

Mortar Color Matching for Old Texas Brick Homes: Sand, Lime, and the Repair That Disappears

Why New Mortar Never Matches Old Mortar by Accident

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Chapter 1: Why New Mortar Never Matches Old Mortar by Accident

Every mason has lived this moment. You repoint a section of wall on an old house, the work is beautiful — deep cut, full pack, perfect tooling — and the mortar is the wrong color. Not a little wrong. Obviously wrong. Gray racing stripes across a wall of warm buff joints, or fresh cream-colored lines shouting against fifty years of mellowed tan. The homeowner looks at it, you look at it, and everybody's thinking the same thing: that repair is going to stare at us for the next thirty years.

Mortar color matching on brick is the part of repointing that separates the craftsmen from the guys with trowels. Cutting out old mortar and packing in new is labor — hard labor, but labor. Making that new mortar disappear into the old wall is craft. And it's craft that most contractors skip entirely, because most homeowners don't know to ask for it until the wall is already striped.

Here's the fundamental truth this whole book is built on: new mortar never matches old mortar by accident. It can't. The

color of a mortar joint comes from the specific sand the original builder used, the specific binder he mixed it with, the way he tooled it, and fifty years of weather working on it. A bag of premix from the supply house contains none of those things. If your mason opens one bag and starts repointing your 1940s brick home, the match is already lost — the only question is how badly.

I've been matching mortar on Texas homes for fifty years, from 1920s bungalows in Fort Worth to Hill Country limestone to 1960s brick veneer across Dallas. The process I'm going to walk you through in this book is the same one the National Park Service teaches for historic buildings, scaled to a regular house: read the old mortar, find the sand, get the binder right, test it in panels, and tool it like the original. Do that, and the repair disappears. Skip any step, and it doesn't.

This isn't just about looks, either — though looks matter on your own house. On old brick, a wrong mortar match is usually a wrong mortar, period. The mortar that's the wrong color is very often also the wrong strength, and wrong-strength mortar on old brick doesn't just look bad. It destroys the brick. By the end of this book you'll understand why color

matching and structural matching are the same job.

Chapter 2: Reading the Old Mortar — What Your Joints Are Telling You

Before you can match old mortar, you have to read it. The existing joints on your house are a record — of what the builder mixed, what the local sand looked like, and how the decades have treated it. A good mason reads that record before he mixes anything. Here's how.

Start with your eyes. Get close to an unrepaired section of wall — somewhere the mortar is original, not a previous patch. Look at the color, but look past the surface dirt. Mortar weathers from the outside in; the face of the joint is darker or lighter than the mortar behind it depending on sun, rain, and grime. The true color of the original mix shows best in a sheltered spot — under a deep eave, inside a porch, somewhere the weather hasn't rewritten the surface. That's your target. You're not matching the dirty face; you're matching what the mortar looked like before fifty years of weather got to it, then letting new weathering do the rest.

Look at the sand. This takes a magnifying glass or a jeweler's loupe — ten power is plenty. Pick at a crumbling bit of

mortar and look at the individual sand grains. What color are they? Texas sands run from near-white river sand to warm tan to reddish, and the original builder used whatever the local yard was selling that decade. Are the grains rounded like river sand, or sharp and angular like crushed sand? Are they uniform in size, or a mix of coarse and fine? Is there anything odd in there — bits of shell, dark mineral specks, clay particles? Every one of those details is a clue to the sand source, and the sand source is where the color lives. We'll come back to this in the next chapter, because it's the heart of the whole job.

Do the rub test. This one's old-school and it works. Rub your finger firmly across a mortar joint. If your finger picks up white dust — a chalky white smear — the binder is lime. You're looking at lime mortar, the soft traditional stuff, and that tells you most of what you need to know about what goes back in. If your finger comes away clean and the joint is a distinct gray, the binder is Portland cement — harder, more modern. Look for small white dots in the mortar, no bigger than an eighth of an inch — little pockets of pure white lime. Those are the signature of early hand-mixed mortar, where the lime wasn't perfectly blended. Finding them tells you the mortar was mixed on site by hand, probably before the

1930s, and the replacement needs to be a soft lime mix, not a bag of anything.

Test the hardness. Press a nail or an awl into the mortar in an inconspicuous spot. Lime mortar gives — you can scratch it, dent it, sometimes crumble it with your fingers. Portland mortar resists. This isn't precise, but it sorts the world into two piles: soft old mortar that needs soft new mortar, and harder modern mortar that can take a standard mix. Getting this wrong is the expensive mistake. We'll spend a whole chapter on why.

Note the joint profile and texture. Is the joint concave, V, weathered, flush? For matching, what matters is that the new work gets tooled the same way — the profile changes how light hits the joint, which changes the perceived color. Texture matters too: was the original joint smooth-tooled, or sandy and open with the grains standing proud? That texture comes from the sand gradation and the tooling, and it's part of the match.

Write all of this down. Color of the sand grains, shape of the grains, binder type from the rub test, hardness, joint profile, texture. This is your mortar's fingerprint. Any mason you hire should be doing this same reading — if he walks up and

starts talking about his premix before he's looked at your joints with a loupe, he's not matching. He's covering.

Chapter 3: The Sand — Where the Color Really Lives

If there's one chapter in this book that changes how you see mortar, it's this one: the color of a mortar joint comes overwhelmingly from the sand, not the cement. The binder — lime, Portland cement, or a blend — is mostly the glue. It's the sand that paints the picture.

