

NEWS

News Blurbs Now! (NBN)

Ever hear of a show called Innovation Nation? The show takes a look back at some great inventions but also highlights new research projects as well. And in February, an innovation developed at UB was featured on this show! James Jensen (professor) and Deshawn Henry (student) were interviewed by CBS regarding the water lens project, a six foot tall “magnifying glass” that is said to heat one liter of water to 130 degrees Fahrenheit in about an hour. Okay, we should probably call it a magnifying plastic as it is made from a plastic sheet covered by water and supported by a wood frame. This water lens, along with some concentrated sunbeams, creates a focal point where a container of water is located. Besides heating the water, the water lens also destroys 99.9 percent of the bacteria within the water. Maybe this inexpensive innovation will help the millions and millions of people who are lacking clean water! What can you do to change the world?



NGC Testing Services will be celebrating their 50th anniversary this year. They provide testing services for acoustical, fire, structural, and analytical materials/products.

Their technical staff has over 200 years of testing experience. Make sure to check out their newsletter at www.ngctestingservices.com as they look forward to celebrating with current and future clients in the next few months. Golden congratulations!

Electrical engineers from Trautman Associates collaborated with Solar Liberty on the "Solar Strand," which was launched on Earth Day 2012. Located at UB's North Campus main entrance, the 3,200-panel photovoltaic array generates electrical power for hundreds of campus apartments. The project has been included in the Wall Street Journal's list of "Best Architecture in 2014". Congratulations!



**TRAUTMAN
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If you don't like cords sitting around to charge your electronic devices, you might just want to take a quick trip over the border and visit IKEA. In April, IKEA will begin to sell a line of furniture (including desks, nightstands, and tables) that will be able to charge your smartphone wirelessly provided your device is in contact with the piece of furniture. Swedish meatballs anyone?

The National Commission for the Certification of Crane Operators has announced its board including Thom Sickelsteel (President), Kerry Hulse (VP), Peter Juhren (Secretary/Treasurer), Vinal George Bell, James T Callahan, Lyle P Nichols, J Chris Ryan, Ellis Vliet, and Tim Watters.

Check out the US House of Representatives Transportation and Infrastructure Committee's Subcommittee on Aviation hearing that occurred on March 3 including issues such as the growth of unmanned aerial systems and GPS based air traffic control under NextGen. Visit transportation.house.gov/calendar/eventsingle.aspx?EventID=398703 to watch the webcast.

This should be the best year so far for tech graduates entering the workforce. A Michigan State University survey states that job recruitment at colleges will increase more than 50 percent. And according to the National Association of Colleges and Employers, engineering graduates will be the highest paid among those obtaining their first job with an average salary of \$63,000. What is the hardest position to fill? Per Jobvite, that's a software engineer. If you haven't already, start steering children toward engineering.

Need a bit of help getting students interested in engineering? Download the game Backyard Engineers! Build catapults and throw water balloons to beat the other neighborhood kids. There is even a 90 page curriculum guide for teachers. "Backyard Engineers is designed to break down difficult mechanical design concepts into simple, easy-to-learn game mechanics," said Dan White, cofounder and chief product officer. "This makes a complex subject like engineering much more approachable and enjoyable to learn." The game currently sells for \$5.99.



Future assembly line robots will be more aware of the humans around them. The next generation of robots will be able to learn from their experiences, sense when humans are near, and stop their movements to avoid space conflicts. Ultimately, this will result in a safer workplace!

It costs 1.83 cents to manufacture a US penny, which is made up of copper and zinc. In 2013, the US Mint lost \$55 million just by manufacturing pennies! In the 2015 fiscal year, a "comprehensive review" of the production and use of all US coins will be completed. Will pennies disappear?

Picone Construction acted as design/builder for renovations to WKBW TV's newsroom. A ribbon cutting ceremony was held on March 2 and the architect was Silvestri Architects PC.



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 news to ESB1894@gmail.com.

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PRESIDENT'S MESSAGE



Should Engineers in Industry Be Exempt?

Throughout the United States the practice of engineering is a regulated profession, similar to the practice of medicine and law. With a few exceptions (industry and government), Professional Engineers, Architects, and Surveyors are given the exclusive right to perform these professional services. This exclusive right is granted to "protect the public". All licensed engineers have a proven minimum level of competency as evidenced by their four year degree in engineering, two intensive competency examinations, professional recommendations, and a minimum of four years of experience working directly for other "Responsible Engineers in Charge". In trade for these exclusive rights, the engineer is legally bound to a code of ethics and has professional, personal, and product liability for the competency of their works. In trade for the exclusive right to perform the work, engineers have the responsibility to act professionally and get it right.

