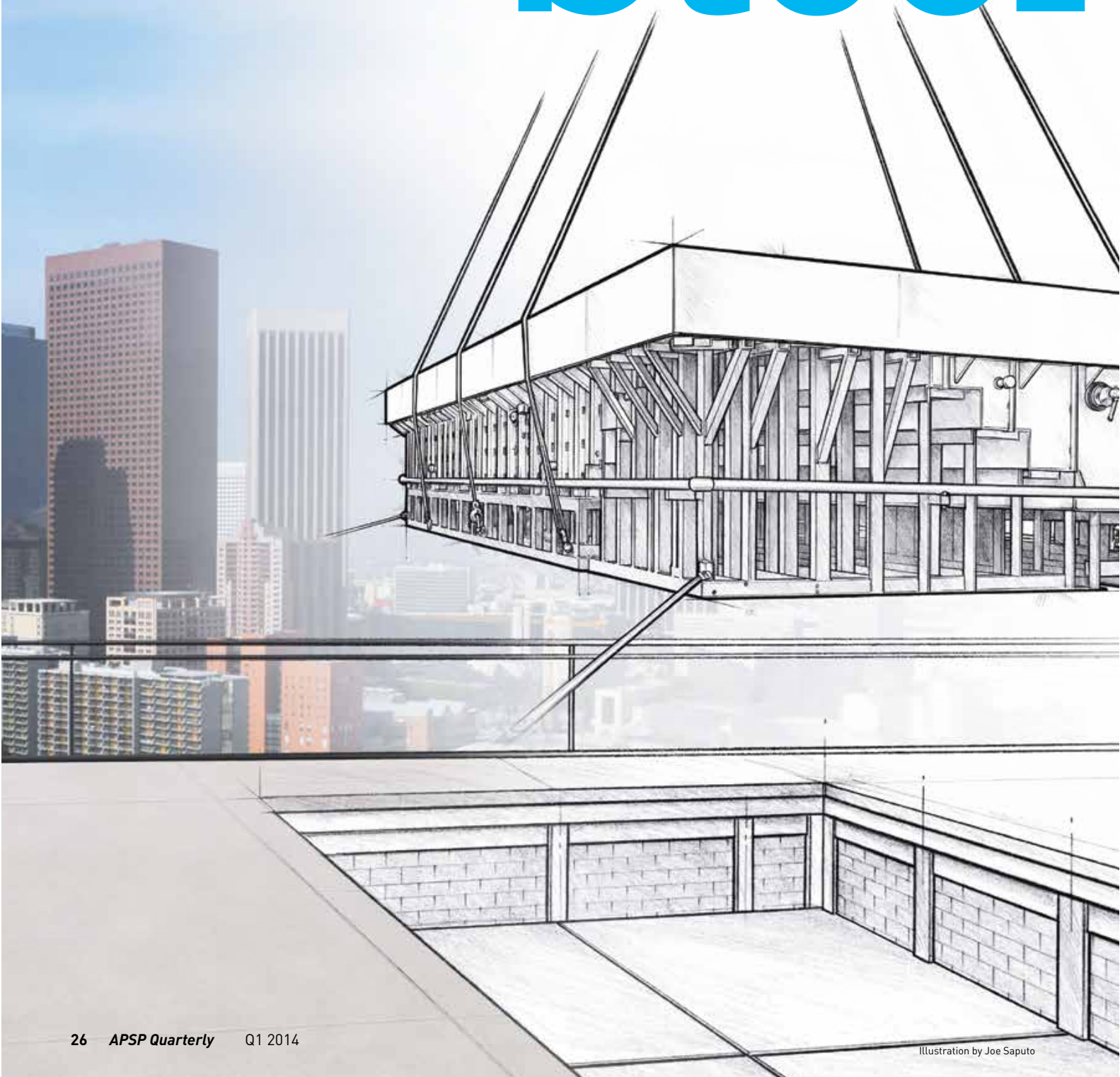
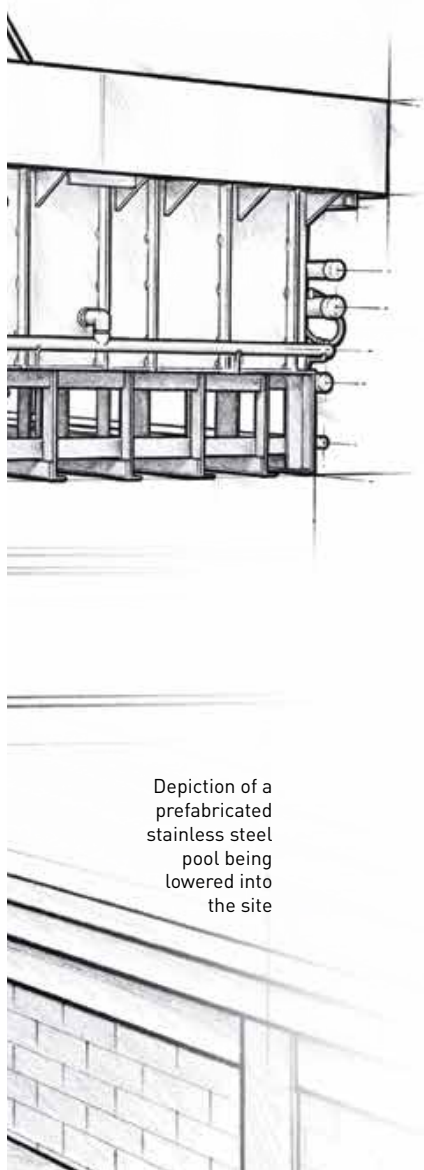


