

BuildCrete™

ICF WALL & POOL FINISHING SYSTEM



BUILDBLOCK BUILDING SYSTEMS

BUILDCRETE ICF WALL & POOL FINISHING SYSTEM MANUAL



STRONG.SIMPLE.GREEN™
A GREEN stucco, plaster and pool plaster for ICF walls & pools.

BUILDCRETE ICF WALL & POOL FINISHING SYSTEM

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BUILDCRETE STUCCO, PLASTER, AND POOL PLASTER

BUILDCRETE SYSTEM OVERVIEW

The BuildCrete ICF Coating System manufactured by Gigacrete is a comprehensive system to finish ICF interior and exterior walls in homes and buildings. BuildCrete Pool Plaster is the preferred method for finishing the interior walls and floor of ICF pools.

BuildCrete is a single application product combined with a fiberglass mesh that is perfect for wall finishes, floors, pools, and other applications. The system is organic in nature, a truly green product that is code approved.

These products have been developed and thoroughly tested to ensure they are the best finish for ICFs. BuildCrete is 100% waterproof and highly impact resistant. BuildCrete crystallizes as it cures and grows into the EPS foam of BuildBlock ICFs creating a permanent physical connection to the foam.

BuildCrete is a single application product combined with a fiberglass mesh that is perfect for wall finishes, floors, pools, and other applications. BuildCrete is 100% waterproof and highly impact resistant. BuildCrete crystallizes as it cures and grows into the EPS foam of BuildBlock ICFs creating a permanent physical connection to the foam.

BUILDCRETE STUCCO

This exterior wall finish coating performs beyond any conventional exterior stucco on the market today.

BuildCrete Stucco is a true one-coat stucco designed to adhere directly to any EPS foam, CMU block, DensGlass, Securock, concrete and other building materials. BuildCrete has been used on ICF construction for its durability, strength, and ease of application.

It allows contractors to be green without complexity, compromising performance, or high cost. BuildCrete Stucco exterior wall finish coating performs beyond any conventional exterior stucco on the market today and features: excellent water resistance, impact and abrasion resistance and resistance to mold and mildew.

BUILDCRETE PLASTER

BuildCrete Plaster is an ultra-high-performance finish for architectural and industrial applications. This abuse-resistant interior veneer plaster is designed for buildings that require extreme abrasion resistance. It is a single product application that provides the ultimate in resistance to abrasion and indent far exceeding abuse type drywall.

This product is formulated for industrial strengths exceeding 8,500 psi and provides an attractive, smooth or textured finish over a variety of substrates, such as gypsum board, cement board, CMU block, mag-board, fiber board, monolithic concrete and unit masonry. Typical application thicknesses is 3/16" depending on the needs abuse resistance.

BUILDCRETE POOL PLASTER

A single-coat product application that provides the strongest and longest lasting coating for the sides and floor of pools or water basins.

BuildCrete Pool Plaster is a true one-coat plaster designed to adhere directly to EPS foam or other pool building materials. BuildCrete is used on ICF construction for its durability, strength, and ease of application. It allows pool builders to be green without complexity, saving time and money on the jobsite, and creating a finish that will last much longer than other plasters or finishing materials.

SUBSTRATE ADHESIONS

BuildCrete Stucco, BuildCrete Plaster, and BuildCrete Pool Plaster cure through a crystalline grow process. It is important for them to dry slowly enough to allow for the growth of the crystals into the substrate that they are being applied to. This allows for the crystals to grow into the substrate creating a permanent bond. Both coatings achieve unmatched bonding strength to most material with the exception of steel.

MESH TYPES

All testing has been done utilizing 11oz mesh. The Mesh is utilized in the system to allow superior impact resistance and to span joints in the foam to make substrate all one.

BUILDCRETE STUCCO

BuildCrete Stucco is used for an exterior finishes. With over 3,500 psi compressive strength, BuildCrete Stucco is unmatched in the market. BuildCrete Stucco is 100% waterproof providing an impenetrable surface. BuildCrete Stucco is a code approved exterior finish and can also be used as a base coat. BuildCrete Stucco may also be painted or used a bed for tile or another approved finish. BuildCrete Stucco meets all code approvals.