Think about the proportions. A typical mortar mix is roughly three parts sand to one part binder. Three-quarters of what you're looking at is sand. The binder lightens or darkens it, warms or cools it, but the base color — the buff, the tan, the warm gray, the near-white — that's the sand talking. Change the sand and you change the mortar completely. Keep the sand right and the binder becomes a tuning knob.

This is why matching old mortar starts at the sand pile, not the cement aisle. The original builder bought sand from a local yard — in Texas, usually a river sand or pit sand from within hauling distance. That sand had a specific color from the local geology: the pale sands of the Trinity river bottom, the warmer tans from central Texas pits, the reddish sands in

parts of East and West Texas. It had a specific grain shape — rounded from river tumbling or angular from crushing — and a specific gradation, the mix of coarse and fine grains. All of that shows up in the finished joint.

So the matching process, at its core, is a sand hunt. The mason takes what he learned reading the old mortar — grain color, grain shape, grain size — and goes looking for a modern sand that matches. Masonry supply yards carry multiple sands, and the good ones will let you take samples. Sometimes you find it in one bag. Sometimes you blend two sands to hit the exact tone. This is normal. This is the craft.

Grain size matters as much as color. A mortar made with fine, uniform sand looks smooth and dense. The same color in a coarse, varied sand looks open and textured — the grains catch light differently, and from ten feet away the joints read as a different shade even though the "color" is identical. When I match, I match the gradation first and the exact hue second, because a slightly-off hue in the right texture disappears faster than a perfect hue in the wrong texture.

There's one more sand factor that surprises people: the sand changes the mortar's behavior, not just its looks. A well-graded sand — a good mix of particle sizes — packs tighter

and makes stronger, more durable mortar. A poorly graded sand makes weak, crumbly joints no matter what binder you use. So the sand hunt isn't just cosmetic. The right sand is structural.

What about the builder who can't find the original sand? It happens — pits close, rivers get dredged differently, fifty years change the supply. When the exact sand is gone, you get close on color and exact on gradation, then tune with the binder and — as a last resort — pigment. But pigment is the last resort, not the first move, and it has rules. That's Chapter 7.

The takeaway for the homeowner: when your mason talks about matching, listen for the word "sand." If he's talking about which sand he's sourcing and showing you samples against your old joints, you're in good hands. If the conversation is all about which bag of premix to buy, the sand conversation isn't happening — and without it, there is no match.

Chapter 4: Lime — The Soft Heart of Old Mortar

To understand old Texas mortar, you have to understand lime — because for most of masonry history, lime was the mortar. Before Portland cement arrived in the 1870s, practically every brick joint in America was lime and sand. Through the early 1900s, lime still dominated. Even into the 1930s and 40s, plenty of Texas brickwork went up with high-lime mortars. If your house was built before World War II, there's a strong chance its joints are lime mortar. If it was built before 1900, it's nearly certain.

Lime mortar is a different animal from modern cement mortar, and understanding the difference is the key to not destroying old brick.

What lime mortar is. Take limestone, burn it, slake it with water, mix it with sand — roughly one part lime to two or three parts sand. That's it. That's the mortar that built most of the brick buildings standing from the 1800s. It's soft — much softer than modern mortar. It's flexible — it gives with the tiny movements of a wall instead of fighting them. It's

permeable — water vapor passes through it, which lets the wall breathe and dry. And it has a remarkable property: it's slightly self-healing. Small cracks in lime mortar can seal themselves over time as dissolved lime redeposits in the crack. No modern mortar does that.

Why softness is a feature. Remember the fundamental rule: mortar must be softer than the brick. It's the sacrificial element — designed to give so the brick doesn't have to. Old brick, especially handmade and early machine-made brick, is soft itself — softer than modern extruded brick. Lime mortar matched to soft brick is a system in balance: both give a little, nothing cracks, the wall lives for a century. This is why those 1890s brick buildings are still standing with their original mortar in places. The system worked.

What goes wrong. The disaster scenario — and I've repaired the aftermath of it dozens of times — goes like this. A house with soft brick and lime mortar needs repointing. The contractor shows up with hard Portland-cement mortar, cuts out the soft lime joints, and packs in the hard stuff. For a year or two, it looks great — crisp gray joints, solid as rock. Then the wall moves, the way walls do. The hard mortar doesn't give. So the soft brick gives instead — and "gives" means the

faces of the bricks start spalling off, popping and flaking, sometimes across the whole wall. Within a few years, you've got a wall of damaged brick that can only be fixed by replacing the brick itself — at many times the cost of the original repointing. The hard mortar didn't fail. It succeeded so completely that it destroyed everything around it.

The preservation authorities are unambiguous about this. The National Park Service's guidance on repointing says the new mortar must match the old in strength and composition, must never be harder than the masonry units, and that duplicating a lime mortar with a hard Portland mix is one of the most damaging things you can do to historic masonry. The Park Service's rule of thumb: if you're adding any Portland cement to a lime mortar for old brick, keep it to a small fraction — their guidance suggests no more than about a fifth of the binder — because beyond that you're building hardness that the brick can't survive.