# Pool of Steel



## Stainless steel pools and spas have many advantages, including their super strength. Here's the inside track on installation.

By Matt Alderton



Depiction of a prefabricated stainless steel pool being lowered into the site

**T**hey don't call Superman the "Man of Steel" for nothing. A blend of mostly iron and carbon, steel is versatile, hard, shiny and extremely durable. The stainless variety—used in everything from knives and razor blades to skyscrapers and ships—is even better, incorporating a dash of chromium that makes it resistant to corrosion, rust and stains. A perfect marriage between *sleek* and *strong*; it's an alpha among alloys. A "super" metal if ever there was one.

### Stainless Steel ... Pools?

Its super strength is one reason that many homeowners covet stainless steel appliances in their kitchens. In fact, 65 percent of them do, according to a 2013 survey of 7,500 homeowners by interior design website Houzz. Not only does stainless steel complement most any décor homeowners find, but it's also easy to clean, naturally germ-resistant and remarkably long-lasting.

The same properties that make stainless steel popular in

kitchens—strength, durability, hygiene and aesthetics—make it practical for use in pools and spas, according to Paul Greenman, director of business development at Bradford Products, a Wilmington, N.C.-based fabricator of stainless steel aquatic vessels for the hospitality, therapeutic rehabilitation and luxury residential sectors. Although it's nontraditional compared to guniting and poured concrete, stainless steel offers many advantages, he says, including:

- **FABRICATION.** Though the optimum manufacturing condition for stainless steel pools is a shell that's fabricated in a controlled factory environment—where the pieces are welded together and water-tested prior to delivery—on-site prefabricated sections are common for larger installations. The result is a uniquely leak-proof vessel. "With guniting or concrete, it's only a matter of time before the structure develops cracks and you begin losing water," Greenman says. "A welded stainless steel pool or hot tub will not leak."
- **SUSTAINABILITY.** A stainless steel pool is typically fabricated from 65 percent to 80 percent recycled stainless steel, and is itself recyclable. Plus, its leak resistance minimizes water loss. "Water is a precious resource domestically and internationally, and any water loss other than bather load and evaporation should be avoided," Greenman says. "Stainless is ideal for water conservation."
- **SAFETY.** According to Greenman, an independent lab test found that stainless steel has a coefficient of friction equal to or greater than ceramic tile. Stainless steel also is hygienic, which is why commercial kitchens feature stainless steel countertops and why surgeons use stainless steel instruments. "In senior living centers and children's hospitals, for instance, stainless steel therapy vessels are very prominent," Greenman says.
- **APPEARANCE.** Stainless steel vessels are extremely versatile, according to Greenman. For instance, an all-stainless finish provides a contemporary look. Alternatively, pools can be fully or partially tiled to complement a client's design or color scheme.
- **LONGEVITY.** Properly maintained stainless steel doesn't age and doesn't corrode. So, neither its form nor its function will fade, according to Greenman. In fact, the world's first stainless steel pool—built in 1969 by Austrian pool manufacturer HINKE Schwimmbad—is still in use today.

Stainless steel typically costs more—a stainless steel pool or spa is generally twice the price of a traditional installation, according to stainless steel pool builder John Hurst, principal of Precision Aquatics Group in Stamford, Conn.—but its long life and easy maintenance makes it easy to justify the expense.

“It’s a lot cleaner than a gunite pool, and a lot tougher,” Hurst says. “People are willing to pay a premium for that.”

As a matter of fact, wealthy Americans were expected to spend 3.4 percent more on luxury goods last year than they did the year before, according to a 2013 survey of affluent consumers by American Express and market research company the Harrison Group. Therefore, as residential customers and commercial developers alike begin to loosen the purse strings, pool builders can expect to uncover a new, untapped market for stainless steel pools and spas.