BuildCrete Stucco can be used to transition from the structure to the foundation and subsequently below grade. BuildCrete Stucco is mixed onsite with water and can be adjusted in set time to allow for better workability depending on the environment.

GENERAL BUILDCRETE STUCCO INFORMATION

- BuildCrete Stucco shall be applied in ambient air temperatures above 45°F (7.2°C) and rising during the installation.
- Do not apply BuildCrete Stucco to substrates that are below 45°F (7.2°C) or that are wet, frozen or contain frost.
- Do not apply BuildCrete Stucco during inclement weather or when inclement weather is inevitable unless appropriate weather protection is used.
- Whenever possible, avoid installing BuildCrete Stucco in direct sunlight. Direct sunlight reduces working time and may promote premature surface hydration. Shade

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the staging if necessary to avoid sun/shade lines from the staging itself or other nearby objects.

- Expansion joints are installed at all areas where movement is anticipated and at all building structural breaks. Joint placement shall be specified by the architect.
- Rasing is necessary to remove potential bond breakers and to plane profile irregularities. All substrates must be clean, dry and sound with planar irregularities less than ¼" (6.4 mm) within a 4' (10.2 cm) radius. Repair damage, dents and voids in the EPS substrate with an appropriate expanded insulation prior to applying BuildCrete Stucco. Do not attempt to make repairs with BuildCrete Stucco or anything other than expanded insulation.
- Do not install BuildCrete Stucco on wet or frozen surfaces.
- BuildCrete Stucco is packaged in 75 lb (34 kg), moisture resistant paper bags. The material volume exceeds the capability of a standard five gallon (19 L) bucket so mixing must be done in a vessel capable of holding ten gallons (38 L) of material.
- Mixing water must be potable and from a municipal source. Water temperature should be considered and adjusted if necessary.
- Pour 4.5 quarts (4.26 L) of water into the mixing bucket and begin to add BuildCrete Stucco. Begin mixing while slowly adding in remaining BuildCrete Stucco bag contents. Mix time is approximately 3 minutes or until a smooth lump free consistency is met. Small amounts of water may be added to adjust material consistency if necessary.
- Drills with typical plaster mixer attachments may be used. Hand held ergonomically engineered mixers are also acceptable.
- BuildCrete Stucco bucket life is approximately 20 minutes. Plan the installation so that each batch can be conveniently applied within this time frame. Re-tempering batches that are beginning to set is strongly discouraged.
- BuildCrete Stucco may be hand applied like most conventional plaster material. Efficient application practice is recommended to ensure that fresh material is used.
- BuildCrete Stucco may be spray applied using conventional Squeeze pump plaster delivery equipment. Ensure continuous material spraying for best results. Wash the pump and hoses during work breaks.
- A first 1/16" (1.6 mm) coat of BuildCrete Stucco is direct applied to the EPS and worked flat. Mesh is embedded into the first coat working material through while ensuring that the mesh is flat and free of wrinkles. Overlap adjoining mesh by a minimum of 2.5" (6.4 cm). A second coat of BuildCrete Stucco is immediately applied over the mesh to the specified thickness. This is a true one coat double pass method that is typically results in a 3/16" (4.8 mm) overall thickness.

- Mesh gauge is specified by the architect per application. Mesh gauge is increased as project abuse resistance requirements increase.
- Working time depends on material viscosity, temperature and humidity. Generally, the material is easily applied in approximately 20 minutes. Trowel lines and application irregularities may be flattened within 20 minutes of the application. Water troweling will not harm BuildCrete Stucco.
- Do not over trowel as surface blistering may occur. Plan to improve the wall profile in the relative short term.
- All mixing and finishing equipment must be thoroughly washed immediately after use. Potable water is sufficient for cleaning.
- Ensure that BuildCrete Stucco is allowed to cure in temperatures within the application temperature range. Moist curing for 2 hours is recommended.
- Each 75 lb. (34 kg) of BuildCrete Stucco covers approximately 42 sq. ft. (3.9 m²) at a thickness of 3/16 in (4.8 mm).
- BuildCrete Stucco bags should be stored in a secure, indoor, and dry space. It is important that bags maintain their seal and are free of puncture or tear.
- When properly stored in original sealed packaging, BuildCrete Stucco has a shelf life of one year from the date of manufacture.

