PlasterMax™

Installation Specifications

High Impact Interior Veneer Plaster over EPS Foam, PU Foams, Gypsum Board and Cement Block Construction

Description

PlasterMax ™ is a state-of-the-art abuse resistant veneer plaster specifically formulated to provide a versatile high-strength interior wall finish over various new and existing wall substrates. The product can be painted or stained, finished in numerous textures, and is suitable for installation over expanded polystyrene foam, PU foams, gypsum board, magnesium board, concrete block, cement, conventional plaster walls and properly prepared additional substrates. The product may be installed in one or multiple coat applications depending on specification requirements and desired aesthetic effects. **PlasterMax ™** complies with ASTM E136, ASTM E84, ASTM G21, ASTM C587, UBC 26-3 and NFPA 286 fire rating.

Climate

The objective in controlling the interior climate of the building is to assist **PlasterMax ™** cure naturally and perform as intended. Premature surface drying and excessive heat may compromise the inherent strength and performance characteristics of **PlasterMax ™**

Temperature

PlasterMax ™ must be applied on interior walls with a minimum surface temperature and ambient room temperatures between 55°F and 95°F (13°C - 35°C) with a minimum wall surface temperature above 50°F (10°C). In colder environments the building shall be heated long enough to bring the surface temperature of the substrate above 50°F and maintained until **PlasterMax ™** has sufficiently cured. Do not apply **PlasterMax ™** in temperatures above 95°F, use A/C or swamp coolers to achieve ideal room temperatures.

Humidity

The building must have a minimum relative humidity shown in **Table 1** to avoid premature surface drying and consistent curing. If low humidity conditions exist for a given ambient temperature then measures must be taken to increase the relative humidity for the duration of the **PlasterMax ™** application and curing period. Wet the floors or use patio misters to raise the humidity.

Temp	50°F 10C	55°F 13C	60°F 15C	65°F 18C	70°F 21C	75°F 24C	80°F 27C	85°F 29C	90°F 32C	95°F 35C
Min. R/H	20%	22%	25%	30%	35%	40%	48%	58%	65%	70%

Table 1 Humidity Minimums

Ideal Drying	Ideal conditions for **PlasterMax ™** application are 73°F with a 50% relative humidity. The general rule of thumb for identifying good drying conditions is the lower the temperature the lower the humidity needs to be. Conversely, the higher the building temperature the higher the relative humidity should be for proper material curing. An additional retarder is available from GigaCrete if the PlasterMax is drying too quickly, particularly in summer months.
Air Movement	In excessively hot and dry areas, minimize air movement across the applied walls and add moisture by wetting the floor or using humidifiers such as patio fan misters. Excessive air movement directly on the surface of the **PlasterMax ™** may prematurely dry the surface and create surface cracks like a dry river bed or linear shrinkage cracks. Avoid direct air movement on the PlasterMax **™** surface when using fans or other means of climate control. **PlasterMax** is crystalline cement that needs time to form ideal crystal lengths.
Direct Sunlight	Shade the **PlasterMax ™** from direct sunlight during the installation and its initial 48 hour cure.
Moisture	Ensure that the application substrate is free of surface moisture prior to the **PlasterMax ™** application and that the source of the moisture is properly addressed. **PlasterMax ™** must not be moistened during the application or during the initial cure period

