Pool Renovation Guide

before

after

This guide will help you become better familiar, and more comfortable, with the pool renovation process, your options and the results.

AquaThority
POOLS & SPAS, LLC

the clear choice in pool care

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before

after

Introduction

Like most home projects, a pool renovation may seem to be daunting at first but once you become educated and familiar with the process, it becomes manageable. This Pool Renovation Guide has been created to assist you in that context, and presents the pool renovation basics objectively so that you can achieve an appreciable level of understanding and comfort and, hence, make an informed decision.

Renovating your swimming pool can be a matter of simply restoring it to its original luster by replacing all or parts of its coping, tile and/or plaster with new and updated materials or, if you wish, it can be an opportunity to upgrade your pool's look and functionality with new features, composites and equipment. The decisions of what and how much are entirely yours and should be defined in detail, carefully considered, and completed by a reliable pool company.

And that is the role of AquaThority. We will take the lead with your pool renovation by personally inspecting and assessing your pool's condition; educating and guiding you through your material, finish and feature options; and, then, preparing a written proposal itemizing the costs of material and labor for each renovation task. Upon commencement, we will be onsite to personally coordinate and manage the entire project from start to completion and then back-up our work with a 3 year warranty.

Renovation Indicators

The most common renovation indicators are displaced and crumbling tile and/or coping, worn and pitted plaster, and broken and disrupted decking.

failing tile

Coping and Tile

Displaced and crumbling tiles and or/coping is usually an indication that the coping is loose, first and foremost, with displacement of tile being a chain reaction. This is what happens:

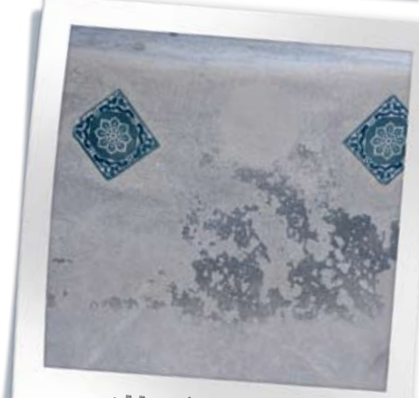
- the coping becomes loosened from its original cement setting and is no longer secured
- the coping vibrates and disrupts the tile grout directly beneath the coping
- the tile grout then crumbles and water then gets behind the tile
- the freeze and thaw of climate change eventually dislodges the tile

Tap-Test

The homeowner tap-test: Using a hammer, tap the coping and the tile. If the sound is hollow, then the coping and/or tile is no longer secured and, essentially, loose. It's just a matter of time before the tile grout will crumble and the tile will become dislodged as previously described.

Remedies

The remedies: If the condition is limited to a couple of spots, then resetting the affected coping and tile is worthy of consideration. However, if the condition is prevalent, then it's likely that all of your coping and tile needs to be replaced. It's a waste of time and money to repair or replace the tile and not the coping because the loose coping will disrupt and dislodge the tile again.



pitted plaster

Plaster

Worn, pitted and cracked plaster most often is an indication of age. However, these conditions can also be caused by poor water chemistry because the prevailing cause of plaster deterioration is unbalanced and deprived pool water. In many respects, pool water has an appetite and will become hungry and aggressive as it leeches its food from the plaster and causes etching, corrosion and scale. Please reference our Pool Plaster Guide or New Plaster Guide for more information about plaster and our Pool Water Chemistry Guide for specific water chemistry instructions.

old decking

Decking

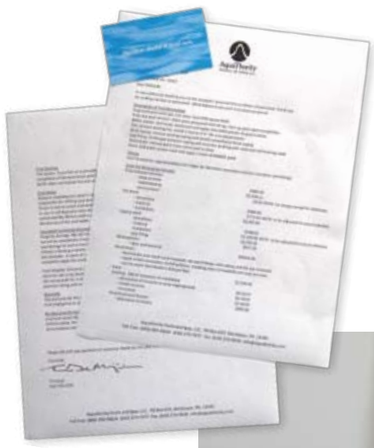
Broken and disrupted concrete decking is commonly caused by poor backfilling, insufficient compacting of its earth base, erosion caused by storm water, an inferior installation or abuse. This condition can only be properly remedied by excavation of the existing concrete, correcting the factors which caused the disruption originally, and then forming and pouring new concrete.