BUILDCRETE STUCCO INSTALLATION & BEST PRACTICES

The BuildCrete ICF Coating System manufactured by Gigacrete is a comprehensive system to finish ICF interior and exterior walls in homes and buildings. BuildCrete Pool Plaster is the preferred method for finishing the interior walls and floor of ICF pools.

BuildCrete is a single application product combined with a fiberglass mesh that is perfect for wall finishes, floors, pools, and other applications. The system is organic in nature, a truly green product that is code approved.

These products have been developed and thoroughly tested to ensure they are the best finish for ICFs. BuildCrete is 100% waterproof and highly impact resistant. BuildCrete crystallizes as it cures and grows into the EPS foam of BuildBlock ICFs creating a permanent physical connection to the foam.

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BUILDCRETE STUCCO FORMULATION

BuildCrete Stucco is an inorganic mixture of mineral binders and limestone sand with exceptional performance, environmentally sustainable while providing strength, durability, and economy. It forms a strong bond with expanded polystyrene foam (EPS) with tensile bond strength exceeding the tensile strength of

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the foam substrate. Unlike other stucco's it does not require multiple coats. It can be applied as a one coat-two pass also known as a "double back" coat from 1/8" to 3/16" depending on application. BuildCrete Stucco is naturally tan-light grey color. For traditional 3-coat stucco installation, BuildCrete Stucco replaces scratch and brown coats and can be installed in one day. A primer plus paint finish or color coat can be applied after fully cured to complete the installation. We highly recommend a masonry primer and elastomeric paint finish for ultimate weather resistance. BuildCrete Stucco is pre-blended; just add water at the job site and mix with conventional plaster/stucco type mixing equipment. It can be pumped and sprayed or hawk and troweled with conventional plaster and stucco equipment.

BuildCrete Stucco is designed to be environmentally responsible and sustainable and emits no pollutants. It uses only natural materials, with absolutely NO Portland type cement and qualifies for LEEDS point's benefits. The product meets emission level requirements of GreenGuard Product Quality. BuildCrete Stucco is silica free, and does not support the growth of mold and mildew.

PERFORMANCE BENEFITS AT A GLANCE

- Provides a hard, durable single coat over EPS exterior walls, over 3,000 PSI compressive strength
- Applies directly over EPS foams or CMU block.
- Noncombustible building material
- Zero flame spread, and zero smoke developed indices
- Resistant to mold and mildew growth
- When applied at a thickness of 3/16" inch over EPS foam with 11 oz fiberglass mesh, the installation exceeds impact and indent performance of Sto and Dryvit comparable products applied in multiple coats at a higher cost.
- It is environmentally sustainable with a low carbon foot print
- Can be applied in one coat in one day and finished the next day.
- Pre-formulated mix, needs only water on jobsite
- Mix and apply using pumps/sprayers or hawk and trowel
- No need to constantly water down after installation unlike Portland cement type products
- Utilizes 11 oz fiberglass mesh for improved crack resistance as used in EIFS applications
- Installs by EIFS/Stucco and Plastering trades

BUILDCRETE STUCCO COVERAGE

PACKAGING	APPLIED THICKNESS	COVERAGE	WEIGHT (LBS/SQ.FT)
BuildCrete Stucco (75 lb. Bag)	1/8"	55	1.13
BuildCrete Stucco (75 lb. Bag)	3/16"	45	1.67

Product yields may also vary due to water content and substrate conditions.

