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Briarwood Country Club's native areas were created by Paul Voykin and crew before they were cool.

FRONT COVER

Congratulations to Paul Voykin on his induction into the Illinois Golf Hall of Fame. Cover photo is one of the many golf holes at Briarwood that use native plants and non mowed areas to enhance the golf experience.

Photo credit: Luke Cella

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The Midwest Association of Golf Course Superintendents (MAGCS), founded December 24, 1926, is a professional organization whose goals include preservation and dissemination of scientific and practical knowledge pertaining to golf turf maintenance. We endeavor to increase efficiency and economic performance while improving and enhancing the individual and collective prestige of the members.

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All editorial and advertisement inquiries should be directed to Luke Cella, Publisher, *On Course*. 11855 Archer Avenue, Lemont, IL, 60439. (630) 243-7900 or visit www.magcs.org for rates and requirements. Statements of fact and opinion are the responsibility of the authors alone and do not imply an opinion on the part of the officers or members.

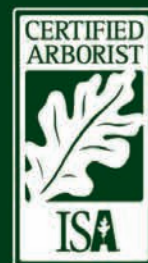


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Summertime Fun

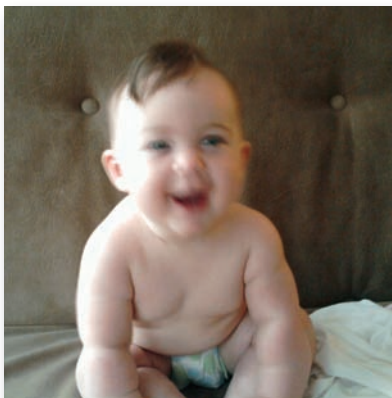
Luke Cella, our esteemed Executive Director, asked me if I could write a few pages for On Course. As a co-chair of the Editorial Committee I am responsible for content in the magazine. That was 48 hours ago and I thought long and hard about what to discuss and it came to me last night when I was getting my 7-month old daughter, Molly, ready for bed.

As golf course superintendents we are asked to give up much of our lives for the good of our employer and, by extension, the golf courses that we are tasked with managing. We wake up early, we stay up late, we have families, girlfriends, friends, and neighbors. In short, we have lives. I am currently in my fourth season as a superintendent and one of the most important things I've learned in that time is to know when NOT to be at work.

The reason we work the way we do is so that the lives we lead away from the golf course are possible. The reasons vary from person to person and none of us has the same life as the next. I recognize the need to be away from work throughout the year to be with my family. My wife, Tina, and I have two kids. Molly is seven months and Tom is three years old. I keep a file of images of my family on the computer at work and I look at them from time to time. My most recent visit to the file was the inspiration for this article.

As a new parent, I am preaching to the converted for those of you with children, no matter what age they are. I can say with a great deal of certainty that nothing can prepare you for having kids. Nothing. The advice will come from everywhere: Friends, family, neighbors, co-workers, strangers and acquaintances. Politely acknowledge the advice, smile and go about raising your children in the way you see fit.

The position I hold at Indian Lakes allows for a great deal of freedom in my schedule and it is our general manager's policy that no one works seven days in a row if it can be avoided. I know many of you reading this work every day and I won't attempt to change that. I will say that when I did that over the



last few years I stepped back and realized I had missed a great deal of my son's life.

I make a point of it now to bring Tom to the golf course on my day off (if we're able) as he loves playing in the sand traps, driving with me and the dog on the golf cart, and sitting on the machines. I will bring our clubs with us and we have a great time. On the occasion when that isn't possible or necessary we take advantage of Chicagoland as much as we can. The whole world is literally at our doorstep and much of it can be done on the cheap if you know how to work the system:

- The Chicago Public Library system has museum passes for each museum in town and you can check them out just like a book. Getting in two adults and up to 4 kids in for free is a great way to see the Museum of Science and Industry, Art Institute, Field Museum or the Shedd Aquarium.
- Chicago has one of the most extensive parks systems in the country. It could be argued that the Chicago lakefront is unique among virtually every other city in the world in that it is wide open for the citizenry to

enjoy. Furthermore, there seems to be one playground per block in many neighborhoods both in the city and in the suburbs. These places offer fun, free entertainment as well as good exercise for both you and the kids.

- The Lincoln Park Zoo is free and accessible by public transportation. If you haven't seen the ComEd Zoo lights at Christmas you don't know what you're missing.
- A two-year membership to The Brookfield Zoo is \$177 and pays for itself after the second visit. Tom and Molly enjoy

(continued on page 5)

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going and I love seeing them experience the wildlife and habitat the park offers. My father, George, is a volunteer and we try and co-ordinate our visits with his shifts so the kids can see their Grandpa. There is a METRA stop right next door, which makes the zoo even more accessible.