Substrate Preparation

All foams	Rasping is necessary to remove potential bond breakers and to ensure good adhesion. Survey the substrate for irregularities that may adversely affect the application such as minor protrusions and voids. Mechanical chase voids cut into the EPS need to be filled prior to the **PlasterMax™** installation. Low expansion spray foam is applied into the void, allowed to cure and shaved flat with the surface. Wind-Lock's Foam2Foam is recommended for this purpose. PlasterMax bonds permanently to all known foams.
Gypsum Board	Gypsum wall substrates and gypsum board joint treatment in newly constructed buildings must be sealed. Joint compound is not required but if already installed, must be sealed with an acrylic bonder. Joint compound will re-emulsify when wet if it is not sealed adequately prior to the application of **PlasterMax ™** and will be seen as ghosting in the wall finish.
Concrete/Plaster	Prior to applying **PlasterMax ™**, all concrete wall or concrete block must be solid, free of water, excessive moisture, oil, paint, wax, grease, asphalt, latex compounds, curing compounds, adhesives and any contaminant that might act as a bond breaker. It is recommended to mechanically abrade the surface down to sound, solid concrete. Etching is a good method of final cleaning using a diluted muriatic acid solution. Once sufficiently etched, the wall should be thoroughly rinsed with potable water to dilute any acid solution remaining on the wall surface. Applying **PlasterMax ™** to totally dry wall surfaces can create rapid drying, potential cracking and/or poor adhesion of the **PlasterMax ™** to the substrate. Seal first with an acrylic bonder (not PVA bonder) contact GigaCrete for recommendations if necessary.
Magnesium Board	The wall surfaces should be sealed with an acrylic bonder before proceeding with the application. Applying **PlasterMax ™** to totally dry wall surfaces can create rapid drying, the potential cracking and/or poor adhesion of the **PlasterMax ™** to the substrate.

Note *Exposed metal surfaces contacting* **PlasterMax ™** *on any of the above substrates should be isolated or sealed with a primer or other appropriate anticorrosive coating prior to product application.* **PlasterMax ™** *may directly abut approved non-metallic electrical boxes and other non metallic protrusions without treatment.*

Mixing Station

It is recommended to take the time to establish a well organized mixing station. Batching accurately and efficiently will keep the installation on schedule and profitable. The following list provides a checklist for necessary items and practices:

- Tarp off the entire mixing area for easier cleanup
- Water hose or suitable cool water source
- Power source with GFI receptacle kept away from water usage
- Spare mixer available in case one fails
- Weigh scale (optional)
- Graduated water containers for measuring
- Plastic garbage bins or barrels for quickly drawing clean/potable mixing water
- Additional plastic barrel for rinsing/cleaning
- Level surface at “bench” height for measuring water
- Designated area for stocking dry product
- Floor scraper
- Trash barrel or designated area for opened bags and Trash
- Bags of PlasterMax MUST NOT GET SPRAYED with water or mixed PlasterMax, keep far enough away from the mixer.

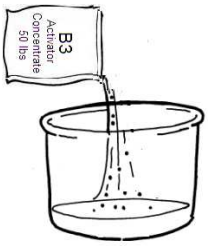
Safety Equipment:

- Protective eye wear
- Dusk mask
- Rubber gloves
- Rubber sole work boots
- Long pants
- Long sleeve shirt

Creating the modified water (B3 solution)

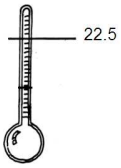
Activator + Water = B3 Activator

Mixing PlasterMax ™ Activator (Modified water, Part "B")



Empty the **50 pounds of B3 Activator Concentrate** into a plastic barrel capable of holding at least 15 gallons. A clean trash barrel will work fine.

1. Add **8 gallons + 1pint (31 liters)** of cool water and stir to fully dissolve all solids. Allow the activator solution to rest 8 hours– preferably overnight. Cover the barrel to prevent evaporation and to keep out possible contaminates. Store in cool area and prevent the B3 solution from exceeding 70°F.



2. B3 Activator and water creates a solution much denser than water. The target density is **22.5° Baume or a specific gravity of 1.18**. Using an appropriate hydrometer available from GigaCrete, check the B3 solution for actual density and adjust accordingly. Higher density will require adding water and lower density will require more concentrate. Consult a GigaCrete representative with questions.

3. Pour approximately **7 to 7 1/2 quarts (6.6 - 7 liters) of B3 Activator** into a 10 gallon (38 liters) mixing bucket.

4. Add the entire contents of the **PlasterMax ™** bag and mix to a lump free consistency. Mix time is 4 to 5 minutes, add additional B3 Activator solution if needed.