With a limited number of exceptions, when you apply for a building permit the local building authority require an architect's or engineer's stamp on the final documents. The local building code official is responsible for confirming the documents meet the building codes, but in practice they use the stamp as one indicator of the quality of the work. Surprisingly, there is an exception in most states regarding industrial engineering which has caused concern and lack of building code enforcement. Back in the 1940-1960's when PE stamp requirements were being codified in state

law, large corporations lobbied and got an exemption for themselves. Rules were put in place to allow a company to perform engineering for themselves without having to hire or employ licensed engineers. Corporations can hire an engineering staff, perform design work for themselves, and never have the effort reviewed or overseen by a licensed professional engineer. This might make sense for Boeing corporation whom designs and builds aircraft, but might not make sense for BP Oil whom has oil drilling rigs floating in the Gulf of Mexico.

Most corporations, based on a legacy of being able to do their own engineering, can be ignorant to the state and local building code requirements. Building code officials, whom efforts are triggered by a permit submission, routinely do not go out and enforce the code requirements in the industrial market. My professional experience indicates that ignorance and lack of enforcement is far more common than you would think. This is a major issue for engineering societies whom are actively trying to change the corporate exemption laws and have been successful in some states.

In the practice of engineering, some issues are not black and white. Should industrial engineering practice be exempt? What do you think?

Marco Scofidio PE
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CALENDAR OF EVENTS

04-13-15	6pm	Ways and Means Meeting	2555 Walden Ave, Buffalo (Wendt Corp)
04-13-15	7pm	Directors Meeting	2555 Walden Ave, Buffalo (Wendt Corp)
04-21-15		ISA Tech Expo	Marriott Inn, Amherst
04-??-15	10am	Adopt A Highway	Corner of Colvin & Brighton, Tonawanda
05-03-15		WNY Invention Convention	1 Lafayette Square, Buffalo (BECPL Central)
05-??-15		ESB Election/Member Night	
06-01-15		ESB Scholarship Applications Due	
07-22-15		ESB 5K Scholarship Run	
12-3 to 12-5		Construct Canada	Toronto



NEXT BIG ESB EVENT

ESB Needs You!

We are seeking candidates to run in the ESB yearly election which typically occurs in May. Would you be interested in becoming a director on the board of The Engineering Society of Buffalo? Gain leadership experience. Craft the future direction of the society. Create lasting business relationships. The board meets monthly typically on a Monday evening.

Know who would be perfect for the board? YOU!

Contact Ron Papaj at rpapaj@aptechsearch.com or 716-635-0290 to find out how to get your name on the ballot. No experience is required.



In addition to misunderstanding math, American students also, on average, write weakly, read poorly, think unscientifically, and grasp history only superficially.

-Elizabeth Green

“(New Math) - (New Teaching) = Failure”

The New York Times Magazine

July 27, 2014



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TECHNICAL ARTICLE

3D Printed Implants May Soon Fix Complex Injuries

By Katie Feldman

In an age where 3-D printers are becoming a more and more common tool to make custom designed objects, some researchers are using the technology to manufacture replacement parts for the most customized and unique object of all--the human body. With funding from the National Science Foundation, a husband and wife duo--materials scientist Susmita Bose and materials engineer Amit Bandyopadhyay--are leading a team of researchers at Washington State University to create implants that more closely mimic the properties of human bone, and can be custom-designed for unusual injuries or anatomy.

"In the majority of cases, results are fantastic with off-the-shelf implants," Bandyopadhyay says. "However, physicians come across many patients in which the anatomy or injury is so unique they can't take a part off the shelf. In these unique situations, the surgeon becomes a carpenter." Using a technology called Laser Engineered Net Shaping (LENS®), these new implants integrate into the body more effectively, encouraging bone regrowth that ultimately results in a stronger, longer lasting implant. In the LENS® process, tiny particles are blown into the path of a laser and melted. The material cools and hardens as soon as it is out of the laser beam, and custom parts can be quickly built up layer by layer. The process is so precise that parts can be used straight off the printer without the polishing or finishing needed in traditional manufacturing. Implant manufacturers using this strategy could simply start with a CT scan or MRI and use that to make a 3-D model of the injury.