## Installation: What You Need to Know

Stainless steel pools and spas are suitable for every application. Before proceeding with their first project, pool and spa builders must take into account several considerations. Here are six of the most important:

### 1 Location

Due to their leak resistance and weight load ratio—at least a third of the weight of a traditional gunite pool, according to Greenman—stainless steel pools and spas typically are reserved for above-grade and high-elevation sites, such as the upper floors of a condo building or the rooftop of a hotel.

“Architects that design high-rise buildings are sometimes forced to put pools in compromising positions,” says John Wahler, principal of Aquadynamics Design Group Inc., a Miami-based aquatic design engineering company. “For example, they may design a pool above a ballroom, or above somebody’s multimillion-dollar condo. Those types of vessels require something that can guarantee with great accuracy water-tightness in the envelope. Concrete is really not reliable.”

When elevation is involved, access is a critical consideration. “Our optimum design practice is to build [the shell] in one piece under shop conditions or the location of the prefabricated sections, then have you crane it up,” Greenman says.

If a crane isn’t feasible—due to the size of the vessel, for instance, or the location of the site—the pool or spa must be built in sections. “If it comes in pieces, you might have to take it up a freight elevator and weld it on site,” Hurst says. This can increase the entire installation time, he says.

### 2 Partners

Stainless steel pools and spas usually sit on top of a level, weight-bearing concrete slab or beam, or inside a vault that’s pre-poured within the slab especially for the vessel. Either way, load distribution and structural support are key, requiring close collaboration with an aquatic engineer. “The manufacturer can only provide you with information related directly to the vessel,” Wahler says. “You really need someone who can put the whole package together and review the site condition with the architect, who is generally the brainchild of the pool area.”

An aquatic engineer can help pool and spa builders determine the appropriate size and specifications for their vessel, and address site-specific issues related to structural support and installation. He or she can then create blueprints and share them with a fabricator—another key collaborator—who will then manufacture, test and deliver the vessel.

“There’s usually a marriage between the fabricator and the pool builder,” Wahler explains. “Usually, the fabricator will send one or two people to work in conjunction with the pool builder’s work team, and they’ll work hand in hand to do the install for the vessel. Any special welding or tiling is done by the fabricator, while the builder typically does setting of the [pool or spa] equipment, plumbing and electrical hookup with the electrical contractor.”



Photo provided by Bradford Products

# 3

## Labor

It's important to note: If your pool comes in pieces, accredited welders must perform all onsite welding. In many cases, this requires unionized labor and other licensed trade professionals. "If we can build it in one piece, you can avoid higher onsite construction costs," Greenman says.

# 4

## Plumbing

Stainless steel pools and spas can come pre-plumbed from the fabricator, with water distribution pipes in place behind the vessel walls. Any additional piping may run under the vessel, according to Hurst.

"While main drain plumbing typically runs underneath the vessel, suction and return lines are behind the wall," Greenman explains. If the pool is going inside a vault or pit, you should allow ample room to access the plumbing for installation and maintenance. "A minimum of at least 18 inches from the inside of the [vessel] wall to the pit should be provided."



Photo provided by Bradford Products

# 5

## Finishing

Handrails and ladders are often supplied by the fabricator but installed and bonded by the general or pool contractor. Pool fittings and internal steps—and sometimes external steps—typically are welded into place by the fabricator, who usually handles any tiling work, as well. Because of the stainless steel surface, the latter generally requires a proprietary application method. "On a typical gunite cement pool you might put a half inch to 2 inches of mud on it," Hurst says. "With stainless, you use an epoxy system. There's no tolerance for mistakes because once that epoxy's set, it's not coming off."

# 6

## Maintenance

Stainless steel pools and spas require less maintenance, according to Greenman, who says the most important consideration, as with a concrete pool, is water chemistry. "If the water chemistry is unbalanced, you're going to begin to have trouble," he says. "In a concrete pool you may get cracking of the shell and/or delamination of the finish. In stainless, you may incur staining through electrolysis and contaminants, which can be cleaned using a variety of products on the market. The value of stainless steel, however, is its leak-proof nature and overall reduced maintenance."



Visit [AQtheMagazine.com](http://AQtheMagazine.com) to view a slide show of stainless steel pool installation photos from Bradford Products.

## A Stainless Reputation

Naturally, when you complete your first stainless steel installation, you want your reputation for quality to remain as spotless as the steel is. Of all the previously-mentioned considerations, therefore, remember that the most important one is your partners. "The pool architect is very important," Hurst says. "Make sure you work with somebody who has experience; I always run into problems when I have a gunite pool designer trying to design a stainless steel pool."

Good partners will result in a good product, Wahler concurs: "At the end of the day, when all the pieces are welded together and completely tiled, you end up not only with an impenetrable structure, but also an architecturally beautiful product." //