

NEWS

News Blurbs Now! (NBN)

T.Y. Lin International Engineering, Architecture & Land Surveying PC announced that Robert Medina PE, Senior Vice President and East District Director, has been appointed to the New Jersey Institute of Technology (NJIT) Board of Overseers.



Picone Construction Corp has completed the 6,020 square foot Carquest Auto Parts Store located at 6370 Transit Road Cheektowaga. The project consisted of site development and erection of a new pre-engineered metal building with a colored split face block veneer exterior. Now open for shopping!

At the Sixth Annual Preservation Awards Ceremony held May 30, Picone Construction was honored for their outstanding work for historic preservation and restoration in the Buffalo Niagara area. The Erie Community College/Old

Post Office received the Peter B and Genevieve R Flickinger Stewardship Award. Restoration included replacing the building's roof, repairing the granite and mortar exterior stonework, repairing the tower, modifications to the entrances, replacing marble stairways, restoring art glass, installing copper rooftop finials, and reconstructing the windows.

The University at Buffalo's ASCE student chapter steel bridge team took home tenth place overall in the national competition last month, earning UB their best result to date. At the national level, students are judged on display, construction speed, lightness, stiffness, construction economy, and structural efficiency. In addition, overall performance is scored. UB excelled in construction economy, with an improved build time of 7 minute and 52 seconds compared to their build time of about 11 minutes at regionals. At 136 pounds, UB's beam design bridge was the ninth lightest in the competition. Congratulations to the team members and their advisors!

National Fuel is searching for an Electrical Engineer, Automation/Controls.

We need your news blurbs NOW! We want to know about your recent projects, awards, hires, promotions, patents, new products, partnerships, open houses, tours, and anything else you'd like to share. Send your noteworthy news to ESB1894@gmail.com.



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PRESIDENT'S MESSAGE



“It was madness... and I loved every minute of it.”

The Engineering Society of Buffalo was on hand for the Buffalo Marathon Water stop again this year at mile 15. This year was a drastic change for the society. Last year, the half-marathon did not come through the ESB water stop at all and the marathon came through at mile fifteen. This year was different in that it was mile two for the half-marathon runners. That meant they came through at about 7:20am.

Last year the water stop didn't see runners trickle through until about 8:30 or 9am.

The guy who had the tables for the water stop (i.e. yours truly) thought he had plenty of time to get to the Linwood location. Well, he arrived at 7:15am, after fighting the traffic guards on the street. The tables were set up and cups were beginning to get poured, when about 5,000 runners came down the shoot all looking for water. IT WAS MADNESS.....and I loved every minute of it. People were busy filling cups, volunteers were handing out two, three, and four cups at a time. It was a break neck pace for the volunteers, but they handled it in stride.

Once the half-marathon runners came and

went, there was plenty of time to prep for the marathon runners. The team set up two stacks of cups and was well-prepared for the second wave. This time everything went off without a hitch.

Thank you to Steve Sanfilippo for coordinating the water stop once again and to all the volunteers who came out for The Engineering Society of Buffalo. Thank you Henry Plizga, Matthew Plizga, Walter Plizga, Veronica Bassano, Pat Conway, Brad Bassano, Steve Sanfilippo, Sam Gill, Jim Gill Jr, Jim Gill Sr, Rick, Chuck, Mike Branch, Colleen O'Connell, and Sam Sanfilippo. Thank you to all!

If you liked handing out water at this race, come to the ESB's very own ESB Scholarship Race July 23 at the NFTA Small Boat Harbor. Just send me an email and we will put you at our water stop. We need volunteers who are seasoned vets! And...we can always "train" new volunteers too.

Matthew J. Plizga, P.E.
ESB President
Mplizga811@aol.com

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CALENDAR OF EVENTS

07-23-14	7pm	ESB Annual Scholarship Run	NFTA Small Boat Harbor
08-05-14		ESB/BEAM Golf Tournament	1330 Broadway, Darien (Chestnut Hills)
08-15-14	1115am	Grad School Information Session	University at Buffalo
08-17 to 08-20		Advanced Design and Manufacturing Impact Forum	Buffalo-Niagara Convention Center
		Past Presidents Dinner	
09-09-14 (Tues)	6pm	Ways and Means Meeting	2555 Walden Ave, Buffalo (Wendt Corp)
09-09-14 (Tues)	7pm	Directors Meeting	2555 Walden Ave, Buffalo (Wendt Corp)
10-07-14 (Tues)	6pm	Ways and Means Committee Meeting	2555 Walden Ave, Buffalo (Wendt Corp)
10-07-14 (Tues)	7pm	Directors Meeting	2555 Walden Ave, Buffalo (Wendt Corp)



NEXT BIG ESB EVENT

34th Annual ESB Scholarship Run



July 23th

at

**NFTA Small Boat Harbor
1111 Fuhrmann Boulevard
Buffalo, NY 14203**

In Memory of John Beishline

Bronze Sponsor up to \$499

- Placement of logo on donation boards at race
- Company name and logo displayed on www.tesb.org for a year

