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The Ratings Game

The 13th hole's putting green at Kingsley Club is described as "extremely undulating and will test the approach shots and putting skills of the best players. This hole is unlike any other and will definitely be a topic of conversation at the nineteenth hole!" Have you ever seen a putting surface that has its own shadows?

FRONT COVER

The 13th hole at the Kingsley Club, ranked #18 in 2008 in the Golfweek's Best Modern New Courses. The course was designed by Mike DeVires in 2001 and is located in Kingsley Michigan. *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.

The MAGCS member is also an environmental steward. We strive to uphold and enhance our surroundings by promoting flora and fauna in every facet in a manner that is beneficial to the general public now and in the future.

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ON COURSE WITH THE PRESIDENT Tony Kalina, *Prairie Landing Golf Course*



A New Task for a New Board

As my term of office begins, let me say first that it is a profound privilege and honor to serve as President of the Board of Directors of the Midwest Association of Golf Course Superintendents, and I pledge to serve our association in the best interest of all the members in the coming year.

I am fortunate and thankful to be working with a dedicated Board of Directors. I am thrilled to act with the Board, our industry partners, and our members, as we face the challenges and issues before our association. In these uncertain economic times, the road ahead for golf appears rough. I know that our members have the will and attitude to persist in a professional and diligent manner.

Since 1926, MAGCS has been and remains a robust, prominent affiliated chapter of the GCSAA. Our association's past success is the result of strong leadership and an unyielding commitment to professionalism. We all owe our past leaders a great debt of gratitude. They worked hard to build an association that served its members. That remains the goal of the current Board. I believe every MAGCS member has something positive to offer to our association. I also believe that it is the obligation of every member to be involved and to serve.

One objective I have for the Board this year is to improve sponsorship opportunities at monthly MAGCS events for our commercial members and to further build our community of members. In the past, our Arrangements Committee has solicited sponsorship revenues to subsidize our meeting costs. The Arrangement's Chair would call on our commercial members monthly to ask for funding support – the same pool – time and time again. Understandably, that support has declined over the past several years. Doubts about the value of sponsoring MAGCS monthly meetings have beset our commercial members for some time. What is the value of sponsoring? This year, the Board began to consider input from our commercial members in order to improve this situation and resolve their concerns about the value of sponsoring.

To that point, I have asked the Board to join me in devising new ways to promote sponsorship. A new task group has been formed at the Board level. They are charged with creating additional advertising value, while generating the greatest revenue from sponsorship opportunities. The Board has created a 'Partnership Task Group' to help us better understand and manage the needs of our commercial class members. The revenue opportunity of sponsorship is largely untapped. It is an important source of subsidy for meeting and other association costs. If we can provide our commercial members with increased visibility and greater access to our membership, it would create a "win-win" for everyone.

I have asked Scott Witte, CGCS to oversee the Partnership Task Group this year for the Board. He has graciously accepted the opportunity and the task. He will be forming an Ad Hoc committee composed of superintendents and commercial members in a 50/50 ratio. Their main objective will be to advise the Board about ways to add value to our sponsorship opportunities. Some of the opportunities being considered at this time include:

- Creating a "Partner's Page" on the MAGCS website where products, brands, and services could be showcased through commercial vendor links;
- Offering ad space within the interior of the MAGCS Directory and/or the MAGCS website;
- Having a "Vendor Day;"

• Promoting sole sponsorship opportunities at monthly meetings. The task group has its work cut out. I know Scott well, and I know that we will be amazed at the amount of work and the number of ideas his group generates. Thank you in advance, Scott.

For eighty-two years, MAGCS has inspired and led a profession. In 2009, we're leading yet again.

In closing, I want to welcome our newest Board members, Tim White, of Prestwick Country Club, and Mark Thibault, of the Links at Carillion. The two of you will make fine additions to the Midwest Board.

Lastly, I want to wish everyone a very Merry Christmas. May God continue to grace you and yours with health and happiness in 2009.