Lime mortar in Texas specifically. Texas has a deep lime-mortar heritage — the German stone houses of the Hill Country, the early brick commercial buildings in our old downtowns, the pioneer-era brickwork in East Texas. And Texas adds its own wrinkle: our clay soil moves walls more

than stable ground back East. A rigid Portland mortar on a moving Texas wall concentrates stress brutally. Lime's flexibility isn't just nice to have here — it's the right engineering for our ground. When I'm working on pre-1940s Texas masonry, I reach for lime the way a doctor reaches for the right prescription. It's not nostalgia. It's mechanics.

The modern lime option. Nobody's asking you to burn limestone in a kiln. Modern hydrated lime — bagged, consistent, available at any masonry supply — mixed with the right sand gives you a proper lime mortar. For most old-brick repointing, a straight lime-and-sand mix, or lime with just a touch of Portland for workability, is the prescription. It cures slower than cement mortar — that's normal, that's the chemistry — and it needs protection from hard rain and freezing while it cures. A mason who knows lime knows this. A mason who complains that lime mortar "takes too long to set" is telling you he doesn't work with it. Find one who does.

Chapter 5: The Strength Rule — Never Harder Than the Brick

This chapter is the shortest and the most important in the book. If you remember one sentence from these pages, make it this one:

The new mortar must never be harder than the brick.

Everything else — the color, the sand, the lime, the tooling — serves this rule. Color is what you see. Strength is what keeps the wall standing. And on old homes, getting the strength wrong is how good-looking repointing becomes a demolition in slow motion.

Here's the mechanics, plain. Every masonry wall moves — thermal expansion in the Texas sun, contraction on a January night, the slow seasonal breathing of our clay soil. Movement has to go somewhere. In a properly built wall, it goes into the mortar joints: the soft mortar compresses, flexes, micro-cracks, and absorbs the movement. The bricks — hard, brittle, expensive — ride along undisturbed. The mortar is the crumple zone. That's its job.

Now put hard mortar in that wall. The movement still happens — the sun still shines, the clay still breathes. But the hard mortar won't give. So the stress transfers into the brick units themselves. Brick is strong in compression and weak in everything else — it doesn't flex, it fractures. The faces spall off. Corners crack. In bad cases, whole units split. And because the hard mortar is still sitting there looking perfect, the damage looks mysterious — "the bricks are just deteriorating" — when the actual cause is the mortar that was supposed to protect them.

The preservation standards state this as a formal requirement: repointing mortar should be softer than the masonry units, and similar to or softer than the original mortar. Not "about as hard." Softer. The intuitive idea — stronger is better — is exactly wrong here, and it's the most expensive wrong idea in masonry repair. I've seen homeowners pay good money for repointing that destroyed their brick, then pay again to replace the brick, when a softer, cheaper mortar would have done the job right the first time.

How this plays out by house age in Texas:

- **Pre-1930s:** Soft brick, lime mortar. The new mortar must be lime-based — soft, high-lime, minimal

Portland. This is non-negotiable. A bag of Type N or Type S on this brick is wall damage with a receipt.

- **1930s–1950s:** Transitional era. Brick getting harder, mortars blending lime with increasing Portland. The old mortar needs reading — rub test, hardness test — and the replacement gets matched to what's actually there. Often a high-lime Type O or a lime-rich custom mix.
- **1960s and later:** Modern extruded brick, Type N mortar standard. Matching is mostly about color and sand — the strength question is usually straightforward. But "usually" isn't "always." Some 60s and 70s Texas brick is softer than you'd expect, and the reading step still matters.

The bagged-mortar trap. Walk into any supply house and the premix bags are all Portland-based — Type N, Type S — formulated for modern brick. They're consistent, they're convenient, and on pre-1960s brick they're wrong. The preservation guidance says it outright: premixed bagged mortars should not be used on historic masonry. They're almost always too hard. The mason who matches old mortar mixes on site — sand plus lime plus, where appropriate, a measured amount of cement — because that's the only way to

hit both the color and the strength the old wall needs.

When you're interviewing masons, the strength question is your single best filter. Ask: "What mortar are you planning to use, and how did you decide it's the right strength for my brick?" The right answer references your brick's age and hardness, the rub test or lab analysis, and a mix designed for it. The wrong answer is a bag name with no reasoning. A mason who can't explain his mortar choice is guessing — and on old brick, guessing with hard mortar is how walls die.

Chapter 6: Why the Bag Fails — Premix and Old Walls

Let me say something kind about premixed bagged mortar: for new construction with modern brick, it's fine. It's consistent, it's tested, it meets the spec on the bag, and it saves the mason an hour of mixing. Nobody's repealing the bag.

But on an old wall, the bag fails twice — once on strength, once on color — and understanding both failures will save you from the most common bad repointing job in Texas.

The strength failure we covered in the last chapter, but it bears repeating in practical terms. Every premix bag on the shelf — Type N, Type S, the "mortar mix" generics — is Portland-cement based and formulated for modern, hard, extruded brick. Put it against 1920s soft brick and you've violated the strength rule before the first joint is packed. The bag doesn't know what brick it's meeting. Your mason is supposed to know. When he reaches for the bag on an old wall, he's letting a factory in another state make the most important technical decision on your house.

The color failure is subtler but just as real. A premix bag contains one sand — the manufacturer's sand, from the manufacturer's source, in the manufacturer's gradation. Your 1940s Fort Worth bungalow was built with Trinity river sand from a pit that might not even exist anymore. The bag's sand is gray-ish, uniform, and wrong — wrong color, wrong grain shape, wrong texture. No amount of careful tooling makes a bag's sand look like your wall's sand. It's like trying to match a paint color by buying "beige" — technically in the family, obviously wrong on the wall.