Although bone seems stiff and solid, it in fact has some "spring" and millions of microscopic pores. Because a metal implant is much stiffer, the surrounding bone doesn't have to support as much weight as it normally

would. This is a significant problem with today's implants. Bones weaken and break down when they aren't properly exercised.

"Once we built confidence that the properties of LENS®-manufactured implants were the same as standard implants, we then focused on materials that were difficult to manufacture, like tantalum. We can make a tantalum implant or coating in less than 15 minutes, even though its melting temperature is over 3000 degrees Celsius," Bandyopadhyay says. Tantalum is non-irritating and can directly bond to hard tissue like bone. Implants can be manufactured with structures that are difficult to make using traditional techniques. They can have pores in the center but be solid at the edges, or have texture on the surface to help bond with bone or other biological materials. The holes have the added benefit of making the metal part less stiff and more like the bone it replaces, also helping the bone grow. When bone grows into an implant, it forms a strong bond between the two and makes the bone less likely to degrade. The less the bone degrades, the less chance a replacement might be needed.

Bandyopadhyay expects that by 2020 custom-designed and manufactured implants will become commonplace. According to Bandyopadhyay, "Biomedical device companies have invested heavily in this research and are setting up 3-D printing facilities. The FDA approved its first 3-D printed device last year."

Read more at www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=129867&org=NSF

Katie Feldman, AAAS Science and Technology Policy Fellow and National Science Foundation, Directorate for Engineering



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STUDENT INFO

Less Laundry, More Woolly Fun

By Robin M Closs SE PE

Looking for a cool way to give someone a lamb for Easter? Well it might not be a sheep exactly, but check out woolandprince.com to find naturally odor-resistant, wrinkle-resistant button down shirts, t-shirts, polos, and boxer briefs. The wool material is six times more durable than cotton. (It's also a few times more expensive too.)

Wrinkle Resistant

Wool is resilient to wrinkles because the fiber has a springy structure which helps it keep shape.

Odor Resistant

Wool reduces the opportunity for odors to generate because it's more efficient than other fibers at absorbing sweat and evaporating it into the air.

Climate Control

Wool is a natural insulator to keep you warm in winter and naturally breathable to keep you cool in summer.

More Durable Than Cotton

Tests have shown that wool fibers resist tearing and can bend back on themselves more than 20,000 times without breaking. (Cotton breaks after 3,200 bends.)

Superfine Fibers

Different sheep breeds mean different types of wool. Some are super soft, others are coarse and itchy. Wool & Prince uses some of the softest wool available.



In 2013, Wool & Prince started questioning why guys buy clothes that require cleaning after just one or two wears. Washing, dry cleaning, and ironing aren't just time consuming tasks, but they degrade a garment over time. Their garments are the perfect alternative. They hardly need washing thanks to the low maintenance properties of wool.

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03/30/15	1.5	Webinar	Dynamically Loaded Machine & Equipment Foundations-A Design Primer	\$349
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03/31/15	1.5	Webinar	AWC's 2015 Special Design Provisions for Wind & Seismic-Overview & Changes	\$275
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NASCC - 16 PDH for only \$350

From seismic design to the AISC *Code of Standard Practice*, AISC is now offering you the opportunity to watch selected sessions from this year's NASCC: The Steel Conference live from your own office or conference room. There are 24 sessions streamed during 12 time slots. You have the option of watching as many sessions as you want-and you can receive up to 16 PDHs. The cost for the first person from your firm to register is \$225 for AISC members and \$350 for non-members. And each additional registrant from your firm costs just \$10. The conference is scheduled for March 25-27 in Nashville, TN. Visit www.aisc.org/nascc for the full program or to register.) The scheduled streaming sessions include:

Wednesday 4:15-5:15 pm

- Innovative Collapse Prevention for Seismic Effects
- What Makes a Good Design Drawing

Wednesday 5:30-7:00 pm

- Learn the Tricks to Designing Joist Girder Moment Connections
- Vertical Bracing Connections-Analysis and Design

Thursday 9:00-10:30 am

- 90 Seismic Design Ideas in 90 Minutes
- Weld Details-Good, Bad, & Ugly

Thursday 11:15-12:45 am

- Alternate Methods to Connection Design
- Follow the Load Path to Avoid Unfortunate Consequences

