

# TRIBUTARY

REVELATION

**COMMITTING TO  
THE DETAIL**

**Obsession**

**Adaptation**

**Sacrifice**



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# TRIBUTARY

REVELATION

## FOUNDERS INSIGHT

noun, plural **minutiae**

[mi-noo-shee-ee, -nyoo-]

1. Usually, minutiae. precise details; small or trifling matters: the minutiae of his craft.

Taking time to perfect the details is what separates you from the rest of your industry professionals. It is what allows you to charge more for your services as a General Contractor. Not because you understand how to build high end projects, rather because you spend countless hours running through details on plans. Then, you dream about those details, wake up at 2 a.m., and expand on those details to make them better! Then, you are perfecting those details with trades on site, and all while making it look like you were born for this! That is why you can charge more for the service you provide,



because you bring the most technical details to life all while making it look effortless. You are a rare breed, and that is what an elite clientele desire.

There is a theme this month, and if you can't tell we will be talking all about the details. Incredible architects and contractors have shared their stories and experiences regarding the importance of delivering their customers a product that is unparalleled in design and development. Architects are the future of the outdoor experience and we must embrace this. They will continue to push the limits of what we think are possible, which will in turn keep you viable in the high-end markets. The consistent effort to go beyond what is expected, to exceed the norm, and to begin a blend of all aspects in outdoor spaces is the ultimate goal.

Contact me anytime for any questions.

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Fire    
by    
Design





# **REINFORCING THE DETAILS PART 1**

**GRANT SMITH**

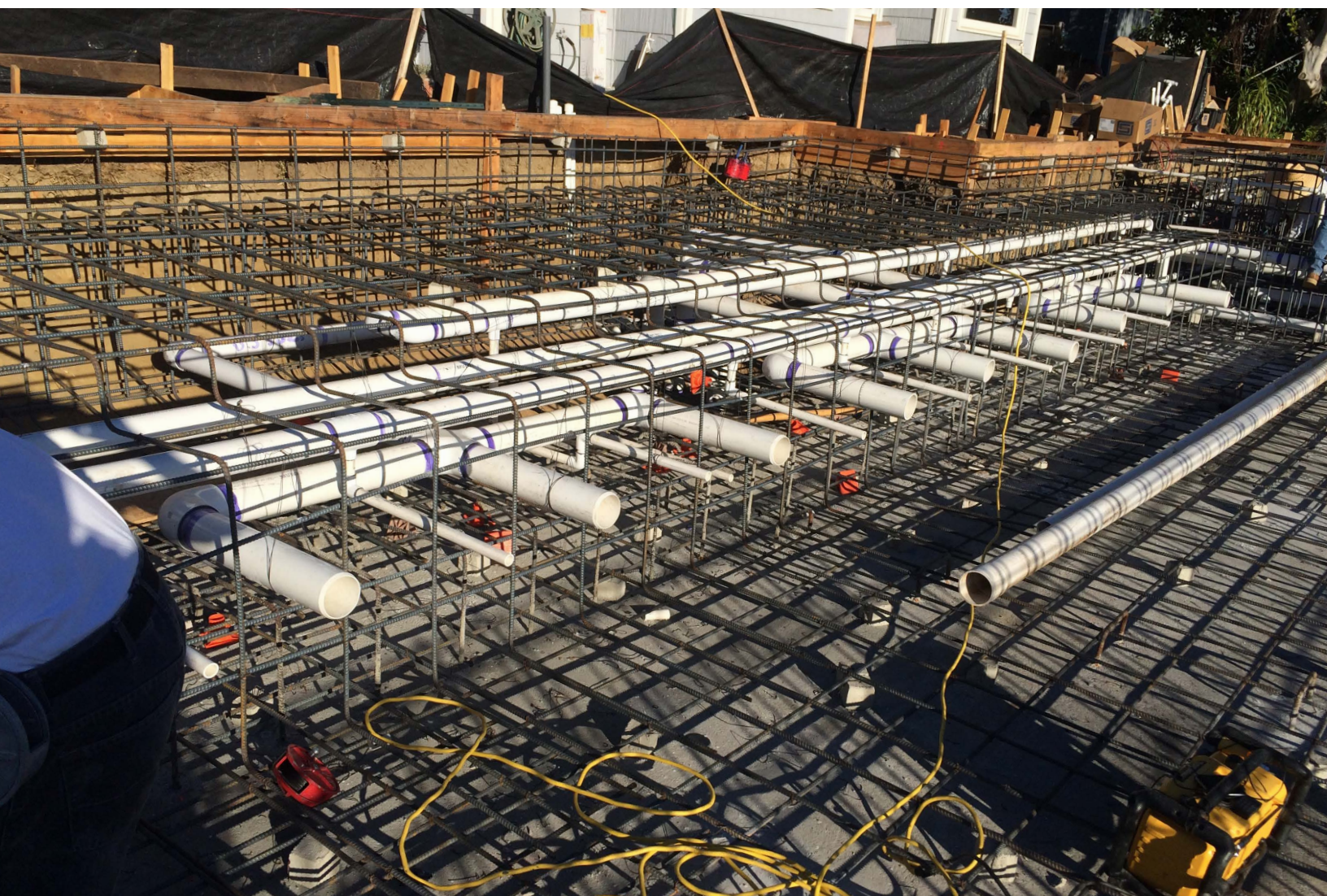
Details and perfection. In the formative years of my life when I started working at the age of 13 I always had jobs that demanded perfection. The first one was when I started working at the family tool and die business. Everything there was done in thousands of an inch. If you were off even a half of a thousand than you just ruined a week's worth of work on the milling machine. I found that out the hard way. After graduating high school I had the yearning for travel and adventure and joined the United States Marine Corps. From the first moments of stepping off the bus details and perfection was pounded into your brain. Hours were spent on the drill field that perfect practice created perfection.





