

# LIMESTRONG BUILD™

HIGH PERFORMANCE POZZOLAN + LIME

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## Using Limestrong Build™ Finish Plasters

THE LIMESTRONG BUILD FINISH line consists of three ready-to-mix lime plaster finish-coat products—Limestrong Build **Coarse Finish**, Limestrong Build **Fine Finish**, and Limestrong Build **Interior Finish**. Limestrong Build (LSB) Finish plasters are packaged in 32 lb. bags—the ideal size to mix a single batch of finish plaster in a 5-gallon bucket—a controllable size that makes it simple to consistently mix colorant<sup>[1]</sup> into each batch. This Use Guide provides an overview to using the LSB Finish plasters; other LSB guides<sup>[2]</sup> contain more detailed process information.

### LSB FINISH PLASTER TYPES

Limestrong Build **COARSE FINISH** is for interior or exterior use as a finish coat over lime plaster base coats. Not for use over drywall. Coverage<sup>[3]</sup> per bag at a single-coat maximum application thickness of 1/4" is approximately 50 square feet. Use when a deeper, rough-textured finish is desired.

Limestrong Build **FINE FINISH** is for interior or exterior use as a finish coat over lime plaster base coats. Not for use over drywall. Coverage<sup>[3]</sup> per bag at a single-coat maximum application thickness of 1/8" is approximately 80 to 100 square feet. Use when a slightly-textured to smooth finish is desired.

Limestrong Build **INTERIOR FINISH** is for interior use only. Can be applied directly to properly prepared, primed drywall (as well as lime-plaster base coats, which facilitates a uniform-finish look over combined drywall and plaster interiors). LSB Interior Finish is typically applied in two thin coats when used over drywall<sup>[XR1]</sup>. Coverage<sup>[3]</sup> per bag at a two-coat maximum application thickness of 1/8" TOTAL is approximately 80 to 100 square feet.

### TOOLS AND EQUIPMENT<sup>[XR2]</sup>

Limestrong Build Finish plasters are typically mixed in a 5-gallon bucket using a heavy-duty drill and a mixing attachment. Transfer mud from bucket to mud board or hawk using a bucket scoop. Acquire wood and/or sponge floats, depending on the finish-texture desired. If adding dry pigments from the Limestrong Color System<sup>[4]</sup>, source a digital scale that weighs in grams.

### SURFACE PREPARATIONS

Before you start making mud (mixed plaster), check to ensure the surface is properly prepared to receive the finish coat. LSB Coarse Finish and Fine Finish

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### FOOTNOTES [X]

**[1]** LSB Finish plasters can be colored 1) with pigments from the Limestrong Color System by choosing a color recipe from the standard color palette, by 2) formulating your own custom color (using our guidelines), 3) having Limestrong formulate the color for you referencing a Sherwin Williams® or Benjamin Moore® paint swatch, or 4) by using a limewash. See the LSB Publication: **Coloring Plaster with Limewash** for more info on limewashes.

**[2]** More in-depth instruction and process information can be found in the **Lime Plaster Application Guide**, the **Mixing Limestrong Build Plaster** guide, and the **Troubleshooting Guide**.

**[3]** Coverage calculators are available on the **limestrongbuild.com** website to help determine total bags needed per job.

**[4]** The **Limestrong Color System** consists of 21 standard colors based on 8 core dry powder color pigments. The formulas for each color/shade are based on a specific quantity (in gram weight) for a single bag/bucket-batch of LSB Finish.

### CROSS REFERENCES [XR]

**[XR1]** See LSB Publication: **Application over Drywall** (Interior Finish Only)

**[XR2]** Refer to the LSB Publication: **Plaster Tools and Equipment—Equipment** for information.

plasters are for use on substrates/surfaces that are absorbent and have a bit of a grippy texture.

**SURFACE PREPARATION: PLASTER ON PLASTER.** Does the surface have “tooth”? Lime plasters adhere with a combination of chemical and mechanical bonding. The chemical hold comes from the curing lime; the mechanical grip must come from both the aggregate in the plaster and the “tooth” or roughness of the surface upon which the aggregate locks into.

