MASONRY RESTORATION

Butter Joint Repointing Guide

PREPARATION AND REPOINTING OVERVIEW

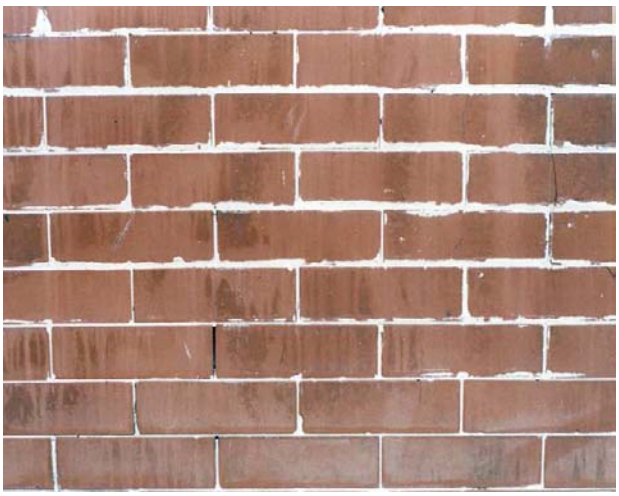

Fig 1. Butter Jointed face brick badly pointed with hard mortar using a high concentration of white portland cement. Originally, it had black mortar, with a flush joint. Mortar was smeared onto the face of the brick, making the joints appear to be thicker than they actually are.

Fig 2. To ensure that the brick is not damaged when the mortar is removed, it is necessary to find the joint. In the most sensitive manner possible, gently scrape off the mortar adhered to the face of the brick.

Fig 3. Once the excess mortar has been scraped from the faces of the brick, wet the masonry down with water.

Fig 4. Scrub away the stains and mortar residue using a brush with nylon or natural bristles.

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Fig 5. Thoroughly saturate the wall with water; by doing so, the lime present in the original mortar is softened, making the mortar easier to remove.

Fig 6. For mortar removal, choose the technique that makes the least impact on the masonry. The use of hand tools is always recommended. Grout keys work well to remove mortar from butter joints unless they are extremely thin.

Fig 7. If the repair mortar is too hard and rigid to be removed manually, experiment with power tools. If a grinder must be used, use it only to score the center of the joint to weaken the material (above). Mark the center of the joint with a pencil and straight edge to give you a line to follow. Be certain that the diamond blade is no more than 1/2 the width of the mortar joint. Do not cut the head (vertical) joints with the grinder, only the bed (horizontal) joints. Position your hand or forearm against the wall to control the movement of the grinder.

Fig 8. The mortar pictured being removed was particularly hard and the joints were very thin. After attempting to use several different tools, a caulking cutter and a diamond blade proved to work best. When cutting, be careful not to cut too deeply, through all of the mortar. Butter joints were originally laid with mortar only on the edges of the brick.

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Fig 9. After the center of the mortar joint has been cut, use hand tools to carefully remove mortar from the sides of the brick.

Fig 10. Once all mortar has been removed from the joints, wash away dust and particles with water and a brush. This helps in two ways: It prevents replacement mortar adhering to masonry, it also prevents shrinkage crack formation (the brick will not absorb water from the mortar). Before installing material, eliminate standing water.

Fig 11. Load your hawk with a relatively dry and stiff mortar mix. A sufficiently dry mix will compact well and prevent shrinkage cracks.

Fig 12. Using a trowel, press the mix into the hawk repeatedly to make the mix more plastic and workable. Right-handers move right to left. Slide the mortar off of the hawk into the mortar joint. To assist compaction, press the mortar in the joint at approximately a 35° angle, depositing the mortar on the brick or newly installed material to the side. Fill all bed (horizontal) joints before filling head (vertical) joints.

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Fig 13. With the bed (horizontal) filled, the size of the vertical openings will be reduced and less material is needed to be inserted into them (upper left). If joints are very deep, fill them to a uniform level below the surface and allow it to set. When you return to complete the pointing, abrade the already installed mortar to remove the thin, waterproof skin that has formed on the exterior. Install a second layer of mortar. In all cases, fill the joints with slightly more mortar than necessary.

Fig 14. Once the mortar has reached thumb-print firmness, tool in the same fashion as the original, cutting off the excess with a trowel. A stiff bristled churn brush should be used to further compact the newly installed mortar and expose the aggregate.

