



WATERSCAPES IN THE BUILT ENVIRONMENT

What is a waterscape? Waterscapes or water art as it is sometimes known are generally aesthetic installations that often recreate an outdoor environment. Rocks, streams, ponds and waterfalls are all common elements. Many waterscapes are indoor installations and become

part of the mechanical system in some way. How does the presence of a waterscape impact a mechanical system design and installation? While the tendency may have been to simply mitigate the peripheral impact of the waterscape, that may be changing.

tion to the make-up water valve, they require an appropriate backflow prevention device.

2. Pumping and circulation systems are basic elements. In some cases these include filtration and water treatment where organic materials such as plants,



Waterscape construction underway at Vancouver Aquarium Marine Science Centre.

local air quality as well. This is particularly true of ozone generation.

3. Many of these installations include supplementary heat, which in my experience has meant radiant heating loops. To supply these radiant loops, a connection to a high-temp source (standalone or district heating) is required as is a mixing station, a pump package and controls system just as would be required for a traditional radiant floor heating installation.

4. Many waterscapes include high pressure fogging systems. In these instances, water is pumped at very high pressure through specially designed fog nozzles to produce ultra-fine (micron-sized) water droplets. In outdoor installations it is common that the fogging system is used to provide evaporative cooling for restaurants, amusement parks and other areas where people congregate. In the case of indoor installations, the fogging system can also provide cooling (up to 40F cooler than ambient).

5. Fogging systems can also be designed to be the major component in

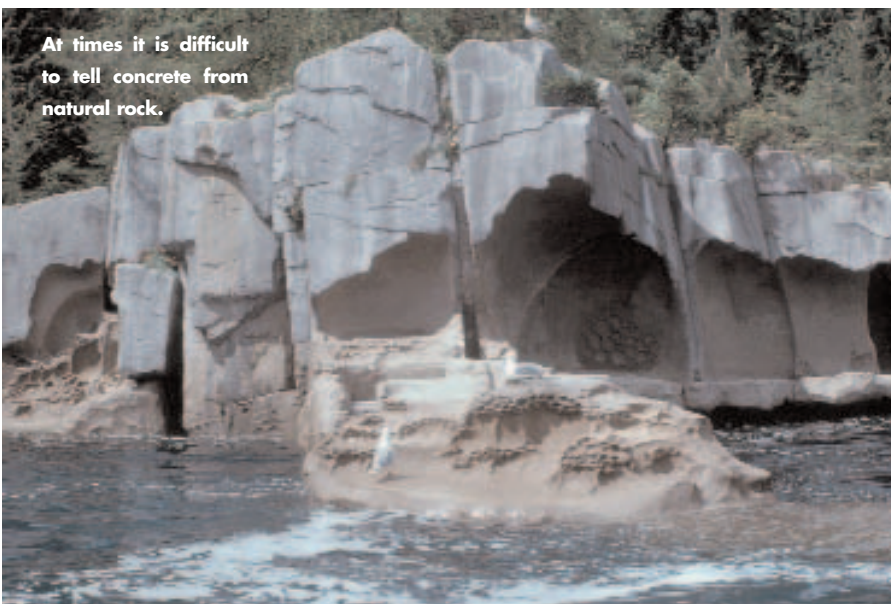


"They can have the dual effect of not only maintaining the water quality, but also improving the local air quality as well."

A waterscape can become a part of the mechanical system in a number of ways.

1. Many have make-up water systems and are connected to the potable water supply. This means that in addition

fish and reptiles are part of the installation. Many times ultraviolet sterilization and/or ozone sterilization systems are employed for this purpose. They can have the dual effect of not only maintaining the water quality, but also improving the



At times it is difficult to tell concrete from natural rock.

Photos: Margaret Butcher, Vancouver Aquarium Marine Science Centre; Minis Arcon Rock and Waterscapes

the building humidification system. There are fogging systems that claim to use just 1-1/2 hp to atomize 1,000 lbs/hr of water. This is reported to be only about three per cent of the electrical energy consumed by compressed-air or ultrasonic type water atomizers and only about one per cent of the energy consumed by steam humidification systems.

6. Fogging systems can also be employed as part of an odour control and/or air purification strategy for building interiors. With the move to Leadership in Energy and Environmental Design (LEED) certification in many institutional buildings,

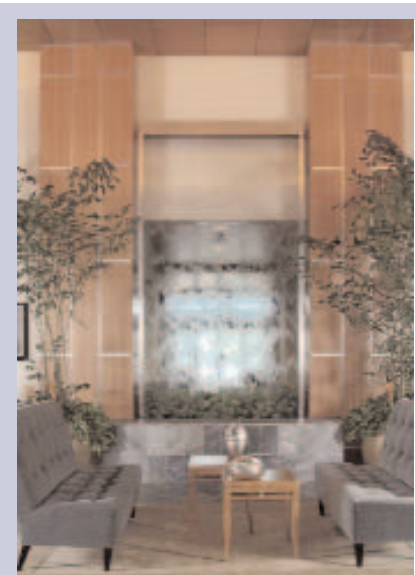
look for progressive designers to integrate fogging systems as they dovetail nicely into a sustainable design plan.

7. Waterscapes are often designed with a swimming pool or hot tub as the focal point of the installation. This means heaters, treatment and circulation

equipment just as you would find in a traditional pool or hot tub.