And here's the part that really stings: the color failure is permanent and visible from the street. A strength failure takes years to show — the brick spalls slowly, and by the time it's obvious, the contractor is long gone. A color failure shows the day the scaffolding comes down. Those gray racing stripes across your buff-mortar bungalow? That's a bag job. Every neighbor sees it. Every future buyer sees it. And fixing it means cutting it all out and doing it again — paying twice for the job you already paid for once.

"But the bag says Type N, and my house needs Type N."

Maybe. Type N is a strength specification, not a recipe — it describes compressive strength, not what sand or what color.

Two Type N mortars can look completely different: one mixed with pale river sand and white cement, one from a gray bag. The letter on the bag tells you about strength. It tells you nothing about whether the mortar will disappear into your wall. A site-mixed Type N — your matched sand, your lime, your measured cement — and a bagged Type N are the same strength and different universes visually.

What the good mason does instead. He buys sand — the matched sand from Chapter 3, possibly blended from two sources. He buys hydrated lime. He buys cement — often white cement rather than gray, because white cement shifts the color less and lets the sand's color dominate. And he mixes on site, in measured proportions, adjusting against test panels until the cured sample disappears into the old wall. It's more work than opening a bag. That's rather the point. The work is the match.

There's exactly one situation where a bag belongs on an old wall: when the old wall itself was built with modern materials — say a 1980s addition repointed to match the 1980s mortar, where the original was itself a bag-type mix. Even then, the sand won't be a perfect match, but the strength question is settled and the color is close enough that

most eyes won't catch it. Everywhere else on old masonry:
the mortar gets mixed for the wall, not pulled off a shelf.

Chapter 7: Pigments — The Last Resort, Used Right

So you've found the closest sand. You've got the binder right — lime-forward, strength matched. You've made test panels. And the color is close but not quite there — a shade too gray, a touch too pale, missing the warmth of the original. Now, and only now, you reach for pigment.

Pigment in mortar is iron oxide — essentially refined rust in various shades: reds, browns, yellows, blacks. It's the same family of colorants that tinted some 19th-century mortars originally. Used right, it's a legitimate tool. Used wrong, it's how you get mortar that looks fine for a year and then goes wrong in ways sand-matched mortar never does.

The rules, because pigment has rules:

First, pigment is for tuning, not for painting. If your sand hunt got you 90% of the way there, pigment closes the last 10%. If you're trying to turn gray bag-mortar buff with pigment alone, you're not matching — you're dyeing, and it shows. The pigment sits in the binder, not in the sand grains, so heavily pigmented mortar has a flat, painted look that

sand-colored mortar never has. Your eye can tell the difference even when your brain can't name it. Get the sand right first. Always.

Second, use inorganic iron oxides only — never organic dyes, never paint tints, never "a little of this universal colorant the painter had." Organic colorants fade in UV. Some react with the alkalinity of fresh mortar and shift color as it cures. Iron oxides are mineral-stable: they don't fade, they don't react, they age with the mortar. The preservation standards specify metallic oxides for exactly this reason.

Third, respect the dosage limit. The guidance caps pigment at a small fraction of the binder — around ten percent of the binder weight at most, and less is better. Beyond that, you're not just changing color — you're changing the mortar's properties. Heavy pigment loads weaken the mortar, alter the set, and increase the risk of the color weathering unevenly. If you need more pigment than the limit allows to hit the color, your sand is wrong. Go back to the sand hunt.

Fourth, pigment changes over time differently than sand does. A good sand match weathers like the original — the sand grains are the same material, exposed to the same rain and sun, aging on the same curve. Pigment lives in the binder

paste between the grains, and in some exposures it can leach or fade at a different rate than the surrounding mortar. The Kentucky heritage guidance on historic mortar puts it plainly: tinting powder should only be used when the color is otherwise unreproducible, because its appearance is likely to change over time as mineral ingredients leach from the surface. That's not a ban — it's a warning label. Heed it.

How the pro uses pigment in practice. Small, weighed doses — never eyeballed. A test panel for every adjustment, cured fully before judging, and the exact recipe written down so the last batch matches the first. Bias toward the lightest effective dose: mortar lightens slightly as it cures and weathers in, so a whisper-light match beats a shout-dark one. The mason who's casual with pigment — shaking it in by feel, no panels, no records — is decorating, not matching.

For the homeowner, the pigment conversation is a diagnostic. If your mason says "I'll match it with pigment," ask what sand he's starting from. If the answer is "the bag" or a single generic sand, the pigment is doing all the work, and the match won't hold its looks. If he shows you two sands he's blending and says he'll tune with a touch of oxide if the panels need it — that's a craftsman. Hire that man.

Chapter 8: The Matching Process, Step by Step

Enough theory. Here's the actual process — the sequence a real mortar-matching job follows, from the first look to the final joint. If you're hiring this work, this chapter is your checklist. If your mason's process doesn't look like this, ask why.

Step 1: Read the wall. Chapter 2's full examination — original mortar located in sheltered spots, sand studied under magnification, binder identified by rub test and hardness, joint profile and texture noted. On a house with previous repairs, the mason maps which areas are original and which are patches, because you match the original, not somebody else's 1987 repair. This takes an hour or two and a loupe. It's the cheapest, highest-value time on the whole job.