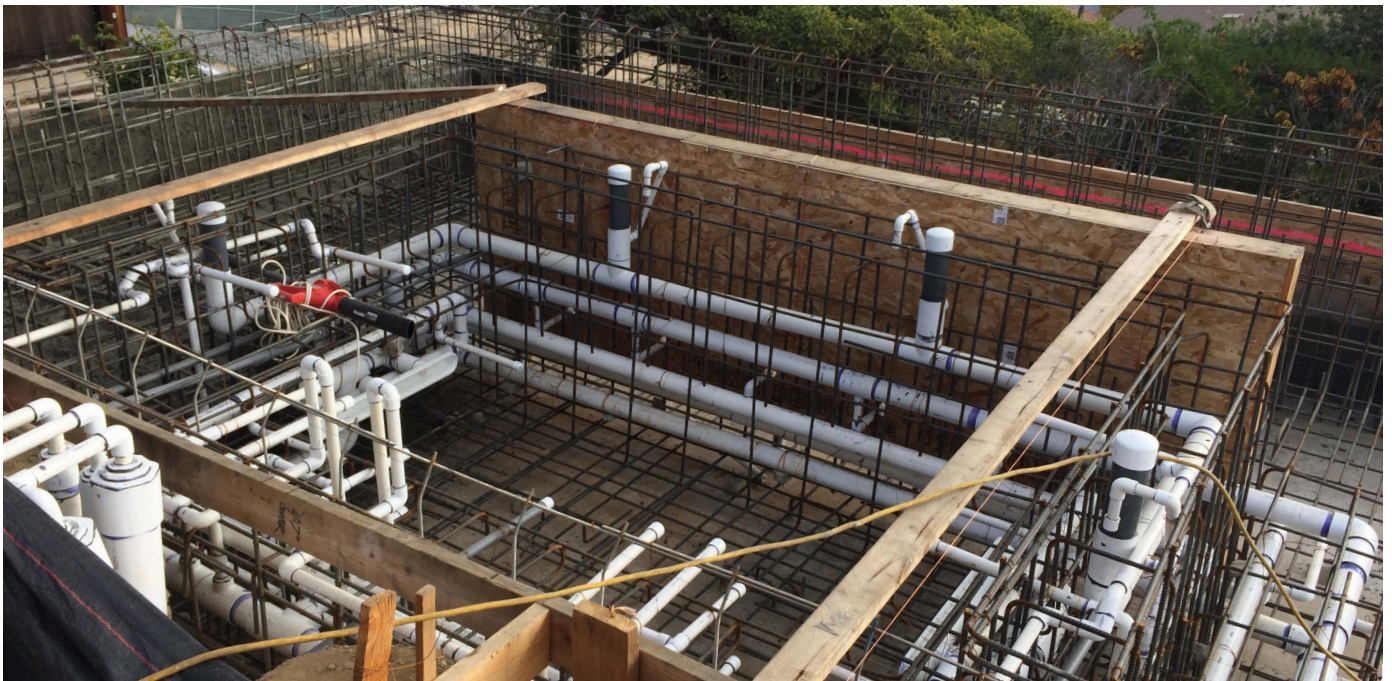


I cannot stress enough how important a geotechnical engineer is to your project. He will set the tone for your pool structure, hardscape and landscape. Get a soils report done on every project whether you build a pool or a landscape. The soils engineer can advise you in the report what type of soil you have. We deal with a lot of soil that ranges from expansive to sandy. Knowing what kind of soil you have will dictate your rebar and concrete in your watershape, decking, footers, how much class to road base to install under your pavers. Address what kind of drip irrigation to use for your plants and your irrigation schedule. It's not uncommon to take a foot or more of expansive clay soil out of a yard and saturate the clay to a 30% moisture content before laying down the road base for a deck.





