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My friend Jack and I thought we were prepared to enter the Pacific Ocean recently in kayaks. It seemed like the perfect opportunity to explore the dry tropical Costa Rican coastline. While taking in the magnificent landscape, we were learning more about water thrifty plants that are also found in Florida.

The new kayak rental entrepreneur on our protected beach convinced Jack and me that the surf conditions were the same down the beautiful coast visible in the distance from a nearby overlook. So off we paddled a few miles to the next cove past sheer volcanic rock walls with trees projecting out of cracks. As we approached, the beach was obviously much different from the one we left an hour earlier, exposed to the wind and ocean with large swells and surf a couple hundred yards off the beach. The beach and surrounding hills were as beautiful as we imagined and we were determined to get a close look.

We decided to paddle hard and try to stay ahead of the waves but to no avail; we were quickly separated from all our gear and kayaks. Swimming was not an option, but we found the surf moved us toward the beach where we soon washed up tired and frustrated; so much for a tranquil ocean paddle.

Back now in Florida, well rested and mindful of the need to regulate businesses where health, safety and welfare are concerns, I am ready to continue working with the Society’s board to leverage the strengths of our industry to further improve the value of our services in the market. Opportunities for our members will increase as pressure mounts on Florida’s water resources. The easy to access high quality water is encumbered, primarily reserved for utilities, agriculture and the environment. The water management districts have targeted landscape irrigation for significant water consumption reduction.

Our industry will play a key role in satisfying the demand for more water thrifty landscapes. Environmental scientists are establishing water quality and quantity metrics that we will be required to achieve. The built and natural landscapes will need to perform more functions to achieve these metrics. This important work needs to be done by well qualified industry professionals. The current redundant local contractor regulation is burdensome to our businesses and not as effective as it should be. Streamlined regulation at the state level would allow us to focus more on ensuring that our services meet the health, safety and welfare requirements of our customers and the regulators. Our businesses would perform better with statewide irrigation contractor licensing.

The Society will continue to provide educational programs to prepare our members for the emerging market opportunities. The board will also work closely with the regulatory community to assure rules and regulations will be effective. Board members on the front line for these efforts include Spencer Phillips, chair of the education committee; Matt Eaton, chair of the statewide contractor licensing committee; and Larry Lentz, chair of the governmental affairs committee.

We need to hear from you about the challenges you face in your business and how we can work together to enhance opportunities for our entire industry. Please take the time to send us an email. There has never been a better time for you to make a difference in your business and industry; to reach out to your elected officials, to contact your local regulators, and to attend classes provided by the Florida Irrigation Society, as well as other organizations and manufacturers.

And to finish my story, after returning safely to the resort at which we were staying, Marvin, the resort activities director, told me the beach kayak entrepreneur was not licensed or insured. Marvin added, “Sir, no human has ever done what you did; people die every year swimming on that beach.” Who can you trust? The water is great; prepare now and jump in!

Kevin Cavaioli
WIRELESS ET CONTROL

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The FIS Southwest Florida Chapter recently did a charity landscape and irrigation renovation at the Charlotte BMX track. Since this renovation, the rider count on their practice night has doubled and, on race day, the rider participation had tripled. The rider’s parents have expressed their satisfaction with the renewed energy for volunteering at the track. The track has been approved for the Sunshine State Association (SSA) BMX Qualifier event on April 1-3, 2011, drawing between 2,000-3,000 people from around the state.

In addition, the FIS Southwest Chapter has donated $500 to veteran Jim Yowell of North Fort Myers. His home caught fire just one month after the passing of his wife. The fire was so intense that his home was a total loss, and fire investigators say an electrical malfunction may have been the cause.
CHAPTER & INDUSTRY NEWS

Water Managers May Call for Voluntary Cutbacks

South Florida residents should voluntarily reduce landscape watering and prepare for tougher, mandatory cutbacks if drought conditions worsen, South Florida water managers said in late March. The South Florida Water Management District’s board approved a "water shortage warning" that calls for starting with voluntary cutbacks for the entire region stretching from Orlando to the Keys.

About half of South Florida’s public water supply ends up getting used for landscape irrigation, according to the district. The district’s action comes as Broward County and eastern Palm Beach County are facing "extreme drought" conditions according to the National Weather Service in Miami.

South Florida averaged just .34 inches of rain in February, which was 15 percent of the average rainfall and the third-driest February in almost 80 years.