BUILDCRETE STUCCO TECHNICAL DATA

TEST	STANDARD METHOD	RESULTS
Compressive Strength (psi)	ASTM C-109	3000 @ 7 days
Flexural Strength MOR (psi)	ASTM C-293 (modified)	900 @ 7 days
Tensile Strength (psi)	ASTM C-190	Meets or Exceeds
Tensile Bond Strength (psi)	ASTM C-297	Meets or Exceeds
Impact Resistance (in-lb)	ASTM D-5420	>100
Cold Water Absorption (% by wt)	ASTM C-642	7 days 2-3 %
Shrinkage (% by length)	ASTM C-157	Air Cure -7 days 0.00
Accelerated Weathering	ASTM G-26	Meets or Exceeds
Freeze-Thaw	ICBO AC 11	> 40 cycles No cracking, crazing, erosion
Surface Burning	ASTM E-84	Flame Spread: 0 Smoke : 0
Fire Resistance	ASTM E-119	Meets or Exceeds
Combustibility	ASTM E-136	Non-Combustible
Wind Loads	ASTM E-330	Meets or Exceeds

BUILDCRETE PLASTER

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

BUILDCRETE PLASTER DESCRIPTION

BuildCrete Plaster 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.

BuildCrete Plaster complies with ASTM E136, ASTM E84, ASTM G21, ASTM C587, UBC 26- 3 and NFPA 286 fire rating.

BUILDCRETE PLASTER INSTALLATION & BEST PRACTICES

CLIMATE

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

TEMPERATURE

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BuildCrete Plaster 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 BuildCrete Plaster has sufficiently cured. Do not apply BuildCrete Plaster 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 BuildCrete Plaster application and curing period. Wet the floors or use patio misters to raise the humidity.

TABLE 1 MINIMUM RELATIVE HUMIDITY

TEMPERATURE		MINIMUM RELATIVE HUMIDITY
10°C	50°F	20%
12°C	55°F	22%
15°C	60°F	25%
18°C	65°F	30%
21°C	70°F	35%
24°C	75°F	40%
27°C	80°F	48%
29°C	85°F	58%
32°C	90°F	65%
35°C	95°F	70%

IDEAL DRYING

Ideal conditions for BuildCrete Plaster 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 BuildCrete Plaster 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 BuildCrete Plaster may prematurely dry the surface and create surface cracks like a dry river bed or linear shrinkage cracks. Avoid direct air movement on the BuildCrete Plaster surface when using fans or other means of climate control. BuildCrete Plaster is crystalline cement that needs time to form ideal crystal lengths.

DIRECT SUNLIGHT

Shade the BuildCrete Plaster 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 BuildCrete Plaster application and that the source of the moisture is properly addressed. BuildCrete Plaster 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 BuildCrete Plaster 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. BuildCrete Plaster 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 BuildCrete Plaster and will be seen as ghosting in the wall finish.

CONCRETE/PLASTER

Prior to applying BuildCrete Plaster, 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 BuildCrete Plaster to totally dry wall surfaces can create rapid drying, potential cracking and/or poor adhesion of the BuildCrete Plaster 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 BuildCrete Plaster to totally dry wall surfaces can create rapid drying, the potential cracking and/or poor adhesion of the BuildCrete Plaster to the substrate.

Note: Exposed metal surfaces contacting BuildCrete Plaster on any of the above substrates should be isolated or sealed with a primer or other appropriate anticorrosive coating prior to product application. BuildCrete Plaster 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

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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 BuildCrete Plaster **MUST NOT GET SPRAYED** with water or mixed BuildCrete Plaster 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 BuildCrete Plaster 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 + 1 pint (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 contaminants. 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 BuildCrete Plaster 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. **DO NOT MIX WITH PLAIN WATER.**
 - 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 BuildCrete Plaster is 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 1/2" (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 1/2" (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.

MIXING

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 1/2" (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.

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 BuildCrete Plaster 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°

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4-5 MINUTES

BuildCrete Plaster 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

BuildCrete Plaster 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 BuildCrete Plaster. 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

Blow cap	1/4" (6mm)	1/8" (3mm)	4	50' (15 meters)
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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 knitting 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 BuildCrete Plaster 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 bonders. 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 BuildCrete Plaster application. A 1/8" (3mm) minimum coat of BuildCrete Plaster is applied to the substrate being coated and worked reasonably flat. Precut 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 BuildCrete Plaster is now applied over the first layer and built up to the desired thickness. Layers of 3/16" to 1/4" (5mm to 6mm) is ideal.

SPRAYING

Spraying is both faster to apply and allows large walls to be covered quicker.