If some or all of these conditions exist, then it's likely that your pool is in need of some repair or renovation work, and requesting a free AquaThority renovation inspection and written proposal will provide you valuable insight.

8 Step Renovation Process Summary

#1: Inspection

While you are present, we – one of our AquaThority founders, Tim DeMirjian or Bob Nask – will personally inspect and assess the condition of your pool, measure its perimeter and record our observations free of charge. On that occasion we will ask you questions, offer you on-the-spot comments and guesstimates, and present you with material samples, options, and a full-color multi-page coping and tile catalog for you to keep and review at your leisure.



#2: Written Proposal

Several days following the pool inspection, we will generate and email or, if you prefer, mail you a written pool renovation proposal which details our observations, describes the relevant renovation components, and itemizes the costs for the material, labor, features and equipment in which you expressed an interest. We will follow-up with you in the ensuing days to answer your questions, provide you with additional information and seek feedback on your intentions.

getting started

#3: Material Selection

Upon commencement, we will personally guide you through your coping, tile and plaster choices, and any other equipment or features in which you express an interest. We will bring live samples of your coping and tile selections to your home for your review and approval, and when possible, show you photos of actual installations. For flagstone coping or decking, we will accompany you to a regional stone yard where you will select your flagstone lot. We leave nothing to chance and, therefore, take measures to ensure that upon completion you are thrilled with the final product.

#4: Prep

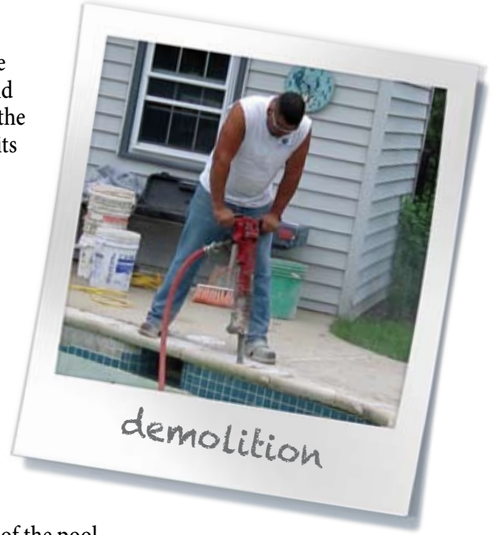
In the days leading up to the renovation, we will remove the cover (if one exists), drain your pool of its water into the street or perimeter of property (if advisable), shut-off the filtration system and remove the hydro-static plugs. With your assistance, we will also determine the best route for our foot and equipment traffic to and from the pool during the renovation process.

installation

remediation

#5: Demolition

A typical renovation begins with the demolition of the tile and coping and decking (if applicable). This entails the jack-hammering of the coping and its concrete setting; hand-hammering of the tile; jack-hammering the concrete decking (if applicable); and, in all cases removing the resulting debris.



demolition

#6: Installation

Upon completion of demolition, the order in which a pool is renovated is: coping first, tile second, decking third (if applicable) and plaster last. Installing the coping and the tile entails the setting of forms and scaffolding on the inside of the pool from where our masons will work. Decking installation requires the setting of forms, distribution of crushed stone and the pouring of concrete. The installation of plaster is done upon the completion of the tile and coping installation, and decking installation when applicable. The final task is filling the gap between the coping and decking with sand and caulk.

#7: Remediation

Upon completion of the renovation we will tend to any property disturbances resulting from the renovation process, e.g. ruts, debris and dirt. We will also power wash the pool decking as well as the area of the driveway in which we were stationed.

#8: Start-up

We will coordinate the delivery of pool water, and upon being filled to the skimmer level an AquaThority technician will arrive to start-up your filtration system and get the pool circulating normally. Thereafter, you will be advised to follow our New Plaster Care Guide instructions (if applicable) and balance the pool water per our Pool Water Chemistry Guide.

pool fill

8 Step Renovation Process

- Inspection
- Written Proposal
- Material Selection
- Prep
- Demolition
- Installation
- Remediation
- Start-Up

Anatomy of a Pool

A conventional in-ground swimming pool is comprised of the vessel shell, bond beam, coping, tile, plaster (if applicable) and filtration system.

Vessel Shell

The vessel shell is structural and typically comprised of rebar steel and either 2 types of concrete: shot-crete or gunite. Shotcrete is comprised of Portland cement, sand, and stone aggregate. Gunite is comprised of Portland cement and sand.