Thursday 2:15-3:15 pm

- Typical Practice for Non-Uniform Loads on Steel Joists
- Interactive Steel Quiz

Thursday 4:00-5:00 pm

- Flexible Moment Connections
- Roof and Floor Deck Diaphragms: Behavior and Design

Thursday 5:15-6:15 pm

- The Art of Structural Drafting-Tips for Producing High Quality Structural Drawings
- AISC Research: Protecting the Protected Zone

Friday 9:00-10:30 am

- Current Developments in the AISC Code of Standard Practice
- Design and Stability of Connection Elements

Friday 11:15-12:45 am

- Are the Results of My First or Second-Order Analysis Correct? Is It Me or the Software?
- Connections: Simple, Complex, and Perplexing

Friday 2:00-3:30 pm

- Sustainability 2015: What's New with Steel/Sustainability
- Lean Steel-Applying Lean Thinking to the Structural Steel Project Delivery Process

Friday 3:45-4:45 pm

- Achieving Economical Long Spans with Composite Truss Construction
- Of Course It's Right, It Was Done By a Computer!

Friday 5:00-6:30 pm

- Working with Large Trusses
- HSS Design: New Codes and Material Specifications



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Judge Opportunity

The WNY Invention Convention's mission is to promote creative thinking and encourage scientific problem solving for students in grades K-8. Fundamental to the mission is challenging young minds to identify a problem and develop an innovative solution, which they present as part of the Invention Convention each May.

This year's event will take place at the Buffalo & Erie County Public Library on Sunday, May 3rd. This year's judging format will be one of "judging circles" during which multiple inventors will present to a small panel of judges on the day of the convention. We believe this will provide our young inventors and the judges with a much richer experience. If you are able to serve as a judge, please contact Andrew Olewnik at olewnik@buffalo.edu before March 27th. As the event date approaches, you will receive judging guidelines and a copy of the scoring forms for review.

The schedule for the WNY Invention Convention is:

Sunday May 3rd

11:15 - 11:45 am	Judge Arrival
11:45 am - 12:15 pm	Judge Orientation and Judging Panel Assignments
12:30 - 2:00 pm	Judging Circles
2:00 - 3:00 pm	Judges vote
3:00 - 4:00 pm	Awards Ceremony



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Spruce Up Your Tie Tying

By Robin M Closs SE PE

Easter is coming and maybe you will be grabbing an old tie out of the closet to wear to a church service or to visit your grandma in a nursing home. Or maybe you just want to look better than your boss in your dashing tie on the way to that client meeting. In either case, visit www.shirtsmyway.com/articles/different-ways-how-to-tie-a-tie-knots.php and learn 30 different ways to tie that tie. Don't look like all the rest of the suits!

Try the eldredge knot for something fancy that has a fishtail type braid effect or the fishbone knot that is shaped in the form of a fishbone. If you want something a bit easier than the eldredge knot and want to be able to loosen your tie (like a normal windsor), try the ellie knot.

Trying to be a bit more romantic than fish? The rose knot or the truelove knot might be a better choice. (Are there really knots that are more romantic than others?!?)

Maybe you're a fan of The Matrix. If so, try the merovingian knot which used to be called the ediety knot. This knot makes your tie look like it is wearing a tie.

Want something simple (provided you can tie a normal windsor knot)? Check out the onassis knot.

There are many others too. Take a picture of the one you choose and send it to me. I'd like to see your tie step up!

Robin M Closs SE PE is a past president of The Engineering Society of Buffalo, a licensed structural engineer, and currently enjoys tutoring multiple high school students in math related subjects. She can be reached at clossr@yahoo.com and actually knows how to tie a tie, but only in a boring, normal way currently.



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MEETING MINUTES

Attendees: Officers: Closs, Samol, SanFilippo, Scofidio
Board Members: Bandriwsky, Kolber, Masse, Mooney, Papaj, Plizga, Wach
Members: Colucci, McMahon

Call to Order: President Marco Scofidio called the meeting to order at 6:04pm

Committee Reports

Advertising: Closs got ad info from office. Scofidio will make a list and email to Papaj, Plizga, Samol, Wach. Papaj will scan files

Audit: No report

Bowling: St Pat shoot is on Wednesday March 11 and will have 32 winners. Sweepstakes night is April 15 and this is the last night of bowling. The banquet will be April 24 at 6pm.