BuildCrete Plaster 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 BuildCrete Plaster being sprayed, allowing finishers to keep up with the sprayer.

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HAWK & TROWEL

BuildCrete Plaster 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. Troweling 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 BuildCrete Plaster 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 BuildCrete Plaster is finished prematurely and/or the wall surface is over wetted.

DECORATIVE

When BuildCrete Plaster "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 BuildCrete Plaster. 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

BuildCrete Plaster 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 BuildCrete Plaster 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

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

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

Metallic surfaces such fasteners, other than stainless steel or brass, should not directly contact BuildCrete Plaster. Seal all exposed metal surfaces contacting BuildCrete Plaster 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 BuildCrete Plaster covers approximately:

53 sq. ft. @ 1/8"

42 sq. ft. @ 3/16"

26 sq. ft @ 1/4" thickness.

PACKAGING

BuildCrete Plaster is packaged in 75lb. (34 kg) sealed plastic lined paper bags.

STORAGE

BuildCrete Plaster 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. BuildCrete Plaster should be brought to room temperature 24 hours prior to being mixed. Never leave BuildCrete Plaster outside in the weather or stored in containers where excess condensation can build up over time.

SHELF LIFE

Order and use BuildCrete Plaster 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, BuildCrete Plaster has a shelf life of one year from the date of manufacture.

BUILDCRETE PRODUCT MANUAL

BUILDCRETE PLASTER

BuildCrete Plaster is an interior finish product, provides over 8,500 psi compressive strength. BuildCrete Plaster is the first product to achieve code approval over foam to replace drywall as a 15minute fire barrier. BuildCrete Plaster does not support mold or mildew making it the perfect choice for institutional facilities. BuildCrete Plaster utilizes a water-based additive that is mixed 24 hours prior to being added to the powder. Achieving the right mixture balance is imperative to the performance of BuildCrete Plaster.

GENERAL BUILDCRETE PLASTER INFORMATION

- BuildCrete Plaster shall be applied in ambient room temperatures between 55°F and 85°F (13°C - 30°C) with a minimum wall surface temperature above 50°F (10°C).
- Relative humidity shall not drop below 35% during the BuildCrete Plaster installation or during its initial 48 hour cure.
- Air movement can assist in maintaining good drying conditions in high humidity environments. Avoid direct air movement across the BuildCrete Plaster surface as it may prematurely dry the BuildCrete Plaster surface and promote surface cracking.
- Shade the BuildCrete Plaster from direct sunlight during the installation and its initial 48 hour cure.
- Ensure that the application substrate is free of surface moisture prior to the BuildCrete Plaster application and that the source of the moisture is properly addressed. BuildCrete Plaster shall not be moistened during the application or during the initial cure period.
- Control joints are necessary to compensate for potential structural movement, thermal and humidity expansion/contraction and provide installation stop and start points. It is recommended that joints are placed at intervals not exceeding 30' (9.2 m). Plastic 093V by Trim-Tex or 093 zinc joints typically used in the 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 2" (5.1 cm) roofing 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 beads are necessary to isolate BuildCrete Plaster from dissimilar building materials such as door frames, window frames, ceilings, floors and walls. Plastic Flat Tear Away by Trim-Tex (or similar) is preferred as it is flush mounted to the EPS and provides a temporary removable strip to trowel against. Fastening may be done with 2" (5.1 cm) roofing nails or low expansion urethane foam adhesive.
- Empty the 50 pounds (22.7 kg) of B3 Activator Concentrate into a plastic barrel capable of holding at least 15 gallons (~57 L). A clean trash barrel will work fine.
- Add 8 gallons 16 fluid ounces (30.8 L) 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 contaminants. Store in cool area and prevent the B3 solution from exceeding 70°F (21°C).
- 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, 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.
- Mix using B3 solution only. DO NOT MIX WITH PLAIN WATER.
- Ensure all B3 concentrate has fully dissolved.
- B3 solution greater than 70°F (21°C) will greatly reduce material pot life.
- B3 Solution must be allowed to "age" before use. Immediate use is not recommended.
- Ensure B3 is at the correct liquid density before using.
- 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 BuildCrete Plaster 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
- 4.5 ounce / 128 g (minimum) fiberglass mesh typically used in the EIFS industry is a critical part of the BuildCrete Plaster application. A 1/16" (1.6 mm) coat of BuildCrete Plaster is applied to the EPS and worked flat. Pre cut the mesh and embed into the first coat working material through while ensuring that the mesh is flat and free of wrinkles. Overlap adjoining mesh by a minimum of 2" (5.1 cm). A second coat of BuildCrete Plaster is immediately applied over the mesh to the BuildCrete Plaster may be applied by hawk and trowel but spray application is recommended for best results. Spray in a fashion that allows the trowel person 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.
- BuildCrete Plaster is hand applied like most conventional plaster material.
- 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. Troweling from top to bottom each time helps to keep a good wall profile.
- Obtaining a smooth finish is easy when good installation practices are adhered to. BuildCrete Plaster has good trowel ability but differs from conventional plasters where no surface water is used to aid the trowel pass.

