

Saratoga Spa Product Design

Spa Shell Forming

Saratoga Spa Co. uses its own vacuum forming machine to create its TriLayer™ Shells. The sheet of Acrylic and ABS are placed in the “oven” and strategically heated above the spa mold. Temperatures are measured and timed at different locations. Once melted, the sheet is drawn into the mold, forming the Spa shell. The shell is then “popped” from the mold and moved to the ProTegrity™ rigidizing booth, where it receives the third layer, adding the 60lb density ProTegrity™ evenly and smoothly over the spa shell. These three layers provide structural integrity and a resistance to delaminating. Acrylic and ABS expand and contract at very similar temperatures, so they are much less likely to have problems of bubbling or separating after they have been formed together.



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ProTegrity™ Rigidizing System



ProTegrity™ is the Saratoga Spa® rigidizing system, replacing the previous 40lb foam system. ProTegrity™, according to Anthony Brennan, Saratoga Spas COO, "raises the rigidizing strength to 60 lbs, for a 50% increase."

This should be part of your TriLayer™ Shell presentation, which is made up of an Acrylic Shell, ABS and ProTegrity™.

The ProTegrity™ material is not a foam and has a more even application over the shell when sprayed, another improvement over the 40lb foam. This will provide increased shell integrity and strength, as well as a material, that because it is not a foam, will be more durable over time and require less prep work (smoothing and sanding areas) when installing jets and fittings onto the spa shell back.

Another important feature of ProTegrity™ is it uses Acrylobond®, a "green" product, which unlike Styrene based products, follows the Clean Air Act Amendments of 1990, and is not designated as a hazardous air pollutant (HAP) that "may reasonably be anticipated to be carcinogenic, mutagenic and exhibit other adverse health effects." Acrylobond® is designed for a healthier environment.

Now, since it is a "selling feature" that is hard to show a customer, we have provided a Product Design sheet for your binder, allowing you to "show" and not just "tell" your customer about this product, and more importantly why it can be a benefit to them as a Saratoga Spa® owner.



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Spa Plumbing



Saratoga Spa® Co. uses a Unique Design in plumbing its product. There is a three step process that the majority of the Saratoga Spa Models use; Barb-Glue-Clamp. Saratoga first glues the pipe and fitting, and then using a specially designed air pressure tool, it presses the plumbing fitting into the flex hose. This tool is calibrated to make sure that the fitting seats properly every time into the flex hose. This tool helps to eliminate someone manually having to push the fitting into the flex pipe, over and over preventing human error due to fatigue. When this fitting is glued and seated in the pipe it is then clamped into place, providing a virtual leak free plumbing design.

Though cutting some of these steps would be less expensive, Saratoga believes the strength of this detail helps provide a reliability not found in other products. When sharing this technique with an end user, be sure to create both the excitement of the reliability and the peace of mind.



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Structural Design



Saratoga Spa® Co. uses key components in building the foundation of the spa models:



Built To Last

All Premium Cedar
2" x 4" Construction
3" Screws - No Nails
Liquid Nails
Cedar Resistant to Rotting
Cedar Deters Insects



These design practices provide the Spa Owner a product that is built to stand the test of time.

NOTES:

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First Water Test

Saratoga Spa® Co. uses two water testing procedures in manufacturing its spas. This allows a cold water test and a hot water test. This simulates the cold fill when the spa is initially filled by the homeowner and then the heated fill that the spa will attain once it reaches its desired temperature.

During the cold fill the spa plumbing glue joints, will be exposed to cold temperatures and the spa will be put through various tests, allowing Saratoga to check for the spas plumbing integrity. Some of the processes completed in this section are as follows:

- ✓ Install Jets
- ✓ Install Light
- ✓ Check Heater Amps
- ✓ Check Jet Flow, Air and Water
- ✓ Install Ground Wire
- ✓ Install Ozone Hose
- ✓ Check Ozone Draw and Flow
- ✓ Install Drain Bib
- ✓ Pressure Test Plumbing Lines
- ✓ Versa Flo™ and Air Control Function
- ✓ Pump Functions
- ✓ Top Side Functions
- ✓ Thermostat Test



The First Water Test processes help ensure the Dealer and Spa Owner have a product not just built with standards, but tested to perform before the spa is ever sent out.