If the finish coat being applied is the third coat of a typical three-coat plaster rendering, the surface of the leveling (brown) coat should have been properly roughened to accept the final, thinner finish coat. Roughened, in this case, is not scratched or raked, as is done to the scratch (first) in preparation to receive the leveling (second) coat, but rather **roughened to a sandy texture** by floating the damp, curing surface of the leveling coat with a sponge or a wood float, working in a circular motion to create a roughened, sandy, uniform surface to hold the finish coat. This step is **time-critical**—it needs to be done when the plaster is dry enough that floating doesn’t deform the layer, but not so dry that the surface won’t respond to the dampened float.



It is also important that all surface imperfections and leveling are made/corrected with the leveling coat. The purpose of the thin-applied finish coat is only to place the color and/or the desired finish texture.

The leveling coat must be at least functionally cured—3 days minimum, 7 to 10 days is ideal—before applying the finish coat.

If applying LSB Coarse or Fine Finish plasters over existing plaster in an old, lime-plaster-era building, the cracks and voids must be scraped out, filled, and allowed to cure. Any surface cracking resulting from substrate or structural movement must first be identified and corrected before application.

**SURFACE PREPARATION: PLASTER ON NON-PLASTER SUBSTRATES.** Limestrong Build Finish plasters can be applied directly to some absorbent, flat, even substrates, provided the surface has a bit of a textured roughness for grip. For substrates that lack the necessary texture or absorbency, Limestrong Fortifier<sup>[5]</sup> can be added during mixing to improve the bond-grip between plaster and substrate.

Keep in mind that finish plasters are applied thin (max thickness of 1/8-inch for LSB Fine Finish and 1/4-inch max thickness for LSB Coarse Finish) and surface imperfections from the substrate—joints, voids, offsets—that have not been properly prepped, filled, and leveled, will telegraph through the finish coat. The surface must also be clean and free of dust.

**Suitable Substrates** for **LSB COARSE FINISH** and **LSB FINE FINISH** include cement backer board (properly prepared<sup>[6]</sup>) and direct application on smooth, poured concrete (like precast panels) provided ALL traces of the form release chemicals are removed and the surface is either roughened and/or prepared with a compatible gritted<sup>[7]</sup> bonding primer of some kind. The gritted primer provides mechanical key for the plaster to adhere to and allows the plaster to be spread evenly without sliding. Allow primer to dry for 12 hours before applying LSB Finish plasters. Adding Limestrong Fortifier<sup>[5]</sup> to the mix is also recommended.

**LSB INTERIOR FINISH** was developed for application over **drywall**<sup>[XR1]</sup>. The drywall must be properly prepared—taped, coated flat, sanded, and brought to (at least) a level-three quality finish. Screw heads are counter-sunk and filled and outside corners are beaded and filled. New drywall must be primed with a high quality latex based or PVA primer mixed with a grit to add a subtle roughness, or tooth. Limestrong Build sells a primer grit product<sup>[7]</sup> to meet this requirement. Previously painted drywall (in most cases) can be covered with LSB Interior Finish after all hollows, pops and other damaged areas are filled and smoothed and a gritted primer has been applied over the entire surface. LSB Interior Finish is also suitable for use over an interior lime-plaster base coat.

**UNSUITABLE SUBSTRATES.** Do not use LSB Finish plasters directly on wood sheeting, like OSB, particle board, or plywood.

**APPLY MASKING.** Remember to first thoroughly and adequately mask off areas that don’t get plaster to protect sensitive surfaces. Lime plaster can stain unprotected surfaces—floors, wood, unglazed tile, stone or brick veneers.

#### FOOTNOTES [0]

**[5]** Limestrong Fortifier is a polymer-based lime plaster additive that provides increased bonding over hard-to-bond substrates.

**[6]** Prepare cement backer board by counter-sinking screw heads and filling with lime plaster, taping seams with fiberglass mesh tape, filled to level with lime plaster, roughened and allowed to cure. Limestrong Fortifier should also be added to the mix to strengthen the bond.

