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In-Ground Automatic Sprinkler Systems

A GUIDE TO HIRING A CONTRACTOR - DO'S AND DON'TS OF SYSTEM INSTALLATION AND MAINTENANCE

As a result of performing water evaluation surveys on 12 pilot sites in Nassau County, Cornell Cooperative Extension of Nassau County has been able to compile information for the consumer on hiring an irrigation contractor. A trained, reputable contractor is vital to the installation of a new system or the reworking of an existing system to incorporate state of the art technology. Properly installed, an in-ground automatic system will irrigate a landscape efficiently while also conserving water, a precious resource.

Irrigation Contractor

A Certified Irrigation Contractor is a person who is certified through The Irrigation Association, 6540 Arlington Blvd., Falls Church, VA 22042. A person must attend classes, pass an exam and subscribe to a Code Of Ethics. Having this certification is a symbol of notable achievement to those who qualify.

Here on Long Island, many irrigation contractors have qualified and are now part of the list of **Certified Irrigation Contractors** published by The Irrigation Association. This list is on file and will be made available to those who request it.

Price

Don't let the price of installing a sprinkler system be the only determining factor in hiring a contractor. The cost of in-ground irrigation is based upon the size of the property, the type of irrigation installed (conventional in-ground sprinklers, drip irrigation, or a combination of both), the number of zones needed to irrigate the property and the controller box used to manage the watering time for each zone.

Design

A poorly-designed irrigation system will cause constant maintenance problems and improper/wasteful watering of plants (high water bills). Clients should receive a design layout of their property indicating the location of the sprinkler heads along with a detailed material specifications list. This should be done BEFORE the system is installed. A performance specification sheet should be supplied to each client indicating the type of each sprinkler head installed. This sheet indicates the PSI (pounds per square inch - pressure) and the GPM or GPH (gallons per minute or hour). A system that is designed for your particular site may need additional zones to accommodate different types of automatic irrigation systems; conventional in-ground irrigation and drip irrigation.

A conventional in-ground sprinkler system (using spray heads and rotors) broadcasts water over-head across an entire area and is primarily used in lawns. A well designed system will incorporate state of the art sprinklers featuring precise spray patterns which will uniformly cover any given space without over spraying onto hard surface areas.

Drip irrigation is a system where water is applied directly to the soil surface or plant root zone, drop by drop. This type of system sits on top of the soil (although often covered with a mulch for aesthetics) and is used exclusively in bed areas where trees, shrubs, annuals and perennials are grown. Drip irrigation is ideal for container gardening. Specialty gardens (i.e. vegetables, roses, herbs) benefit greatly from an irrigation system that supplies water directly to the root zone, thereby reducing water waste and plant diseases, promoting deeper root growth, and reducing weed development.

Both types of irrigation can easily be incorporated at the same site with proper advanced planning.

Water Restrictions

A well-designed irrigation system will take into consideration the water restrictions the homeowner has to adhere to. When automatic sprinkler systems are installed, there is a related increase in water consumption. This more often than not is directly related to how the system has been laid out and installed. In some states, restrictions have been enacted to place limitations on the amount of water used. Here on Long Island, we are mandated to comply with our water restrictions. Nassau County sprinkling water regulations should be brought to the attention of the homeowner at the time the system is installed.

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Regulations:

- Water sprinkling is prohibited between the hours of 10 am and 4 pm.
- Houses with even numbered street addresses or no street addresses may water on even numbered calendar days.
- Houses with odd numbered street addresses may sprinkle on odd numbered days.
- The hours for watering are from midnight to 10 am and 4 pm to midnight.

This information should be posted on the controller box.

Installation

In addition to the basic pieces of irrigation equipment (sprinkler heads, valves, piping, and controller box), there are two components that are mandated by Nassau County and are to be installed as part of the initial sprinkler installation:

1. **Back-Flow Preventer** – This is a device that prevents the flow of water that has entered the irrigation system from moving back into the water supply system. This water can pick up chemicals and micro-organisms and can possibly travel back far enough to contaminate your drinking water supply.
2. **Rain Sensor** – An apparatus installed near a rain gutter on the exterior of the house and used to interrupt the programmed operation of the sprinkler system. This prevents the system from operating during or just after a rainfall.

A one-year warranty on parts and workmanship on newly installed systems is an accepted practice.

Check valves should be installed in spray and rotary heads to eliminate puddling around the head and prevent low head drainage. This is especially needed in areas where there are elevation changes. Some manufacturers have this feature built into each head, others have it as an option.

A standard practice is to have the lateral lines (these are the pipes on which the spray heads are attached) installed anywhere from 8-12" deep. If rototilling is to be done in this area, the lines should be installed at 12" deep and only a 8" deep rototiller used. If deep rototilling will be done on a regular basis (installation of rose or perennial garden or the maintenance of a vegetable garden) then drip irrigation is in order. Since this type of irrigation sits on top of the soil, it can be easily moved and replaced after work has been completed.

Clients should be instructed how to make simple head adjustments and the appropriate tools should be supplied by the contractor to accomplish this. More complex problems should be directed to the irrigation contractor to repair.

Controller Box

The essential purpose of a controller box is to deliver the right amount of water at the right time. The controller box sends a signal to each individual valve signaling it to be turned on or off. You may wish to choose a box that has additional unused zones or stations, allowing expansion for the future. Choose a controller box that will have the greatest flexibility. Ask your contractor to show you a variety of controller boxes and have him/her explain their operation.

Once the controller box is chosen, the location of each zone and the zone run time should be recorded by the contractor on the controller box panel. To efficiently water your landscape, your controller should have the following features:

- **Multiple Programs** – This feature allows you to have several programs for different needs. *Program A* waters your lawn (one inch of water per week that is beneficial to most plants.) *Program B* irrigates the trees and shrubs using drip irrigation. The vegetable garden can be on *Program C*.

- **Repeat Cycles/Multiple Start Times** – This feature allows the zone to be irrigated at 4 am and again at 6 am. This allows water a slow penetration into soils where there is a higher than optimum clay content. Runoff is avoided by having the application of water divided. This is a desirable feature with newly seeded lawns.

- **Multi-timer Ranges** - In order to have a conventional in-ground system and a drip system monitored by the same controller box, the range in time has to be flexible. A time range of 1 minute to 9 hours allows both systems to be monitored by a single controller box.

- **Watering Days** - With this feature, you will have the ability to irrigate on a specific day of the week, odd days or even days.

- **Day Clock 14, 30 or 365** - This is for the convenience of odd-even day of the month watering. Works with the above Watering Days feature.

- **Water Budgeting or Percent Key** This allows the program to be increased or decreased due to seasonal temperature without changing the original program. In July, a zone will irrigate the turf for 20 minutes instead of 15. During the months of September and October, output will decrease by 25%.

Choose the controller box which is easiest for you to operate.

General Information

General guidelines to be aware of regarding sprinkler systems:

- Zones should be set up to irrigate either the lawn or the planting beds, never both together. Lawns need a greater amount of water than your established plantings. Drip irrigation installed in the beds applies water directly to the soil where it is needed. (The addition of a 2 1/2"-3" layer of mulch will slow the evaporation of moisture from the soil and prevent the growth of weeds.)

- Avoid sprinkler runoff onto hard surface areas. It is wasteful.

- Since different sprinkler heads deliver water at different rates, there should be only one type of sprinkler head for each zone.

Maintenance

An irrigation contractor can be hired to maintain the system or the homeowner can make a quick check of the installed system monthly during operation. Routine examina-tion will inspect for clogged heads, broken heads, sunken or tilted heads or heads obscured by vegetation.