FIS Chapters Elect Leadership

The FIS Volusia County Chapter recently elected its 2011 Board of Directors:

- President, Brian Walker
- Vice President, Randy Heimsoth
- Treasurer, Dale Nimmo
- Secretary, Hugh Young
- Board of Directors, Jeff Lancaster

The Northeast Florida Chapter recently elected their 2011 Board of Directors:

- President, Kirk Wurster
- Vice President, Jim Young
- Secretary, Kevin Valentine
- Treasurer, Robert Sanford
- Board of Directors, Scott Hulihan
- Board of Directors, Charlie Binninger

www.fisstate.org
Rain Bird partnered with The Greenwater Foundation in support of its Groundwater Guardian Green Site program, an initiative that encourages the sustained use of groundwater-friendly practices and recognizes green space managers for their groundwater stewardship.

Started in 2007, the Groundwater Guardian Green Site program’s goal is to educate the public about the importance of groundwater protection by recognizing green spaces such as golf courses, sports fields, natural areas, educational and office campuses and parks for their advances in groundwater protection and environmental stewardship. Participating sites learn how their practices can impact the environment, receive educational updates and resources, connect with other site managers and water experts and demonstrate groundwater and environmental stewardship within their communities.

In order to attain the exclusive Groundwater Guardian Green Site designation, site managers must document responsible use of chemicals and water, pollution prevention and water quality protection. Each applicant is evaluated according to current pesticide, fertilizer and water use practices, pollution source management, water quality protection and environmental stewardship.

“The Groundwater Guardian Green Site program goes hand-in-hand with Rain Bird’s Intelligent Use of Water philosophy and complements many of the company’s existing initiatives aimed at educating the industry and public about the need for environmental stewardship through efficient water use,” said Rain Bird’s director of corporate marketing, Dave Johnson. “In addition to providing half of our nation’s drinking water, groundwater is also a primary source for irrigating the food we eat, making the protection of groundwater reservoirs from contamination and depletion of vital importance to the sustainability of our current and future water resources. It is through partnerships such as this that Rain Bird strives to help raise awareness of key issues and further the protection of all of the planet’s available water resources.”

The Groundwater Guardian Green Site program is open to anyone who manages or maintains a green space that currently implements groundwater-friendly practices. Potential sites are encouraged to get involved in the Groundwater Guardian Green Site program by downloading the program application at www.groundwater.org/gg/greensites.html.
Digging Better Than Ever

Ditch Witch® launched its most durable cupped digging teeth to date earlier this year: DuraTooth™ and DuraTooth C2X™. The DuraTooth has up to 35 percent more tungsten carbide—on the surface, in the base metal, and in the weld—than any other standard cupped tooth. Tungsten carbide protects the cutting edge, where the greatest impact from the soil occurs, to ensure greater durability and performance. The new DuraTooth C2X is the company’s premium digging tooth, featuring tungsten carbide on the front, back, and cutting edge—up to 70 percent more tungsten carbide than that of any tooth on the market.

In field tests, the DuraTooth C2X lasted twice as long as other digging teeth in various soil conditions—a return on investment that no competing tooth can match. To find out more, please visit www.ditchwitch.com.

The new DuraTooth and DuraTooth C2X are manufactured as part of a complete Ditch Witch digging system that includes the trencher, chain, teeth, and sprockets. All components are designed and specially manufactured to work together as a system for optimal performance.
Legislative Update: Irrigation Contractor Licensing Heard by Florida Senators

The Florida Irrigation Society’s legislative consultant, Rutledge, Ecenia & Purnell, P.A., arranged for Matt Eaton, Vice President & Legislative Affairs Committee Chair and FIS President Kevin Cavaioli to present the need for statewide irrigation contractor licensing to the Industry Regulation Committee of the Florida Senate in Tallahassee in February. The senators were interested in how deregulation on the local level would reduce the costs and burdens on our small businesses, while improving environmental and consumer protection with a consolidated code and licensing at the state level. This is how most other trades have been regulated the past decade in Florida.

Also, Senator Thrasher from Jacksonville spoke in support of examining our issues further, as they are consistent with the Legislature’s mission to create jobs and reduce duplicative regulation. Senator Sachs from Palm Beach County and Senator Dean representing 13 mostly rural counties on the north Gulf Coast to Georgia, were concerned with the impact on the nursery and agricultural industries. Matt Eaton and the Florida Building Commission's attorney assured the senators that there are current regulations and exemptions in place and that these industries are not included in the Society’s regulatory request. Several senators appreciated that streamlined irrigation contractor regulation will reduce landscape water consumption, thus protecting our environment and reducing future water cost increases.

