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## First Construction Training in USA for Natural Swimming Pools

Natural Swimming Pools (NSPs) use plants growing in a specially constructed “regeneration zone” allowing natural biological filtration to clarify and purify the water, instead of using chemicals.

Until recently, anyone who wanted to attend a construction training program in Natural Swimming Pools (NSPs) had to go to Europe – and most of the programs were conducted in German!

At the end of August, our firm, BioNova Natural Pools, conducted the first construction training program in North America for Natural Swimming Pools. BioNova Dealer Partners and associates gathered in Boston for a 5 day program which featured trips to the first BioNova Natural Swimming Pools in the US, along with 4 days of classroom training.

BioNova associates came in from Oregon, Texas, Minnesota, Maryland, New Jersey, Connecticut, New York, Massachusetts, Canada, England and Germany to attend the program. The event started with everyone taking the Steamship Authority ferry to the beautiful island of Nantucket off the coast of Cape Cod. There we visited the first completed BioNova Natural Pool in the USA (there are already 2 others in Canada), which was constructed by our BioNova Partner in Massachusetts, Waterscapes by Jesse Dutra.

The head of BioNova Global, Rainer Grafinger from Munich, Germany, was with us and it was interesting to see his take on the differences in the American style of construction as it relates to the European methods. The techniques for building

swimming pools in general, are quite different in Europe than what they are here in North America. Although Rainer Grafinger has been building NSPs for over 20 years and he has designed and supervised the construction of scores of large-scale public pool installations, he'd never seen a pool in Europe that was constructed with shotcrete.

NSPs in Europe are typically built using concrete block to construct the pool walls, with a PVC membrane placed to “seal” the pool for water containment. This technique is virtually unheard of in North America. This PVC membrane is not vinyl liner material – this stuff is very, very tough and 1.5 millimeters thick – almost 60 mils, whereas vinyl liners are typically 20 to 30 mils.

PVC membrane is also seamable in the field. A special heat welding device is used to seam pieces together and virtually any shape can be sealed with the membrane wrinkle-free.

Although Grafinger had seen the construction drawings for the pool and visited it via Skype teleconferencing several times, he was nevertheless pleased to see the shotcrete vessel, operating as a Natural Swimming Pool, up close and personal. In addition, Jesse Dutra, had a few more “American technology” surprises in store.

Two years ago, in Princeton, we had constructed a hybrid Natural Swimming Pool (see Aqua Magazine Choice Award – May 2012), with plants growing in specially constructed regeneration zones and using an in-floor cleaning system in the swimming vessel. Jesse decided to go ahead with this idea for his Nantucket NSP and this is the very first time that an NSP has been constructed anywhere in the world with an in-floor cleaning system.

Jesse's clients also had decided that they wanted to use a year around outdoor spa and that the spa should look as if it were placed seamlessly with the NSP. Because we require that spas are disinfected, it would be impossible to mix the water of the spa with the NSP – but Jesse had a solution. He designed a stream overflowing from the spa that appears to run down from the spa, under a bridge and then into the planted regeneration zone. However, actually, as the stream disappears under the bridge, the stream's water is returned up to the spa, and the water exiting from the lower side of the bridge, has been pumped there from the regeneration zone. The illusion is pulled off perfectly and the client's don't bother to tell the guests. Jesse also completed the sophisticated hydraulics on the pool and spa with all American variable frequency pumps.

This NSP nevertheless follows the basic principles that have been proven from its European heritage – principles that have been proven to work for over 30 years. In this case, the water from the NSP is treated in several separately contained parts of the regeneration zone of the pool. Jesse designed the pool as a negative edge pool and some of these regeneration zones operate as the surge tank, In addition to the gravel substrate filters of the regeneration zones, the NSP has a BioNova BF-150 FineFilter, three BioNova Distribution Shafts and 2 BioNova Refluxomats. BioNova uses the

Refluxomats whenever we are returning water from a lower vessel to a higher vessel and there is the possibility of equalization. Invented by BioNova in Germany, the Refluxomat is an elegant solution to the equalization problem – and for an old-timer like me, reminds me of the Mark Urban plumbing inventions – to paraphrase the late Mr. Urban, the description of the Refluxomat should include the phrase, “nobody understands it, it’s too simple”.

It was a beautiful warm Nantucket summer day and the NSP soon filled with BioNova bathers enjoying the chemical-free natural waters. Jesse’s client hosts were gracious enough to encourage everyone to jump in and they even fired up the barbecue grill and served a delicious lunch.

The second day of training began in a seminar room at the Sheraton Boston Hotel. Rainer Grafinger hosted a full day of lecture beginning with the basics of constructing an NSP. The German FLL Standards for NSP construction include 5 different distinct types of NSPs. The simplest type has 3 basic rules – 1) the pool must be a contained vessel (i.e., no outside water entering from underground springs, streams, etc., sealed off from groundwater) - 2) the swimming zone(s) and regeneration zone(s) must be separated and – 3) no chemicals or other devices that disinfect or sterilize the water may be used.

This stimulated an interesting presentation and a lively discussion among the BioNova Partners. The technical aspects of the operation of the regeneration zone, the limnological science associated with the natural cleaning cycles were parts of the discussions and everyone enjoyed the mini-presentation by BioNova’s Dr. Lisa Brooks on one of the more interesting microbes that live in the water of an NSP, namely daphnia. Dubbed “The Daphnia Whisperer” by seminar attendees, Dr. Brooks made an appealing case for us to encourage them to survive and multiply in natural water.

World-renowned pond builder and rock (stone) artist, Anthony Archer-Wills began his presentation the next morning. Although this author has personally seen Anthony’s lecture at least a half of a dozen times, the lecture and the design work never fails to entertain and inform. Each time, one gains a little more from hearing it. Anthony’s body of work is so compelling, his design work is so natural and his attention to detail so skillful, that one is always inspired by his work and the BioNova Partners soaked it all in.

During the lunch break, we stole away to downtown Cambridge, Massachusetts, next to Boston and the home of Harvard University, to visit another NSP that was almost finished with construction. This NSP, also designed and built by Jesse Dutra, has some unique characteristics associated with it. A very small pool, it is surrounded with regeneration zones that serve as stepping stone pathways – the water in the regeneration zone is not visible because the gravel fills in above the water level. This technique has often been used successfully in Europe by BioNova – in fact some of our NSPs there actually have grass planted in the gravel of the regeneration zone and use it as a lawn.

Robin Templar Williams is a British garden designer and he has the extraordinary ability to communicate the “how to” basics of design. Robin runs his own Garden Design School and he designed some of the first NSPs in England and has recently designed more in eastern Europe. He engaged everyone with a lecture on the basics of design in the morning, then followed up with an afternoon “hands on” class using an example site survey. It was a fun exercise that forced everyone to re-think the basics of design principles. Some of the attendees have degrees in design at the BA and MA levels, yet everyone enjoyed and benefited from the exercise.

The final day was a technical presentation primarily on hydraulics and construction techniques. Although we were all tired at the end of the day, we were all reticent to leave and have the program be over. BioNova’s Alan Weene, Director of Marketing and Technical Support wrote that it was, “like leaving camp at the end of the summer. I wished it didn’t have to end”

Mike Logsdon, the BioNova Partner from San Antonio is a member of the Society of Watershapes Designers, a Genesis 3 Gold Member and he has attended the new ART program from David Tisherman, et. al. Mike’s comments were that, “I do feel that this (course) was for sure equal to the best educational experiences that I have been to and I think that I would speak for anyone there that for the first BioNova conference on American soil, we would give you all an A+”.