



DESIGN & CONSTRUCTION GUIDELINES

Hydrazzo® is an extremely durable and versatile product.

The information and sketches on the following pages discuss construction techniques which will allow this product to be used to its full potential, while minimizing problems and ensuring the best possible application.

Please take a few moments to review this material and call us if you have any questions.

C.L. INDUSTRIES, INC.

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Hydrazzo® Polishing Phase

Use the Mini-Mag™ to polish the pool to a smooth texture. **DO NOT EXCEED 2500 PSI.** Be careful to stay away from the tile line to prevent the diamond abrasives from scratching the tile. Use a Hydro-Glove™ with the Hydro Abrasives™ to hand polish the hard to get areas such as inside corners of steps, swim-outs, bench seats, waterline tile and around light niches. Allow the tool to do the work.

- Step 1.** After polishing phase carefully spray down finish with pressure washer and brush to remove remaining residue.
- Step 2.** Give homeowner a used Hydro-Pad™ for future removal of stains or rough areas.
- Step 3.** Fill pool with no interruptions and follow start up procedure. Brush the pool.
- Step 4.** Maintain the pool water using the "Saturation Index" and a good testable sequestering agent to help prevent scaling (efflorescence), a normal phase of the hydration process. Do not exceed chemical levels recommended by the manufacturer. *Dilution is the low cost solution!*

Note 1: The use of metallic sanding discs or hydraulic oil driven polishing equipment can permanently destroy the curing phase of a cement finish. The acid solution with soap is very important to achieve contact time without over exposing finish. Soap is high in alkalinity and buffers the acid strength.

Note 2: The curing process of dark plaster causes more visible efflorescence, which are calcium hydroxide crystals forming in the capillaries and on the surface of the pool. This phenomenon can be controlled with a proper start-up procedure. A proper start-up consists of chemical balance and brushing. After 28 to 60 days this initial curing process usually stops. The beauty of Hydrazzo® is that it can be re-acid washed and polished if proper start-up is not followed. The deepest area of the pool should be protected with sodium bi-carb or soda ash during the acid washing process preventing over exposure. **Care should be taken to ensure that the acid solution is completely neutralized and removed in an environmentally acceptable manner.**

Note 3: Different aggregate finishes have different water demands. That means: If the aggregate is still absorbing water as it is being pumped or troweled it can get hard prematurely in the hoses or as it is being troweled. This can appear as being too lean in cement. Follow the manufacturers directions. Mix batches adequately before applying which is usually 6 to 8 minutes after the last bag is dropped. The material will stay trowelable longer for better compression eliminating shrinkage and hydration problems.

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Hydrazzo® Exposure Phase (Minimum of 2 Personnel)

- Step 1.** Mix 1-gallon acid with 3 ounces of acid wash additive (liquid dish detergent such as Dawn).

Example: 6 gallons of acid with 18 ounces of acid wash additive in a 15-gallon carboy or other plastic container. You now have one consistent mix for approx. 800 square feet of surface area walls and floor.

- Step 2.** Saturate finish with clean fresh water to prevent over penetration of wash down solution. *Keep finish saturated with water.*

- Step 3.** Generously sprinkle neutralizing agent (sodium bicarbonate) in approximately an 8-foot diameter around the main drain (the deepest part of the pool).

- Step 4.** Place a submersible pump in main drain or the deepest part of the pool, to immediately remove neutralized acid from pool.

- Step 5.** Using an acid resistant garden hose, squirt fresh water backwards into the drum or carboy to prime siphon until bubbles stop. Allow siphoning until acid runs freely. Use a ball valve on the end of the hose for regulation.

- Step 6.** Keep the walls and floor saturated with fresh water prior to acid washing.

- Step 7.** Acid wash the walls from the floor up and then the floor from the deepest end to the shallow end. Allow 30 seconds of contact time before rinsing with fresh water.

Using a stiff bristled brush, spot acid wash any remaining pasty areas. **(Use the acid wash procedure to expose the aggregate as evenly as possible before polishing.)**

CAUTION: Failure to remove the excess paste in the above procedure will result in an uneven cure causing (graying, blotching, mottling), and other hydration problems associated with poor workmanship. White aggregate pools are more difficult to expose properly because there is no colored quartz aggregate to target. Please follow the directions carefully to achieve the greatest results possible.

- Step 9.** Thoroughly rinse the pool.

Note: Plastic Sprinklers cans may be used on small pools and spas.