When it comes to shotcrete, there seems to be an Industry debate between dry vs wet. It's all in the application, and when applied properly- you will achieve the same result. The minimum ACI requirement for swimming pools is 4,000 p.s.i., 4,500 p.s.i. for high content of sulfate in the soil, (This is why soils reports are so crucial) and 5,000 p.s.i. for salt or brackish water. The higher the strength of the concrete the more binder (portland cement) it has in it, the less water will migrate thru the concrete. That's why there is a minimum. It is very important to have a planned time frame in which you place the concrete. 90 minutes from when the water hits the portland cement to the time we shoot it out. I've sent trucks back or cut trucks short if they exceed that time limit. Wet down the dirt walls and floor so the dry earth does not suck moisture out of the shotcrete. Once you place the shotcrete, spray down the entire shell with a silicate based curing agent. This fills up the air bubbles that are the voids in concrete to help retain the moisture and helps with shrinkage cracking. As soon as the concrete reaches the correct temperature and after spraying on the curing agent; set up soaker hoses on a timer and start keeping the shotcrete moist. Always follow the minimum 2 weeks of curing time before turning off the soaker hoses.





When possible- it's best to use #4 (1/2") 60 grade rebar for the base grid. A #3 (3/8") rebar because it is smaller, will bend easily when your plumber, electrician and shotcrete crew is stepping on it. Using the #4 gives a better shotcrete application since it doesn't vibrate it when applying the shotcrete, therefore cutting down on the possibility of shadowing the shotcrete around the rebar. The 60 grade will allow you to use less rebar when required to use surcharges. There can be a specific way in which to shoot the pool. Always shoot your thickness and don't layer it like a cake. If there is any rebound from the application, it falls on a completed floor- instead of under the rebar. This will tell you to start with the area of the floor first. Part of the beauty of shotcrete is the watertight application that it will give by compacting the mix together when







being shot. If you have a hard time convincing your crews to do this, then using a vibrator should help to consolidate the mix. set up soaker hoses on a timer and start keeping the shotcrete moist. Always follow the minimum 2 weeks of curing time before turning off the soaker hoses.

Hydraulics are often overlooked in Watershapes, besides the structure, it's one of the most important factors in creating a unique build. There are plumbing codes that are set forth by the APSP that require no more than 6.0 FPS on the suction side and 8.0 FPS on the return side. I like to follow the standard of 4.5 FPS on the suction side and 6.5 FPS on the return side. Aim for a 1.5 FPS at the suction outlet. No matter the pipe size at the suction, always go up to a 4" pipe at the penetration point. Your suction velocity will decrease significantly. Try



to play with using variable speed pumps on every application. This will create versatility, and with the new, lower rated variable speed pumps, you can power water features at a very low speed with proper sized plumbing. The heater and filter are the major restrictions of a flow. A neat trick is to use a heater bypass valve that only lets water run thru the heater when heat is called for. This helps keep the wear down on the heater. When a need for higher speeds is called for; you will want to bypass some water past the filter, so more flow can get back to the pool.

This is only done when running the pump at a higher speed to activate a chemical system and is only for a short period. Water is still going thru the filter but not as much.

Pulling this intricate, unique spa and pool design together- is the wonders of the toe kick! Using multiple suction outlets for each pump is a key factor is functionality. This will insure that even if the pump is pulling more GPM than the cover allows, you have more than one outlet. Three to four outlets are a good start, especially on walls. Typically, outlet covers have a lower flow rating on the wall versus the floor. In the spa, use two channel drains and split them on the same line; this creates a toe kick under the bench that tucks the drain under the seat. This hides the drain and uses 4 suction outlets on the same line.



My whole philosophy when it comes to hydraulics is to move a large amount of water as slow as possible thru a pipe. The days of 2" plumbing should be abolished! Stay tuned for the completed project details of this rare Watershape design.

Contact me anytime for any questions.

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# **THERE IS NO OFF SEASON PART 1**

**CHRIS FOGLEMAN**

As with every job it all starts and ends by having a great team. For years, I had always isolated myself from any other pool companies to try and protect our way of doing things. There is always power in number's. No one person could pull off a project of this magnitude alone and it wasn't until very recently that I learned that. Collaborating with the Tributary team, and increasing our network of knowledge, is what has made this monster sized project such a success.

Kurt Kraisinger, a Tributary Founder, reached out to me and asked if I was interested in building a pool out of state and shared the design he had come up with. I immediately fell in



love with the design and knew it was something I wanted to be a part of no matter where it needed to be built. Jeromey Naugle, another Tributary Founder, also had a huge influence on the hydraulic design as well as most of the spa details. He rounded up some of the best contractors Arizona has to offer including Luke and Amy Denny of Alpentile and Justin Bowie of JMAX Companies to make the journey to Oklahoma. So just in the preliminary stages we had a team of players assembled that were ready to tackle anything this project wanted to throw at them.