5. DO NOT TEMPER AFTER MIXED, re-mixing is okay but do not add more B3 solution if the material has started to stiffen and set.

6. Mix only what can be immediately installed within 30-40 minutes.

- Mix using B3 solution only. **<u>DO NOT MIX WITH PLAIN WATER</u>**.

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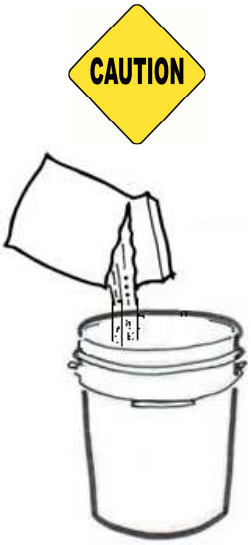
- Ensure all B3 concentrate has fully dissolved
- B3 solution greater than 70°F will greatly reduce material pot life. Put sealed bags of ice into the B3 barrel to cool if necessary.
- B3 Solution must be allowed to “age” before use. **Immediate use is not recommended**

Ensure B3 is at the correct liquid density before using

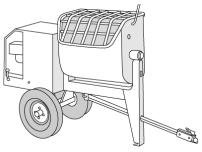


Mixing Equipment

Mixing PlasterMax in easy but can be made difficult without the right mixing equipment. Smaller projects are generally batched one unit at a time and mixed in a standard five gallon bucket. Drills with plaster mixing paddles are commonly used for this purpose. A ½” (12mm) 7 amp variable speed drill with 650 rpm is commonly used for bucket batching.

Standard helical or spiral mixing paddles are used with heavy duty ½” (12mm) drills for bucket batching. (see image) avoid square mixers as they add friction heat to the mix and can cause the mix to set quicker.

Direct drive mixers are ergonomically designed and minimize torque reduction that increases batch efficiency. Most are equipped with variable speed options that reduce product overflow while blending the dry product with activator. Direct drive mixers are recommended over heavy duty ½" (12mm) drills for bucket mixing.



A standard mortar mixer may be used for larger volume projects. Ensure that the bulk batch volume matches the application volume consumption and fresh material is continuously used.

Mixing

4 to 5 mins @ 50**°F - 75°F** =

7.5 QTS (7 liters) / 75#

Add approximately seven (7) quarts (6.6 liters) of activator per 75 lb. (34 kg) package of dry **PlasterMax ™** and slowly mix glass fibers in using typical plaster mixers for bucket batching or standard mortar mixers for bulk batching. Always add the total activator amount to the mixing vessel before adding the dry material. DO NOT MAKE TOO WET, or add more powder. It is recommended to use exact measuring equipment to duplicate liquid amounts for each batch mixed. Avoid using water less than 50°F and more than 75°

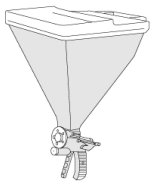
4-5 Minutes

PlasterMax ™ requires less water than typical plasters and mortars. It is extremely important to allow sufficient time for the product to adequately dissolve and liquefy. Mixing time is approximately 4 to 5 minutes. DO NOT ADD MORE SOLUTION BEFORE INITIAL ACTIVATOR HAS BEEN BLENDED.

The most common mistake is adding more activator before all dry ingredients have absorbed. Very small amounts may be added after 3 minutes of mixing. **DO NOT TEMPER AFTER INITIAL MIXING HAS TAKEN PLACE.**

Spray Equipment

PlasterMax ™ may be applied by hand trowel, hopper gun texture sprayer or stucco/plaster type spray equipment. When using spray equipment, it may be necessary to adjust the air flow rate, nozzle orifice size and feed rate to maximize application efficiency. Adjust application speed in order to achieve the desired application depth and aesthetic affect. Testing spraying/pumping equipment and material prior to installation is strongly recommended.

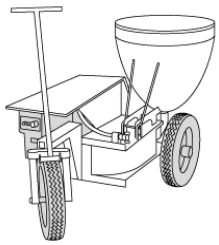


Hopper Gun (low volume) and slow

Hopper texture guns may be used to apply PlasterMax. Hopper guns are typically used for smaller volume projects and are typically used for producing textures such as orange peel, splatter and splatter knock downs. A Marshalltown Sharpshooter 693 is recommended when considering hopper gun applications.