Hydrazzo® Application

- Step 1.** Prep the pool surface according to manufacturer's recommendations.
- Step 2.** Drain all water from equipment and pipes and/or plug return lines before application. All weepers and plumbing leaks should be repaired at least 24 hours prior to application.
- Step 3.** If calcium chloride is needed, pre-dilute and screen calcium chloride in 5 gallon buckets of water. One for each batch. Excess calcium (1.5%+) causes trapped moisture (graying/hydration), rapid drying causing checking and /or crazing, poor bonding and the inability to close off, working the water, air and fines to the surface.
- Step 4.** Add a measured amount of water to mixer with calcium chloride liquid. Dispose of residue in an environmentally safe manner.
- Step 5.** Add proper number of bags according to mixer capacity. Make sure to box different batch numbers.
- Step 6.** Mix 6 to 8 minutes. Short mix times create a false set; prolonged mix times do not allow enough troweling time.
- Step 7.** Apply evenly (min $\frac{3}{8}$ ", max $\frac{3}{4}$ "). The use of a $\frac{3}{8}$ " calibrated rake helps. Material that is too thick (over $\frac{3}{4}$ ") is not effectively troweled unless it is layered. Material that is too thin can dry too rapidly causing cracking and/or crazing.
- Step 8.** Fill in spike holes with aggregate and cement, not just cream.
- Step 9.** Finish trowel for a good bond, and smooth finish as you would a white plaster pool. Hard trowel waterline tile, decorative tile, seats and steps front and back to eliminate shrinkage.
- Step 10.** During final trowel remove accumulated excess paste with trowel from surface into a bucket for disposal. This will help reveal divots, spike holes, or trowel marks for immediate repair and promote a better exposure. Expose the same day after at least 4 hours of cure time in a warm environment 80 degrees and rising. An overnight cure is not a problem as long as the material is well troweled*.

Note 1: Troweling spreads smooths and compresses the mixture driving the larger aggregates back and bringing the mediums and smaller aggregates forward. At the same time troweling works the cement paste and mix water to the surface reducing the amount of water in the mixture, reducing hydration problems and shrinkage that causes check cracking and/or crazing (low humidity, heat, wind, etc.).

Note 2: In adverse conditions (dry heat, wind, etc.) Mist pool surface to prevent crazing during overnight cure.



RENOVATION

- Step 1.** Inspect the existing pool surface for degradation and stains. There is usually a reason why these problems occur. Re-plumb chlorinators with a Hartford loop, tether floaters, remove metallic pool fittings including pipe and replace with plastic. Replace bronze gate valves with plastic ball valves, install bypasses on heaters, and discontinue the use of metallic algaecides. If the pool is stained always lower the pH and add a testable sequestering agent to pre-release any existing metal stains that exist within the plumbing system for at least a week. This will help prevent metallic stains from re-staining the new finish. Repair all leaks.
- Step 2.** The use of a scratch coat is recommended to promote even curing and a good bond over an existing finish. Whether shotcrete, gunite, poured, or hand packed, every pool shell is different because of location, environment, and especially the competency of the technicians on the job. **Assume nothing.** Be there and manage the job. The pool contractor is responsible for the entire construction of the pool, start to finish. We are working with a cementitious product that takes up to a year to cure. Follow manufacturer's recommended start-up procedures. Maintenance and operation is also critical during this 10 - 12 month period.

Renovations need inspection and correction of existing troublesome conditions to prevent the same unsightly circumstances from re-occurring.





Product Application Sheet

Pool Shell Preparation

The interior cementitious finish of a pool is the only cosmetic part of a pool that is handcrafted in an uncontrolled environment. For this reason it is **absolutely imperative** that supervision of the shell and shell preparation prior to plastering be carefully monitored and any questionable areas corrected. This includes:

NEW CONSTRUCTION

- Step 1.** High or low spots in the shell **need** to be ground down or filled to help the applicators apply a consistent $\frac{3}{8}$ inch (approximate minimum) finish thickness. Hydration problems can occur if the finish is applied too thick or too thin.
- Step 2.** Weepers, return and suction line penetrations **must** be sealed with hydraulic cement at least seven days prior to cleaning and acid washing the pool shell. Possible voids may create leaks and gray streaks.
- Step 3.** After a **minimum 28 day cure**, the pool shell should be de-watered, cleaned, and acid washed. Extremely wet areas in the shell will cure differently and create shaded areas. **Example: A wet bowl can cause a halo around the main drain.**
- Step 4.** The equipment and electric hook up **must** be in place before the final finish is applied. Proper fire-up, immediately following the pool fill helps correct any environmental problems the applicators may experience during the finish application.
- Step 5.** "Where uncontrollable ground water or rainy season is prevalent" a dead line **must** be installed.
- Step 6.** Acid wash, neutralize, and rinse entire pool surface to remove efflorescence, and debris.