When you are working out of state it is important to look at the logistics for putting together your price and knowing what you are getting into. Having a set of detailed building plans is imperative to getting pricing. There are just too many variables when working on large projects and out of your comfort zone at that. I am lucky that my crews at home are willing to travel anywhere I want to go, so that is always a great starting point. Sometimes the per diem charges and travel expenses can get high and price us out. We chose to assemble the dream team of contractors on this job to ensure it is built to the highest standard possible. Through the Tributary Revelation network, I could basically find every contractor for every aspect needed to build this project. We then started sourcing and pricing material to make sure everything was available, and get cost to give the best prices possible. You cannot just bid from what you are used to spending at home because the prices vary drastically across the country for both labor and material. Working in different states also gets tricky because of state and local licensing







We were always faced with a tight deadline and I knew that we would just get it done one way or another. This was all getting started in December and was expected to be finished by April 1. That is a very tight schedule to follow all the cure times and install mosaic glass tile on the interior and exterior of the spa, pool, exposed beam and tanning ledge. We had budgeted for a tent so we could continue working every day on the tile and not have to worry about the weather. Looking back now I wonder if all the local builders just did not want to work on the freezing lake in the winter time.

Even when the weather called for 28 degree highs they did not account for 20 mph winds blowing off the freezing lake in all directions. Sometimes, I just thought to myself what in the world are we doing here building a pool, however I always knew we had to get the job done and so many people were depending on me. I used to joke with the guys and tell them it wasn't that cold and it could be a lot worse. We just had fun with it! You absolutely could not let your skin be exposed for any period without getting severe frostbite.

Everyone was always on the same page and just wanted to get the job done. Maybe because it was so cold and everyone wanted to go home so bad they worked faster. I still always had a good time because I love my job and seeing these projects come to life. Plus, there is usually always a good watering hole close by to keep your spirits up.











Flying to the jobs got tricky sometimes because no matter how much extra time I gave myself it never seemed to be enough. Looking at a schedule, thinking we would have shotcrete on Friday and then we would hit rock or the weather would delay us. That should always be planned for. I made sure I was there for every major piece of the puzzle. Once we had the shotcrete installed, I felt a relief that we were almost home, at least for the 28-day cure time. I have had the best time traveling and seeing how other contractors work differently across the country and meeting new people. It also puts into perspective how your team is performing at home after working with such skilled teams. I have implemented many things in our company at home to try and make it run better, as I learn more from being on the road. There are things we can improve or plan better for the next out of state job, but I feel like you should never stop learning, and the challenges are what keep us as entrepreneurs interested. We are currently installing the tile and I am planning on being back in a few weeks to set the pool equipment and pebble Tec the pool. To be continued....

Contact me anytime for  
any questions.

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# **THE KNIFE EDGE PART 1**

**BENJAMIN LASSETER**

In recent years the Vanishing Edge pool has evolved into overflow details only limited by the designers imagination. A detail that started as the simple single wall Vanishing Edge, now has countless iterations in form, execution and detail. We at Design Ecology have designed and built more than a dozen of perimeter overflow and Lautner Knife Edge pools over the last 10 years and are constantly pushing the boundaries of design and construction. This is the first in a series of articles that will guide you through the challenges of designing and building head turning overflow edges.







With every new knife edge project, we seem to modify our mechanical and plumbing design to improve over the previous. One of my major points of concern with the knife edge is minimizing the sound of water echoing through the drainage plumbing and creating unwanted noise near the pool. It's an easy detail to overlook, because all of the pretty photos your client sees of a knife edge pool are just that, photos, they don't make noise! Therefore, they are probably expecting a quiet serene environment associated with this type of pool.



The first few knife edge pools I built, we used a 3" vertical pipe spaced roughly every 5" within the overflow channel. Each of these vertical drop-ins had a 1.5" vent line that tee'd off and returned to the channel. This vent line may be the single most important part of the plumbing because it allows the air to escape the pipe or not create a vacuum. If the draining water creates a vacuum, you will have an immense amount of noise and gurgling escaping the pipe!

Eventually I modified the way we were plumbing the vertical drop-in to a 45 degree drop in, still using the 1.5" vent line. This was an improvement in noise abatement, but left room for improvement.







My most recent Lautner Knife edges have been installed using 4" pipe installed horizontally, so that the pipe invert is level with the bottom of the channel. The pipe then drops at a 45 degree angle into a trunk line will vary in size depending on the cumulative amount of water the drain is collecting. With this detail, we eliminate the need for a vent line, because the 4" pipe laid horizontally will have enough air space in the pipe to self-vent. However, you must take your flow rate in the channel into account when you calculate the spacing of your inlets. Your horizontal inlet pipe should NEVER be more than half full of water at your maximum flow rate. I have found that the horizontal drop-in with properly sized pipe and edge flow almost eliminates noise created by the gutter plumbing.