Step 2: Source the sand. Samples from the supply yard — often several — compared grain-by-grain against the old mortar. Sometimes the match is one sand. Sometimes it's a blend. The mason buys enough from the same lot to do the whole job, because sand varies lot to lot and switching mid-job means switching color mid-wall. This is a detail that

matters: a repointing job that changes sand halfway through has a visible line where the lots changed. The pro buys the whole job's sand upfront.

Step 3: Design the mix. Binder chosen for the brick — lime-forward for old soft brick, the measured blend for transitional eras, matched to the original proportions where they can be determined. White vs. gray cement decided by which disturbs the sand's color less. Water kept clean and consistent — even the water matters, because varying water content varies the cured color. Every ingredient measured by volume or weight, not by shovelful. Shovelfuls vary. Measures don't.

Step 4: Mix test batches. Small batches — a few trowels each — varying one thing at a time. Sand blend A vs. sand blend B. A touch more lime. A whisper of pigment. Each batch labeled, each recipe written down. This is the laboratory phase, and rushing it is how matches fail. A careful mason makes more test batches than he thinks he'll need, because the wall always surprises you.

Step 5: Lay test panels. Here's where most bad matches die and good ones are born. The mason applies each test batch to the actual wall — small patches in inconspicuous spots, or

better, on a dedicated test area — tooled to the original joint profile. Not on a board in the shop. On the wall, in the wall's light, against the wall's brick. The preservation specs call for test panels approved before general work begins, and they're right: the wall is the only honest critic.

Step 6: Wait. This is the step everybody wants to skip, and it's the step that makes the whole process work. Wet mortar and cured mortar are different colors — sometimes dramatically different. A patch that matches perfectly when wet can dry a full shade lighter or darker. The professional standard is to cure test panels for weeks — one restoration authority specifies 28 days — before judging the match. Twenty-eight days feels like forever when you want the job done. It's the difference between a match and a guess. The mason who says "it'll lighten up as it dries, trust me" is asking you to trust him instead of the panel. Don't. The panel is the truth. Wait for it.

Step 7: Judge in the right light. Compare the cured panels to the original mortar in daylight — morning light and afternoon light, because color shifts through the day. Look from the curb distance, not just nose-distance; the repair has to disappear at twenty feet, not just at two. If one panel disappears, that's the recipe. If none do, back to Step 4. This

iteration is normal. The second round of panels is not failure — it's the process working.

Step 8: Document the recipe. The winning mix — exact sands and proportions, binder type and ratio, pigment type and dosage, water content, mixing time — written down, kept with the job file, and given to the homeowner. This matters for two reasons: consistency across the job (batch 40 must match batch 1), and the future. Ten years from now, when another section needs repointing, that recipe is gold. A mason who won't write down his mix is either hiding something or winging it. Neither is acceptable.

Step 9: Execute with discipline. Same sand lot, same measures, same mixing time, same water — every batch, every day. Joints cut to consistent depth, packed full, tooled at thumbprint hardness to the original profile. The matching work was Steps 1 through 8. Step 9 is not messing it up.

That's the process. Nine steps, no shortcuts, no magic. When it's done right, you walk up to the wall and you can't find the repair. That's the whole goal — the repair that disappears. Not "close enough." Disappeared.

Chapter 9: Tooling — The Forgotten Half of the Match

Here's something most articles about mortar color matching never mention: you can get the mix perfect and still blow the match with the trowel. The way a joint is finished — its profile, its texture, its surface — changes how light interacts with it, which changes the color your eye perceives. Matching the mortar without matching the tooling is half a job.

Profile changes perceived color. Take the exact same mortar and tool it two ways: one joint concave, one joint flush. From the curb, they look like different mortars. The concave joint's curve puts part of the surface in shadow — it reads darker and richer. The flush joint's flat face catches full light — it reads lighter and flatter. I can show you walls where a previous repair used the right mix but the wrong profile, and the "match" fails entirely because of the shadows. When the mason repoints, he re-tools the original profile — not his favorite, not his fastest, the original. The profile is part of the color.

Texture is color. Look at an old joint under the loupe again.

See how the sand grains stand slightly proud of the binder, giving the surface a fine sandy texture? That texture scatters light — it's why old mortar has that soft, matte look. Now look at a joint that was over-tooled — worked too smooth, too wet. The binder smears over the grains, the surface goes slick, and it reads darker and denser. Same mix, different finish, different apparent color. The original masons tooled to a texture, whether they thought about it or not, and the match has to reproduce it. That means tooling at the right moment — thumbprint hard — with the right pressure: firm enough to compact, light enough to leave the grain.

Weathering is the final tool. Here's the encouraging part: a good match gets better with time. New mortar looks a little "new" on day one — slightly cleaner, slightly more uniform. Then the rain comes, the sun works, a little grime settles in, and over a season or two the new joints mellow into the wall. The match converges. This is why the pros aim at the unweathered original color rather than the dirty face: the new work will weather into the wall, and a year later you can't find it.

The lesson of this chapter: color matching isn't just chemistry, it's handling. The mix gets you the material. The tooling gets

you the appearance. A mason who understands both is a matcher. A mason who understands only the mix is a mixer with good intentions and visible repairs.