- All of us have a driving range or mini-golf course within a short drive from home and while that is never free, it is a great way to whack some balls and it is relatively inexpensive. I will tell you the kids have to be 3 or 4 before they can be trusted with a busy driving range. I speak from experience here.

These are just a small sample of some of the great experiences available to all of our families in Chicago and the suburbs. I didn't even mention the Morton Arboretum, the forest preserves, bike paths and trails, and other public facilities that dot our landscape.

Don't forget to take some time for yourself. I play in a golf league once a week to have a little "Chuck time" though work is frequently discussed during play. Tina has yet to find her 'thing' away from the kids and me. Your spouse or significant

other needs to have a life outside of the family. I encourage Tina to find time with friends away from the home. Some other things I think "we" as a collective profession need to do better is to schedule and keep regular doctor's visits and get involved in our own communities. Some group near your home needs your help. Hopefully all of us have employers who encourage us to be with our families and to spend time away from work. The real lesson to remember is that, despite all evidence to the contrary, we work to live. It shouldn't be the other way around. -OC



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FEATURE I

Dean MacMorris, *Nightlight*

Watch out . . .

There are Pitfalls to the New LED Lighting

Ever since George W. Bush signed the Energy Policy Act of 2005, emphasis has been placed on the efficiency of lighting. The many benefits of Light Emitting Diode (LED) lighting have come to our attention. While there are many benefits to LED, it also has many pitfalls that could get you into trouble. I will describe LED lighting so you can understand why it has become so popular and why there is so much confusion. It's true that LED technology is more costly on the front end. However, I will show that when it's done properly, it can save considerable money long-term.

Most of us are familiar with the common types of lighting, such as the regular incandescent, fluorescent, and High Intensity Discharge (HID) like metal halide, mercury vapor, and high-pressure sodium lamps. The Energy Policy Act of 2005, requires most of these common types of lighting to be replaced eventually with the more efficient LED.

Although people are fighting against this as we speak, it's common knowledge that the regular light bulb is slated for extinction. We already know there has been a push to replace it with the compact fluorescent or CFL. Even though lawmakers want all of us to use CFLs, rather than regular incandescent bulbs, many people still prefer the bulbs we have used for years. Issues include the color of CFL lights, how slowly they come on, and that they are not dimmable. The argument for CFLs is their efficiency. That's also why LED is becoming much more popular. LEDs are far more efficient than CFLs. They are also dimmable and instant on.

Because many are unfamiliar with LED technology, it's easy to jump on the bandwagon without really knowing which LED fixture or lamp is the right choice. Many of the major manufacturers have been working very hard to develop a new technology that is state-of-the-art, efficient, with acceptable colors, as well as cost-effective. To some extent, there has been a rush to be the market leader with little focus on the consumer. Since most consumers are uninformed about LED lighting, they could unknowingly choose a technology with a short lifespan. Whether it's interior lighting or site and landscape lighting, it's wise to consult with a lighting professional before buying LED.



You want to be sure you're making the right decision the first time, due to the initial cost.

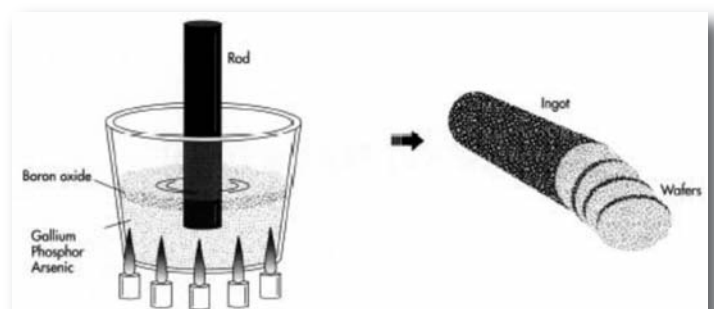
Rather than heating up wires or exciting a gas, an LED emits light by electronic excitation with very little heat generation. Diodes are electrical valves that allow electrical current to flow in only one direction, just as a one-way valve might in a water pipe. When the valve is "ON,"

electrons move from a region

of high electronic density to a region of low electronic density. This movement of electrons is accompanied by the emission of light. The more electrons that pass across the boundary between layers, known as a junction, the brighter the light.