Bylaws: No report

Education: The review class found two presenters that were needed. Five enrolled in PE review course.

Endowment: Since 2005, Mike Lopian of Merrill Lynch has held funds. There was a 17% increase in value from end of 2013 to 2014. We had 20% in each of five funds at the start. Now, there are seven funds that are no longer balanced. Lopian doesn't believe it is in our best interest to balance them currently. Colucci wondered if we are managed and McMahon said that Lopian does look at this.

Entertainment: If we do not have an election this year, we may have a member benefit party instead. Closs volunteered at the Buffalo Museum of Science for two days and one day at an Orchard Park Elementary School during Engineer's Week. Colucci would like to chair a second ESB car/bike show and would be looking for volunteers. Beginning budgeting and planning will commence for a possible spring/summer 2016 show. Frank Boeck may be interested in helping.

Fundraising: No report

Golf: No report

Historian: No report

Media: Minor web updates

Newsletter: No report

Nominating: No new commitments. Papaj will still contact people.

Scholarship: Jeff Salzman and Pat Conway updated scholarship information and Conway sent out packets to area high schools.

Scholarship Run: Planning meeting held last week. Next one is April 8 at 6pm. The run will probably be at the boat harbor but we are still in the process of determining after the owner change of the boat harbor.

Sunshine: No report

Y Membership: Max Smith joined the committee as a student representative. Jon Kolber and Allen Vaillancourt are chairing.

Minutes: The minutes of the February meeting were reviewed and approved

Adjournment: The meeting adjourned at 7:03pm

Next Meeting: Monday April 13, 2014



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Oreos

By Robin M Closs SE PE

Happy birthday to the Oreo! It was first sold on March 6, 1912 in New Jersey and first trademarked on March 14 of the same year. I hope I never have the opportunity to eat a 103 year old Oreo!

Oreos are produced by Nabisco which was originally called the National Biscuit Company. Get it? **NA**tional**BIS**cuit**CO**mpany. In England, cookies are called biscuits and in 1912, consumers were looking for an English style biscuit. I guess they weren't happy with the Hydrox cookies manufactured by the Sunshine company beginning in 1908. So, the Oreo was created to imitate the Hydrox cookie...but it tastes so much better in my opinion.

The "Oreo Biscuit" was first manufactured in New York City between 15th and 16th streets. Today, this 9th Avenue block is known as Oreo Way even though much of the production now occurs in Richmond, Virginia.

It takes 90 minutes to make a single Oreo and nine million are consumed each year. As a comparison, only seven million chocolate chip cookies are consumed each year and those are made by many different companies.

My favorite part of the cookie is definitely the cream. I typically take my cookies apart, eat the wafers first, and save the cream for last. Did you know that if you took the cream from an entire year's supply of Oreos, you could decorate all of the wedding cakes used in the US for two years? That's a lot of Oreos!

The Oreo cookie is the best selling cookie of the 20th century and probably will be for the 21st century too. An Oreo consists of 29% cream and 71% wafer. Each wafer has a design consisting of twelve flowers surrounding the cookie name. There are 90 ridges on each wafer.

Do you eat your Oreos how everyone else does? According to Central Survey:

- 31% eat the cookie whole
- 25% twist the cookie apart
- 16% eat the cream first
- 9% dunk the cookie in milk before eating
- 9% say they have a complex way to eat the cookie
- 7% eat the wafers first and save the cream for last
- 3% imitate their nearby cookie eating friends.

In case that wasn't enough Oreo knowledge for you, perhaps you would want to participate in an Oreo Stacking Contest that has occurred at 15,000 supermarkets across the US. A past national final competition was held at Universal Studios in Orlando, Florida. How many cookies do you think hit the pavement that day?

Robin M Closs SE PE is a past president of The Engineering Society of Buffalo, a licensed structural engineer, and currently enjoys tutoring multiple high school students in math related subjects. She can be reached at clossr@yahoo.com when she is not eating Oreos.