Chapter 10: Texas Eras — What Mortar

You'll Find by House Age

Texas has a lot of old houses, and they don't all have the same mortar. The state's building history runs from pioneer lime mortar to modern premix, and knowing which era your house belongs to tells you what you're likely to find in the joints — and what should go back in. Here's the field guide.

Before 1900: Lime, always. Pioneer Texas — the German stone houses of Fredericksburg and the Hill Country, the early brick commercial blocks in Jefferson and Galveston, the scattered brick farmhouses of East Texas. The mortar is lime and local sand, mixed on site, often with the lime burned locally. The brick or stone is soft. The joints may be grapevine, beaded, or simple flush-struck profiles. The rule here is absolute: lime mortar goes back in. Anything with significant Portland cement will destroy the masonry. If your house is this old, you're in preservation territory — consider a mason who specializes in historic work, and if the building has any historic designation, check the requirements before anyone touches a joint.

1900–1930: Lime transitioning. Texas boomtowns, streetcar suburbs, the first big wave of brick bungalows in Dallas, Fort Worth, Houston, San Antonio. Still predominantly lime mortar, but Portland cement is entering the picture — first as a small addition for workability, then in growing proportions. The only way to know what you've got is to read it: rub test, hardness test, and if it matters enough, lab analysis. Don't assume. I've seen 1925 houses with nearly pure lime mortar and 1925 houses with a real Portland kick — same city, same decade, different builders, different mixes. The era tells you the range. The wall tells you the answer.

1930s–1950s: The blend decades. The Depression, the war, the postwar boom. Mortars in this era are hybrids — lime still present, Portland cement now a full partner. Masonry cement (pre-blended lime-Portland mixes) appears. Brick is getting harder and more uniform as manufacturing improves. Matching here is genuinely tricky, because the original mix was itself a moving target — builders adjusted proportions by feel, and two houses on the same street can have meaningfully different mortars. This is the era where test panels earn their keep. Expect to make more test batches, and expect the match to take longer. That's normal. It's not the mason padding the job — it's the era being complicated.

1960s–1980s: Modern standardization. The great Texas suburban expansion — brick veneer over wood frame, millions of homes across DFW, Houston, Austin, San Antonio. Type N mortar becomes the standard, usually from bagged masonry cement mixed with local sand. The brick is modern extruded — hard, uniform. Matching is straightforward: the strength question is settled (Type N on modern brick), so it's about the sand and the color. The sand is usually a local river sand — Trinity sand around DFW, similar sources elsewhere — and a good supply yard will have something close. The most common mismatch I see on these houses isn't strength, it's color: a gray bag job striping a wall of warm tan joints. Fixable, but only by doing the sand work the first contractor skipped.

1990s to today: Modern materials, modern methods. Type N, sometimes Type S below grade. Matching is a color-and-sand exercise. The one watch-out: some production builders used very pale or white mortars for a specific look — matching those takes the same process, just with white cement in the mix design. Don't let anybody tell you it can't be matched. It can.

The Texas sand note. Our state's sands are a matcher's

palette. The pale, fine sands of the Trinity and Brazos bottoms. The warmer buff sands from central Texas pits. The reddish tones in East Texas and parts of the Panhandle. The nearly white sands of South Texas. When I read an old joint and see the sand, I'm usually seeing the geology of wherever that house's builder bought his materials — and fifty years later, I can often still find its cousin at a supply yard. Texas is big enough that the original pit might be closed, but the geology doesn't move. The sand family is still out there.

Chapter 11: When to Call the Lab — Mortar Analysis

Everything I've described so far — the loupe, the rub test, the hardness check, the test panels — is field craft. It gets you there on most houses. But sometimes the wall won't give up its secrets to field methods, and that's when you call the lab.

What mortar analysis actually is. A conservator or materials lab takes a small sample of your original mortar — a few ounces from an inconspicuous spot — and takes it apart scientifically. The standard workup includes an acid digestion: the sample is treated to dissolve the lime and cement binders, leaving the sand behind. Now the lab can weigh the proportions — how much binder, how much sand — and examine the sand precisely: color, gradation, mineral composition. Petrographic examination under a microscope identifies the binder type and any additives — the crushed shell, the clay particles, the odd bits that field examination can only guess at. What comes back is a report: your mortar was X parts lime, Y parts Portland, Z parts sand of a specific gradation and mineralogy. It's the recipe, reverse-engineered.

When it's worth it. Not every house needs a lab. You need one when: the building is genuinely historic or designated, and the preservation authority requires documented matching; the field tests are inconclusive — the rub test is ambiguous, the hardness is borderline, and you're choosing between a lime mix and a Portland blend with real consequences; a previous bad repointing with hard mortar has already damaged the brick, and you need to document what was there for insurance or legal purposes; or the mortar has unusual characteristics — odd colors, strange aggregates, historic pigments — that field methods can't pin down. For a 1960s brick veneer needing a color match, the lab is overkill — the loupe and the panels will get you there. For an 1890s commercial building, it's cheap insurance.

What it costs and what it doesn't do. A basic mortar analysis typically runs in the hundreds of dollars — a fraction of the repointing job, and a fraction of the cost of getting the mortar wrong. What it doesn't do is eliminate the test panels. The lab tells you the recipe. The panels tell you what the recipe looks like on your wall, in your light, after curing. Lab plus panels is the gold standard. Always do the panels.