**[7]** LSB Primer Grit is sold in a 3-pound pouch, enough to provide a subtle toothy grip to 5 gallons of primer. Choose a quality primer formulated for the substrate, whether concrete or drywall. The grit is made from lightweight pumice aggregate and stays in suspension once mixed in.

## INSTRUCTIONS FOR MIXING LIMESTRONG BUILD FINISH PLASTERS

Limestrong Build Finish plasters come ready to mix: just add water. Finish plasters are packaged in 32 lb. bags—enough to mix with 2 gallons of water in a common five-gallon bucket to make one small batch. Multiple bags of LSB Coarse or Fine Finish can also be mixed in a mortar mixer. Six to eight bags in a 6-cubic-foot mortar mixer should provide a full mixer-sized batch.

**WATER.** For each bag of mix, you will need 2 gallons of clean water. Add the water first (holding back a quart if adding a liquid colorant, per instructions below). **KEY:** when working with fine, lightweight aggregates, like those in Limestrong Build Finish plasters, use just enough water to reach workability. After the initial mixing, allow to set for a few minutes to continue to absorb water if necessary. Remix. The second mixing round will continue to “fatten” the lime plaster and improve workability. A bit more water may be necessary to reach ideal workability. Finish plasters can absorb a lot of water, so be judicious: too much water in the finish-coat mud could result in too much shrinkage.



**COLORANT.** By virtue of the white lime and near-white-color of the aggregate, LSB Finish plasters are naturally off-white when dry. Any universal tint will work as a colorant, especially quality dry-powder pigments like those in the Limestrong Color System<sup>[4]</sup>. The Limestrong Color System is designed to work efficiently with Limestrong Build Finish plasters, making it easy to attain consistent color across the entire wall—the dry pigments come packaged in single-batch quantities; simply add a single bag of LSB pigment to a single bag of LSB Finish plaster. Pigments are also available in job-sized bulk boxes and can be measured (by weight) into each batch. The Limestrong Finish plasters cure to a soft off-white and are beautiful even without a colorant.

CONSISTENCY in ingredient amounts, add-order, and mixing times at each stage is critical to achieve consistent color batch to batch and, ultimately, on the wall. One of the advantages of mixing bucket-sized batches is the ability to more carefully control the consistency of the color from batch to batch.

**MIXING LSB FINISH PLASTER: MIXER-SIZED BATCH.** With the mixer running and the paddles turning:

- 1) Add the water.
- 2) Add colorant (see below), if applicable.
- 3) Break half the total bags needed on the mixer deck and into the mixer tub. Mix for two (2) minutes. Do NOT attempt to scrape the sides of the mixer tub with paddles turning.
- 4) Add the remaining bags of plaster to the mixer. Add a bit more water, as necessary, to bring the mud to the right consistency. Allow to sit for five minutes, then remix for two minutes, adding a bit more water, if necessary, to reach ideal workability. On the first batch, run a trowel test, then memorize the look, feel, and color depth of a correctly-mixed batch.

**MIXING LSB FINISH PLASTER: BUCKET BATCH:**

- 1) Add the water.
- 2) Add colorant (see below), if applicable.
- 3) Pour one-third to one-half the bag of a Limestrong Build Finish type into the water in the bucket. Mix well with the drill/paddle attachment for two (2) minutes. Scrape any unmixed plaster that sticks to the side of the bucket into the wet mix.
- 4) Add the remaining plaster to the bucket. Mix thoroughly and scrape sides of bucket often to ensure dry ingredients (and pigment, if used) are fully incorporated. Allow to sit for five minutes, then remix for two minutes, adding a bit more water, if necessary, to reach ideal workability. On the first batch, run a trowel test, then memorize the look, feel, and color depth of a correctly-mixed batch.

**ADDING COLOR: USING LIQUID COLORANT** (Step 2). Do not shake tint container. Carefully measure pigment. Pour entire measured contents of the liquid pigment container into the mix water. Rinse the container twice with a quart of saved mix water and use a small paint brush to clean all of the tint pigment from the sides and bottom of the container to ensure all the tint is used. With all the tint in the water, mix to fully disperse, as some of the tint may have settled to the bottom. Proceed with steps three and four as per preceding instruction.

