WORSE THAN THE ’62 METS?

Is the industry’s success rate for historic repointing projects worse than the Win/Loss record for the 1962 New York Mets?

When the National League expanded to create the New York Mets in 1961, an expansion draft was held that essentially gave them access to the worst players from every other team. In 1962, their first full season, they lost 75% of their games and finished more than 60 games out of first place, the worst record in modern baseball history. At one point they lost 17 games in a row. The error-prone team became a national laughingstock, and Mets Manager Casey Stengel famously asked *“Can’t Anybody Here Play This Game?”*

Casey Stengel: "Can't Anybody Here Play This Game?"

Late night personality Johnny Carson had a comedy bit in which he played “Carnac the Magnificent”, a psychic who could foretell the answer to a question within a sealed envelope by holding it to his forehead. On one occasion he held up the envelope and declared:

“The answer is Catch 22”.

He then ceremoniously opened the envelope and read the question:

“What do the New York Mets do with a hundred fly balls?”

Delamination of 4-year-old repointing mortar. Crack width was sufficient to cause leakage and damage to adjacent masonry.

For historic masonry repointing projects, it may well be that 75% of them fail to achieve the best potential results. Despite establishment of detailed guidelines for proper repointing, published by authorities like the National Park Service, the Brick Institute of America and ASTM, almost no-one is following them. As the negative impact of poor repointing work may take several years to become evident, deficiencies often go unnoticed until it is too late. But if proper procedures are only followed perhaps 1 or 2% of the time, what are the chances that the industry’s success record is worse than the 25%-win rate for the ’62 Mets?

A properly executed repointing project should provide at least 25 years of service, according to the Brick Institute, and arguably that number could be much higher. So why do so many projects fail to achieve that? The short answer is that choices are being made on a regular basis that undermine the

performance and durability of the work.

Commonly Ignored Rules

1. **Pre-dampening**
   Preservation Briefs #2 on Historic Repointing states: *"At the time of filling, the joints should be damp, but with no standing water present. 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."*

   ASTM E2260 Guide for Historic Repointing provides similar guidance:
   "10.2.4 Moisten joints with water prior to repointing to reduce water absorption from the repointing mortar before it is properly set; this improves cure and bond strength. No standing water should be visible in the joint."

   This is rarely done properly, if at all, even though it's easier than observing some of the *other* guidelines that are commonly ignored.

2. **Pre-hydration of Mortar**
   Though the specific recommendations vary for allowing portland cement/lime-based mortars to sit for some time before adjusting consistency with additional water and then using it, there is general agreement that shrinkage can be reduced by delaying application after initial mixing. While pre-hydration may occur coincidentally, just as a matter of logistics, as mortar often sits for some time before it is entirely used, it's rarely a conscious decision. But mortar that is used immediately after mixing is more likely to shrink and crack, particularly when applied to absorbent masonry that has not been properly pre-dampened.

3. **Placement in "Lifts"**
   This practice is more onerous and more costly to observe, but it also has a significant impact on shrinkage. Guidance varies somewhat from source to source, but it all points toward multiple applications.


Erosion and losses in 3-year-old repointing mortar

From BIA 7F: *"The mortar should be packed tightly into the joints in thin layers (1/4 in. [6 mm] maximum). Each layer should become "thumbprint hard" before applying the next layer."*

From ASTM E2260: *"Fill the joints in three successive layers." "Apply successive lifts and tool mortar joints when the repointing has achieved initial set."*

From NPS Preservation Briefs #2: "*Where existing mortar has been removed to a depth of greater than 1 inch, these deeper areas should be filled first, compacting the new mortar in several layers. The back of the entire joint should be filled successively by applying approximately 1/4 inch of mortar, packing it well into the back corners. This application may extend along the wall for several feet. As soon as the mortar has reached thumb-print*

hardness, another 1/4 inch layer of mortar—approximately the same thickness—may be applied. Several layers will be needed to fill the joint flush with the outer surface of the masonry. It is important to allow each layer time to harden before the next layer is applied; most of the mortar shrinkage occurs during the hardening process and layering thus minimizes overall shrinkage."

Of course, doing it this way expends a great deal more labor than simply filling the joint in a single application, and it can be particularly burdensome if the work is being done from swing staging. Nonetheless, it can compromise the work when this practice is omitted, as it usually is.

4. **Retempering**

There are some differences in guidance as to the permissibility of retempering.

Per ASTM E2260*: "10.3.5 Adding additional water to the mortar to maintain workability, known as retempering, can be performed during the two-hour period [after mixing]. Retempering of pigmented mortar may change the color of the mortar."*

But Preservation Briefs #2 discourages retempering altogether: "*Mortar should be used within approximately 30 minutes of final mixing, and "retempering," or adding more water, should not be permitted."*

The concept behind retempering is that mixed mortar left in a typical mortar box, open to the elements, may lose moisture due to evaporation. The technical argument is that it should be acceptable to replace moisture losses resulting from such evaporation to restore workability. As a practical matter, however, it is unlikely that workers will distinguish between loss of workability due to evaporation and loss of workability due to the initial setting of the mortar. Adding more water to mortar that has begun to set results in greatly diminished strength and greatly increased shrinkage. Accordingly, there is a high probability that on projects where retempering is being practiced it will result in compromised performance and durability. If you're seriously concerned about evaporation, you can always cover the mortar box with a tarp, or just mix smaller batches that will be used more quickly.