8. While it may not be purely a mechanical system attribute, an important element in many building designs is

CONTINUED ON PAGE 24



This interior 60" by 12' glass and stainless steel water feature has a granite covered stainless steel tank.

ON A SMALLER SCALE

The benefits of a waterscape can be incorporated into residential or commercial applications on a much smaller scale. Self-contained water feature units are available which can be located anywhere there is electrical power. These features may also double as environmental systems working with options such as reverse osmosis and ozone bacteria control.

"Many people chose water features to add life to dull rooms and health to their homes," suggests Accents in Water vice-president of sales Gary Kiepkke.

Photo Accents in Water

1 slow, complicated coil installation...



ARE YOU READY FOR A FASTER,
SIMPLER WAY?

Reply Card #18



Turn This



Into This

The Above Floor Toilet System

- Uses small 3/4" diameter pipe, which can be run virtually anywhere.
- Full range of consumer and contractor installed products.
- Over Three Million units sold worldwide.
- Ideal for use with septic or sewer systems.
- North American support & distribution.
- Featured at ISH North America 2004.
- A proven & profitable addition to any inventory.

SANIFLO
A Group SFA Company

For more information and a local agent listing, please call

1-800-36-FLUSH / 1-800-363-5874

To see the entire family of Saniflo products visit: WWW.Saniflo.com

Reply Card #48

Two High Low Valves For the Price of One.



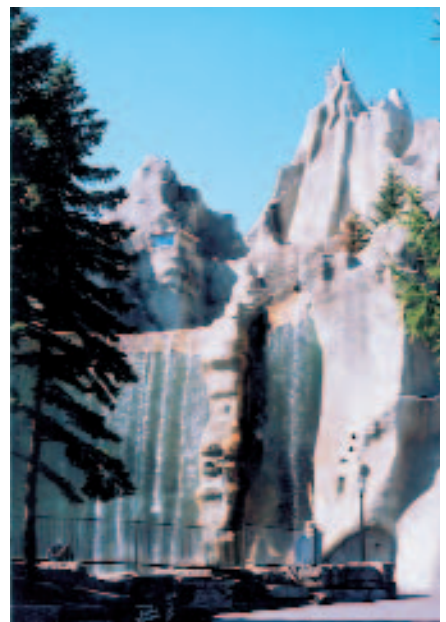
- Maximum Dual-Valve Safety
- Same Price As Single Valves
- Legendary Leonard Reliability
- Simple design, easy installation

Introducing the Leonard "New Generation" Hi-Low System

LEONARD
WATER TEMPERATURE CONTROLS

1360 Elmwood Avenue, Cranston, RI 02910, 888-797-4456, Fax: 401-941-5310
www.leonardvalve.com info@leonardvalve.com

Reply Card #19



Many mechanical elements are integrated behind the face of waterscapes.

be used to manage the soundscape of any given space. Again, look for the tie-in to the LEED process.

MAKING A WATERSCAPE

How is a waterscape made? According to concretenetwork.com, a variety of construction techniques can be used when concrete is the material of choice, but most fall into the categories of cast and sculpted.

Casting techniques produce the most realistic looking artificial rock because the moulds against which the concrete is cast are copies of real rock surfaces. Manufacturers make the moulds by applying silicone or latex rubber to the natural rocks they want to mimic. After the material hardens, the skin is peeled off and used to apply realistic stone textures to artificial rock surfaces.



“It is interesting to think of an aesthetic design element such as waterscape becoming a living part of the building.”

■ Mark Evans is a 20-year veteran of the plumbing and heating industry, with sales and management experience in several sectors of the business. Reach him by e-mail at writemarkevans@hotmail.com.

RATE THE ARTICLE!

Will this information be useful? Please circle the appropriate number on the Reader Postcard. Thank you.

VERY USEFUL 103

USEFUL 104

NOT USEFUL 105

The site explains that for sculpted rock, layers of shotcrete are applied to a framework of reinforcing bars and metal lath. Hand tools are then used to sculpt the concrete into the desired shape and texture. Because the concrete is reinforced, this technique works well for tall or cantilevered rock formations. Depending on the situation, a straight mortar mix or a fibre-reinforced synthetic concrete (FRSC) mix may be used. When that is the case, rebar and lath may no longer be necessary for support. Even when applied at a thickness of only two to three inches, FRSC is extremely strong.

An integral part of the waterscape construction process is the texturizing, colouring and staining of the concrete to recreate a natural finish. In many cases, particularly in outdoor applications, the skill of the crafters often fools many who see it. Anyone who has been to the Vancouver Aquarium or the Vancouver International Airport has seen installations by Canadian specialist firm Arcon Rock and Waterscapes.

Using custom colour and staining techniques, Arcon handcrafted these installations, subjecting them to a multi-part process of blackening, painting, staining and sealing. It is difficult to tell the concrete from a natural rock product.

NEW MARKET

It is interesting to think of an aesthetic design element such as waterscape becoming a living part of the building. So, will waterscapes ever replace conventional humidification, cooling, oxygenation or odour control systems? That is highly unlikely, however a niche market does exist where these installations can be considered as part of the HVAC system in a given building.

While constructing the faux rock features will likely remain the domain of the specialist company, the inclusion of the mechanical elements can be driven by

the conventional architect, engineer, contractor construction team found so commonly in our market. **HPAC**

Reply Card #20