Mix the mud until colorant is fully dispersed (minimum of five minutes; longer is better). Make a note of the mix times you settle on as adequate—both to fully disperse the colorant into the mix water and to thoroughly blend the color into the mud. Then repeat those mix times consistently from batch to batch.

**ADDING COLOR: USING POWDERED COLORANT** (Step 2). Add weighed/measured pigment powder to pre-measured mix water while slowly agitating water to avoid settling. Tap to knock free any pigment clinging to sides of container. Mix for 30 seconds to one minute, making sure colorant is completely dissolved in the water—undissolved clumps of pigment will cause streaking when applied to the wall. Add plaster immediately.

Mix thoroughly (minimum of five minutes the first time) to completely disperse pigment and fatten the lime plaster to optimal workability. Make a note of the mix times you settle on as adequate—both to fully disperse the colorant into the mix water and to thoroughly blend the color into the mud. Then repeat those mix times consistently from batch to batch.

## STORAGE AND USE WINDOW

Once mixed, Limestrong Build plasters can remain usable for 3 to 5 days IF stored tightly covered and kept cool (but not allowed to freeze). A pozzolanic hydraulic lime (PHL) plaster—being slightly hydraulic—is strongly affected by temperature. If stored in warm-to-hot conditions, the mixed plaster mud will set faster than if stored in cool, above-freezing temperatures. Within the 3-to-5 day window, retempering<sup>[8]</sup> may be necessary to return the mud to an ideal working consistency.

## APPLYING LIMESTRONG BUILD FINISH PLASTERS

**DAMPEN THE SURFACE.** If plastering on lime plaster or cement backer board, the surface must be dampened before application of LSB Coarse or Fine Finish plaster. If applying LSB Interior Finish over primed drywall, the surface is NOT dampened.

**HAWK AND TROWEL APPLICATION.** Move mud from the mud board (or bucket) to the hawk with a scoop or a kite-shaped mason's trowel. The hawk is easiest to use and balance when the mud is loaded, carried, and balanced in the center of the hawk. Tip the hawk into the trowel and skim the mud with the trowel to load the trowel, then transfer the mud on the trowel to the wall.



**KEY:** When applying plaster, the loaded trowel is always moved in an **upward stroke**. The next loaded stroke starts lower (overlapping the tail of the previous) and moves up. By working in repeated, overlapping up-strokes, the mud stays on the trowel until pushed onto the wall. At the completion of each stroke, move the trowel in a sweeping circular motion to one side, which helps break the suction between the trowel and the mud and does not pull the mud back off the wall.

Work with a wet edge, blending one section of work into the next. Complete an entire wall or wall section before moving on.



**APPLICATION THICKNESS.** If using **LSB Fine Finish**, the finish coat goes on at a sixteenth (1/16) to one-eighth (1/8) inches thick; if using **LSB Coarse Finish**, apply at a one-eighth (1/8) up to one-quarter (1/4) inch thickness. As a **rule of thumb**, the largest particle size of the aggregate (sand) should be no larger than half the thickness of the coat, which allows the biggest particles to be pushed to the back of the layer so they don't roll and slide around beneath the trowel and gouge the surface as it is worked. **LSB Interior Finish** is applied<sup>[XRR]</sup> in two thin (1/16-inch) coats to an 1/8-inch overall max thickness.

## FINISH TEXTURES

Once applied and troweled tight, various subtle surface textures can be achieved depending on the float type and the method used. It's best to figure out the look and master the technique for achieving that look on practice panels well ahead of time. Examples of surface texture types and techniques include:

- A **trowel-worked surface texture**, which shows the subtle swipes of the tool, can be achieved by bringing the finish coat of the working area to proper thickness, then doubling back over it, working the trowel in random directions. For added contrast-depth, a bit more plaster can be skimmed onto the surface as you work, providing a drop-out, skip-marked effect. Keep the working edge wet as you advance across the wall, so you can seamlessly blend the worked pattern over the entire wall.
- **Dragged patterns** of various kinds can be achieved using some kind of texturing tool on the wet plaster. This is a **timing-critical process** and should be done evenly and in a single pass to achieve pleasing results. Typically, the dragged pattern is set into the wet plaster after first allowing it to firm up slightly, then returning with a clean trowel to lightly knock down and soften the effect of the texture. Such finishes and timing should be worked out on practice panels first.