In addition, President Kevin Cavaioli made a presentation to the Committee of Regulatory Industries in Tallahassee. Senator Jones of Pinellas County chairs this committee, and the presentation was met with much interest with at least half the panel weighing in with comments and questions. Vice President Matt Eaton has asked our legislative consultant to seek an interim study during this legislative session. This interim study would have legislative staff surveying stakeholders such as governmental agencies, other state licensed contractors, and Florida Department of Business and Professional Regulation. They would talk to anyone who may have anything to say regarding our initiative and hear all the different opinions pertaining to statewide irrigation contractor licensing. If the findings are in support of our initiative, the Society could then ask for our legislation to be proposed for next session.
UPCOMING EVENTS

APRIL 2011

April 5
Tampa Bay Chapter Meeting
CDB’s Southside, Tampa

April 7
Introduction to Landscape Irrigation Maintenance in Florida,
8am-5pm
Volusia County Health Dept., Daytona

April 8
Technology and Practices for Water Conservation in Landscape Irrigation
8am-Noon
Volusia County Health Dept., Daytona
Landcape Irrigation Rules & Regulations 2011, 1pm-5pm
Volusia County Health Dept., Daytona

April 9
Tampa Bay Chapter
16th Annual Golf Tournament
The Eagles Golf & Country Club, Odessa

April 10
Northwest Florida Chapter Meeting
Ed’s Legendary Seafood & Steaks, Niceville
Palm Beach Martin County Chapter Meeting
Duffy’s Sports Grill, North Palm Beach
Volusia Chapter Meeting
The Clubhouse Restaurant, Daytona Beach

April 11
Central Florida Chapter Meeting
International House of Pancakes, Orlando

April 12
Northwest Florida Chapter Meeting
Ed’s Legendary Seafood & Steaks, Niceville
Palm Beach Martin County Chapter Meeting
Duffy’s Sports Grill, North Palm Beach
Volusia Chapter Meeting
The Clubhouse Restaurant, Daytona Beach

April 13
Central Florida Chapter Meeting
International House of Pancakes, Orlando

April 14
Irrigation Auditing Training,
Southwest Florida Water Management District Brooksville Office, Brooksville

April 15
Irrigation Auditing Training,
Southwest Florida Water Management District Brooksville Office, Brooksville

April 16
Southwest Florida Chapter Meeting
MacDaddy’s, Fort Myers
Northeast Florida Chapter Meeting
Location TBA

April 17
Irrigation Contractor Licensing Exam Prep Course for Prometric Exam,
Duval County Extension/City of Jacksonville, Jacksonville

April 18
Southwest Florida Chapter Meeting
4th Annual Golf Tournament, Westminster Golf Club,
Lehig Acres

MAY 2011

May 3
Tampa Bay Chapter Meeting
CDB’s Southside, Tampa

May 10
Northwest Florida Chapter Meeting
Ed’s Legendary Seafood & Steaks, Niceville
Palm Beach Martin County Chapter Meeting
Duffy’s Sports Grill, North Palm Beach
Volusia Chapter Meeting
Clubhouse Restaurant, Daytona Beach

May 11
Central Florida Chapter Meeting
International House of Pancakes, Orlando

May 18
Northeast Florida Chapter Meeting
Location TBA
Southwest Florida Chapter Meeting
MacDaddy’s, Fort Myers

JUNE 2011

June 7
Tampa Bay Chapter Meeting
CDB’s Southside, Tampa

June 8
Central Florida Chapter Meeting
International House of Pancakes, Orlando

June 14
Northwest Florida Chapter Meeting
Ed’s Legendary Seafood & Steaks, Niceville
Palm Beach Martin County Chapter Meeting
Duffy’s Sports Grill, North Palm Beach
Volusia Chapter Meeting
Clubhouse Restaurant, Daytona Beach

June 15
Northeast Florida Chapter Meeting
Location TBA
Southwest Florida Chapter Meeting
MacDaddy’s, Fort Myers

FOR MORE INFORMATION, PLEASE VISIT WWW.FISSTATE.ORG OR CALL JENNIFER AMAROSA AT 813-839-4601.
ow is your company adapting to the market change? Have your new construction projects been put on hold? Have bids become tighter as the opportunities have diminished? Have your margins on traditional offerings begun to decline?

Now is the time for you to take a serious look at your business mix and start thinking about new opportunities than can leverage your existing strengths. Whether you’re a landscape or irrigation contractor, you should consider landscape lighting as a new source of revenue in a changing market.

If you start reviewing your customer list, you will recall fantastic customers that were very happy with the work you performed for them on their most prized possession – their home. You will also be reminded how many of these customers’ landscapes could be quickly and easily improved with additional amenities like landscape lighting. It’s time to go back to these customers and sell them new enhancements.

The hottest trend in major design magazines is “outdoor living” – where outdoor spaces are transformed into rooms that are used for entertaining family and friends or enjoying a relaxing evening at home. Lighting is a natural fit with this trend as homeowners seek to extend their enjoyment of these spaces into the hours after dusk. Your company can be the solution provider by pointing out the benefits of a quality lighting installation:

- **Beautification:** landscape lighting enhances the architectural features of a home, enhances texture and eye-catching detail. It creates a welcoming, resort-like appeal.
- **Usability:** lighting extends the enjoyable time spent outdoors. Patios, pools and play areas become entertainment venues or relaxing places to unwind.
• **Safety:** a well-lit landscape guides visitors safely around a property.
• **Security:** lighting eliminates dark shadows and areas where potential intruders can hide.
• **Value:** well-designed lighting enhances the value of the property by adding nighttime curb appeal and a marvelous first impression.