Bond Beam

An integral part of the vessel shell's concrete structure, the bond beam is essentially the wall of the pool. The top of the bond beam is the point at which the pool wall stops and the coping is placed.

Coping

Predominantly an aesthetic component of the pool, coping is set in cement on top of the bond beam's entire perimeter. Coping material can be formed clay bricks or stones, natural stone, granite or travertine. Technically, a pool with decking which cantilevers over the pool's perimeter (known as cantilever decking), has no coping.

Tile

The band of tile at the top of the bond beam just beneath the coping has aesthetic and pragmatic purposes. While it complements the appearance of your pool, the tile band also hides the inevitable scum line caused by the water's surface and protects the plaster from the ill-effects of exposure to open air, like drying and cracking (which would be the case if the plaster continued to the point of coping in lieu of tile). Pool tile is specifically engineered and manufactured to be freeze and thaw resistant.

Tile which is placed elsewhere in the pool is defined as either running tile (placed in succession) or spot tile (placed independently). Typically, running tile is installed on the façade of steps, love seats and benches. Whereas spot tile is commonly placed on the top of steps, love seats and benches.

Plaster

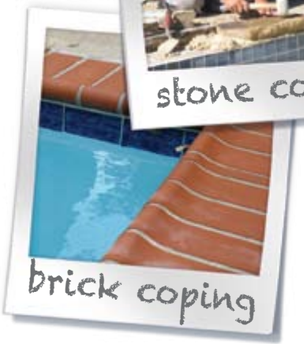
The most common and superior finish for concrete in-ground swimming pools, white plaster is comprised of white marble dust and white cement at a ratio of 2 to 1 and, of course, water. Other plaster composites incorporating quartz and pebble aggregates are comprised of said aggregate and white cement at a ratio of 2 to 1. Colored plaster is typically achieved by adding dye.

Filtration system

A conventional filtration system includes a filter, pump motor, valves, drains, skimmer(s), and return(s). This system circulates and filters the pool water by pulling the water through the drains and skimmers and returning the water through the returns after filtration.

Pool Renovation Components

The components which are commonly the subject of a pool renovation are coping, tile, plaster, bond beam, vessel shell, filtration system and equipment, and decking.



Coping

As defined in the previous section, Anatomy of a Pool, coping essentially serves the aesthetic purpose of hiding the bond beam. But coping is also friendly to sitting bathers and transitions nicely to the surrounding decking to form a seamless meeting of the two surfaces. Set in cement directly on top of the bond beam, coping will be level with the bond beam but not necessarily with the decking as concrete decking has a tendency to move with the freeze and thaw. In fact, the gap which separates the decking from the coping is designed to prevent the movement of the decking from disrupting the coping. We fill this gap with sand and caulk.

Today, the most popular and least costly coping material is coping bricks. These clay-based products are manufactured in sizes which are ready-made for installation on the majority of pools. Available in an array of colors, these coping bricks are finished with a safety grip or bull nose edge. While freeze and thaw resistant, on rare occasions, coping bricks are known to randomly crack and crumble.

Alternative coping materials include: natural stones such as Pennsylvania blue stone, indigenous to our northeastern region, and other flagstones; artistic pavers comprised of a variety of composites and aggregates; imported stone like travertine and granite; and many other natural and manmade products designed and manufactured specifically for coping applications.

Available in irregular and pattern sizes as well as long treads, flagstone can be a beautiful and distinctive appointment. But it also has its issues because natural stone coping can leech minerals (e.g. iron) which will potentially stain the tile, grout and plaster directly below. While these stains can typically be treated with chemicals, sealing the natural stone with a sealant can help prevent such an occurrence.

If you're interested in considering natural stone or alternative coping materials, then AquaThority will gladly provide you with additional information, live samples and related costs.

Tile

Serving the dual purposes presented in the previous section, Anatomy of a Pool, the band of tile which falls below the coping at the top of the pool wall (bond beam) is always 6" tall with rare exceptions. That being the case, all pool tiles are available in 6" patterns and increments.

Following the removal of the existing tile, the remaining surface is chipped and cleaned in preparation for the new tile. Thereafter a layer of cement, known as a brown coat, is applied to the surface of the tile band in an effort to smooth, stabilize and prepare it for the installation of the new tile, which is then set in white cement and pointed with grout to match your plaster selection (the grout color should always match the color of the plaster).

