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## Musical Ornamental (Show) Fountains

The what, where and how questions.

Georgia Fountain Company is the leader in designing musical (or show) fountains and provides the following information to support and guide any design ideas that designers may have.

When considering a musical/ show fountain one must ask and answer at least the following questions.

- a) What is the purpose of the musical fountain?
- b) What environment must the fountain have?
- c) What are the fountain surroundings going to be?
- d) What type of system will be used?
- e) What type of sound system will be used?
- f) What type of control system will be used?
- g) What health codes apply to an interactive fountain?
- h) What additional code issues require equipment other than fountain materials?
- i) What utilities are required?
- j) What system requirements are there?
- k) What safety issues require attention?
- l) What mandatory maintenance requirements are there?
- m) Does the owner understand the operating requirements & costs?

### a) What is the purpose of the musical fountain?

This question requires careful scrutiny. Is this fountain being designed to be a focal point to entice the viewer to stop, listen and enjoy, relax. Is an element desired if so inclined to spontaneously participate in this ornamental fountain or is this fountain being designed to be a focal point and to invite the general public to actively participate or just watch? Is this fountain being designed to be a children's play area? Will there be an exposed pool (not a reservoir)? Will it be a plaza type environment? The answers to these questions, in a way, dictate the direction of answers to all the other questions. One will understand that more clearly that the most influential decision will be the application of local health codes.

### b) What environment must the fountain have?

Regardless of the above answers the environment this fountain must have is the expectation, the planning and execution of an area that is designed to be wet at all operating times. It is best to have a defined perimeter. If the system is a dry system and not a pool then the perimeter shall be dishd toward the center of the fountain. The area beginning at the perimeter away from the fountain shall be down and away.

### c) What are the fountain surroundings going to be?

First the fountain area has to be defined. The defined area shall be that area around the fountain that is expected to be wet at all times and the fountain water of which must remain in the fountain area.

For the express purpose of helping the system in its health environment issues it is prudent to consider eliminating ALL planter designs and plant materials in a well defined area well away from the fountain. It would not do to have a planter right next to the fountain if the fountain uses a treated water system. Plants do not do well being sprayed with treated water. In an interactive musical fountain where people will be in and out of the fountain and trampling the plants, carrying with them plant material back in to the fountain will burden the system with high maintenance and large down times. If the fountain is outdoors it is also extremely important to design the fountain surface area elevation to have rain water flow AWAY from the fountain along with a trench drain system around the fountain area.

**d) What type of system will be used?**

To distinguish what the viewer will see depends on the concept of fast moving visual images or slow moving (flowing) pictures. Also to be taken into consideration is the choreography demands on the issue as well as the level of repeated performance of the water. This really comes to view when the system will in later time require maintenance and may not perform to the same level as once set. Therefore it is important to keep the water moving, to the beat of the music and NOT to give the viewer a chance to sit there and study the long paused pictures or the repeated same motion segments.

The two types of systems to chose from: 1) Digital control system. 2) Analog control system.

1) Digital control system

A system that is to be designed using digital controls basically takes a given number of jets and turns them on and off on rapid sequence to the beat of the music and in the presentation as desired by the choreographer. Digital control gives the programmer the speed and flexibility he needs to control the show as commanded. Digital control jets can be turned on and of in a sequence at a speed as low as 2/10 of one second.

Systems configurations normally consist of pumping systems, electronic motor controls, control manifold, hydro static tank(s), nozzles and electric control valves, lighting, control panel, filtration, show control system and sound system.

2) Analog control system.

A system designed on the principal of analog control is a very pretty but relatively slow system. The efforts for choreography are easily triple that of a digital system because now not only must each jet be addressed but also it height and the speed at which it will reach that desired height.

The calibration of the any given jet can be tedious and time consuming. Depending on the number of jets being controlled this can a full time maintenance job.

Systems configurations normally consist of pumping systems, air systems (for analog control), electronic motor controls, control manifold, hydro static tank(s), nozzles and electronic commanded pneumatic control valves, lighting, control panel, filtration, show control system and sound system.

**e) What type of sound system will be used?**

Georgia Fountain uses the latest in digital technologies with a system designed originally for animated figures at large and smaller attraction parks. It has a capability of controlling up to 1056 individual digital items such as a combination of jets and lights. It does so while still providing musical show durations of up 30 minutes of MP3 type stored music data along with pre-amplified stereo output. As for the sound system itself this is designed based on the viewer area, criteria and density.

**f) What type of control system will be used?**

The control system is a real-time data stream system controlling digital or analog outputs (at an 8-bit resolution) Programming can done using lap top computers for smaller shows and programming consoles (rented ones if need be) and a lap top computer for larger systems. Once the programming is complete the shows are stored directly in the control system which is looked upon by Windows Explorer as another external drive (F:\) .

