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Serving Virginia Since 1970

LEAK DETECTION

If the loss of water is sizable it may indicate a leak in either the pool plumbing or the pool shell. To narrow down the location of the leak, we recommend that static and operational tests be performed. These tests, properly done will indicate whether the leak is in the plumbing or the pool shell. The tests will require that the pool be operated and chemically maintained approximately four (4) days. An individual will need to be instructed on how to take the necessary readings and to perform specific tasks every twelve (12) hours. Tests should be started and concluded at the same time each day so as to maintain similarity of weather conditions.

TEST #1. - The water level in the pool should be brought to a predetermined level and marked. The fill spout shall then be turned off, skimmers turned off, main drain full open, vacuum line full open, and the filter system left running. Weather, humidity and pool temperature should be logged and a bucket of pool water filled to a predetermined level placed into the pool on a step or bench. Twelve hours after the start of the test the water level in the pool and the bucket should be measured for exact loss in each; logged in a journal with weather, humidity and pool temperature noted.

TEST #2. - The pool should then be filled back to the starting point. This time the filter system is to be turned off. Weather, humidity and pool temperature should be logged and a bucket of pool water filled to a predetermined level placed into the pool on a step or bench. Twelve hours after the start of the test the water level in the pool and the bucket should be measured for exact loss in each; logged in a journal with weather, humidity and pool temperature noted.

Next we would like you to repeat test #1 and test #2. Repeating the tests will validate the original measurements that were first taken. If the second static test or operational tests do not match the first readings, continue repeating the tests until you have consistent water loss measurements with the system off and the system on.

At the conclusion of the tests you should have a fairly accurate measure of the actual water loss. If the loss is constant, regardless of whether or not the filter system is in operation, then you may assume that the loss is in the shell of the pool. Underwater examination of the pool liner, light niches, fittings, and expansion joints will then be needed to locate the source of the leak.

If the leak is greater when the filter system is running, then you may assume that you have a break in the pool plumbing. Pressure tests on the pool plumbing will be required to locate the leak.

An alternative method to all this testing is to maintain the clarity of the pool through chemical application, and simply let the water level fall to a point where it stops. Once the water loss stops, look at the fitting(s) that it stopped at for the leak. This method is only recommended at the conclusion of the season and when all other methods have failed to locate the source of the leak.

After you have determined that you have a leak, you may wish to determine the actual gallons of water lost during a given period. The amount of loss will also aid our Construction, Service & CPO (Commercial Pool Operations) Departments in making a determination of the location and cause of the leak. Listed below is hypothetical data to show you how the calculation can be made.

There are 7-1/2 gallons in a cubic foot of water.
There are .63 gallons in a cubic inch of water.
There are .32 gallons in ½ cubic inch of water.

The Calculation for a 1" per 24 hour water loss in a 20x40 pool can be performed as follows:
20' x 40' = 800 SF
800 x .63 = 504 gallons per day (gpd)

To calculate your financial cost for the loss of water contact you local water municipality and as 'Volume Charge' for both water and sewer. The volume charge is given per **Ccf** (1 Ccf = 750 gallons).

A 20x40 pool losing 1" of water over a 120 day season will have a total water loss of 60,480 gallons (504 gpd x 120 = 60,480), or 80.64 Ccf (60,480/750 = 80.64 Ccf).

If the local municipality charges .75 cents per Ccf for water volume and $1.20 per Ccf for sewer volume then the combined cost is $1.95 per Ccf. Therefore the actual cost to the homeowner for the loss of 1" of water per day during the season is $157.25 ($1.95 x 80.64 = $157.25).

Locating a leak is one of the most frustrating and time consuming tasks that we perform. Seldom is a leak to be found in only one spot. Several years ago we resolved the leaking from the pool at a local apartment swimming pool. We located a leak around the vacuum fitting of the pool and made a repair. Further testing showed that we had slowed the leak, but had not resolved the problem. We then went to the four pool lights. Again a leak was detected and repairs executed. Water loss tests again showed that we had slowed the leak but not stopped it. Upon close inspection of the pool skimmers, cracks were found. Upon completion of repairs to the pool skimmers, the leak stopped. The resolution of the problem at the apartments took eight (8) weeks of testing and subsequent repairs to resolve. Knowing how much you are losing and the actual cost of the water lost will aid you in making a determination whether to located and stop the leak. Once you elect to seek out the cause of the water loss, patience will be necessary to locate the leak(s) in your facility.

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