Due to the inevitable residual of cement from the original tile installation, the new tile will protrude slightly further than its predecessor and the original plaster surface below. If your pool is also getting plastered, then the new plaster will be finished flush with the new tile. However, if your pool is not getting a new layer

Tile-cont.

of plaster, then the mason will feather the grout beneath the new tile into the existing plaster for a smooth transition with a slight gradual step down.

Unlike bathroom walls which are square, plumb and true, pool shells are irregular with sloping walls and out-of-square corners, all of which create installation challenges. While AquaThority's masons will make every effort to install the tile plumb and level to the bond beam, spacing between the tiles will vary slightly as will their alignment. And at the radiuses and corners, the tiles will have to be hand-cut and massaged to fit the odd space. However, when it's complete, the finished product will be truly beautiful.

Plaster

Applied at a thickness of about a half-inch (.5"), white plaster has been and remains the standard and most popular finish for pools and spas. It's simple combination of white cement, white marble dust and water make it an economical choice as well as a desirable surface for swimmers because of its smooth and durable surface, and its creation of a light blue appearance when filled with water.

Before the new plaster is applied, there is considerable prep of the existing surface. If the surface is painted, then the paint needs to be removed via water blasting which AquaThority will coordinate. Following the water blasting or beginning with a pool which is not painted, the next step is to inspect, clean and prepare the surface for the new plaster. This entails tap-testing the existing plaster for hollow spots (known as pop-offs) and remedying as needed, acid-washing, and then rinsing the entire surface. Thereafter, a cement-based product (known as a bond-coat) is sprayed onto the surface to create a toothy and rough finish to which the new plaster will interlock and adhere.

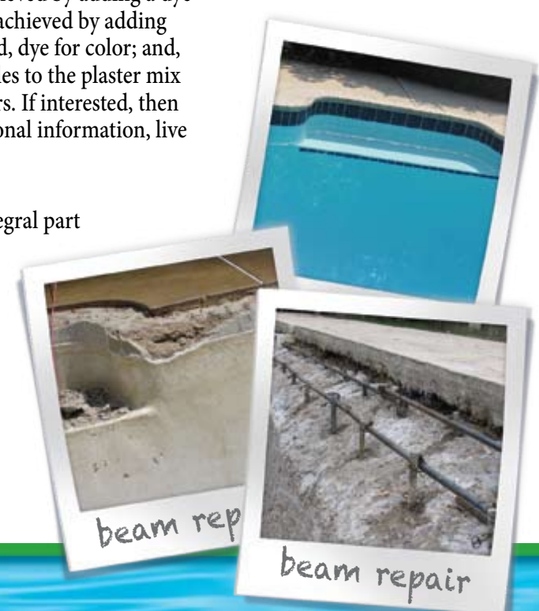
The new plaster is delivered to the pool via hose and sprayed onto the surface as plasterers hand trowel the plaster to an even, smooth and hardened surface. Because plaster has unique traits and requires care by the pool owner, AquaThority has prepared a New Plaster Guide which presents important and relevant information which will help you preserve your plaster for many years of trouble-free use.

As presented in greater detail in AquaThority's Pool Plaster Guide as well as the New Plaster Guide, there are alternative plaster finishes to white plaster. In order of expense, they are: colored plaster which is achieved by adding a dye to the white plaster mix; quartz plaster which is achieved by adding quartz aggregate to the plaster mix and, if desired, dye for color; and, pebble plaster which is achieved by adding pebbles to the plaster mix and, if desired, dye for color; and, there are others. If interested, then AquaThority will gladly provide you with additional information, live samples and related costs.

Bond Beam

As defined in the previous section, Anatomy of a Pool, the bond beam is an integral part of the vessel shell's concrete structure: the bond beam is essentially the wall of the pool. And it's the top portion of the bond beam – the point at which the pool wall stops and the coping is placed – where problems can exist and won't be known until demolition.

Comprised of a type of concrete (usually, either shotcrete or gunite) and rebar steel, an aged bond beam can deteriorate and breakdown at its top. Although uncommon, AquaThority's masons look for these conditions. Most repairs are minor and require the excavation of the compromised concrete and the forming of new concrete. In rare cases, expansive portions of the bond beam need repair.