As consumers spend more time at home they are looking to improve the value and utility of their home. What better way to do it than to offer lighting? It is much easier than you think, and very profitable.

**Maximize Your Margins on Each Project**

Savvy contractors are learning in a tougher market that it pays to squeeze more margin from each project. Since you’re already on the job site with your workers and equipment, it pays to offer up additional options that can be sold “a la carte” to make the property stand out from the others in the neighborhood.

“A la carte” options are just like the delicious things you might find on a restaurant menu. Instead of just offering sandwiches, you also sell appetizers, salads, drinks and desserts. In a similar way, you create a menu of add-ons that can include additional services like lighting.

Winning the order for add-ons requires you to be bold in your selling techniques. Don’t just ask the customer “can I give you a price on lighting too?” Instead, include in your packet a suggested estimate with a specific listing of features and benefits. You are doing your client a favor by pointing out an item that they may want to buy, but have not thought about it.

A smart contractor reported a 40% sales success rate simply by offering a landscape lighting price quote and
brochure together with a landscape installation bid. Those are great odds for a small amount of extra work in bid preparation.

Get Your Crew Ready to Install Lighting

If you’re doing any irrigation, landscaping, hardscaping or maintenance, you have all the tools and equipment you need right now to be successful in lighting. You could probably handle a basic lighting installation without attending a class. However, classroom training can help you learn important lighting techniques and industry practices that will help you install a higher-quality project that generates instant referrals.

The off-season is the ideal time to attend a seminar that will provide all of the information you need. Lighting manufacturers and distributors offer helpful one-day courses that can help you and your crew be more successful in designing, bidding, installing and maintaining lighting projects. Your distributor can also put you in touch with manufacturer personnel that will help you complete your first project from design to installation.

Advertising Landscape Lighting Services

Since lighting is an easy sell to your customer base that already has confidence in your workmanship, make certain to include information on your lighting offering in your billing statements, company newsletter and web site. You will find a steady stream of leads simply by letting your customers know what you offer.
Each project you install will also be a ready source of referrals. You will find that proud homeowners will become your biggest advocates as they show off their new lighting to visitors and neighbors. Take time to send these customers a letter to let them know that you would appreciate knowing the names of any of their friends that might also be interested in landscape lighting.

In years when the weather is wet and other services are harder to sell, you’ll want to have a plan on-hand to maximize sales with lighting. Many smart contractors find that when it is too wet to move earth or install irrigation that crews still can successfully complete lighting installations. Consider extra promotions and advertising to attract an even larger group of lighting customers during wet years.

Be proactive in preparing your company for a changing market environment. Attend a class in landscape lighting and learn about how it can help you insure a more successful season.

Cruz Perez is Vice President of Marketing for Vista Professional Outdoor Lighting and can be reached at 805-527-0987 or cperez@vistapro.com.
Irrigation professionals have been using various grounding grids for electronic equipment for over 30 years. Some rare corrosion occurrences have been reported to bare copper grounding conductors recently. Other reports of premature corrosion of zinc ground plates have been reported in the past. This article discusses the theory of this subject and offers possible solutions and improvements to the specific potential corrosion problems.
Only a few different metals and metal alloys are used in the electrical circuits of irrigation systems. Wire conductors are usually made from copper, tinned copper or aluminum. For protection from lightning and power surges, grounding, bonding and shielding circuits use copper wire, copper ground plates and copper-clad ground rods.

Corrosion of underground metals is an electro-chemical process caused by stray electrical currents flowing in the ground. “Corrosion cells” cause the electrical current flow. A corrosion cell is a condition that can be created when:

- A metal surface is in contact with a dissimilar metal. For example, if a galvanized steel structure is grounded to an electrode using copper wire; corrosion will be created at the point where the copper meets the galvanized steel.
- A metal is in contact with soils with dissimilar chemistry. This typically happens when a ground rod is driven into the earth and it intersects more than one layer of soil.
- A metal is in contact with similar soils with dissimilar oxygen content, usually caused by excavation. Trenching causes oxygen to mix with the soil.

**TYPES OF METALS**

When dissimilar metals are in contact with each other, a small current flows from the metal that is more “anodic” to the more “cathodic”. The further apart the metals are on the table shown, the higher the current flow, and the faster the corrosion takes place.

From this information it can be assumed that: Copper ground plates are more corrosion resistant than zinc ground plates. Zinc ground plates should never be used for irrigation purposes because they corrode too quickly.