We have done several pools that have a Lautner Knife edge in combination with a vanishing edge. This style can eliminate the need for a separate surge tank because you can dump the water from the channel into the basin. The trunk line will be carrying the entire volume of water that overflows the channel when it reaches the basin. If you try to put a 90 on your trunk line (which might be 6"-10" depending on flow rates) to get trunk line pipe invert down to the basin level, you will create a significant amount of noise within the pipe. To avoid this, we like to put a 45degree slope on the pipe from the pool level to the point where it enters the basin. For added level of noise reduction, I put a vent on this transition. If you have to use a vertical pipe in the transition, we recommend you increase the pipe diameter significantly to avoid a diaphragm or piston effect inside of the vertical drop. If you are using a shared basin or a separate surge tank, you will encounter a problem with debris. The entire edge will act like a skimmer and move debris



from the pool surface into the tank or basin. If you have done your flow calculations and pipe sizing properly, you will not need any clean outs in the collection plumbing. Bather surge should be enough flow to scour any debris from the pipe. I recommend using a variable speed pump so that you can periodically increase the flow over the edge to help scour the drain lines. We will typically put a debris handling drain like a Paramount MDX R-3 close to the inlet, and will usually have a Paramount In-Floor cleaning system used in conjunction. By doing this, you dramatically reduce the amount of time your client or service tech spends vacuuming the debris that dumps into the basin floor. If you are using a separate surge tank, there are numerous ways to set up a skimmer basket to help catch the debris before it dumps into the floor of the tank.

In the coming issues we will construction techniques related to forming, reinforcing and concrete placement, masonry, decking and huge cannonballs!

Contact me anytime for  
any questions.

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# **BENJAMIN & ME**

## **JEROMEY NAUGLE**

### **A little story about Benjamin... and me....**

It's 4 a.m. and I have been staring at the alarm clock on my night stand all night waiting for it to kick me out of bed. Shotcrete day is coming, and I am more excited for this particular project than any other I have ever been involved with. We are incorporating our first Lautner designed WaterShape feature called a Lautner Edge. When utilized as design intended and constructed with the utmost attention to its incredibly difficult details, this water feature is awe inspiring to say the least.

I had been thinking about this project day and night. Planning for weeks how I was going to execute this build prior to even digging the hole. I was 100% confident that I had thought of everything, or was I? "Wait, is my angle on the weir correct? Is there anything I am not considering?" Instantly, my excitement turned into panic! If I build this edge incorrectly at the shotcrete stage, it will mess up



every phase of construction that comes after it.

It's now 5 a.m. and I am in full panic mode! I am confident that we can deliver a great final product like we promised the client, but with how much trial and error, lost time and revenue?

BENJAMIN! I'LL CALL BENJAMIN! Yes, I was that excited that I screamed it out to myself while flying up the highway to my job site. It was 6 a.m. Texas time when I called. He picked up on the first answer. "Hey Jeromey? What's going on man, kind of early. Whatcha getting into?" I replied, "Well, umm, I am shooting my first Lautner edge pool and I am a little unsure if how I planned my edge is correct. Do you have any advice?" He replied with a chuckle, "Call me sooner than the day of shotcrete would be my first tip!"







One hour later, I completely adjusted the way the shotcrete day was originally planned. Not only did it make the life of my shotcrete crew way easier and their day shorter, all the crews that followed them had a much easier time completing the design as it was intended by Lautner himself. Benjamin completely saved us.

We made multiple adjustments to the system that we designed and even made improvements on Benjamins system. We just wrapped up one of the most incredible Lautner edge projects we have ever laid our eyes on. Not only because of its beauty but because of its function. The system is SILENT! We have built varying styles of perimeter overflow vessels over the years and there is always some type of sound that come with the system. Not on this one! We pulled out all the stops and the results speak for themselves. Touching on what Benjamin discussed in his article,







adapting to different circumstances and adjusting details that worked for one person to work for yourself is key. There is always a better way to design, build and incorporate details. If you communicate, collaborate and educate yourself there truly are no limits to the value you can create for your clients, which in turn will feed your business.