Sincerely, Tony Kalina **-OC**



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FEATURE ARTICLE | Bob McCallum, CGCS

Bitten by the Water Bug



"Everywhere water is a thing of beauty gleaming in the dewdrop, singing in the summer rain." — John Ballantine Gough

Golf courses with **advanced water features** provide a corridor for numerous species of migrating and resident birds whose survival is dependent on areas surrounding rivers and lakes. Golf course superintendents systematically protect the waterways and outfit their properties with specialized birdhouses and structures that attract and increase the population of a wide variety of riparian associate avian species. This close connection between superintendents and the environment with a controlled

approach to managing the advanced water features has important conservation implications. That being said, let's turn our attention and examine water features on a smaller scale. Water gardens can add interest and beauty without the massive proportion and excessive cost for construction or maintenance that larger waterfalls, streams and lakes require.

Water gardens are frequently overlooked as a landscaping option at golf course facilities. Water gardens can transform an ordinary outdoor clubhouse patio into a tranquil paradise where visitors can relax, unwind, and enjoy quality time. Water features become a focal point of any garden with their charming sights and pleasant sounds. Beautiful water gardens have the natural ability to attract a variety of birds, butterflies, and dragonflies. Three types of water gardens and small water features well-suited to the golf course environment are fountainscapes, pond-less waterfalls and eco-system ponds. Water gardens are less costly, require much less surface area and, depending on which type is selected, hold from only a few gallons up to tens of thousands of gallons of water. References and interesting websites that provide photo galleries, precise details, and installation instructions for small water features are provided at the end of this article.

Fountainscapes are the smallest of decorative water features and include tabletop or wall fountains, container water gardens, stand alone fountains, bubbling urns, spitters, and fountains that incorporate an in-ground reservoir.

Container water gardens can be created using virtually any type of container as long as it has the ability to hold water. An antique bathtub, a galvanized pail, a favorite terra cotta flowerpot, or an old whiskey barrel all make excellent receptacles to contain a water garden. Once the container is chosen, make sure that it holds water. Any un-glazed pottery will need to be sealed and drain holes will need to be plugged. A wooden

> container such as a whiskey barrel can be lined with a rubber liner that can be affixed to the rim. Make sure the sealant is safe for plants and fish.

When planting a container water garden the same principles apply as with a conventional pot in which flowers are grown. A balance of plants that are different shapes and sizes will be the most aesthetically pleasing. Highlight

one special plant, such as a lotus plant if planting a larger container or a pygmy water lily in a smaller receptacle. Using different colors also makes a striking appearance and provides a much simpler approach. If adding fish to a container water garden, be sure to keep

the volume of the container in mind. Water in small containers goes through extreme temperature changes, which can be harmful to most fish. Mosquito fish however, can tolerate warm water quite well. Receptacles that hold more than 20 gallons of water are well suited to all varieties of tiny goldfish.

To discourage the growth of mosquitoes in stagnant water, a small 75-gallon-per-hour statuary pump fitted with a spitter or fountain head will be needed to keep mosquitoes (continued on page 7)



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away from a container water garden. If the fountain effect is undesirable, position the pump discharge just under the water surface to create movement. Maintenance is minimal, requiring the occasional addition of water to make up for evaporation. Doing this keeps the plants at the correct water level and the pump operating properly. Because of the cold Midwestern winters, aquatic plants and fish in a container

water garden may need to be replaced annually.

Water fountains have existed for thousands of years. Stand alone fountains are gaining in popularity because they are easy to set up and maintain. A wide variety of styles and finishes are available, ranging from impressive brass to majestic Italian multi-tiered marble to simple resin fountains. They are made to "stand alone" meaning they don't need any counterparts to make them function. Much like a tabletop or wall fountain all that is required is to add water, plug it in, and enjoy. The fountains can be placed in the indoor foyer of the clubhouse front entrance to greet guests, or they can be set outside on the deck or patio. The sound of trickling water draws visitors into the garden and provides a place to relax while enjoying outdoor spaces.