To reserve your tax deductible sponsorship, complete and mail the information below (by July 16th) along with your check to:

The Engineering Society of Buffalo, Inc.
PO Box 1677
Amherst, NY 14226



John Beishline (ESB President 70-71 & 88-89)
& Co Founder of the Scholarship Race

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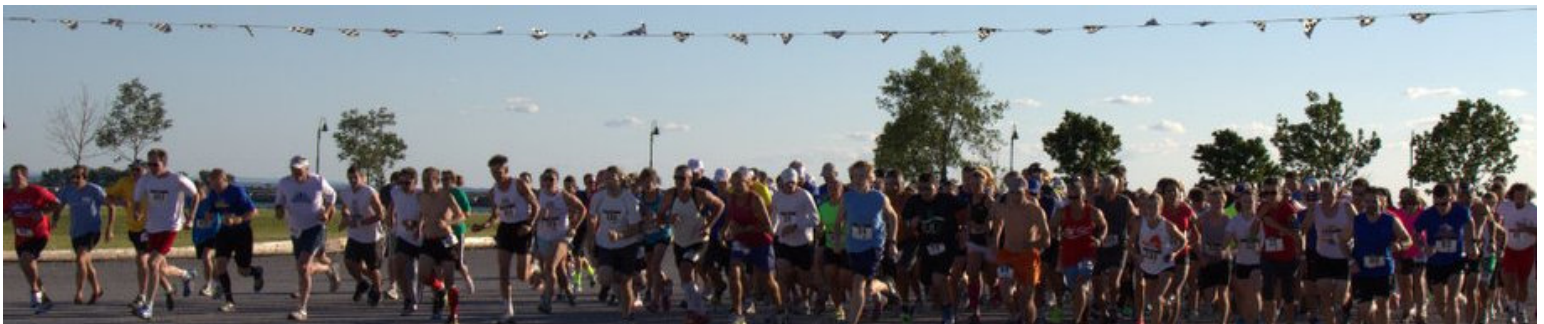
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BUSINESS

10 Benefits of Failing Fast and Often

By Alicia M Rodriguez

As counterintuitive as it may sound, failing can lead to greater success and innovation. Silicon Valley entrepreneurs call it “failing forward” - failing quickly to learn quickly. In this process, feedback loops and iterations become essential to create success through failure. If an organization shifts to a culture that embraces failure, it can reap many benefits.

1. A drive to learn: Organizations that fail fast and often generate a drive to learn and excel. Learning supersedes knowing, allowing for more openness and sharing of ideas. Many corporations are still invested in knowing the right answers. This generates an environment where fear of making mistakes prevails and compromises the sharing of ideas where the outcomes may be unknown, yet the possibilities endless.

2. Comfort with the unknown: Organizations and individuals become more comfortable with the inherent ambiguity that exists today - much of our lives are no longer black and white. Not knowing all the right answers ends up feeding the creative process instead of impeding it.

3. Adaptability: When organizations embrace an experimental creative process that allows for failure, they become better able to adapt to the rapid pace of change in the 21st century. The constant assessment and recalibration leads to greater agility, helping the organization keep up with - and get ahead of - the competition.

4. Resiliency: An organization can build resiliency when failure is a valued part of the innovation process and not viewed as a deficiency. Through resilient leadership, you uncover your own individual/organizational belief systems that may be keeping you stuck in old, ineffective ways.

5. Curiosity: Curiosity is a vital element in creativity and innovation. Experimenting with new ways of doing things increases intrinsic motivation to excel and produce quality products. This makes working at your organization attractive to the best and brightest talent.

6. Quicker time to market: The best innovation requires a shift from making things happen to allowing things to emerge and unfold in ways that are not limited by assumptions, beliefs and perceived limitations. This allows products and services to be brought to market quickly for more feedback from the consumer and refinement.

7. Differentiation: Failing fast and failing often shifts production from a rigid process to an “alchemical” process where information is distilled, synthesized, experimented, assessed and refined to produce something truly unique and attractive to the end consumer, differentiating your products or services from the competition.

8. A creative environment: To tap into organizational wisdom and creativity, leaders need to shift from a culture that distinguishes only winners and first

losers to a comprehensive playing field of possibilities where every idea has the potential to turn into something great.

9. Risk tolerance: A fear of failure limits potential because individuals are unable to try something new or contribute their best thinking. A culture that embraces failure enables an organization to take more calculated risks.

10. The ability to solve global problems: Seth Godin wrote, “All of us fail. Successful people fail often and ... learn more from that failure than everyone else.” That is the key; learn, adapt and be resilient enough to continue incorporating failure as a learning mechanism that produces the solutions to problems we don’t yet recognize exist.