Spray Specifications

Nozzle	Material Orifice	Air Orifice	CFM	Max Hose Length
Blow cap	¼" (6mm)	1/8" (3mm)	4	50' (15 meters)



Peristaltic Pump or "Squeeze Pump" (Medium to high volume)

Peristaltic pumps are preferred for GigaCrete coatings and offer the same benefits as rotor stator pumps but are much more user friendly. Material never interfaces with pumping parts reducing the set up and wash out time. Peristaltic pumps use less pressure – delivering material safely and effectively. Various output options and sizes are available.

ACCESSORIES

Control Joints

Control joints are necessary to compensate for potential structural movement, settling, thermal and humidity expansion or contraction and provide installation stop and start points. It is recommended that joints are placed at regular spacing's; however depending on wall heights it is best to follow industry standard plaster control joint spacing. For ICF or foam installations, Plastic 093V by Trim-Tex or other Plastic components joints typically used in the plaster and wallboard industry are installed by hot knifing or cutting a groove into the EPS allowing the joint flanges to rest flush with the surface. They may be fastened through the flange with nails or by adhering with low expansion urethane foam adhesive. Plastic "V" joints are preferred as it is easier to maintain the target installation depth along a temporary tear away strip that runs along each side of the center groove.

Casing Bead	Casing beads are necessary to isolate **PlasterMax ™** from dissimilar materials such as metal door frames, metal window frames, ceilings, floors and walls. Plastic Flat Tear Away by Trim-Tex (or similar) is preferred as it is flush mounted to the substrate and provides a temporary removable strip to trowel against. Fastening may be done with roofing nails or low expansion urethane foam adhesive.
Outside Corner Bead	Outside corner beads are optional but recommended.

Finishing

Direct Application to Wall surfaces (ICF, foams, plaster, drywall or block walls)

Preparation	Remove all possible bond breakers such as dust, dirt, oil, moisture, wall paper etc. For non foam substrates, coat cleaned surface with ACRYLIC BONDER, typical to concrete bonder. Do not use PVA bonders as these re-emulsify when wetted. Contact GigaCrete for recommendations, however, the big box stores, Home Depot, Lowes, Maynard's etc carry acrylic bonders in the masonry/stucco departments. Survey the substrate for irregularities that may adversely affect the application such as minor protrusions and voids. Walls must NOT be wet or moist or contain moisture trapped within the walls. All foams should be rasped and clean of contaminants and do not require acrylic bonders.
Reinforced Mesh	11oz fiberglass mesh from GigaCrete is a critical part of the **PlasterMax™** application. A 1/8" (3mm) minimum coat of **PlasterMax™** is applied to the substrate being coated and worked reasonably flat. Pre cut the mesh and starting at a corner in vertical drops, begin pressing the mesh into the 1/8" wet mix, embed with a trowel into the first coat working material through the mesh while ensuring that the mesh is flat and free of wrinkles. Overlap 2" to 3" adjoining vertically hung mesh sheets. An additional coat of **PlasterMax™** is now applied over the first layer and built up to the desired thickness. Layers of 3/16" to ¼"" (5mm to 6mm) is ideal.
Spraying	Spraying is both faster to apply and allows large walls to be covered quicker. **PlasterMax™** may be applied by hawk and trowel but spray application is recommended for best results. Spray in a fashion that allows the trowel persons to stay in close proximity to the sprayer and allows a continuous wet edge. Working wall areas in sections from top to bottom works best. Adjust crew sizes to match the volumes of PlasterMax being sprayed, allowing finishers to keep up with the sprayer.
Hawk & Trowel	**PlasterMax™** is hand applied like most conventional plaster material.
Trowel Timing	Dry and set times depend on material viscosity, temperature and humidity. Generally, the first trowel pass is approximately 20 minutes after the initial application and in 20 minute intervals for subsequent trowel passes. Trowelling from top to bottom each time helps to keep a good wall profile.