Bubbling urns and spitters are larger water features that are typically set atop an underground basin which can support up to one ton and hold up to 75 or more gallons of water. Once the urn column fills, water spills out and over into the underground basin, which pumps the water back up. If a spitter, large basalt column, or brass sculpture is preferred, they can be set on the reservoir and a pipe will transfer the water from the basin up through the center of the spitter or fountain. The only limiting factors are the size of the installation area and budget.

Pondless waterfalls are a great option if you are concerned about the safety issues that come with a traditional pond. This type of water feature is simply a re-circulating waterfall and/or stream without the presence of a pond. The visual and audible benefits of running water cascading down a waterfall and stream can be enjoyed without the maintenance of a pond.

Because there is no pool of water, there are none of the safety issues associated with a traditional pond. The price of a pondless waterfall will be lower than a pond because less labor and materials are required. The golf

course superintendent also will find that operating costs are lower because you're not dealing with an established ecosystem. It's not necessary to run the pump 24/7, and the reservoir only needs to be filled every few weeks to compensate for water loss because of evaporation. The small size of the pondless waterfall means it can be built and enjoyed anywhere. If you leave enough room around the base of the waterfall, it's easy to add a pond in the future. The pondless waterfall works much like a regular waterfall and stream with a pond. First you need to dig a hole deeper than a normal pond, line it with carefully positioned rock, boulders and gravel and fill it with water. The water is than circulated from beneath the rocks and gravel by a pump that sits on the bottom, inside a customized filtered casing. A pipe runs from









there up to the above-ground upper waterfall filter and water basin, which is likewise fabricated with plant and fish-safe plastic molding. Water overflows the upper basin and cascades down the waterfall where it falls back into the reservoir. Since the water never fills above the level of the rock and gravel fill, it gives the appearance of a waterfall without a pond, when in fact the "pond" is below ground but not visible. Another option is to adjust the liner upward, which raises the water level to barely submerge the interior rock and gravel inside the reservoir with the accent boulders protruding above water and covering the liner around the perimeter.

Ecosystem ponds are the most dynamic of the smaller water feature types, but they can be easy to understand if the components that go into a basic, functioning aquatic ecosystem are understood. An ecosystem pond works with "Mother Nature" to provide food, shelter, and safety to the wildlife around it and an all-natural, low maintenance piece of paradise. It's important to remember, however, that all of the fundamental components must be present in order for a true ecosystem to be in place. Eliminate one of these irreducible constituents and you've got an unbalanced ecosystem that won't be so low maintenance anymore. The following items are required for an ecosystem pond:

Circulation system or waterworks include the pump and plumbing. The size of the waterworks is extremely important for the aesthetics of a water feature and is dependent on the desired size and style of the pond and waterfall. An efficient circulation system keeps the water flowing and provides the proper oxygen levels for healthy fish and plants.

A *filtration system* is required to maintain a clean ecosystem pond. Two types of filters serve this purpose. A biological filter is available that provides the necessary surface area for beneficial bacteria to colonize and remove excess nutrients from the water. A

mechanical filter will pre-filter and house the pump and skim debris from the water's surface to prevent the accumulation of organic matter on the pond floor. The removal of organic matter and nutrients is critical in managing against algae formation in the pond.

Fish are an integral part of any ecosystem pond. Often misunderstood as culprits, fish in fact serve an important role in the maintenance of an ecosystem pond. Fish actually reduce (continued on next page)

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pond maintenance, as they graze on string algae and bottom feed from the pond floor. Larger goldfish species called comets are bottom feeders and a long-lived species of fish even in ponds that freeze for the winter. The comets are completely self sufficient but will grow and reproduce faster if additional food is provided. For the fish connoisseur a more decorative and colorful fish species known as Koi is available. Koi are a hybrid of the carp family and a favorite amongst water garden fanatics who have time to devote to their needs. Koi require daily feeding; their health must be closely monitored. A floating heater should be activated in addition to the running waterfall in order to keep the pond's winter ice formation open and provide ample quantities of oxygen for Koi to survive. Manmade structures (underwater caves, walking bridges, etc.) are usually provided to protect the fish from predation.