Why failing forward isn’t just for tech companies? We often think of the failing forward concept as one that applies to technology. Yet the business environment across all industries is one of complexity and ambiguity, where the faster you learn what doesn’t work, the sooner you achieve better results.

I’m part of a group called makeaseen, a collaborative including artists, filmmakers, spoken-word poets, writers, photographers, physical movement talent, technologists, PR pros, analytical modelers and facilitators. I first experienced the concept of failing fast and failing often - or “failing forward” - from a designer’s perspective.

Makeaseen creates opportunities to harness collective thinking that brings sustainable energy to the forefront of public awareness. The company weaves art and science into a web of mutually supportive campaigns that have immediate impact and sustained visibility for environmentally conscious companies. Specifically, makeaseen uses conferences and conventions as a spring pad for generating buzz around energy and environmental issues.

The process of designing a campaign that creates a compelling message begins with a chaotic mixture of ideas, technologies and multidisciplinary approaches, including visual arts, sound, lighting and social media. At a certain point, this energy must be harnessed and focused. That is where failing forward comes in.


Scenario planning, which is event planning’s version of prototyping, allows the designers and producers to focus their energy on paper (or in computer renditions) to see how the elements can weave together - or not. Here, ideas get tossed without regret if they don’t serve the entire process. That is one of the keys to positive failure; to be unattached to one’s own ideas in service of the desired outcome.

Alicia M Rodriguez MA, PCC is driven by a natural curiosity about what is possible. Her forte lies in her ability to create forums for meaningful dialogue that generate shifts in organizational alignment and leadership. She is also a writer, speaker, president of sophia associates, and kayaker. She can be reached at www.sophia-associates.com or 410-544-5262.



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STUDENT INFO

UB Students Study Drying Techniques

By Marcene Robinson

Don't touch that paper towel! High-speed hand dryers are cleaner, more environmentally friendly and save a bundle over time. This is what some UB students discovered when they studied the economic, environmental and social impact of paper towels and Dyson Airblades in campus bathrooms.

Equipped with blow torches and cotton swabs to collect bacteria samples, the students found that six times more bacteria grew on paper-towel dispenser push-and-crank handles than on the Airblades. And through the life cycle of each product, the Airblades produced 42 percent less carbon dioxide and cost under \$28 per year in energy consumption, compared to paper towels, which cost more than \$900 per year.

With help from James Jensen and Berat Haznedaroglu, professor and assistant professor, respectively, in the Department of Civil, Structural and Environmental Engineering, the research team was awarded second place in the 2014 New York State Pollution Prevention Institute's R&D Student Competition. The contest funds the students and provides them with the chance to design solutions to real-world environmental challenges. "These outstanding students represent the best of UB: engaged, thoughtful, and enthusiastic students devoted to making the world a better place for others," says Jensen.

For the study, the students examined four high-traffic and low-traffic men and women's bathrooms with Airblades and paper-towels dispensers in two North Campus academic buildings. Using life-cycle assessment software, the group examined the manufacture, use, and disposal of each product. The students measured paper-towel consumption and used the Airblade's power meter to track the number of users and energy consumed. Although the Airblade is more expensive up front - with a \$4,000 unit and installation price - the hand dryer has a four-and-a-half year payback period, the researchers say.

Bacteria were collected from several surfaces in the bathrooms as well. While the paper-towel dispensers contained large amounts of bacteria, hardly any organisms were found on the towels themselves. Results also showed that few bacteria colonies grew on door handles and light switches, says student researcher Cassidy Edwards, a recent environmental engineering graduate.

Through a survey of bathroom users in one of the buildings, the students discovered that 65 percent of people opted for paper towels, spurning the Airblade despite its superior cleaning power. "People in general think hand dryers are dirty," explains student researcher Alanna Olear, a senior environmental engineering major. "But they don't know a lot about the Dyson Airblade, which is cleaner than normal hand dryers. So their perception on regular hand dryers sways them to think that the Dysons are bad as well." Unlike lower-end hand dryers, the Airblade contains an air filter and blows unheated air at a high velocity, creating a bad environment for bacteria growth, the researchers point out.

To combat Airblade misperceptions, the students are designing signage for campus bathrooms. The signs will tout the environmental impact of the Airblades by comparing carbon-dioxide savings to practical terms, such as trees planted, miles travelled and money saved. The research team will use study results to encourage campus officials to install more Airblades on UB campuses.

Over the summer, the students hope to publish their findings in peer-reviewed journals to allow other universities to see their work. They also will examine the collected bacteria samples to determine if any are pathogenic.

News release from www.buffalo.edu/news/releases/2014/06/010.html

Local/Online PDH Opportunities

For additional information regarding these opportunities, contact our office at ESB1894@gmail.com or 716-873-4455. Discounts for some pricing are available for certain society members, small companies, etc. And if you have information regarding future PDH opportunities that may be of interest to our members, please forward them to our office for inclusion in the newsletter and on our website at www.tesb.org.