Bare copper wire is more corrosion resistant that tin coated copper wire. Copper wire is tinned to make it more tarnish resistant and to facilitate soldering. This is usually done when the wire needs to be soldered to printed circuit boards.

Generally speaking, copper is almost impervious to corrosion, from most soils, due to its “noble” nature. This is evident from the countless well-preserved copper artifacts, some more that 5,000 years old that have been recovered in many parts of the world.

**ENVIRONMENTAL CONCERNS & SOLUTIONS**

Copper is believed to be the best choice for all uses in irrigation systems. There are situations where even copper corrodes, when exposed to certain environmental conditions.

Corrosion cells in irrigation systems are more likely to be created when:

1. A grounding electrode, usually a copper-clad ground rod or copper ground plate, is surrounded by dissimilar soils. Figure 1 shows a ground rod that is driven into the earth, intersecting three layers of dissimilar soil. This is a normal occurrence. Soils type 1 & 3 are anodic while soil type 2 is cathodic. The ground rod will experience corrosion along a section of the cathodic side of the center of each corrosion cell. The highest concentra-
tion of corrosion will be experienced at the point where the two different soils meet and will diminish with distance. Corrosion will become minimal within a few feet of each corrosion cell. Some ground rod manufacturers publish a life expectancy of between 5 and 30 years. The huge difference is due to the wide range of possible soil conditions and the electric current flowing at the ground rod location.

2 A metal in contact with soil that has a differential aeration (oxygen content) of adjoining soils will be exposed to potential corrosion cells. Figure 2 shows a ground plate installed in uniform soil. The soil under the ground plate is undisturbed, but the soil on top of the ground plate contains more oxygen because it is tilled backfill material from the trenching process.

3 Figure 3 shows a ground plate installed with a carbon-based soil amendment to achieve lower resistance-to-earth (~40% reduction.) The ground plate is connected to the irrigation controller with a bare copper grounding wire, partially surrounded by the soil amendment. The natural soil is uniform. Because the natural
soil is very different from the soil amendment, a corrosion cell can form at the point where the bare copper wire exits the soil amendment. It would be advantageous for the copper conductor connecting the ground plate to the controller to be insulated.

Figure 4 shows a ground plate connected to a controller with a green-insulated copper conductor. When surrounding copper electrodes with soil amendments, caution must be taken to make sure that no bare copper is in contact with the natural soil, disturbed or undisturbed. The layer of soil amendment material should have a minimum thickness of 1-inch in order to achieve low earth resistance characteristics and to eliminate the possibility of exposing any bare copper. Exposed bare copper will result in a corrosion cell, as shown in Figure 4. And, the smaller the exposed surface, the more concentrated the corrosion cell will become.

THE GENERIC SOLUTION

Figure 5 shows a copper ground plate that is connected to the irrigation controller with an insulated copper-grounding conductor. All the bare copper (and
some of the insulation of the grounding conductor) is completely surrounded by a soil amendment. Since all the bare metal is in contact with exactly the same type of soil (amendment), the probability of creating a corrosion cell is virtually eliminated.

**PRACTICAL SOLUTIONS**

It is necessary to apply the information contained in this article to both conventional and Decoder/2-Wire/2-Core irrigation systems. On conventional systems, all ground grids are located at the controller locations. On Decoder/2-Wire/2-Core irrigation systems it is necessary to ground the controller(s) and the decoders/electronic receivers.

**GROUNDING CONTROLLERS**

The following details show the proper methods for grounding irrigation controllers and other electronic equipment (weather stations, interface units, etc.) The ground rod
can also be surrounded with PowerSet® to minimize its corrosion and enhance grounding. This can be accomplished by boring a 4” diameter hole slightly deeper than the length of the ground rod. Also shown are details on how to bond ground grids to each other. The bonding wires are then used for shielding the other underground wires from lightning surges.

GROUNDING DECODER SYSTEMS

Figures 6 and 7 show the proper methods for grounding decoders and other electronic equipment in Decoder/2-Wire/2-Core systems. Also shown are details on how to bond ground grids to each other. The bonding wires are then used for shielding the Decoder/2-Wires/2-Core cables from lightning surges. Figure 6 is for a decoder with an integral lightning arrester and that incorporates a ground wire. Figure 7 is for a decoder/receiver that uses external lightning arresters.
What may appear as "crack lines" in PVC fittings is actually a perfectly normal, and harmless, result of the injection molding process by which plastic moldings are made. In a good-quality fitting, the line appears on the side of the fitting, never in the crotch.
When assembling a plastic irrigation system and what appears to be a crack in one of the new just received fittings is noticed, the next step is to check all of the other fittings in the supply bin. They probably all have 'cracks' in them. The next concern is whether all of these fittings are defective.