Finding the right lab. Look for a conservation lab or

building-materials testing firm with historic masonry experience — not a general concrete shop. Your state historic preservation office can usually refer you, and a historic-masonry mason will already have a lab relationship. A mason who's never heard of mortar analysis is telling you his lane — listen.

One more thing about analysis: save the report. File it with your house records, with the winning mix recipe from Chapter 8. Fifty years from now, somebody will repoint that wall again, and your report will save them the whole investigation. Leave the next mason better information than you found.

Chapter 12: The Repair That Disappears — What Success Looks Like

Let me tell you what a matched repointing job looks like when it's done right, because most homeowners have never seen one — they've only seen the striped kind.

You pull up to the house six months after the work. The scaffolding is long gone. You walk the walls, and you can't find the repair. Not "it's close." Not "it looks pretty good." You literally cannot tell where the old mortar ends and the new begins. The joints run continuous — same color, same texture, same profile — across original sections and repointed sections. From the curb, the wall reads as one thing, the way it did the day it was built. A year later, after a Texas spring storm season has worked the new joints, it's even better — the new mortar has mellowed into the wall and the last trace of "newness" is gone.

That's the standard. Not perfectionism — the standard. A repair that disappears. Anything less is a compromise you should have been told about before you paid, not something you discover when the crew drives away.

What it took to get there: the wall was read, not guessed at. The sand was hunted, not assumed. The binder was chosen for the brick — lime-forward on old soft brick, matched strength everywhere. Test panels were laid on the wall and cured for weeks, not judged wet. The profile was matched. The tooling was timed. The crew mixed with discipline, batch after batch. None of it is exotic. All of it is care. The disappearing repair isn't magic — it's what happens when every step gets done.

What it costs. Let's talk money honestly, because matching costs more than not matching, and you deserve to know what you're buying. A repointing bid that includes real matching — the reading, the sand sourcing, the test panels, the cure wait — runs higher than a bid that doesn't, because it's more hours and more skill. How much higher depends on the job's size, the house's age, and how far the sand hunt goes — there's no single number, and I'd rather tell you what drives it than invent one. The cost drivers: the investigation time (loupe work, sourcing, panels), the cure wait (the mason's schedule has to accommodate weeks between panels and production), the materials (bagged lime and matched sand cost more than one premix bag), and the skill premium (a matcher is a specialist).

Here's the honest framing: the matching premium is the cheapest insurance on the job. The alternative — the striped wall — costs you twice: once for the bad job, once to fix it. And the strength-mismatch version costs you the brick. Against those numbers, the matching premium is small. It's also the only version of the job that's actually finished. A repointing job you can see from the street isn't done. It's just paused until somebody does it right.

The warranty question. Ask your mason what he warrants on a matching job. The honest answer covers workmanship — the joints won't fail prematurely from installation defects — for a term he puts in writing, typically a few years. No honest mason warrants that mortar lasts forever — it's a wearing material. But a matched, well-executed repointing on old brick should give you decades. That's what you're buying. Decades of not thinking about it.

Chapter 13: Hiring the Matcher — What to Ask

Most masons can repoint. Fewer can match. Here's how to tell which one you're talking to — the questions that sort the matchers from the bag-openers, and the answers that tell you the truth.

"How will you match my mortar?" The matcher's answer walks through the process: read the existing mortar, identify the sand, design the mix for the brick, lay test panels, cure them, then produce. He'll mention sand sourcing specifically. The bag-opener's answer is some version of "I've got a mix that matches pretty close" or "we use [brand] and it looks fine." "Pretty close" and "looks fine" are how striped walls happen.

"What binder will you use, and why?" This is the strength-rule question from Chapter 5. The right answer references your house's age, the brick's hardness, and what the rub and hardness tests showed — "your brick is soft and the mortar's lime, so we're going lime-forward" or "your 1970s brick is hard modern extruded, Type N is appropriate." The wrong

answer is a bag name with no reasoning, or worse, visible annoyance that you asked. A mason who's offended by the mortar question is a mason who doesn't think about mortar. Keep looking.

"Will you do test panels?" The answer must be yes — on the wall, cured fully before judging. If he says test panels aren't necessary, or that he can judge the match wet, or that his experience means he doesn't need them: he's telling you his process skips the only step that verifies the match. Experience is valuable. It is not a substitute for a cured panel. The best matchers I know — men with forty years in — still lay panels. It's not about doubting their eye. It's about respecting the chemistry.

"Where are you getting the sand?" Listen for specifics: a yard name, a description of the sand, maybe samples in the truck to show you. "The supply house" is not an answer — it's a shrug. The matcher knows his sands the way a painter knows his colors, and he can tell you why this sand and not that one.

"Can I see a matching job you did?" Not photos — an address. Drive by. Look at the walls from the curb. Can you find the repair? If you can't, that's your mason. Photos lie

about color — screens shift everything, and a photo taken in the right light flatters any match. The drive-by doesn't lie. Any mason proud of his matching work will give you an address. One who won't... think about why.

"What happens if the match isn't right?" The honest mason has an answer: more test panels, adjusted mix, re-done sections if needed — and a clear statement of where his responsibility ends and normal weathering variation begins. What you don't want is "it'll be fine" with no mechanism. The mechanism is the panels. The panels are the contract, in a sense: the approved panel is the standard the production work gets held to.

Red flags, all in one place: One bag for the whole house. No mention of sand. Annoyance at questions about mortar type. No test panels. "I've been doing this twenty years, I don't need panels." A bid that's dramatically cheaper than the others (the matching work is where the cheap bid cuts). Cash price, no paperwork. Any mason who tells you matching doesn't matter, or that "mortar is mortar."