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All	N/A	Online	OSHA 10-Hour Course	\$60
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Golf Raffle

Tuesday, August 5th marks ESB's second joint golf outing with BEAM (Buffalo-Area Engineering Awareness for Minorities) at Chestnut Hill Golf Course in Darien, NY. We are excited for another successful year! See page 18 and 19 of this newsletter to become a sponsor or to register to play in this event. "It's a great tournament for a very reasonable price!"

In addition to the golf outing, we are also selling raffle tickets. All monies collected by ESB will stay with ESB. (BEAM will be selling their own tickets.) Being one of our largest fundraisers, we ask that you please buy/sell what you can to support ESB. Contact Jeff Wach at 716-826-4233 or jwach@egwpersonnel.com if you would like to buy some tickets. We won't be mailing tickets to all members this year, but Jeff can certainly mail some to you if you want them!

And in case you are wondering, a professional golf ball contains 336 dimples.

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17TH ANNUAL BEAM GOLF OUTING

in conjunction with **ENGINEERING SOCIETY OF BUFFALO**

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1st Prize \$500.00 American Express Gift Card
(Donated by Palladian Health)

2nd Prize Salvatore's Diamond Package
Overnight stay at Salvatore's Garden Place and Dinner for two at Salvatore's

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Drawing will be during dinner.

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See page 7 for rates and contract. Contact us by email at ESB1894@gmail.com or by phone at 716-873-4455.

Mechanics of a Roller Coaster

By Tara Pfarner

Ahh, summer. Time for cold drinks, toes in the sand, vacations. And for some thrill seekers, roller coasters.

The mechanics of the ride is probably not the first thing on your mind during what some find exhilarating and others find nauseating.

From a vantage point safely on the ground (unless you like reading ESB news on roller coasters, in which case we want a photo!), let's take a look at what goes into planning and building a roller coaster.

The process begins when a park orders a roller coaster, most of which are custom made. Considering factors such as the environment the coaster will be built in, desired features, and cost, the coaster is conceptualized by engineers and designers. The designs are then sent to the manufacturing department, which in turn ships the pieces to the park for assembly.



“Traditional” roller coasters rely on a long length of chain (or chains) running up the hill beneath the track. This loop of chain is wound around a gear at the top of the hill and another at the bottom, which is turned by a motor, essentially creating a very long

conveyor belt. The cars of the roller coaster grip onto the chain with hinged hooks called chain dogs, that catch onto the chain links and pull the cars up the hill. At the apex, the chain dog is released and sends the cars on their [potentially terrifying] descent down the hill.

Other types of roller coasters may use a catapult launch system such as a linear-induction motor (which utilizes electromagnets) or a number of rotating wheels arranged in adjacent rows along the track to launch the train up the lift hill.

A simple braking system is built into the tracks by positioning a series of clamps at the end of the track and select braking points. A hydraulic system operated by a central computer closes these clamps when the train of cars needs to stop. By closing in on vertical metal fins running under the cars, friction is used to gradually slow them.

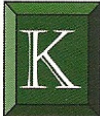
According to Wikipedia, the tallest steel roller coaster is Kingda Ka at Six Flags Great Adventure in New Jersey, with a maximum height of 456 feet. It also boasts the longest drop, at 418 feet, and is the fastest in the US with a top speed of 128 mph.

Tara Pfarner is an Administrative Assistant at RJR Engineering in Springville. She recognizes that life has its ups and downs, but prefers to witness them from the stability of solid ground.

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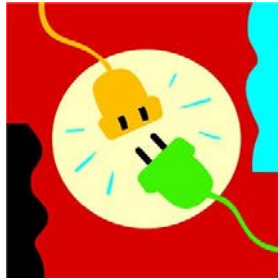
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A Bright Idea: Solar Powered Window Sockets

by Tara Pfarner

Designers Kyuho Song & Boa Oh have developed a big idea in solar power: a portable socket that can provide power anywhere there's a window - in your home, on a plane, in your car, even outdoors.



The window side of the round device consists of solar panels surrounded by a suction cup. The opposite side accepts a two-prong plug. The whole thing fits in the palm of your hand. The device is attached to any window and charged with solar energy, which is then converted to electric energy. Small electronics can be plugged in and used while the sun shines, or the energy can be stored in the internal battery for use after dark.



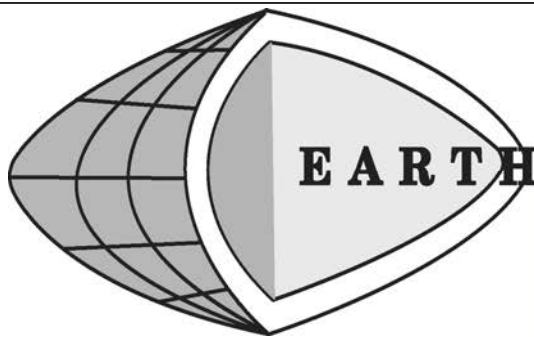
Though still only in the concept stage, the device is sought after by proponents of alternative energy sources and those looking for power on the go. Reportedly, the

device's inventors are looking to improve its efficiency and storage capacity before releasing it to the retail market. Its battery is very small, able to store about enough power to charge a cell phone. A full charge takes 5-8 hours, and provides about 10 continuous hours of power.