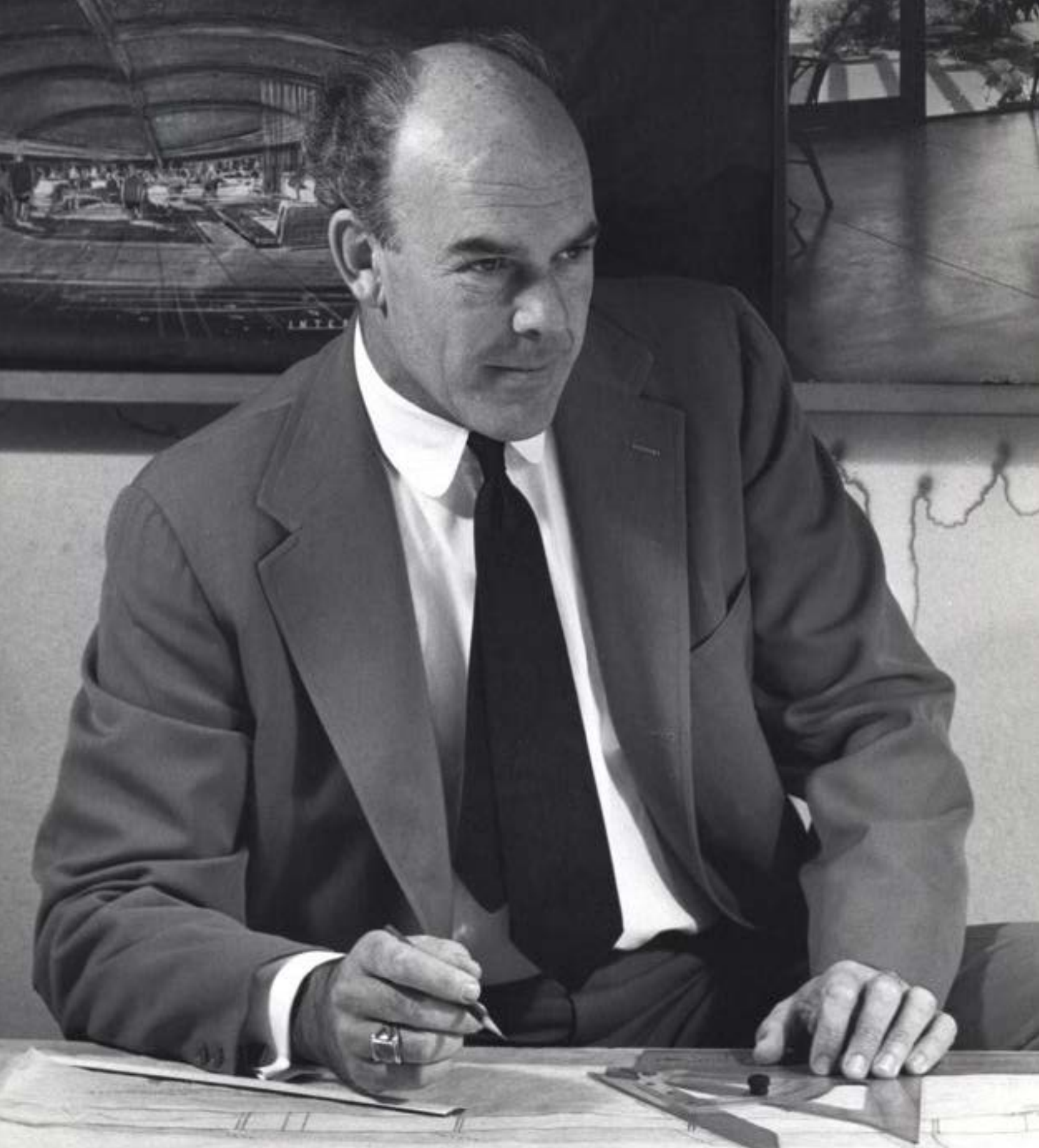
If you have any questions about Lautner edge pools or anything else discussed in this issue, we are an open book for like-minded individuals. Contact us anytime at [lifestyle@tributarypools.com](mailto:lifestyle@tributarypools.com).