The matcher costs more. We've covered why. What he sells isn't just a repair — it's the next thirty years of not seeing one. If you're in North Texas and you want [mortar matching and

repointing](<https://championbrickrepair.com>) done by hands that read
the wall before they mix, that's the work we do.

Chapter 14: Questions Homeowners Ask Me

My house isn't historic — it's a 1970s brick veneer. Does matching still matter? Yes, but the stakes are different. On modern hard brick with Type N mortar, the strength question is usually settled — you're not going to destroy the brick with a standard mix. What's at stake is looks: a gray bag-job striping a wall of warm tan joints is visible from the street and it bothers people every day for decades. The matching process is the same — read, sand-hunt, panels — just without the lime-mortar anxiety. It's worth doing. Your house is the biggest thing you own. It should look right.

Can you match mortar that's been painted? This is the hard one. If a previous owner painted the brick — and in Texas, plenty did — the "original" mortar color is hiding under paint, and matching to the painted surface is matching to somebody's paint choice, not the mortar. The honest approach: find an unpainted spot (there's almost always one — inside a porch, behind a shutter, somewhere the painter missed) and match to that. If the whole house is painted and staying painted, the repointing mortar gets matched to the paint scheme, which is a different job — you're coordinating

with the paint, not the history. And if you're stripping the paint to restore the brick, match after stripping, not before. The paint was lying to you about the color.

How long does a matching job take compared to a regular repoint? Longer, and most of the extra time is waiting. The investigation and test batches add days. The panel cure adds weeks — and a good mason won't start production until the panels are judged. On a typical house repoint, matching might add two to four weeks to the schedule, most of it the cure wait. This is the number-one reason homeowners skip matching: they want it done now. I understand the impatience. But the wall will be there for decades. A month of patience buys thirty years of invisibility. That's the trade. It's worth it.

Will new mortar ever match perfectly on day one? Honestly? Rarely. Even the best match looks slightly "new" at first — cleaner, a touch more uniform. The match is judged at full cure and beyond, not at strike-off. This is why the process aims at the unweathered original color and lets time blend the rest. If your mason promises a perfect invisible match the day the crew leaves, he's overselling. If he promises it'll disappear within a season and shows you cured panels to

prove the trajectory — that's the honest version, and it's the one that comes true.

My neighbor's house got repointed and the mortar doesn't match at all. Can it be fixed? Yes, but it's redo, not touch-up. The mismatched mortar has to be cut out — to proper depth, same as any repointing — and replaced with matched mortar. There's no coating, stain, or wash that fixes a bad mortar match durably. (Mortar stains exist, and they're a topic for another book, but they're a cosmetic treatment with a limited life, not a match.) The redo costs roughly what the original job should have cost, which means the homeowner pays twice. This is the scenario the whole book is trying to prevent. If you're reading this before hiring: you're already ahead.

Is lime mortar weaker? Should I worry about it holding up the wall? Lime mortar is softer, not weaker in the way that matters. Here's the distinction: compressive strength (how much weight it holds) vs. the job mortar actually does in a veneer wall (bond the units, flex with movement, shed water). In a brick veneer wall, the brick carries the load — the mortar isn't holding the house up, the framing is. What the mortar needs is adequate bond, flexibility, and

permeability — and lime mortar delivers all three, with centuries of proof. The "strength" that matters in repointing old brick is compatibility strength: soft enough to be sacrificial. Lime wins that contest every time. Don't confuse soft with inadequate. The 1890s courthouse is still standing on lime. It'll outlast us.

A Final Word Before You Call

Here's what I want you to take from this book: the mortar in your walls has a recipe, and that recipe is knowable. The sand came from somewhere. The binder was chosen — by craft or by habit — for the brick it meets. Fifty years of weather wrote the rest. A mason who reads that recipe and reproduces it gives you a repair that disappears. A mason who opens a bag gives you stripes.

The process isn't mysterious. Read the wall. Find the sand. Respect the strength rule — never harder than the brick. Test in panels, cure them fully, judge in daylight. Tool it like the original. It's slower than the bag. It's more thoughtful than the bag. And it's the difference between a wall that looks repaired and a wall that just looks right.

Your old Texas home has survived this long because

somebody built it with materials that belonged together. When it's time to renew the joints, belong them together again. The brick will thank you by outlasting all of us.

If you want to keep learning what your masonry is trying to tell you, my [free brick repair books](<https://metro-foundation-repair.web.app/free-books/>) cover the rest — costs, joint profiles, hiring, all of it in plain talk. And for the preservation science behind what I taught you here, the [National Park Service Preservation Brief on repointing](<https://www.nps.gov>) is the document the whole trade respects. Read it with a loupe in your hand and your nose near your own walls. That's where the learning really happens.

About the Author

Travis Nech has spent 50 years in Texas brick, masonry, and foundation work. He owns [Champion Brick Repair](<https://championbrickrepair.com>) — (817) 900-6324 — [Metro Foundation Repair](<https://metrofoundationrepair.com>) — (817) 670-4474 — and the [LintelLOCK](<https://lintlerepair.com>) lintel system — (469) 730-0650. All his books are free at [Travis Nech's Free Book Library](<https://metro-foundation-repair.web.app/free-books/>).