FINISHES AND TEXTURES

Smooth	For a smooth wall finish a steel trowel typically used for conventional plaster may be used. It is important to allow **PlasterMax™** to take an initial set (gel stage) before attempting to finish it smooth. It is acceptable to finely mist the finishing trowel wall with water to assist with the finishing process. However, avoid over watering the wall surface. Surface blistering may occur if the **PlasterMax™** is finished prematurely and/or the wall surface is over wetted.

Decorative

When **PlasterMax™ "Hard Trowel or Burnished"** is specified as the wall finish (exposed not painted) then additional trowel passes are necessary beyond the acceptably smooth stage. Make passes from top to bottom at 15-20 minute intervals using the usual trowel pressure until the surface begins to mottle and shine. Extra pressure is not necessary as the material will begin to polish regardless. Surface blackening becomes more pronounced with each additional pass. Subtle mottling is generally more desirable so use caution not to over trowel. After the material has fully cured, it can be waxed with floor polish and buffed to a high gloss finish. When color is added, it looks a lot like Venetian Plaster. Consult with GigaCrete on colors and finishes.

Texture

Spray textures such as orange peel, splatter and splatter knockdown are also possible. Texturing is performed during the second coat application. Stamped texturing is achieved with a 9" urethane texture roller. Liquid or "bubble gum" release agent is lightly sprayed on the surface and on the roller. A wide variety of textures are possible with this method.

Surface Protection and Decoration

Paint

Wall paint is most commonly used to seal, protect, and provide a consistent decorative finish to cured **PlasterMax™** Breathable latex primers and paint typically used for conventional plasters are recommended after a minimum 3 day cure period. In cooler and/or more humid environments additional cure time is needed. We recommend, Behr brand one coat and Sherwin Williams paints.

Sealer

PlasterMax™ that is not being painted must be sealed with high quality siloxane sealers. Always try a chosen sealer in a small area to check for compatibility before applying to large areas or contact GigaCrete for brand recommendations.

Clean Up

All mixing, spraying and finishing equipment must be thoroughly washed immediately after use. Potable tap water is sufficient for cleaning.

Curing

Drying and curing times may vary widely due to temperature and humidity differences from one location to another. It is important for **PlasterMax™** to be fully dry before applying any surface treatment or decorative product. Questions regarding drying and curing may be directed to GigaCrete authorized technical assistance representative.

Limitations

1. **DO NOT** over wet, as this may lead to product failures.

2. **DO NOT** temper the material with additional activator after initial mixing as this may lead to product failures.

3. Metallic surfaces such fasteners, other than stainless steel or brass, should not directly contact **PlasterMax™**. Seal all exposed metal surfaces contacting **PlasterMax™** with a suitable primer or other anticorrosive coating prior to product application or separate by using plastic components trim or gaps with silicone caulking.

Coverage

Each 75 lb. (34 kg) of **PlasterMax ™** covers approximately

53 sq. ft. @ 1/8".

42 sq. ft. @ 3/16"

26 sq. ft @ 1/4" thickness.

Packaging

PlasterMax™ is packaged in 75lb. (34 kg) sealed plastic lined paper bags.

Storage

PlasterMax™ bags should be stored in a secure, indoor and dry space away from any moisture or high humidity. Cover if needed. It is important that bags maintain their seal and are free of puncture or tear. **PlasterMax™** should be brought to room temperature 24 hours prior to being mixed. Never leave PlasterMax outside in the weather or stored in containers where excess condensation can build up over time.

Shelf Life

Order and use **PlasterMax™** in a timely manner, installing the materials within a week of taking delivery to limit the possibilities of moisture ingress or damage to the bags.

When properly stored in original sealed packaging, **PlasterMax™** has a shelf life of one year from the date of manufacture.

Tech Support. For additional technical assistance, please contact GigaCrete, Inc. at (702) 643-6363. PST