Note: The use of a scratch coat is recommended to promote a good bond and even curing when the shell has porosity problems. This includes renovation as well as new construction.

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AGGREGATE EXPOSURE

Same day exposure is possible if surface hardens 3-4 hours in temperatures of 80°F or warmer. Overnight hardening is recommended for cooler temperatures. Only after saturating the finish surface with water, acid wash using a muriatic acid solution consisting of 3 ounces of liquid dish detergent (Dawn Liquid Dish Detergent) per gallon of solution to expose the aggregate as uniformly as possible. Before acid wash, evenly sprinkle 3-4 lbs of sodium bicarbonate around main drain to protect this area from accumulated acid solution. Use a submersible pump to remove any accumulated, neutralized acid solution. Acid wash additives are available to enhance the uniformity of this wash while reducing fumes. Further care should be taken to reduce streaking by aggressively brushing the muriatic solution AS IT IS BEING APPLIED. Neutralize and remove acid residue. Lightly buff the surface with TRITON water driven polisher or Hydro Abrasives to remove remaining cement residue while polishing the finish. (For more information regarding TRITON or TRITON Abrasives, contact your Aquavations sales representative.)

CURING

Care should be taken to protect Aquavations Hydrazzo from rapid drying conditions such as high wind, high temperature, low humidity. Such precautions may include fogging or misting the surface, or placing a protective covering over the pool. Cover should not be placed directly on the pool surface.

FILLING PROCEDURES

When filling a pool it is important to do so without interruption of fill water. Fill pool as rapidly as possible from the deepest part of the pool. All fill hoses should have a sock or cloth on the end. Do not allow main hose length to lay on the aggregate surface as it will leave a mark.

WATER CHEMISTRY

Water chemistry should be maintained within +/- 0.3 on the Langelier Saturation Index. Chlorine should not exceed 3 PPM and Cyanuric acid levels should not exceed manufacturers' 40 to 60 PPM recommendations. For more information on chemical balance and the Saturation Index see recommendations from the NPC, National Plasterers' Council, www.npconline.org and APSP, Association of Pool & Spa Professionals, www.theapsp.org. Failure to monitor and maintain proper chemical balance will result in equipment damage as well as surface deterioration. Maintaining proper chemical balance is essential during the initial curing phase as well as routine maintenance to maximize the life of the pool surface.

COVERAGE

Each 80 lb. bag covers approximately 20-25 sq. feet at 3/8" thickness. Coverage rates may vary depending on method of application and condition of substrate.

PACKAGING

Aquavations Hydrazzo is packaged in 80 lb. heavy duty poly lined bags.

WARNINGS

Prooduct is alkaline on contact with water. During mixing or application, avoid contact with eyes or skin. In case of such contact, flood eyes repeatedly with water and call physician. Do not take internally. Wear NIOSH approved mask during mixing procedures.

Aquavations

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PRODUCT DATA SHEET

A Q U A V A T I O N S

HYDRAZZO

POLISHED MARBLE POOL FINISH

DESCRIPTION

Aquavations Hydrazzo, Polished Marble pool finish is a swimming pool surface of specially blended white marble aggregate, white portland cement, graded color aggregate, and proprietary ingredients. This product produces the smoothest non-slip natural finish available, and it's unique formulation provides resistance to spot etching, permanent scale and algae adhesion. Roughness complaints are eliminated as the surface can be easily polished to a uniform luster. Aquavations Hydrazzo is ideal for new or existing residential and commercial applications.

BENEFITS

Smoothest Exposed Aggregate Surface Available
Time Proven Natural Ingredients • Resists Permanent Algae and Scale Adhesion
Ease of Application

PREPARATION

Aquavations Hydrazzo® should be applied to a sound surface free of oil, dirt, algae or any other foreign substance. Previously applied paints or sealers must be removed by acid washing and/or sandblasting. Neutralize acid with baking soda or soda ash then thoroughly rinse with water. Re-finished pools must be undercut an appropriate distance around all tile, return lines, light fixtures and main drains [follow APSP and/or NPC standards]. All weepers and plumbing leaks should be repaired at least 24 hours prior to plaster application [follow APSP and/or NPC standards]. Always follow "sound technical practices" as recommended by The National Plasters (NPC), The Association of Pool and Spa Professionals (APSP), and The American Concrete Institute (ACI).