Aquatic plants naturally provide distinctive textures and desirable forms to the garden. Thriving from the excess nutrients in a pond and depriving algae of its food source, aquatic plants in a water garden, given proper coverage, are critical for the overall health of the ecosystem pond. A combination of both annual and perennial aquatic plants will provide the best possible eco-system pond presentation.

Rocks, gravel, and bacteria are the final elements of the ecosystem pond. Carefully positioned rocks, boulders, and gravel add the proper dimensions to the pond and insure that the waterfall is flowing as desired. The stone structures protect the pond liner from ultraviolet light degradation and provide enormous surface area for advantageous bacteria to break down oversupplies of nutrients in the water and dissolved organic debris on the pond floor.

The ecosystem pond is the most popular type of water garden among enthusiasts because it "has it all." Water gardening has been popularized, evolved and improved over decades in residential applications. Water gardening is a largely untapped technology which can provide a viable landscaping option to enhance golf course clubhouse and grounds facilities. **-OC**

Credits and references are as follows:

- Google Search Aquascapeinc.com and click on fountainscapes, pondless waterfalls, ecosystem ponds, advanced water features or the photo gallery.
- Google Search Garden-Fountains.com scroll down and click on Garden Fountains: Wall, Indoors, Outdoors and click on any category of fountain or water feature.
- Google Search Fountains-Fountains.com scroll down and click on fountains for outdoor and indoor use. Constructed of concrete... and click on any category of fountain.
- Google Search Italian Water Fountains scroll down and click on European/ Wall Water Fountains/Antique Wall Fountain.
- Google Search Water Gardens scroll down and click on Water Gardens Installation and Maintenance.
- Google Search Water Gardens scroll down and click on How to Build and Construct a Water Garden.
- www.berkeysupply.com
- Ridgemoor Country Club.com



FEATURE || Alex Jarmusz, *Mistwood Golf Course*

Cleaning up our Air, One Lawnmower at a Time

According to the California Air Resources Board (CARB), a 2006 lawnmower puts out 93 times more smog-forming emissions than a 2006 passenger automobile.

Smog is created when gasoline and methane are burned. The two dominant emissions are carbon dioxide (CO_2) and water vapor (H_2O). Other smog-producing vapors emitted from the exhaust of an internal combustion engine are incompletely combusted hydrocarbon vapors (HC) and carbon monoxide (CO). CO is also biologically harmful and in concentration, causes poisoning.

The catalytic converters used on automobile exhaust

systems convert some of the smoggenerating vapors into less-polluting gases. The chemical reactions that they catalyze can be categorized as oxidation and reduction reactions.

Recently, the United States Environmental Protection Agency (EPA) has set new standards for small-engine exhaust emissions. The majority of these regulations apply directly to the manufacturers.

What are the New EPA Exhaust Emission Standards?

The EPA is adopting new exhaust emission standards for marine spark-ignition engines and for small land-based non-road engines. The new requirements will vary depending on the type of engine or vehicle and will reduce the harmful health effects of ozone and carbon monoxide

In developing its requirements, the EPA considered the following factors: environmental impact, number of hours per year that each engine is used, the need for high-performance operation, and cost.

Small Non-Road Engines

The EPA expects manufacturers to meet these new standards by improving fuel systems, engine combustion, and in some cases, adding catalysts. These standards are consistent with the requirements recently adopted by CARB. When fully implemented, the new standards will result in a 35% reduction in HC + Nitrogen Oxide (NOx) emissions from new engine exhaust.

Why is EPA regulating these engines, equipment, and vessels?

The engines and vehicles covered by this rule are significant sources of air pollution and account for about 26% of mobile source hydrocarbon emissions and 23% of mobile source CO emissions. By 2030, with new controls, HC pollutants will be further reduced by 34% for small engines and CO pollutants will be further reduced by 9% for small engines.

The new standards continue the process of establishing non-road standards as required by the Clean Air Act. The EPA is required to study emissions from non-road engines and vehicles and to set emissions standards if the level of pollutants from these sources cause or significantly contribute to air pollution. More specifically, they must set standards if the emissions of CO, NOx, or HC contribute

significantly to the formation of ozone and CO in more than one area of the country that currently does not meet standards. They determined that these sources contribute significantly to ozone or CO containment.