BUILDCRETE PRODUCT MANUAL

Additionally, over troweling at any one time may result in material drag and surface blistering. A dense, smooth finish for paint specified walls may be realized in few trowel passes-at times only one pass is necessary.

- When BuildCrete Plaster 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.
- Spray textures such as orange peel, splatter and splatter knockdown are also possible. Texturing is performed during the second coat application.
- Stamp texturing is easily achieved with a 9" urethane texture roller. Liquid or "bubble gum" release agent is lightly sprayed on the BuildCrete Plaster surface and on the roller. A wide variety of textures are possible with this method.
- Wall paint is most commonly used to seal, protect, and provide a consistent decorative finish to cured BuildCrete Plaster. Breathable latex primers and paint typically used for conventional veneer plasters are recommended after a minimum 7 day cure period. In cooler and/or more humid environments additional cure time may be needed before painting. Consult with the paint manufacturer for recommendations.
- Ensure that BuildCrete Plaster is allowed to cure in temperatures within the application temperature and humidity ranges.
- Each 75 lb. (34 kg) of BuildCrete Plaster covers approximately 42 sq. ft. (4.2 m²) at an approximate thickness of 3/16 in (4.8 mm).
- BuildCrete Plaster bags should be stored in a secure, indoor and dry space. It is important that bags maintain their seal and are free of puncture or tear. BuildCrete Plaster should be brought to room temperature 24 hours prior to being mixed and applied.
- When properly stored in original sealed packaging, BuildCrete Plaster has a shelf life of one year from the date of manufacture.

BUILDCRETE POOL PLASTER

BuildCrete Pool Plaster is used for the finishes on ICF pool walls and floors. With over 3,500 psi compressive strength BuildCrete Pool Plaster is 100% waterproof providing an impenetrable surface. BuildCrete Pool Plaster is a code approved exterior finish and can also be used as a base coat or a bed for tile or another approved finishes.

BuildCrete Pool Plaster will outlast any convention pool plasters in the market today. It is mixed onsite with water and can be adjusted in set time to allow for better workability depending on the environment.