Best Regards,

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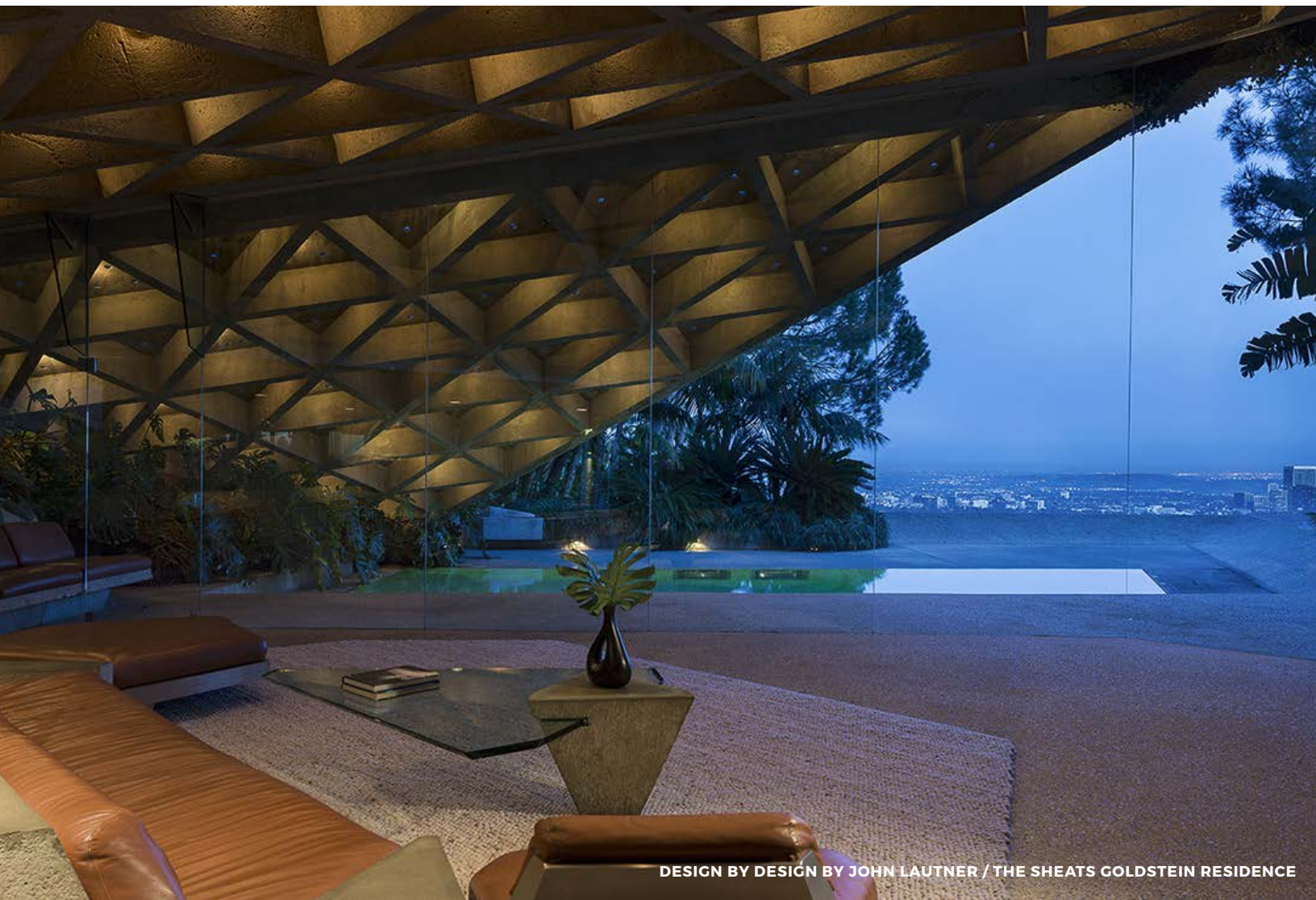