5. **Curing**

An ideal wet-curing system, consisting of misting hoses zip-tied to the staging and controlled by a timer to run on a regular cycle, 7 days/week

All mortars will benefit from a period of controlled curing after placement. For mortars containing portland or other hydraulic cements, dampening the surface periodically during the first few days will improve cement hydration and strength development while reducing shrinkage. For mortars containing lime, wet-dry curing cycles can accelerate lime carbonation and strength development. Misting several times a day,

allowing the surface to dry between mistings, is the ideal curing regimen for mortars based on mixtures of portland cement and lime, natural cement and lime, hydraulic limes, hydrated lime and lime putty. In general, the higher the lime content, the more critical the need for moist curing, but under adverse environmental conditions such as high temperatures, low humidity and high wind, all mortars require some level of curing and/or protection.

Again, this can be a costly procedure to observe and so it is frequently ignored.

Who's To Blame?

We might wonder, then, how the industry has come to a place where work is generally being done improperly and ask "Who is to blame?" The answer is ***"Almost everyone, at least to some extent".***

Despite long-running educational campaigns within the industry, there remains widespread ignorance. Deniability of the importance of doing things properly is bolstered by a lack of obvious immediate consequences for doing it wrong, as there is often a relatively long interval between poor execution of a repointing project and the observation of its shortcomings. Poorly executed campaigns may not become evident for several years after completion. Only then does it become clear that the 25+ years of service that should be expected will not be achieved.

Coupled with the highly competitive business environment surrounding repointing work, there is a natural tendency to prioritize initial cost over long-term value. Understandably, owners who may not recognize what they are giving up by accepting low bids based on short-cutting important steps in the process, will focus primarily on price. Contractors, even if well-schooled in these issues, face a competitive bidding environment that will not reward them for doing the right thing and they may rationally conclude that Owners are simply unwilling to pay what it will cost to do things the right way. Design professionals, even when knowledgeable regarding these issues and even when they incorporate the correct requirements in their specifications, are often not funded to adequately oversee execution of the work. Even good specifications can then become irrelevant.

Taken as a whole, what this adds up to is a situation where very little of the historic repointing work being undertaken is delivering the value that owners believe they are purchasing. True success rates may even be lower than what Casey Stengel found appalling in the 1962 New York Mets' pathetic win/loss record.

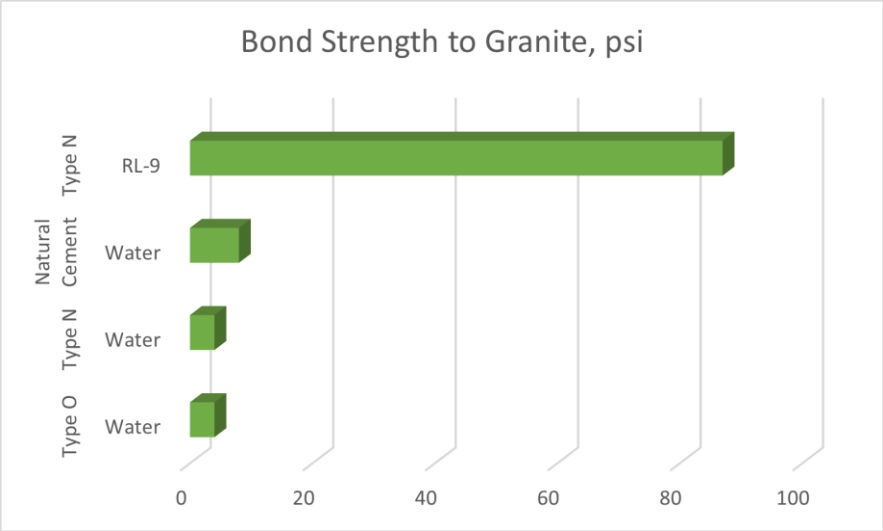
"Can't Anybody Here Play This Game?"

So here we are. What can we do about it?

The industry must not only become better educated, but it must also incorporate what it learns into its daily work. Higher standards need to be specified and enforced. Unlikely as the prospects for quickly accomplishing that may seem, it should be remembered that nobody could have foreseen the dramatic turn-around in 1969, when the "Amazin' Mets" went from being the worst team in the league to World Series Champions. We should all aspire to doing that and put in the work and make the investments needed to get there.

Fortunately, today, there are also technological tools that make the best results more easily achievable. While no product can overcome all the shortcomings of poor execution, it is possible to significantly change the parameters required to make achieving the best results much easier.

ICE -9 RL mortar admixture, which is designed to be used in place of mixing water with all types of hydraulic mortars – portland/lime, natural cement and hydraulic limes, is one such tool. It significantly reduces shrinkage, allowing mortar to be built out in a continuous application. It dramatically increases bond strength, particularly for challenging substrates like granite and dense brick. It eliminates the need for pre-hydration and extended moist curing. In short, it's a convenient and economical way to overcome the costly and burdensome processes otherwise required to achieve the full potential benefits of a repointing campaign.



Meatball: An easy pitch to hit, usually right down the middle of the plate.

Major League Baseball Glossary of Baseball Slang

To end the discussion with a final baseball reference, this is a meatball and any major leaguer should be able to knock it out of the park.