**g) What health codes apply to an interactive musical show fountains?**

This is at present a complicated question to answer and requires the input of City/ Local Health Authorities. *Most states DO NOT HAVE CODES FOR INTERACTIVE FOUNTAINS yet.* As of 2008 there are several states that now classify Interactive Fountains by name in their respective swimming pool coded. Among them are the States of Florida, North Carolina, Wisconsin and others.

Debates are ongoing daily about what classification to put participatory fountains in. Some officials, absent a specific code for fountains will just classify them under swimming pool codes, specifically wading pools, not for the pool depth but for its activity or maybe both. It requires upfront understanding by Health Officials that this is not a swimming pool or wading pool but an interactive fountain and application for and approved variances should be made in advance of a project to help the officials in the closeout of the project.

**REMEMBER** to get a permit not only from the Building Inspection Dept. **BUT ALSO FROM** the local Health Inspection Dept. **BEFORE** you build the project.

We believe that many portions of all local swimming pool codes do not apply to “interactive” “musical” or “show” fountains”. Portions of that code for instance are the requirement for a fence. A fence (in the swimming pool code) is in the code to prevent accidental drowning in pools that are unattended. In an interactive fountain WHICH HAS NO “POOL” there is NO WATER for anyone TO DROWN IN. Diving boards, access ladders etc. all fall be the way side too.

**h) What additional code issues require equipment other than fountain materials?**

What is a requirement however are ALL items that relate to water quality control and automatic chemical control systems, filters, a possible shower and foot wash station (debatable) and a public rest room close by is a good idea for musical show fountains in which the public is invited and encouraged to participate in.

Careful attention to other hidden non-common sense items (in the SWIMMING POOL CODE) such as 7 ft head room requirement inside equipment rooms and 3 foot clearance around every piece of equipment in that room have to paid due respect. We believe that equipment rooms for swimming pool systems are different then for fountains. Swimming pool equipment rooms are often used as chemical storage areas and have a great number of chemicals not required for fountains. Fountains require less chemicals and generally have pressurized chemical tanks and pressurized ventilation for the rooms and safety issues should not be governed by how high a rooms ceiling is.

**i) What utilities are required?**

Utilities required are water supply, drain to storm or sanitary (depending on local codes), power sufficient to drive the systems. Typical design guidelines are: being able to drain, clean and refill a system in an 8 hour workday. Typical designs are: 1 ea. min. 1” or 1-1/2” potable water supply, 1 ea. 4” sanitary or storm drain system for the pumping system and area storm drains designed based on the fountain trench drain system. Power shall be 120/240 single phase, 120/208V 3-phase or 460V 3phase per NEC SEC.680.

**j) What system requirements are there?**

System requirements are determined on the design of the fountain and can be quite extensive.

First establish a performance specification. I want this many nozzles to go this many feet high. I want this type of spray. I want this many nozzles to be individually controlled and this group of jet controlled as one.

I want x-number of lights (colored?) at each jet. I want the lights on all time during night hours or I want each light at each jet to come on with the jet only.

Remember to allow the fountain area design to match the systems requirements, i.e. if I want the jet that is located 5 feet from the perimeter of the fountain area to spray 20 feet high – that is not a good idea.

**l) What safety issues require attention?**

Some major safety issues to remember are:

**1) Public safety.**

Allow small sprays on the outside of your fountain area to allow toddlers to participate, they might be afraid of the taller sprays in center. This will also allow moms to get to their toddlers quickly.

**2) Emergency shut-off.**

Make sure you locate an emergency cut-off switch near the fountain to allow to unimpeded help to a person requiring medical attention in the fountain area.

**3) ADA compliance.**

Careful attention to surface design, accessibility and area definition for compliance to ADA requirements shall not be forgotten.

**m) What mandatory maintenance requirements are there?**

**Daily water quality control**, area cleanup, systems review, clean basket strainers, clean filter elements as required.

**n) Does the owner understand the operating requirements & costs?**

It is one thing to make an allowance in the construction costs of a fountain project as a capital expenditure item. It is an entirely different item to make sure the owner allows a fountain maintenance budget line item in his/her operating costs budget. ***It is imperative for the designer to make the owner aware of this one single solitary item.***

If you need help with the design, budgeting, systems supply or construction with your musical show -, interactive or other architectural fountain please contact us at (800) 522-3297 or e-mail us at: [info@georgiafountain.com](mailto:info@georgiafountain.com) . Please visit our website <http://www.georgiafountain.com> for additional catalog information and photos for ideas.

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