GENERAL BUILDCRETE POOL PLASTER INFORMATION

- BuildCrete Pool Plaster shall be applied in ambient air temperatures above 45°F (7.2°C) and rising during the installation.
- Do not apply BuildCrete Pool Plaster to substrates that are below 45°F (7.2°C) or that are wet, frozen or contain frost.
- Do not apply BuildCrete Pool Plaster during inclement weather or when inclement weather is inevitable unless appropriate weather protection is used.
- Whenever possible, avoid installing BuildCrete Pool Plaster in direct sunlight. Direct sunlight reduces working time and may promote premature surface hydration. Shade the staging if necessary to avoid sun/shade lines from the staging itself or other nearby objects.
- Rasping is necessary to remove potential bond breakers and to plane profile irregularities. All substrates must be clean, dry and sound with planar irregularities less than ¼" (6.4 mm) within a 4' (10.2 cm) radius. Repair damage, dents and voids in the EPS substrate with an appropriate expanded insulation prior to applying BuildCrete Pool Plaster. Do not attempt to make repairs with BuildCrete Pool Plaster or anything other than expanded insulation.
- When installing BuildCrete Pool Plaster directly to concrete use a standard concrete bonding agent.
- Do not install BuildCrete Pool Plaster on wet or frozen surfaces.
- BuildCrete Pool Plaster is packaged in 75 lb (34 kg), moisture resistant paper bags. The material volume exceeds the capability of a standard five gallon (19 L) bucket so mixing must be done in a vessel capable of holding ten gallons (38 L) of material.
- Mixing water must be potable and from a municipal source. Water temperature should be considered and adjusted if necessary.
- Pour 4.5 quarts (4.26 L) of water into the mixing bucket and begin to add BuildCrete Pool Plaster. Begin mixing while slowly adding in remaining BuildCrete Pool Plaster bag contents. Mix time is approximately 3 minutes or until a smooth lump free consistency is met. Small amounts of water may be added to adjust material consistency if necessary.
- Drills with typical plaster mixer attachments may be used. Hand held ergonomically engineered mixers are also acceptable.
- BuildCrete Pool Plaster bucket life is approximately 20 minutes. Plan the installation so that each batch can be conveniently applied within this time frame. Re-tempering batches that are beginning to set is strongly discouraged.
- BuildCrete Pool Plaster may be hand applied like most conventional plaster material. Efficient application practice is recommended to ensure that fresh material is used.
- BuildCrete Pool Plaster may be spray applied using a conventional squeeze pump plaster delivery equipment.

BUILDCRETE PRODUCT MANUAL

- Ensure continuous material spraying for best results. Wash the pump and hoses during work breaks.
- A first 1/16" (1.6 mm) coat of BuildCrete Pool Plaster is directly applied to the EPS foam and worked flat. Mesh is embedded into the first coat working material through while ensuring that the mesh is flat and free of wrinkles. Overlap adjoining mesh by a minimum of 2.5" (6.4 cm).
- A second coat of BuildCrete Pool Plaster is immediately applied over the mesh to the specified thickness in a continuous process. This is a true one coat double pass method that is typically results in a 3/16" (4.8 mm) overall thickness.
- Mesh gauge is specified by the architect per application and the mesh gauge is increased as project abuse resistance requirements increase.
- Working time depends on material viscosity, temperature and humidity. Generally, the material is easily applied in approximately 20 minutes. Trowel lines and application irregularities may be flattened within 20 minutes of the application. Water troweling will not harm BuildCrete Pool Plaster.
- Do not over trowel as surface blistering may occur. Plan to improve the wall profile in the relative short term.
- All mixing and finishing equipment must be thoroughly washed immediately after use. Potable water is sufficient for cleaning.
- Ensure that BuildCrete Pool Plaster is allowed to cure in temperatures within the application temperature range. Moist curing for 2 hours is recommended.
- Each 75 lb. (34 kg) of BuildCrete Pool Plaster covers approximately 42 sq. ft. (3.9 m²) at a thickness of 3/16 in (4.8 mm).
- BuildCrete Pool Plaster bags should be stored in a secure, indoor, and dry space. It is important that bags maintain their seal and are free of puncture or tear.
- When properly stored in original sealed packaging, BuildCrete Pool Plaster has a shelf life of one year from the date of manufacture.

BUILDCRETE POOL PLASTER INSTALLATION & BEST PRACTICES

The BuildCrete ICF Coating System manufactured by Gigacrete is a comprehensive system to finish ICF interior and exterior walls in homes and buildings. BuildCrete Pool Plaster is the preferred method for finishing the interior walls and floor of ICF pools.

BuildCrete is a single application product combined with a fiberglass mesh that is perfect for wall finishes, floors, pools, and other applications. The system is organic in nature, a truly green product that is code approved.

These products have been developed and thoroughly tested to ensure they are the best finish for ICFs. BuildCrete is 100% waterproof and highly impact resistant. BuildCrete crystallizes as it cures and grows into the EPS foam of BuildBlock ICFs creating a permanent physical connection to the foam.