MIXING

1. Using standard mixing equipment, it is important to blend each batch with the same amount of water and to mix each batch for the same amount of time.
2. Mix Aquavations Hydrazzo with approximately 1½ to 1¾ gallons of potable water per 80 lb. bag.
3. Start the mixing procedure by adding approximately two thirds of the total water requirements to the mixer, add Aquavations Hydrazzo then the balance of water.
4. Mix the completed batch for at least 8 minutes to ensure a proper blend of all ingredients. Each batch should be mixed the same amount of time.
5. Before using any job site additives, please consult your Aquavations Representative.

APPLICATION

Aquavations Hydrazzo may be applied by either pump or conventional methods. Apply Hydrazzo over a lightly dampened (no standing water) surface to a uniform thickness of approximately 3/8" when there is absolutely no possibility of freezing. Make sure that pegboard or spike holes are filled with aggregates and not cement paste only. Conventional plastering techniques are used to install Aquavations Hydrazzo. Care should be taken to remove any accumulated excess cement paste from the finished troweling. After final trowel use a grout sponge and lightly removed cement paste from difficult polishing areas such as inside corners of steps, swim outs, etc...

WATER CHEMISTRY: The pool water must be carefully balanced from the initial fill and constantly maintained within recommended NSPI guidelines. Maintaining proper chemical balance from first fill is essential to maximize the life of the pool surface. Proper water chemistry parameters are on the back of bag and warranty cards.

COVERAGE: Each 80 lb bag covers approximately 20 - 25 sq. feet @ 3/8" thickness. Coverage rates may vary depending on the method of application and condition of substrate. **Hydrazzo** may be applied up to 1" thick, depending on site conditions. Thicker applications will reduce coverage.

PACKAGING: **Hydrazzo** is packaged in 80 lb. Heavy-duty poly lined bags.

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APPLICATION: **Hydrazzo** may be applied by either pump or conventional methods. Apply over a lightly dampened (no standing water) surface to a uniform thickness of approximately 3/8" minimum to 1" maximum. Make sure that pegboard or spike holes are filled with aggregates and not cement paste only. Conventional plastering techniques are used to install **Hydrazzo**. Care should be taken to remove any accumulated excess cement past after final troweling. **Hydrazzo** should be applied in temperatures exceeding 40 degrees rising and an ambient of 60 degrees and rising by a minimum of 1 finish plasterer per 300 sq. ft.

AGGREGATE EXPOSURE: Same day exposure is possible if surface hardens 3 - 4 hours in temperatures of 80 degrees F or warmer. Overnight hardening is recommended for cooler temperatures. A strong muriatic acid and soap solution is used to expose the aggregate as uniformly as possible. Before acid wash, evenly sprinkle 3-4 lbs. of sodium bicarbonate around main drain to protect this area from accumulated acid solution. Use a submersible pump to remove any accumulated acid solution. Acid wash additives are available to enhance the uniformity of this wash while reducing fumes. Further care should be taken to reduce streaking by aggressively brushing the muriatic solution AS IT IS BEING APPLIED. Neutralize and remove acid residue in an environmentally acceptable manner. Use the acid wash to evenly expose the aggregate before polishing. Polish the surface with approved polishing equipment and abrasives. For more detailed application information regarding **Hydrazzo** please request a copy of **Hydrazzo** installation instructions. **Note:** Temperatures less than 60 degrees may require a 36 hour cure before acid washing and polishing.

CURING: Care should be taken to protect **Hydrazzo** from rapid drying conditions such as high wind, high temperatures or low humidity. Such precautions may include fogging or misting the surface or placing a protective covering over the pool. This cover should not be placed directly on the plaster surface.

FILLING PROCEDURES: When filling a pool it is important to do so without interruption of fill water. Fill pool as rapidly as possible. All fill hoses should have a (Bobby) sock or cloth on the end. Do not allow main hose length to lay on the plaster surface as it will leave a mark. Always fill from the deepest area of the pool.





PRODUCT DATA SHEET

DESCRIPTION: **Hydrazzo®** is a swimming pool surface of specially selected white and colored marble aggregates, white Portland cement, graded color aggregates, and other proprietary ingredients to produce higher cement strengths. **Hydrazzo** produces the smoothest, non-slip natural finish available, and it's unique formulation provides resistance to spot etching, permanent scale and algae adhesion. Roughness complaints are virtually eliminated as the surface can be easily polished to a uniform luster. **Hydrazzo** is ideal for new or existing residential and commercial applications.