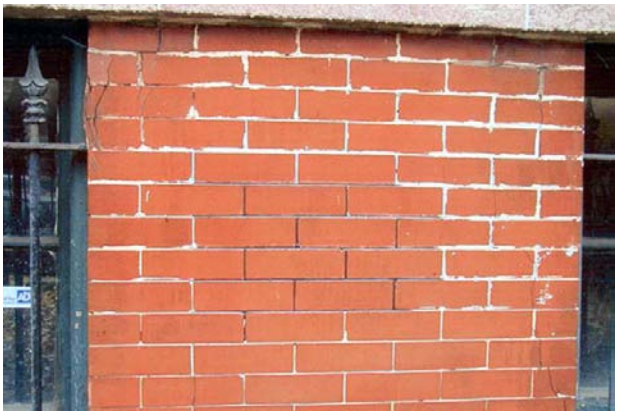

Fig 15. Note the very thin butter joint (black mortar), tooled to match the original, is visually different from the badly applied white Portland cement mortar.

Fig 16. Following mortar installation protect the area from the sun, wind, and rain, with burlap and/or plastic sheeting to allow the mortar to cure slowly through carbonation. To impede drying, joints need to be moistened periodically during the first 72 hours. The rate of mortar drying depends on environmental factors: temperature, level of humidity, and direct sunlight exposure. You may need to wet hot and dry

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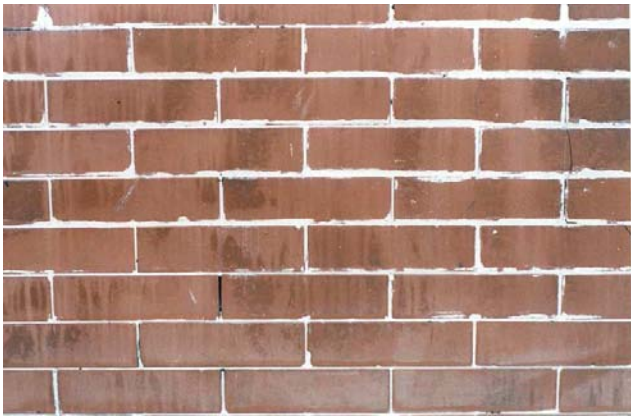
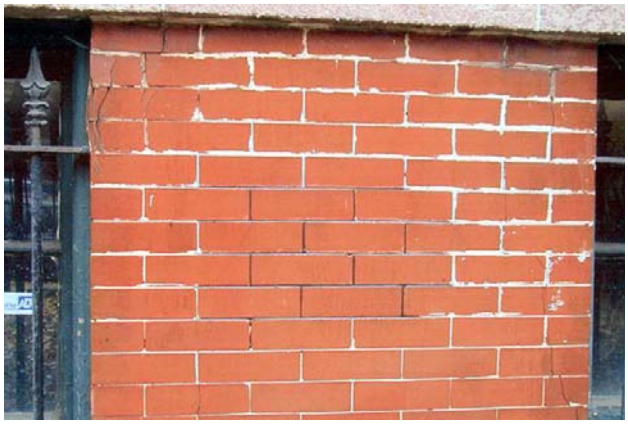
masonry more frequently.



Before



After

Review:

1. Find the Joint and Remove Replacement Mortar from Face of Brick (fig. 1,2 & 3)
2. Wet the Wall and Scrub Away Any Stains (fig. 4)
3. Thoroughly Wet Masonry to Soften Mortar and Attempt to Remove Mortar by Hand (fig. 5)
4. Score the Center of the Mortar Joint with a Grinder to Weaken the Material (fig. 6, 7 & 8)
5. Remove Mortar from Sides of Bricks with Hand Tools (fig. 9)
6. Wash Mortar from Joints, Saturating Bricks with Water (fig. 10)
7. Load Hawk and Compress Mortar with Trowel to Make Plastic (fig. 11 & 12)
8. Fill Bed Joints Then Head Joints (fig. 13)
9. Allow Mortar to Firm and Tool as Necessary (fig. 14)
10. Cover Work with Burlap and/or Plastic Sheeting to Protect from Elements (fig. 16)
11. Monitor Work for First 72 Hours, Returning as Necessary to Wet Joints with Water

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