The EPA has already set emission standards for most non-road engines, including farm and construction equipment, locomotives, commercial marine, and recreational vehicles.

(continued on page 10)





Health and Environmental Benefits

According to the EPA, by 2030, the new standards will result in significant annual reductions of pollutant emissions, including approximately 600,000 tons of volatile organic HC emissions, 130,000 tons of NOx emissions, and 5,500 tons of direct particulate matter (PM2.5) emissions. These correspond to significant reductions in the formation of groundlevel ozone and ambient PM2.5. We also expect annual reductions of 1.5 million tons of CO emissions, with the greatest reductions in situations where there have been problems with individual exposures.

This rule will result in substantial benefits to public health and the environment. We estimate that by 2030, on an annual basis, these emission reductions will prevent 230 particulate matter-related premature deaths, between 77 and 350 ozone-related premature deaths, approximately 1,700 hospitalizations and emergency room visits, 23,000 lost work days, 180,000 lost school days, 590,000 acute respiratory cases, and other quantifiable benefits each year. Source: EPA420-F-08-013, September 2008

What does this all mean for you?

These new EPA regulations apply to mowers being produced after the regulations go into effect. You are not required to do anything to your existing mowers. Almost all the new regulations are directed at the small engine manufacturers. But this is a major signal that the government is finally recognizing the harmful pollution that small engines are producing.

New developments/products in the line of catalytic converters are being produced to reduce harmful emissions. Installing new environmentally friendly products to your existing equipment is a great way to take proactive steps to cleaning up the environment.

Why lawn mowers?

When it comes to air pollution,

lawnmowers have a surprisingly major impact. According to the Union of Concerned Scientists, one gasoline-powered, non-riding lawnmower emits the same amount of pollutants as eight new cars driving 55 mph for the same period of time. Product testing shows that smog forming gases can be reduced 3 to 5 times the expected levels.



The glow seen in the photo above is visual evidence that the catalytic converter is working at its optimal level.

The Image below is the Smog Avenger™ installed on a Toro Flex 21 mower at Mistwood Golf Course. Heat shield is removed for image.



Ben Kelnhofer (left), Assistant Superintendent and Brian Kolar (right), Lead Technician, Mistwood Golf Course check out the exhaust on a Toro Flex 21.

About the Author

Alex Jarmusz is currently pursuing an Industrial and Systems Engineering degree at Virginia Tech and has worked on the Mistwood Golf Course Maintenance Staff during his summer breaks. ajarmusz@smogavenger.com

Note in the graphs, on previous page, that carbon monoxide suppression occurred once the lawnmower under test had warmed up, while the hydrocarbon emissions were suppressed in the very beginning when the engine was still cold. If every existing lawnmower had its muffler replaced with an environmentally friendly catalytic converter, a net reduction of roughly 3% in air pollution in the United States could be expected! Source: Hbar Power

Golf Course Experience

Superintendent, Dave Drendel and Assistant Superintendent, Ben Kelnhofer of Mistwood Golf Course (Romeoville, IL) talk about their experiences with new catalytic converter technology.

According to Dave Drendel, "The golf course industry is sometimes viewed as an environmentally unfriendly business. I think this product has the potential to help the industry become more environmentally friendly." Ben Kelnhofer stated, "The first thing I noticed was the absence of the usual smell. We started it up in the shop and there wasn't that awful smell of exhaust. For me, that's a good sign that it's definitely cleaning up the emissions of the mower." Recently we have added this technology to gasoline maintenance carts.

Brian Kolar, Lead Technician, Mistwood Golf Course was initially skeptical, "At first I didn't think the catalytic converter would get hot enough to work, but after we fired up the cart I saw the glow of catalytic converter up the exhaust pipe. This was good visual evidence for me that the catalytic converter was hot enough to be doing its job."

Summary

Researching and trying new environmentally friendly technology is a great way to show the people in your community you are committed to making our environment a better place to live. We are all trying to do our part in cleaning up the air quality of our world. Please help out by doing your part as well.