The designers' aim was to create something portable that could be used without any special training. Judging by the number of people commenting on various online forums, the device is perceived as an easy-to-use, convenient, safe alternative energy source. There is no word yet on when or where it will be available for purchase, or the price such an innovation may carry, though similar devices (which accommodate a USB cable rather than a two-prong plug) sell for around \$80.

Tara Pfarner is an Administrative Assistant at RJR Engineering in Springville. She is a proponent of alternative energy and can be reached at tara@rjrpc.com.



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MEETING MINUTES

Attendees: Officers: Closs, Plizga, Samol, Scofidio
Board Members: Bandriwsky, Kolber, Masse, Mooney, Owens, Papaj
Members: SanFilippo (Ex Officio)

Call to Order: President Matt Plizga called the meeting to order at 6:04pm.

Minutes: The minutes of the May meeting were reviewed and approved.

Committee Reports

Advertising: No report
Audit: No report
Bowling: July meeting is coming up.
Bylaws: No report
Education: No report
Endowment: No report
Entertainment: Past Presidents Dinner is coming up. Date is being discussed.
Fundraising: No report
Golf: Tournament plans are continuing.
Historian: No report
Media: Website is continuing to evolve. Membership application improvements are continuing.
Newsletter: No report
Nominating: No report
Scholarship: No report
Scholarship Run: Event posters are available. The Run is nearing.
Sunshine: Matt Plizga accepted a new job. Good luck Mr. President!

Adjournment: The meeting adjourned at 6:24pm

Next Meetings: TUESDAY September 9, 2014 Wendt Corporation, 2555 Walden Avenue Buffalo
TUESDAY October 7, 2014 Wendt Corporation, 2555 Walden Avenue Buffalo

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The Accidental Creation of a Saltwater Lake

By Staci Lehman

Lake Peigneur is located in Louisiana near the Gulf of Mexico. Before 1980, it was an approximately 10-foot deep fresh water lake with an island in the middle. Next to it and partially under it, Diamond Crystal Salt Company maintained a salt mine, with salt being mined near the lake since 1919.

Around large underground salt domes, you can often find oil. As explained by Dr. Whitney J. Autin, "...salt moves upwards and it pierces through surrounding strata... and this piercing produces faults and folds within the surrounding sediments producing an ideal mechanism to trap oil."

As such, Texaco was doing some drilling in the lake. In November of 1980, crews on the oil rig in the lake ran into a problem. At just over 1,200 feet, their drill seized up. Not a major problem normally, they worked to get it loose. In the process, they heard several loud pops then the oil rig tilted like it was going to collapse. The men got off the rig and to shore as quickly as possible. Not a moment too soon. Just 19 minutes after their drill had seized up, they watched from the shore as the huge platform (150 feet tall) overturned and sunk into the 10 foot deep lake.

Next, the astounded drillers watched as a whirlpool slowly formed, soon reaching a quarter mile wide and centered over the site of the oil drilling. Whoopsadoodle. At the same time, the oil workers were watching their \$5 million drilling rig disappear into the lake.

Workers in the salt mines below the lake noticed something was wrong as well; a stream of water was found flowing along the floor of the mine shaft at about the 1,300 foot level of the mine, which went down to about 1,500 feet at its deepest. As water wasn't supposed to be in the mine, the evacuation alarm was raised.

Foreman Randy LaSalle then drove a cart around to the regions of the mine where the alarm signal could not be seen, making sure everyone knew about the evacuation. By the time those from the deepest areas of the mine made it to the elevator, they encountered knee-deep water. Despite the fact that the mine was rapidly filling with water and the exit elevator could only take up eight people at a

time, all 55 miners were evacuated successfully.

It wasn't clear to the miners what had happened at the time but from the evidence at hand, the theory is that the drilling crew miscalculated their location and instead of being several hundred feet from the salt mine, they had instead been directly over a portion of it and penetrated the salt dome. The initial hole resulting from this mistake was only fourteen inches wide, but water spraying in at extremely high pressure quickly widened the hole. The water also dissolved the salt pillars that supported the ceiling of the mine causing the shafts to collapse.

The widening of the hole and the collapse of the mine gave strength to the whirlpool on the surface of the lake which caused major damage. Docks, another drilling platform, a 70 acre island in the middle of the lake, eleven barges, vehicles, trees, and a parking lot near the lake were all sucked into the mine below. The pull of the whirlpool was so strong that it reversed the flow of the 12-mile-long Delcambre Canal that drained the lake into the Gulf of Mexico.