BuildCrete is a single application product combined with a fiberglass mesh that is perfect for wall finishes, floors, pools, and other applications. BuildCrete is 100% waterproof and highly impact resistant. BuildCrete crystallizes as it cures and grows into the EPS foam of BuildBlock ICFs creating a permanent physical connection to the foam.

BUILDCRETE POOL PLASTER FORMULATION

BuildCrete Pool Plaster is an inorganic mixture of mineral binders and limestone sand with exceptional performance, environmentally sustainable while providing strength, durability, and economy. It forms a strong bond with expanded polystyrene foam (EPS) with tensile bond strength exceeding the tensile strength of the foam substrate. Unlike other Pool Plaster's it does not require multiple coats. It can be applied as a one coat-two pass also known as a "double back" coat from 3/8" to 1/2" depending on application. BuildCrete Pool Plaster is naturally tan-light grey color. For traditional 3-coat Pool Plaster installation, BuildCrete Pool Plaster replaces scratch and brown coats and can be installed in one day. A primer plus paint finish or color coat can be applied after fully cured to complete the installation. We highly recommend a masonry primer and elastomeric paint finish for ultimate weather resistance. BuildCrete Pool Plaster is pre-blended; just add water at the job site and mix with conventional plaster/Pool Plaster type mixing equipment. It can be pumped and sprayed or hawk and troweled with conventional plaster and Pool Plaster equipment.

BuildCrete Pool Plaster is designed to be environmentally responsible and sustainable and emits no pollutants. It uses only natural materials, with absolutely NO Portland type cement and qualifies for LEEDS point's benefits. The product meets emission level requirements of GreenGuard Product Quality. BuildCrete Pool Plaster is silica free, and does not support the growth of mold and mildew.

PERFORMANCE BENEFITS AT A GLANCE

- Provides a hard, durable single coat over EPS exterior walls, over 3,000 PSI compressive strength
- Applies directly over EPS foams or CMU block.
- Noncombustible building material
- Zero flame spread, and zero smoke developed indices
- Resistant to mold and mildew growth
- When applied at a thickness of 3/16" inch over EPS foam with 11 oz fiberglass mesh, the installation exceeds impact and indent performance of Sto and Dryvit comparable products applied in multiple coats at a higher cost.
- It is environmentally sustainable with a low carbon foot print
- Can be applied in one coat in one day and finished the next day.
- Pre-formulated mix, needs only water on jobsite
- Mix and apply using pumps/sprayers or hawk and trowel
- No need to constantly water down after installation unlike Portland cement type products

BUILDCRETE PRODUCT MANUAL

- Utilizes 11 oz fiberglass mesh for improved crack resistance as used in EIFS applications
- Installs by EIFS/Pool Plaster and Plastering trades

BUILDCRETE POOL PLASTER COVERAGE

PACKAGING	APPLIED THICKNESS	COVERAGE	WEIGHT (LBS/SQ.FT)
BuildCrete Pool Plaster (75 lb. Bag)	1/8"	55	1.13
BuildCrete Pool Plaster (75 lb. Bag)	3/16"	45	1.67

Product yields may also vary due to water content and substrate conditions.

BUILDCRETE POOL PLASTER TECHNICAL DATA

TEST	STANDARD METHOD	RESULTS
Compressive Strength (psi)	ASTM C-109	3000 @ 7 days
Flexural Strength MOR (psi)	ASTM C-293 (modified)	900 @ 7 days
Tensile Strength (psi)	ASTM C-190	Meets or Exceeds
Tensile Bond Strength (psi)	ASTM C-297	Meets or Exceeds
Impact Resistance (in-lb)	ASTM D-5420	>100
Cold Water Absorption (% by wt)	ASTM C-642	7 days 2-3 %
Shrinkage (% by length)	ASTM C-157	Air Cure -7 days 0.00
Accelerated Weathering	ASTM G-26	Meets or Exceeds
Freeze-Thaw	ICBO AC 11	> 40 cycles No cracking, crazing, erosion
Surface Burning	ASTM E-84	Flame Spread: 0 Smoke : 0
Fire Resistance	ASTM E-119	Meets or Exceeds
Combustibility	ASTM E-136	Non-Combustible
Wind Loads	ASTM E-330	Meets or Exceeds