The first thing that should be considered, before panic sets in, is what is known as the 'knit-line' in the injection molding business. It may also be called the 'weld-line' or 'bond-line'. This marking is found on many fittings but is more faint on some. This line is the natural result of the flow of the semi-fluid plastic through the mold during the manufacturing process. So, just how does this injection molding process work and what causes these 'knit-lines'?

Injection molded fittings are produced by large machines that feed raw plastic stock, in powder or pellet form, into a giant feed screw. This large feed screw, which resembles an old fashion meat grinder, rotates within a barrel and compresses the plastic by heat generated mainly by friction. At the outlet of the barrel, the molten plastic is pushed, or injected, into a metal mold. Since all fittings are cylindrical in shape, the filling of the mold with molten plastic is the cause of the knit-line.

The hot melted plastic flows into the mold cavity and is diverted around a core, or piece of metal, that forms the internal passage of the fittings. A line is created as the separated molten plastic flows around the core and bonds or knits together. The line is the result of the cooled skin effect on the leading edge of the flow. This is similar to what would happen with molten lava - the exterior is dark and semi solid while the interior is still hot and molten.

The knit-line is formed by the joining of the leading edges of molten plastic flowing around a core. It is located on the side of the fitting opposite the gate or sprue. The gate is where the plastic is introduced into the mold and can usually be identified by a bump or dimple on the surface of the fitting. The knit-line tends to be more obvious on the darker fittings, like the gray Schedule 80, than on fittings made of white material.

The knit-line is not a crack even though it may be very prominent; it is, however, susceptible to being the most vulnerable area in the wall of a fitting. Proper design of injection-molded fittings will place this feature in an area that has low stresses applied by the system pressures. Under extreme pressures, the fitting may crack along the knit-line. This occurrence is infrequent and only under high pressures.

By placing the knit-line in an area that does not experience high stress from system pressures, the effects of the weak point are minimized. The crotch, of elbows and tees, is exposed to the highest stress; careful manufacturers will not allow the knit-line to occur in this area.

If there is suspicion of having a cracked PVC fitting, look first for the sprue. If a crack is visible in the side of the fitting opposite the sprue and it is not in the crotch area, it is more likely a knit-line! Remember the knit-line, bond-line, or weld-line is on the opposite side of the fitting from the sprue or gate mark.

The "bond line" on the 3-inch PVC fitting (above) has been marked for visibility in the photo. All thermoplastic fittings will have a bond line on the side opposite the gate impression ("sprue"). Often mistaken for a crack, the bond line should never be in the crotch of PVC fittings.

**CASE STUDY**

John Thompson (not his real name), a landscape contractor for many years, had a problem. During most of his career, he had been using PVC pipe and PVC fittings that had performed satisfactorily. Now he was puzzled.

He'd been working on a new addition to a golf course installation he'd completed about two years ago. When he ran a test of the whole system, on of the two-year-old fittings, a simple ell had cracked wide open. Once the ell was replaced, the system worked well.
That afternoon, John sat at his desk staring at the cracked fitting. Surrounding it were brand-new fittings taken at random from his stock. Every one of the new fittings had a crack line. Or, so it seemed to John. John's experience is typical of many sprinkler system installers. For that matter, many countermen at wholesale supply houses have a similar problem.

**Here's why the line is there at all:**

PVC fittings (and those made of other thermoplastics, as well) are molded by injection. To visualize the process, imagine two short lengths of metal tubing; one, with a small diameter, is placed inside the other, which has a large diameter. The space between the two diameters, if filled with liquid plastic which hardens when cooled, would produce a third length of tubing - in plastic.

Now, visualize the same two pieces of metal tube-within-tube, but capped at both ends. How would you get the liquid plastic inside the outer tube to form around the inner one?

In your mind's eye, bore a hole through the wall of the outer tube. What you now see is a simple injection mold. The liquid plastic can be injected through the hole, or, as it's actually called, the "gate." The plastic will flow around the inner tube both clockwise and counter-clockwise; the flow will meet at a point directly opposite the injection point and, as the plastic is cooled, the two flows will "bond" or "knit" together. Right there is where the finished, molded part will have a line. It's called a "bond line" or, sometimes, a "knit line." On the opposite side of the injection-molded part will be the impression of the gate through which the plastic was injected. (The gate-impression is called a "sprue".) The bond line is not a crack, even when it's very prominent. However, it is the point of least resistance in the fitting. If the fitting is somewhat weak under pressure, it will crack or split along the bond line.

That is why most careful manufacturers of fittings design their molds so that the gate is at the side of the fitting. That way, the bond line is at the opposite side; never in the crotch of an angled fitting. For it's at the crotch that stress is greatest.

The next time you're working with PVC fittings, look for the sprue of gate mark; it's a circle or a round dimple and it should be on the side of the fitting. That tells you the fitting is side-gated. If the sprue is on the end or the elbow, the fitting was end-gated, and the bond line will be in the crotch. Watch out!