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Foam Booth

Saratoga Spa® Co. uses a couple processes in Foaming a spa. The differences depend on the particular series of spa that is ordered. All spas receive a 2.5lb density foam spray in the Lockdown process, designed to give the spa fittings and plumbing more security, ‘locking’ them in place. This is important during the shipping and delivery process, stabilizing the lines from bouncing or moving, especially on non-foam filled spas.

The next step is to spray the shell with 2.5lb density foam to help the spa retain heat. We follow that up with a finish of .5lb density foam, filling the spa shell and cabinet to give our full foam models the ultimate in heat retention, helping to maintain the spa temperature more consistently and efficiently.



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CoverAll™ Base



The base design for Saratoga Spas® should give you, the Dealer, an even stronger story with this original design.

First, the entire bottom of the spa is covered, including the equipment area. Second, the special Cover All™ Slide Rail design will protect the 2" x 4" framing from the elements better than just one monolith sheet of material. The Cover All™ Slide Rail wraps the wood; therefore the elements will have a difficult time affecting the cedar, giving longer life and a strong point to make in the presentation. The Cover All™ Slide Rails allow for easier movement of the spa when sliding across floors and decks versus the previous design with staples snagging and scratching surfaces. Saratoga has also adjusted the skid height to make sure it didn't affect the height of the spas, so they remain the same.

We, at Saratoga, believe you will enjoy this unique and functional base, giving you a different look than the competition, while providing you with the sales tool to compete.



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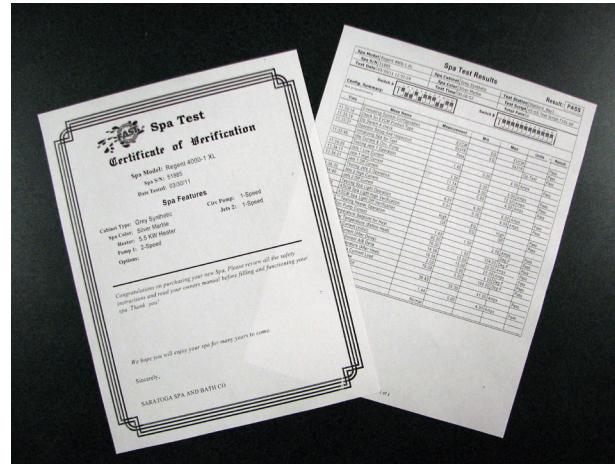
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Second Water Test



Saratoga Spa® Co. uses a Second Water Test, using a combination of another fill and operate test as well as running a diagnostic check through the Fast Test Station. The Second Water Test operates for approximately 30 minutes, while the Fast Test Diagnostic takes 7-10 minutes. This is similar to running a diagnostic on today's cars, as it will give us multiple amp readings, voltage readings, pumps, control panel and topside panel readings to help remove "out of the box" electrical and operational issues with the product.

It also prints a "Passing Certificate" that shows the results. The Second Water fill and operation makes sure all the fittings and plumbing is properly sealed against leaking. This will give the Dealer peace of mind when starting up a Consumers hot tub for the first time that it won't experience product failure at first start-up.



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Finishing

Saratoga Spa® Co. moves the spa from Second Water Test to the Finishing Section of the production line. After the spa is drained and flipped to remove almost all the water, it is rolled into the Finishing Section. The Finishing Section goes through the spa, cleaning and polishing it inside and out. Using a Saratoga Check List, they will go through a step by step process regarding:

- ✓ Inside and Out Appearance
- ✓ Owner Packet
- ✓ Organizing The Component Area
- ✓ Adding The Finishing Trim
- ✓ Adding Top Sides Bezel And Logo's
- ✓ Skimmer Lids
- ✓ Wrapping The Spa

The Spa is then signed off on once it passes the Checklist. This allows us to trace back to a signature on the Checklist if the delivered Spa was not completed as stated. Again, the Dealer can have peace of mind knowing that Saratoga Spa operates with a accountability system and that the Employees on the production line take pride in providing the Dealer a Spa free of defects and mistakes.



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