- BENEFITS:**
- ❖ Smoothest exposed aggregate surface available
 - ❖ Time proven natural ingredients
 - ❖ Resists permanent algae and scale adhesion
 - ❖ Ease of application
 - ❖ Long lasting
 - ❖ Easily restored by polishing without resurfacing

PREPARATION: **Hydrazzo** should be applied to a sound surface free of oil, dirt, algae or any other foreign substance. Previously applied paints or sealers must be removed by acid washing and or sandblasting. Neutralize acid with baking soda or soda ash and thoroughly rinse with water. Refinished pools must be undercut an appropriate distance (Min 3") around all tile, return lines, light fixtures and main drains and an approved Scratch Coat applied. All weepers and plumbing leaks should be repaired at least 24 hours prior to plaster application.

- MIXING:**
1. Using standard mixing equipment, it is important to blend each batch for the same amount of time.
 2. Mix product with approximately 1½ - 1¾ gallons of potable water per 80 lb. bag.
 3. Start the mixing procedure by adding approximately 2/3 of the total water requirement to the mixer, add **Hydrazzo**, then add the balance of water.
 4. Mix completed batch for at least 6 - 8 minutes to ensure a proper blend of all ingredients and appropriate aggregate saturation. Make sure to box different batch #'s.
 5. Before using any job site additives, please consult your C.L.Industries Product Representative.

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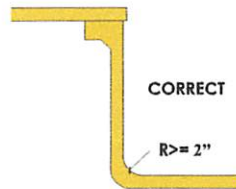


ADDITIONAL CONSTRUCTION/DESIGN CONSIDERATIONS

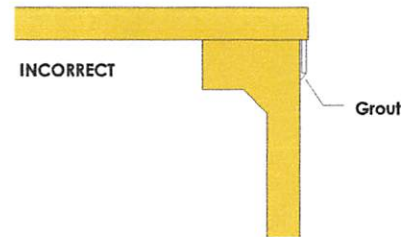
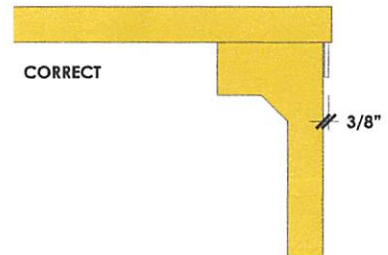
- Shells should be broom finished and wet down for several days prior to application of Hydrazzo®.
- Any items protruding through the shell should have cut outs for proper sealing.
- Sealers should never be used at waterline.
- Excess cement must be handled properly.
- Hydrazzo should not be used on a rolled bond beam.
- We recommend that you "balance" your pool water utilizing the "saturation" index. This system takes into account....pH, alkalinity, water temperature, chlorine and calcium harness.
- Consideration should be given to an expansion joint at beach entry where it meets the deck.

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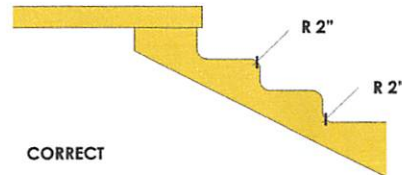
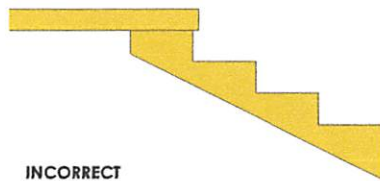




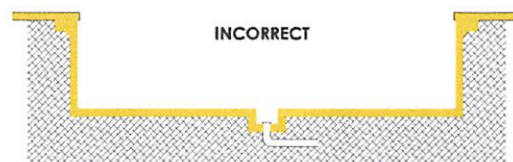
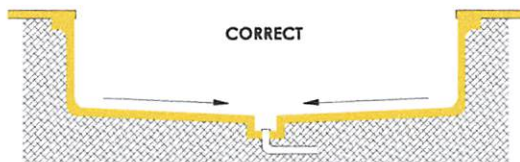
ALL CORNERS AND EDGES OF STEPS, PARTICULARLY **OUTSIDE**, SHOULD HAVE A RADIUS ($3/4"$ - $1"$) TO ALLOW FOR A SMOOTH ROLLED EDGE.



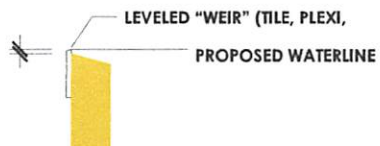
STEPS & BENCHES



POOL FLOOR AREAS



ALL FLAT SURFACES SHOULD HAVE SLOPE TOWARDS THE DEEPEST POINT IN THE POOL. (MINIMUM $1/2"$ PER FOOT). THE LOWEST POINT IN THE POOL (TYPICALLY THE MAIN DRAIN) SHOULD HAVE AN AREA DISHED OUT AT LEAST $12"x12"x2"$.



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