What happened to John Thompson and his problem? He took all his "cracked" fittings back to his wholesale supply house. Fortunately for both John and his supplier, the salesman for the fitting manufacturer just happened to be at the counter when John voiced his complaint. The salesman delivered his stock lecture on the difference between cracks and bond lines. Now John knows. So, we hope, you do too.

“Often mistaken for a crack, the bond line should never be in the crotch of PVC fittings.”
Speaking your mind and being rewarded.

That’s intelligent.

For the new, easy-to-use STP Plus Controller, you have yourself to thank. You spoke. We delivered. The new STP Plus offers user-adjustable intervals for 2nd, 3rd and 4th start times and a new wireless rain sensor connection, while maintaining our innovative at-a-glance, zone-based programming. Together we’ve made a great product even better. Now that’s The Intelligent Use of Water.”
Add a Little Color to Your Lighting:

COLOR FILTERS

THERMAL SENSING MONITOR

HEAT SINK TECHNOLOGY

LED TECHNOLOGY GIVES CUSTOMIZED OPTIONS

By Chris Split, FX Luminaire

Images courtesy of FX Luminaire.
Many designers and customers alike want the ability to change their light fixtures’ color and lumen output. Allowing for light filter adjustments opens a world of opportunity for changing output color to match the season, landscape growth and scheme customization in general.

A tree may start as green during the summer, and a green filter will enrich the glow of the light against the leaves. When autumn rolls in, swap to an amber filter and brighten the reds, yellows and oranges of the changing leaves. During winter months, when leaves are gone from trees and shrubs, a blue filter can strengthen the cold temperature of the natural bark and bring a new kind of beauty to a dormant landscape. You can even use the filters to add more glow to a green or brown plant with the matching filters, or cool off the colors on leafless branches and birches with the blue filter.

Gone are the days that LEDs only created one output or one color. Now, with improvements to the technology, much more color options are available by using a more neutral temperature output and adding filters. On top of color, light output has become even stronger. LEDs started as being low output and now have the capability of creating equivalent light outputs from as little as 10 watts all the way above 50 watts.

An even greater achievement in LED is the ability to swap out LED boards within the fixture. Designs that utilize the fixture as the basis housing now allow the light source to be changed much like changing lamps. Now when a tree or shrub increases in size over a period, a higher output LED light source can be changed out to accommodate lighting the new growth.

These technologies combined not only offer the landscape and user a myriad of options and adjustability, but also allow for seasonal maintenance and upgrade service. Change filters to match the season. Refocus lighting towards the plants that are more active in certain seasons. Instead of thinking of light as fixture specific, focus attention towards the capability of the light source itself and its capabilities.
Start saving energy the second a fixture is installed in the ground. There is a very important aspect to remember about LED technology: LEDs use 75% less energy than comparable incandescent fixtures. If a landscape is using incandescent lighting, then it is immediately overusing energy. Savings from an LED system start from the first time it is turned on. Educating users that LEDs use 75% less energy than comparable incandescent fixtures is a powerful statement.

An important feature to look at in any LED luminaire is heat management. LEDs do indeed create heat, and many are unaware of that. New LED designs focus heat away from the LED itself which is essential to long life and sustained color temperature. Choosing a luminaire that directs heat away from the LEDs and light source shows good design practice and promotes usability.

With it being said that LEDs do create heat, they do not come near as hot as traditional lighting. Once a halogen light has been on for some time, it is unsafe to touch because of the heat being generated. A plus to LED is that most fixtures will not become hot enough to cause an unsafe fixture. Instead of hiding lights away from touch or even not using them for fear of causing burns, choosing the right LED can dodge the issue entirely.

LEDs have touched many industries with great success due to their versatile design and improvements over traditional lighting. So far, we are just scratching the surface with their capabilities and the future is very promising for what is to come. Traditional lighting is still here and will be for some time, but with the way LED has grown as a technology year-over-year, it will someday become the dominant light source for the world. Lucky for us in landscape lighting, we are already taking advantage of its benefits.

If you have not yet tried LED, it is now a mature design that is ready for any landscape.
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Tom Super began his career in the irrigation industry in 1993 in the middle of citrus groves. “While growing citrus, I received a fast track education on the importance of a quality irrigation system,” he said. Since that time, Tom has gained what could be considered a PhD in the landscape irrigation industry having spent time in distribution, manufacturing and, ultimately, contracting.

“The secret to being successful on every front is educating yourself to the highest level.” When you are the expert, you gain automatic credibility. Nature’s Blueprint, Inc. was formed in 2005, and since, has grown to nearly 20 employees and blossomed into a full-service landscape contracting firm. “My staff and I are focused on quality, period! We will not sacrifice on efficient design, quality installation and the use of the best products. We continue to educate ourselves on the latest technology and promote continued education for ourselves and our employees.”