Three hours after the first signs of trouble, the three to four billion gallons of water that had made up the lake were almost all gone, having dropped into the mine below, leaving a gaping crater. The backward-flowing canal formed a 160 foot waterfall that gradually refilled the lake, this time with salt water from the Gulf.

The 10-foot deep freshwater lake was now a saltwater one, approximately 1,300 foot-deep in a good sized portion of it.

Amazingly, there were no deaths or serious human injuries as a result of the disaster, though the ecosystem of the lake was forever changed. Further, three dogs died in the event. Many lawsuits were filed, all settled out-of-court, costing Texaco about \$45 million in damages, with about \$32 million of that going to Diamond Crystal.

Staci Lehman is a contributor to TodayIFoundOut.com. Visit www.todayifoundout.com/index.php/2014/06/ecological-disaster-turned-freshwater-lake-saltwater-crater/ for additional information.





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Soccer City

By Dan Lewis

The 2014 FIFA World Cup is being held in Brazil, running from the 12th of June until the 13th of July. Thirty-two countries from around the globe will play soccer matches in a dozen different stadiums each in a different Brazilian city, with the final match held at Estádio do Maracanã in Rio de Janeiro, the nation's second-largest city. Of the 12 stadiums, six are new constructions and the other six are receiving significant upgrades. It's a massive undertaking for the country and the cities alike.

If you follow World Cup soccer, the framework of the tournament and the newness of its venues is nothing new. The 2010 World Cup in South Africa featured matches at ten stadiums in ten cities; half of the buildings were built for the event while the other five were renovated shortly beforehand. The 2018 event in Russia will have matches in a dozen different stadiums in eleven cities, and nine of the stadiums are new constructions (the other three are likely going to be renovated). The 2022 World Cup, to be held in Qatar, is a little different in that there will be 12 different venues but in only seven different municipalities, but that is mostly because Qatar is relatively small. (At about 11,000 km², it's less than one percent of the size of South Africa, and microscopic compared to 8.5 million km² Brazil and 17 million km² Russia.) Nine are new constructions and three others are being expanded.

Again, it's quite common for nations awarded the World Cup to start massive public works. But Qatar has gone even further. They're creating a brand new city.

Lusail Iconic Stadium is a planned construction to be built for the 2022 World Cup. It will host the opening ceremonies and the final match and, therefore, is expected to be a very visible venue over the course of the

tournament. The stadium will be in Lusail, Qatar, which is located about 15 km (about 9.3 miles) to the north of Qatar's largest city, Doha. "Is located" is a bit misleading though, because as of June 2014, Lusail doesn't exist.

The city has been in development since 2006 and is expected to be completed sometime in 2015, although projects of this magnitude often, and understandably, run well past their original estimates. According to one contractor working on the project, when completed, Lusail will have enough housing for 175,000 residents (Wikipedia estimates it at 250,000), have 36 schools, and the state-of-the-art stadium -- which, when not in use, also acts as a solar power collector for the neighboring areas. There will also be a lagoon, multiple high-end golf courses, and importantly, exactly 1,048 lamp posts.

In total, Lusail is expected to cost nearly \$45 billion to build.

Bonus Fact: Qatar is expected to shell out nearly \$220 billion in improvements to prepare for the 2022 World Cup (and that apparently doesn't include the costs of building Lusail, although sources are unclear). That's a lot of money, which goes without saying. But to give it some context: South Africa spent "only" \$3.5 billion in support of the 2010 World Cup.


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In The Swing Of Things

By Dan Lewis

In 2002, a US inventor was successfully granted a patent for a "method of swinging on a swing." The method? The abstract describes it as a process "in which a user positioned on a standard swing suspended by two chains from a substantially horizontal tree branch induces side to side motion by pulling alternately on one chain and then the other." Ridiculous? Entirely - but don't worry too much about it if you're at the playground. The patent was filed by (and granted to) a five year-old boy who was learning what his father, a patent attorney, did for a living. (The process took two years, too.) A year after the patent was granted, the government cancelled its claims, rendering the grant useless.

In Montreal (in the spring at least), there are 21 swings which play music as people swing on them. The swings are a public art exhibition, one which requires interaction from passersby. The swings are designed to play different melodies based on how many people are swinging and how in sync they are.

The city of Banos de Agua Santa is located in central Ecuador and, because of its proximity to the Amazon River basin, is a major tourist center in the region. It is home to dozens of waterfalls and is named for



the hydro-thermal mineral water springs throughout the area, underscoring its value as an attraction. Further, the city is said to be a great place to go if you're into adventure travel; according to one questionably-designed website, the city features rafting, mountain biking, canyoning, and a half-dozen other outdoorsy activities. It also has some pretty great scenery, not just because of its proximity to the Amazon, but also because it overlooks Tungurahua, an active volcano. It is also home to the Swing at the End of the World.