# **HOMAGE TO JOHN LAUTNER**

**TRIBUTARY REVELATION**

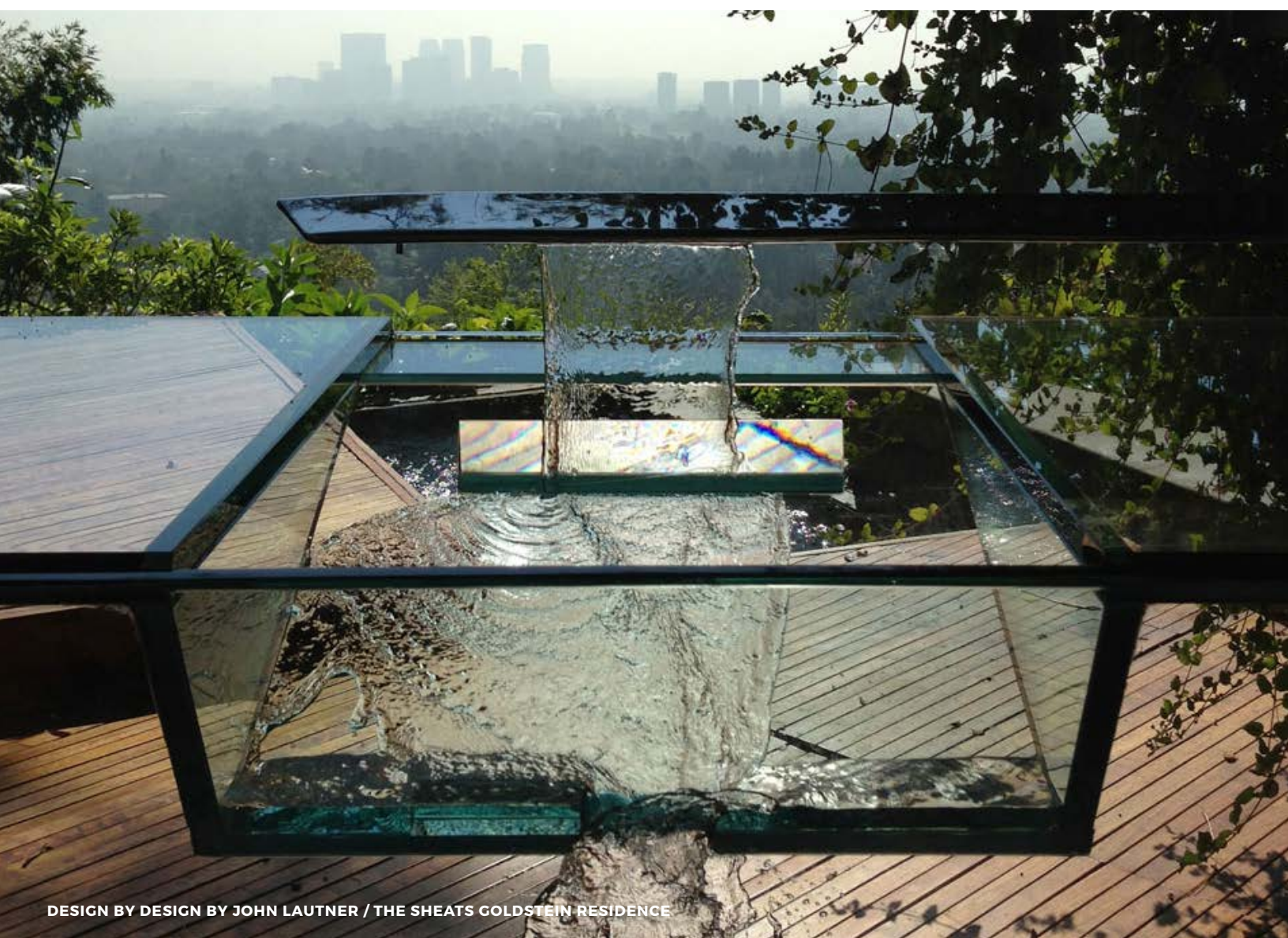


John Lautner is one of our biggest inspirations in the Architecture field. We feel very connected to his teachings and styles, and utilize his design techniques in our build. Taking the leap into the unknown of building outdoor living spaces that are unique and outside of the box has pushed us in many directions to excel in ways we never imagined. Not many contractors, designer's or architect's will take on the Lautner edge pool for its difficulty and time consuming fine points. We encourage our team, and all of you, to push yourself in your designs. Study those who inspire you, and apply their techniques to your work. Failures mean success, and it is a great benefit to learn the ways you fail, and succeed, from 1st hand experience. Always try what makes you uncomfortable. Try harder if you are not sure you can accomplish the task.





John Lautner was so true to his challenging style, that when the materials didn't encompass his ideas- he set forth to raise the bar and create what was lacking. Lautner provides significant inspiration for the entire industry. He was a pioneer in the field, and created architectural possibilities of reinforced and pre-stressed concrete, glue-laminated plywood beams, steel beams, sheeting and shaped concrete forms. His ongoing expansion of the technical and spatial terms, has influenced our vocabulary greatly. As no Lautner design is similar, he did enjoy a personal flair of motifs throughout his designs. It was his ambition to try the unthinkable that we are giving our homage to John today. Although it wasn't just his designs that were "out of the ordinary", but his use of materials to create them.







DESIGN BY DESIGN BY JOHN LAUTNER / THE SHEATS GOLDSTEIN RESIDENCE



Lautner's approach to his designs was greatly influenced by his mentor; Frank Lloyd Wright. Both philosophies of these impressive architects were to see the big picture- a "total concept". We identify with this greatly, as blending our philosophies together to create rare infusions of our individual styles is what has forged Tributary Revelation to be born. We don't just see the Watershape, the land or even the home itself (and the people in it) as separate entities, rather as 1 large puzzle we must connect the pieces together. An outdoor living environment is reflective of the person who will be living in it, and must blend in the surrounding spaces, to create the "total concept" these respected architects stood behind. John Lautner has been quoted, and spoken on many occasions on his belief in keeping the design organic. He encouraged feelings, emotions and personality into designing a space.

Our focus is to blend the personality of the client, along with touches of our own into what we are creating. Staying adaptable to the space itself, and the flow of the land you are creating on, is a direct inspiration from Lautner. His ability to "exist in the continuous present" is what enabled his design's to be on the cutting edge of outdoor spaces, even relevant in today's changing world. Taking on a space that was difficult, or proved to be problematic for most, he excelled in this approach, and set himself in a class above the rest for overcoming these challenges. We take great inspiration from this philosophy, in that no space is unmanageable, and every space has the perfect fit- you just may need to look at it from a different angle!

Tributary Revelation





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## OCTOBER, 2017- ARIZONA TOUR

WET EDGE - PHOENIX, AZ TOUR

PEBBLE TEC - SCOTTSDALE, AZ TOUR

PARAMOUNT - CHANDLER, AZ TOUR

WATERSHAPE SCUPPERS - GILBERT, AZ TOUR

## OCTOBER, 2017

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APSP INTERNATIONAL POOL, SPA, PATIO EXPO/ ORLANDO, FLORIDA

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