To make the semiconductor wafers, gallium, arsenic, and/or phosphor are first mixed together in a chamber and forced into a solution. To keep them from escaping into the pressurized gas in the chamber, they are often covered with a layer of liquid boron oxide. Next, a rod is dipped into the

(continued on page 9)



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solution and pulled out slowly. The solution cools and crystallizes on the end of the rod as it is lifted out of the chamber, forming a long, cylindrical crystal ingot. The ingot is then sliced into wafers. Each of the semiconductor materials (called substrates) and impurities result in various colors of light from the LED.

During the process of growing the LEDs, the diodes are tested for many factors. The two main factors are the color of light that the diode emits (in degrees Kelvin), and the intensity of the diode (or lumens-per-watt output). The growing process has been difficult to control; therefore, the diodes must be graded for quality in these two categories. This is called binning or batching. The greater percentage of diodes are of low quality; and therefore, are sold rather cheaply. On the other hand, the higher-quality diodes command a considerably higher price. This is why there are so many different lamps to choose from at varying prices and levels of quality. The lower quality diodes, although less expensive, do not offer the intensity most consumers are looking for, which leads to disappointment and frustration.

When most people think of LED lighting, the first thought that comes to mind is that the light is too blue. Some people think they are eerie looking. When Christmas lights first came out in LED several years ago, they were all blue in color.

This was because cooler colors are the most cost-effective to produce, and they happen to have the highest lumen-to-watt output. The warmer yellow light has less lumen output. At the time, the blue option was the only one available. Manufacturers could not produce a bright enough warm diode. Since then, the technology has changed so warm, cool, and cooler options are available cost-effectively. The color of light is measured in degrees Kelvin. See the chart at right:

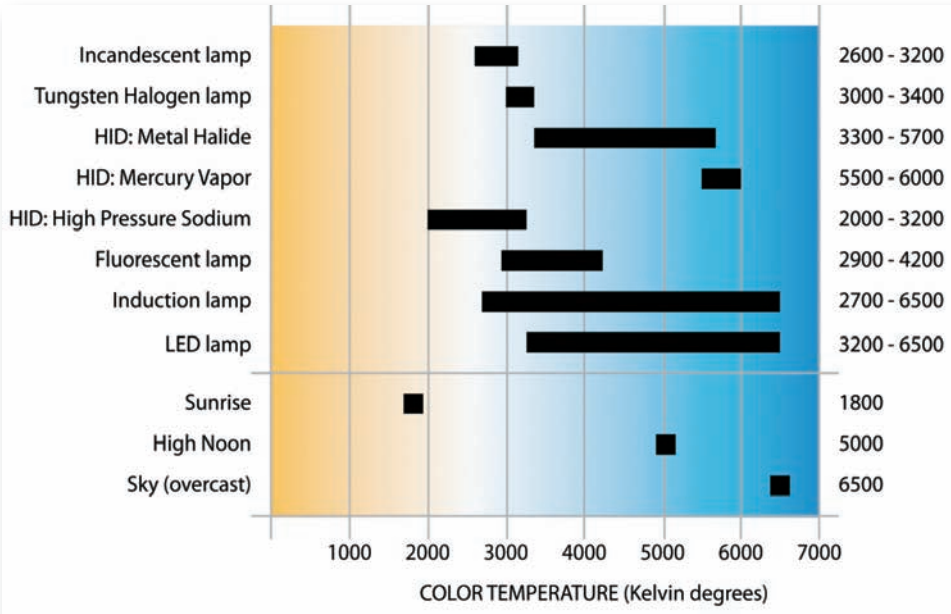
The technology is changing quickly. Manufacturers are limiting their inventory of fixtures and lamps, not wanting to manufacture and inventory product that may become obsolete before it's sold. This is a major reason why LED remains much more costly than the more common forms of lighting. This will continue to

be the case until there is an industry standard and larger quantities are produced. With all of the focus on LED lighting by many different manufacturers, the technology is improving greatly and the prices are falling. In the past a viable LED replacement lamp(s) was not available. In the last few months, cost effective options have been made available for retrofitting many of the common incandescent and HID fixtures.

LEDs run on direct current (DC), as opposed to alternating current (AC), the standard in office buildings and homes. This requires the diodes to have a "driver," which converts the power from AC to DC. The advantage is the lamps themselves use approximately half of the energy. Unfortunately, the driver generates heat in the conversion process, and this heat is detrimental to the diodes themselves. This and the limited space an existing lamp occupies cause a restriction on how big or powerful a driver can be before it generates enough heat to damage the diodes. This is the reason many LED lamps perform at a lower level than their incandescent rivals even though they are sometimes as much as ten times more expensive. It isn't cost effective to replace an entire existing fixture to convert to LED.

Technology is quickly moving in the direction of producing lamps

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