The swing is attached to a treehouse appropriately named "El Casa de Arbol" - literally, "The Treehouse" - which is roughly 2,500 feet above sea level. When on the swing and facing outward, you can see Tungurahua to your right and hopefully it's not spewing too much ash and therefore blocking your view of its peak. You glide over what BoredPanda.com calls "a steep slope," but one certainly steep enough to result in death if you were to fall off the swing. If you don't fall - and few if any do - the views of the valley are said to be breathtaking. For those daring enough, the swing allows you to appear to be ascending from the heavens - from the right angle, at least. And it's clear that there are no safety wires or nets either.

Whether anyone has met their doom has gone unreported, and the swing is currently open to tourists regardless.

Check out some cool pictures of the swing at www.nowiknow.com/in-the-swing-of-things and sign up for a free daily newsletter with interesting things from Dan Lewis. He would thank you if he knew!

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New Teaching Approach Touted For Engineering Education By Emil Venere

Purdue University researchers who developed a new approach to more effectively teach large numbers of engineering students are recommending that the approach be considered for adoption by universities globally. The system, called the Purdue Mechanics Freeform Classroom, allows students to interact with each other and faculty online while accessing hundreds of instructional videos and animations. It was pioneered by Charles Krousgrill, a professor of mechanical engineering, and has been used for more than two years in two mechanical engineering core courses with hundreds of students enrolled annually.

"Data analysis shows that the students are really engaging our materials, and it is having a marked effect on student performance," said Krousgrill, who is working with Jeffrey Rhoads an associate professor of mechanical engineering; Eric Nauman, a professor of mechanical engineering; and Beth Holloway, assistant dean for undergraduate education in Purdue's College of Engineering. "We'd really like to see this expand beyond the borders of Purdue and are working now to make it happen."

The teaching approach addresses the challenges of educating large core-engineering classes, which have seen increasing student enrollment in recent years, and has significantly reduced the number of students who receive a grade of D; or drop, fail or withdraw from the courses (DFW). The new approach is detailed in a research paper being presented during the American Society for Engineering Education Annual Conference and Exposition in Indianapolis on June 15-18. The paper was authored by Rhoads, Krousgrill, Nauman and Holloway, who also is director of the Purdue Women in Engineering Program. The system includes highly interactive course blogs and has been implemented for five semesters in Basic Mechanics I - an introductory course in statics and strength of materials - and seven semesters in Basic Mechanics II - an introductory course in dynamics and mechanical vibration.

New findings indicate that the rate of students receiving a D, fail or withdraw from courses has been substantially reduced since its implementation. The DFW rate in Basic Mechanics I was 32 percent in the fall semester of 2008 and 18 percent in the fall semester of 2013. Likewise, the DFW rate in Basic Mechanics II was 21 percent in the spring semester of 2009 and 11 percent in the spring semester of 2013.

"With continued development and expansion we hope that the Purdue Mechanics Freeform Classroom can be adopted at colleges and universities across the globe, rendering a positive and uniform mechanics education experience for all," Rhoads said. A key driving force to developing the system was the need to educate more students, while also providing deeper knowledge. "When you have more than 100 students in a classroom, you need to find a creative solution; you no longer have direct access to students," Krousgrill said. "Anecdotally speaking, typical lecture attendance appears to have actually increased with the implementation of the Purdue Mechanics Freeform Classroom to approximately 85-95 percent, compared to the approximately 70 percent seen prior to implementation. Interestingly, instructors commonly report that the quality of in-class discussions and student engagement has increased as well."

The approach also might be used for any large STEM-related courses. One obstacle, however, to its widespread adoption is resistance from faculty. "Despite the seemingly positive impact on student performance and outcomes, there remain key challenges for broader implementation, most of which are strongly tied to faculty buy-in," Nauman said.

Press release from www.purdue.edu/newsroom/releases/2014/Q2/new-teaching-approach-touted-for-engineering-education.html

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How does a train eat?
It goes chew chew!



What kind of bagel can fly?
A plain bagel.



Where do animals go when their tails fall off?
The retail store.

How is imitation like a plateau?
They're both the highest form of flattery.

A magician was driving down the street...
...then he turned into a driveway.



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Power Line Safety Handy Reference

The National Commission for the Certification of Crane Operators (NCCCO) is making available Power Line Safety cards to help operators understand and apply federal OSHA's new guidelines for operating cranes around power lines. The cards, issued in conjunction with the Florida Crane Safety Alliance, also provide references for best practices based on both consensus standard ANSI B30.5 and OSHA 29 CFR 1926 Subpart CC.

"Studies show that electrocution from contact with power lines account for a large percentage, if not the majority, of crane-related fatalities," said NCCCO Executive Director Graham Brent. "While OSHA's new crane rule provides comprehensive guidance for operating cranes near power lines, applying the new rules can be challenging. NCCCO is distributing these power line safety cards as a handy reference for operators, lift directors, and others responsible for job site safety."