It's imperative to remedy the deteriorated spots of the bond beam because it's futile to install new coping and tile on a compromised bond beam. In just a matter of a year or two, the new tile and coping will become loose and dislodged as before. Conversely, a stable and solid bond beam will ensure many years of coping and tile endurance.

Vessel Shell

The vessel shell essentially contains the water. And as presented in the previous section, Anatomy of a Pool, it's typically comprised of rebar steel and either 2 types of concrete: shotcrete or gunite. Both are commonly used in the northeastern region of the country and dictated by the pool builder.

While both materials can crack, shotcrete is known to be more prone to such. And if cracks exist in the shell they should be remedied on the occasion of the renovation. This entails grinding-out the cracks and filling them with a bonding agent designed for this application. Although this procedure helps to safeguard against leaking and the crack recurring, it doesn't ensure such. It's not uncommon for cracks to reappear or show-through the new plastered or painted surface. There's no warranty for such.

Other components of the shell can include steps, love seats, benches, spas and spillover walls. And these features can also deteriorate and crack with age. Remedied by excavating and forming new concrete, these matters need to be tended to prior to installation as well.

Filtration System and Equipment

Typically comprised of a filter, pump motor, valves, drains, skimmer(s) and return(s), filtration systems can need updating for the reason of efficiency or upgrade as can heaters, pool cleaners, chlorine feeders, lights, water features, automatic controls, etc. And the period of renovation is the ideal time for consideration and accomplishment of such.

With highly efficient variable speed pump motors and heaters providing short-term paybacks through savings in fuel consumption, the cost of replacement can be justified. Efficiencies and effectiveness can also be realized by updating DE filters, chlorine feeders, automatic controls and pool cleaners as they can make keeping your pool sanitary easier and more cost-effective with less consumption of chemicals and hassle-free maintenance.

And if you're looking to add some pizzazz to your pool and its environment, then adding water features such as waterfalls, laminars or water jets may give you the wow you seek; as can light features which deliver a brilliant aura with colorful underwater LED lights and coordinated landscape lights.

Pool safety is always a concern, and your pool renovation is the perfect time to address safety issues and concerns such as suction entrapment, barriers and alarms. AquaThority's Pool Safety Guide is a must read for all pool owners as it presents important pool safety information such as the Virginia Graeme Baker Act, which addresses suction entrapment, as well as other pool safety safeguards and measures.

Decking

Technically, pool decking is the area adjacent to, and surrounding, the in-ground swimming pool but it can also expand to include patios, house decks and the like. And while many forms of pool decking exist, the most common form of original pool decking is concrete. Commonly installed at the time the pool is constructed, concrete decks typically are comprised of a base of 4" crushed stone and 4" of concrete.

Just like the pool, concrete decking can become unsightly and disrupted overtime and be in need of repair or replacement. Decking which was not properly installed or backfilled, or lies in the path of water run-off, is vulnerable to movement and displacement especially if it's "floating".

Decking which does not have footers is constituted as "floating". And nearly all pool concrete decks are of this nature. A floating concrete deck is prone to move with the freeze and thaw of the northeastern region. So, it is common for concrete decking to heave, crack and become displaced from its original setting, causing unsightly and tripping consequences.

Although there are numerous decking replacement options, AquaThority provides three basic decking solutions: application of a colored and textured veneer known as "spray deck" or "cool deck" for changing and improving the appearance of existing concrete decking which is stable; replacement of existing decking with new concrete decking; and, replacement of existing decking with wet-set flagstone decking such as Pennsylvania blue stone.

Warranty Information

AquaThority provides warranties for those materials and services fate we can control. Unfortunately, the elements of the outdoors, the impact of preexisting conditions, and the variable of responsible pool ownership make warranty policy difficult. That being said, we do warranty our work per the following.

Plaster, Coping and Tile

The warranty for new plaster, coping and tile is 3 years for labor and material, although damage resulting from negligence, misuse or abuse, environment circumstance or incident, and preexisting conditions is not covered by the warranty.

Gap Filling

There is no warranty for the caulk material and labor employed in filling the gap between the coping and decking. This is a non-warranty item due to the nature of decking to move from freeze and thaw and the instability of a floating slab. Such movement can cause the caulk to separate and/or crack.

Decking

The warranty for concrete and wet-set flagstone decking is 3 years for labor and material although damage resulting from negligence, misuse or abuse, environment circumstance or incident, and preexisting conditions is not covered by the warranty.

