. The traditional manner of removing old mortar is through the use of hand chisels and mash hammers.

The most common method of removing mortar, however, is through the use of power saws or grinders. The use of power tools by unskilled masons can be disastrous for historic masonry, particularly soft brick. Using power saws on walls with thin joints, such as most brick walls, almost always will result in damage to the masonry units by breaking the edges and by overcutting on the head, or vertical joints.

However, small pneumatically-powered chisels generally can be used safely and effectively to remove mortar on historic buildings as long as the masons maintain appropriate control over the equipment. Under certain circumstances, thin diamond-bladed grinders may be used to cut out *horizontal* joints only on hard Portland cement mortar common to most early-20th century masonry buildings. When joints are softer than the masonry units, mortar rakes may be the most efficient and safest removal method. Usually, automatic tools most successfully remove old mortar without damaging the masonry units when they are used in combination with hand tools in preparation for repointing. Where horizontal joints are uniform and fairly wide, it may be possible to use a power masonry saw to assist the removal of mortar, such as by cutting along the middle of the joint; final mortar removal from the sides of the joints still should be done with a hand chisel and hammer. Caulking cutters with diamond blades can sometimes be used successfully to cut out joints without damaging the masonry. Caulking cutters are slow; they do not rotate, but vibrate at very high speeds, thus minimizing the possibility of damage to masonry units. Although mechanical tools may be safely used in limited circumstances to cut out horizontal joints in preparation for repointing, they should never be used on vertical joints because of the danger of slipping and cutting into the brick above or below the vertical joint. Using power tools to remove mortar without damaging the surrounding masonry units also necessitates highly skilled masons experienced in working on historic masonry buildings. Contractors should demonstrate proficiency with power tools before their use is approved.

Using any of these power tools may also be more acceptable on hard stone, such as quartzite or granite, than on terra cotta with its glass-like glaze, or on soft brick or stone. The test panel should determine the acceptability of power tools. If power tools are to be permitted, the contractor should establish a quality control program to account for worker fatigue and similar variables.

- C. Mortar should be removed cleanly from the masonry units, leaving square corners at the back of the cut.

- D. Before filling, the joints should be rinsed with a jet of water to remove all loose particles and dust. Remove dust and debris from the joints by brushing, blowing with air or rinsing with water. Do not rinse when temperature is below freezing.
- E. At the time of filling, the joints should be damp, but with no standing water present (Saturated Surface Dry/SSD). For masonry walls—limestone, sandstone and common brick—that are extremely absorbent, it is recommended that a continual mist of water be applied for a few hours before repointing begins.

3.3 APPLICATION

A. Mixing

1. Empty entire contents of the bag/bucket into an appropriate mixing vessel.
2. Add enough water (4 to 5 pints) to get a hand formed ball consistency.
3. Allow to prehydrate for 30 minutes to minimize shrinkage.
4. Add additional water (half pint) to achieve desired consistency.

B. Application

1. At time of application surfaces must be saturated surface dry but hold no standing water.
2. Tightly pack mortar into joints to desired thickness.
3. Allow layer to become thumbprint hard before applying the next layer.
4. Pack final layer flush with surfaces of masonry units. When mortar becomes thumbprint hard, tool the joints.
5. Tool joints with the appropriate jointing tool to recreate the existing joint profile.

C. Curing

1. Keep damp with a fine mist of water after initial set of mortar for 24 hours. If repair is inaccessible, tape polyethylene over the area to retain moisture. Do not allow polyethylene to contact pointing work as this will cause discoloration.
2. Protect repair from direct sunlight, wind, precipitation and frost during curing period.

3.4 CLEANING

- A. Material left over at the job site by the approved applicator shall be removed.
- B. All adjacent surfaces and materials shall be cleaned.
- C. Cured material must be removed mechanically.

END OF SECTION 040140.91