One side of the cards covers numerous items to check before starting to lift, including knowing the load, crane configuration and set up, boom configuration, radius of load, proper rigging, environmental concerns, external obstacles to consider, communication with riggers, and qualified lifting personnel. To better implement best practices, these items are cross-referenced by role, indicating which apply to lift directors, crane operators, riggers, signal persons, oilers/

trainees, and management/supervision.

A flowchart on the reverse of the card helps users navigate the rules for working around power lines detailed in 29 CFR 1926.1408. The flowchart starts with "Identify Work Zone" and works through an extensive decision tree to determine exactly which precautions are necessary according to the OSHA requirements. Table A from the OSHA rule, "Minimum Clearance Distances," is also included for easy reference.

NCCCO piloted the cards at CONEXPO's Lift Safety Zone in March. Due to the popularity of the power line safety demonstrations and the importance of the information on the cards, NCCCO is distributing the reference cards to interested parties for a nominal charge to cover the costs of printing and mailing; order packs of 10 cards for \$10 from www.nccco.org/plscard.

Used with permission from NCCCO, an independent, non-profit organization established in 1995 by industry to develop and administer a nationwide program for the certification of crane operators and related personnel. Since then, NCCCO has administered over 800,000 nationally accredited written and practical examinations and issued more than 170,000 certifications in all 50 states.

WORKING AROUND POWER LINES

Identify Work Zone

Choose

Clearing boundaries and positioning the operator from operating past these boundaries

Defining the work zone area as the area 300 degrees around the equipment up to the maximum working radius

Determine the distance between any part of the crane, load and load line and the power line.

NOTE: 1926.1408 (g) Power line safety zone: 2000' where 20 ft is specified, 50 ft should be substituted.

Less than 20 ft. | More than 20 ft.

Choose 1, 2 or 3 | Clear to operate Crane

Option 1 | Option 2

Deenergize and ground | Maintain at least 20 ft clearance and follow other rules

Identify voltage | Inside Table A clearance

See 1926.1410 for operating under Table A limits.

Follow criteria in 1926.1408 (j)

Conduct a planning meeting

If tag line is used it must be non-conductive

Erect and maintain an electrical warning line, barrier or line of tags at 20 ft or Table A clearance

Use at least 1 of the following:

- Use a nonconductive tag line
- Use a nonconductive barrier
- Use a nonconductive line of tags
- Use a nonconductive barrier or line of tags
- Use a nonconductive barrier or line of tags

TABLE A

VOLTAGE CLEARANCE DISTANCES

up to 50	10 ft.
over 50 to 200	15 ft.
over 200 to 500	20 ft.
over 500 to 1,000	35 ft.
over 1,000	45 ft.

29 CFR 1926.1408

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Display of your business banner, tee box sign, and a foursome in the tournament

Platinum Sponsor - \$500

Display of your business banner, tee box sign, and a twosome in the tournament

Gold Sponsor—\$250

Your business name displayed on a tee box sign and a single player in the tournament

Silver Sponsor—\$150

Your business name will be displayed on a tee box sign

Giveaway Sponsor

Your corporate promotional items (or other purchased items) will be on a table at the event and distributed to golfers.

Silent Auction Sponsor

Your donated item(s) will be included in the Silent Auction at the event.

To reserve your tax deductible sponsorship, complete and mail the information below along with your check to:

The Engineering Society of Buffalo, Inc.

C/O Jeff Wach

1700 Clinton St

Buffalo, NY 14206

Phone 716-826-4233

Make your check payable to "ESB"

Business Name: _____ Phone: _____

Individual Name: _____ Email: _____

Address: _____

City: _____ State: _____ Zip: _____

Please check one: Titanium Platinum Gold Silver



Golf Information

When: Tuesday August 5, 2014
 9:00 am Registration & Open Practice Range
 10:00 am Shotgun Start

Where: Chestnut Hills Country Club
 1330 Broadway Darien, NY

Fee Includes: 18 Holes of Golf with cart, Bucket of Balls on Driving Range,
 Lunch at the Turn, NY Strip Steak Dinner, Contests,
 Awards, Prizes, and Beverage Cart during play

Questions: Email Jeff Wach at jwach@egwpersonnel.com



Golf Registration

Captain / Player 1: _____
 Company: _____
 Address: _____
 Phone: _____
 Email: _____

Mail your check (payable to ESB) at:
 The Engineering Society of Buffalo
 C/O Jeff Wach
 1700 Clinton St
 Buffalo, NY 14206
 716-826-4233

Please register me for:

\$360 Foursome - Other golfer names _____

\$190 Twosome - Other golfer name _____
 \$100 Single Golfer _____
 \$30 Dinner Only – Name(s) _____

\$_____ Total Enclosed

New ESB Meeting Dates

**society meetings are moving to Tuesday s
 starting in September.
 Make a note of it!**



**Volunteering
At The
Buffalo
Marathon
Water Stop.
See Page 2.**



THE ENGINEERING
SOCIETY OF BUFFALO
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AMHERST, NY 14226

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