Paint

There is no warranty for paint work because a painted pool's surface is inherently flawed due to the unstable nature of paint applied to a concrete or plaster surface. New paint is also vulnerable to the preexisting conditions as well as the deterioration caused by ill water chemistry, weather, etc.

Warranty Disclaimer Examples

Examples of negligence, misuse and abuse which can cause damage: poor water chemistry; failure to keep water level below tile in the winter; aggressive dogs or pets; metallic foreign objects, etc.

Examples of environment circumstance or incident: decking which expands and contracts thus putting pressure on the coping; poor storm water control; debris such as leaves, branches, berries, etc.

Examples of preexisting conditions: cracks in the pool shell or bond beam; loose or compromised coping and/or tile; cracked or compromised decking, etc.

Frequently Asked Questions (FAQs)

Q: Does my pool need to be drained of all of its water for pool renovation?

A: Yes, for coping, tile and/or plaster renovation the pool needs to be empty.

Q: Does my pool need to be drained of all of its water for pool repair?

A: No, for some coping, tile and/or plaster repair work the pool need not be empty.

Q: Can my pool water be saved or sold?

A: No, there is no viable way to save or sell the water.

Q: Should I empty my pool weeks prior to the renovation?

A: No, it is unhealthy for a pool to be empty for any length of time.

Q: Can you reuse my coping for a renovation?

A: If natural stone, yes, but most conventional coping will be destroyed in the demolition process.

Q: Can you reuse my tile for a renovation?

A: No, your tile will be destroyed in the demolition process.

Q: Can you reuse some of my coping and tile for a repair?

A: Yes, in some cases it can be reused if it's salvageable.

Q: Do I need tile?

A: Yes, your tile hides the scum line and protects the plaster.

Q: Can I fill my pool with my garden hose upon completion of tile and coping renovation?

A: Yes, you can if you have sufficient water supply.

Q: Can I fill my pool with my garden hose upon completion of plaster renovation?

A: No, we highly recommend that pool water be trucked-in to protect the new plaster ASAP.

Q: Can I renovate just my coping and not my tile?

A: No, coping cannot be removed without destroying the tile.

Q: Can I renovate just my tile and not my coping?

A: Yes, in most cases provided the coping is secure.

Founders: Tim DeMirjian & Bob Nask

Why AquaThority

Since the inception of AquaThority Pools and Spas, LLC in 2005, founders Bob and Debi Nask, and Tim and Jackie DeMirjian have been practicing what they preach to their employees and customers throughout the counties of Chester and Delaware and, now, parts of Montgomery: show-up when you promised, honor your commitments, and do it as though it was your own.

While this mandate is always welcomed and refreshing in the home contracting business, it has proven to be especially appreciated in the swimming pool business where a homeowner's experience with pool companies, and contractors as a whole, too often are negative due to no-shows, poor performance and lack of trust. AquaThority is different. We are considerate. We are accountable. We are honest.

Whether it's a routine pool opening, closing or service call, or a more involved pool repair, equipment installation or renovation, AquaThority honors its commitments by showing-up and performing the work as promised. Do we have our off days? Absolutely, but we don't run and hide, rather we are forthcoming and honest. We call if we're running late, we bring to your attention concerns we discover during the process of service, and we always put your interests first.

Sounds good, but is it true? We encourage you to call our customers to seek their personal experience with, and opinion of, AquaThority. Our reference list not only includes the contact information of the homeowner, it also describes the work performed so that you can ask questions, if you so choose, which are relevant to their pool renovation and possibly yours.

Please remember that AquaThority is not only in the business of pool renovation, our core business is servicing in-ground swimming pools. So, unlike contractors who only renovate and are therefore "one and done", AquaThority will always be in the neighborhood providing the ongoing pool services for which our customers have come to rely. For those homeowners who have had trouble tracking-down contractors in the past, this may bring peace of mind.

We appreciate your consideration and hope that you'll choose to work with AquaThority Pools and Spas, LLC, the clear choice in pool care.

Additional Informative Guides

Please reference these additional informative AquaThority guides at www.aquathority.com or request a hardcopy from our office.

- New Plaster Guide
- Pool Plaster Guide
- Pool Safety Guide
- Pool Water Chemistry Guide

AquaThority
POOLS & SPAS, LLC
the clear choice in pool care

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www.aquathority.com