Tom is very involved in the Florida Irrigation Society serving as secretary on the Board of Directors. He is also Vice President of the FIS Southwest Florida Chapter. He has been a huge advocate of the state licensing initiative and has served on many committees throughout the years.

Giving back to the community is a big part of the culture at Nature’s Blueprint. Tom has instituted a matching donation policy within his company, where he will match contributions to charity causes made by his employees. “I feel we have enjoyed tremendous success, and should do our part to give back with the community.”

If I could give advice to other contractors, it would be simple. Do not under value yourself. Do quality work and charge for it. This will keep a good reputation in tact and keep you in business. The last piece of advice would be to have fun!
Every sales lead you receive comes at a cost. You spend a lot of time and dollars to generate new business. So why are you neglecting follow up?
In today’s climate, you would think that companies would be jumping on every opportunity. But many lack the systems and the motivation to turn inquiries into dollars. One of the best ways to sell more is simply to keep in touch with current customers and to do a better job of following through on the opportunities in the market.

One of my neighbors recently tried to hire a landscaper to install some new trees. He was surprised by the lack of response by professionals in a down market. He said he had to call three companies just to get one to return his call. One company promised to show up for an appointment and was never heard from again. The project went to the one that showed up!

So many of the companies (including the one I referred him to) squandered their marketing investments by dropping the ball. Even with beautiful brochures and websites, they couldn’t return a phone call.

Understand quality leads have a short shelf life. Customers are picking up the phone or clicking on your website because they want something now. Immediate need often means “wanted it yesterday”. People’s priorities shift based on what from day to day based on what life brings. What seemed to be a distant need is now “today”.

Procrastinating on follow up simply gives your competition a chance to get ahead of you in the sales race. If leads come to you directly, it’s your responsibility to follow-up immediately. If leads are filtered by others, get them moving faster. Think same day response.

Recognize opportunity appropriately. Sometimes leads don’t come in the form of a voice message or website form. Often they’re more subtle. For example, a customer might say, “I’d really be interested in landscape lighting like you did for Mrs. Searcy.” Sounds like opportunity, right? Dig deeper. Show interest. Decide whether now or later is the best time to follow-through. Then follow-through!

Follow a process. Many CRM (customer relationship management) software tools deliver their biggest benefit by pestering you to follow-through on leads. If you’re not using software, set up a simple system to turn warm clients into buyers. Find ways to re-engage with customers that you haven’t talked with in awhile. They’re often very glad to hear from you because they’ve been “meaning to call you” all along.

Don’t give up too early. My friend Derick is the model of persistence when he knows that he can help one of his customers. He instinctively follows what research has proven: it can take 7-12 contacts to make a sale. Remember that some customers take longer than others to get around to making decisions and to feel like they can trust you.

Use a calendar to remind yourself to stay in touch. And make use of new tools like e-mail marketing to make sure they stay up-to-date on your offering. Remember it’s not a “no” until they say so.

You’re busy. Your customers are busy. Recognize opportunity, then follow-up!

Marketing expert Jeff Carowitz leads a landscape industry marketing agency. Find him on LinkedIn or at Jeff@StrategicForceMarketing.com.
APPLICATION FOR 2011 MEMBERSHIP

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Person to be designated as Voting Representative: ________________________________________

Name/Company of FIS Member Sponsor: ______________________________________________

MEMBERSHIP CATEGORY

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<thead>
<tr>
<th>CLASSIFICATION</th>
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<tr>
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TOTAL AMOUNT ENCLOSED $ _______________

THE FIS ALSO HAS MEMBERSHIP CATEGORIES FOR SUPPORTING, ASSOCIATE, TECHNICAL, AND STUDENT MEMBERS. IF YOU FEEL THAT ONE OF THESE CATEGORIES IS APPROPRIATE FOR YOU PLEASE CONTACT THE FIS AT (800) 441-5341.

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6. Manufacturer’s Rep
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9. Registered Landscape Architect
10. Certified IA Designer
11. Operator of irrigation systems
12. Certified Water Evaluator
13. List Other Certifications: ____________________________________________

As a membership benefit, FIS will publish licensed contractor members (from counties that require testing) in the Membership Directory and on our Web Site (www.fisstate.org). If your business is located in a county that requires an irrigation contractor license through testing and you wish to be included in this listing, please provide us with your license number and county.

LICENSE #_________________________________  COUNTY______________________________

Have you or your company ever been a member of the FIS before? ________________________

If so, when and how was the membership listed? ________________________________

Are you a member of an FIS Chapter? If so, please name chapter. __________________

If application for membership is accepted, the undersigned agrees to comply with the bylaws and minimum standards and specifications of the Florida Irrigation Society.

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