### FOOTNOTES [0]

**[8]** Retempering means to take plaster mud that has stiffened and work it back to a creamy (fat), usable consistency by stirring/mixing it either with a trowel on the mud board, with a drill and mixing-paddle attachment in a mud tub, or returning the mud to the mixer. It may be necessary to add a little water (be judicious).

- A wood float works to create a **subtle matte texture** by breaking loose bigger grains of sand and dragging them around, under pressure, cutting into the surface. Allow the finish coat to reach the half-dry (50%) stage, then, using a dampened wood float, scour the surface in a swirling pattern with light-to-moderate pressure.

- If a more **aggressively textured**, sandy surface is desired, use a stucco sponge float. To achieve the look, allow the finish coat to reach the half-dry (50%) stage, then dampen the sponge float and work the surface in a swirling pattern. This type of finish texture provides a light-dispersing matte look with mottled color.

- A tight, **smoothed-troweled surface**, showing very few trowel marks, is achieved by allowing the finish coat to dry slightly, then, using a clean trowel (and a misting of water if necessary), further tighten and compact the plaster grains, taking care to avoid creating trowel-edge marks.

To achieve a tight, smooth finish, dampen the leveling coat (or substrate, if applicable), and then apply a tight, thin coat of LSB Fine Finish. This initial finish coat should be just thick enough to overcome the gritty surface on the leveling coat left by the sponge float. As the moisture from the initial finish coat gets drawn into the leveling coat, another “double back” coat should be applied directly on top of the still-damp first coat. As this second coat dries up, it can be dampened with a bit of water and finished smooth with a stainless steel trowel.

Again, experiment with surface textures on practice panels to determine the correct method, timing, and tool choice that best achieves the look you’re after.

## ADDING COLOR

Color is either added to the finish coat mud mixture or applied as a limewash. The methods for mixing in liquid or dry-pigment colorants were provided earlier, under **Instructions for Mixing Limestone Build Finish Plasters**. A limewash, on the other hand, is added after the finish coat has cured.

**Limewash.** An alternative to pigmenting the finish coat is to use a limewash. A limewash is a mineral-based (lime) paint that creates a subtle matte finish with a soft and porous feel that becomes integral to the plaster surface. Allow the finish plaster coat to fully cure before application. Limewash is applied in at least two coats. Allow at least 12 hours between limewash coats for curing. It is necessary to mist the plaster surface before application. The color-tinted limewash is applied using a large, natural-bristle brush and scrubbing it into the texture of the plaster using a consistent pattern. See the LSB publication: **Mixing and Applying a Limewash** for complete instructions.

Because Limestone Build lime plasters contain no gray Portland cement, but rather bright-white lime and near-white pozzolan, it is an ideal base for rich mixed-in colorants or worked-in limewashes, providing resonant, enduring color—color that is integral to the finish, color that mellows to a beautiful, distinctive patina as it ages. Limestone is also beautiful left at its natural off-white.

## LIMESTRONG SOAP FINISH

An optional Limestone Soap Finish (interior use only) will give the plaster a silky feeling and will also increase stain resistance and wipeability. The olive-oil soap finish is applied after the plaster finish coat has completely cured. Limestone Soap Finish comes concentrated and needs to be diluted 8 parts water to 1 part soap. See LSB Publication: **Applying a Soap Finish** for complete details on the process.

## SAFE USE PRECAUTIONS



Limestone Build™ Finish plasters contain hydrated (slaked) lime, which (because of a high pH) is somewhat caustic. Breathing the powder dust can also cause respiratory irritation. BE SMART. Protect yourself<sup>[XR3]</sup>. In all situations, if irritation develops, seek medical attention. Please read our **Safe Use Precautions and Treatments** publication for information on protecting and treating skin, eyes, and breathing function.

### CROSS REFERENCES [XR]

[XR3] LSB Publications: **Safe Use Precautions and Treatments**; Limestone Build **Safety Data Sheet** (SDS).