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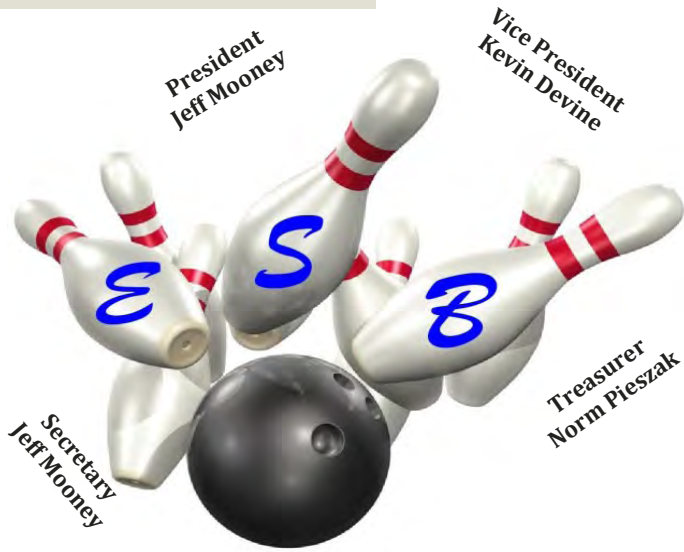
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<p>Successor to the Land Surveying Records Of:</p> <table border="0" style="width: 100%;"> <tr> <td>Alfred Krehbiel</td> <td style="text-align: right;">Est. 1928</td> </tr> <tr> <td>Krehbiel and Krehbiel</td> <td style="text-align: right;">Est. 1950</td> </tr> <tr> <td>Krehbiel, Huffcutt, Walters & Guay</td> <td style="text-align: right;">Est. 1960</td> </tr> <tr> <td>Krehbiel, Guay, Rugg and Hall</td> <td style="text-align: right;">Est. 1967</td> </tr> <tr> <td>Krehbiel Associates</td> <td style="text-align: right;">Est. 1977</td> </tr> </table>	Alfred Krehbiel	Est. 1928	Krehbiel and Krehbiel	Est. 1950	Krehbiel, Huffcutt, Walters & Guay	Est. 1960	Krehbiel, Guay, Rugg and Hall	Est. 1967	Krehbiel Associates	Est. 1977	<p>37 Central Avenue Lancaster, NY 14086-2143 Fax: 716-683-0169 wsa@wmschutt.com www.wmschutt.com</p>
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Krehbiel Associates	Est. 1977										

BOWLING LEAGUE



Team Standings Week 26		Won	Lost
1.	THE KEGGLERS	139.5	94.5
2.	AVERAGE JOE'S	134	100
3.	MESSY HOSE	133.5	100.5
4.	DUMBLEDORES ARMY	130.5	103.5
5.	JUNKYARD DOG'S	130	104
6.	SPLIT HAPPENS	126.5	107.5
7.	OUTCASTS	125	109
8.	AZZ CLOWNS	121	113
9.	SABER	119	115
10.	CAD/CAMS	118.5	115.5
11.	ODIES	118	116
12.	K & M TREATS	117.5	116.5
13.	DEAD LOADS	115	119
14.	PROTRACTORS	87	147
15.	ARCHER IMAGING	86	148
16.	TRANSMITTERS	71	163

Scratch Game

John Grembowicz	277
Tom Gromada	254
Jason Grembowicz	253
Julia Hay	246
Brian Olkowski	244
Todd Wheeler	242
Jeff Mooney	236

Scratch Series


John Grembowicz	719
Brian Olkowski	667
Jeff Mooney	666
Jason Grembowicz	655
Julia Hay	654
Todd Wheeler	626
Paul Braun	618

Handicap Series

Jeff Mooney	768
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Cross Alley w/Handicap


Tom Gromada	288
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Principal

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Date: _____

I hereby make application to the Engineering Society of Buffalo, Inc. and I agree to abide by the Constitution and By-Laws governing this Society.

Name: _____

Street Address: _____

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Residence Phone: _____

Where Employed: _____

Firm Address: _____

City: _____ Zip: _____

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Position in Firm: _____

Nature of Business: _____

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Residence Business

Signature of Applicant _____

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Biography

The Engineering Society of Buffalo contemplates publishing biographical sketches of members in the monthly newsletter "The Western New York Engineer". For this purpose we would like the following information:

Date of Birth: _____ Married Y N

Member of what other clubs/societies: _____

Education: _____

In what engineering field(s) are you interested in? _____

Resume attached? Yes No

Sports & Hobbies: _____

Name of Spouse and Children: _____

Spouse: _____

Children: _____

Name as it should appear on ESB Membership Card: _____

Activities

- Activities in which you would like to participate
- Advertising
 - Scholarship
 - Bowling League
 - Newsletter/Roster
 - Golf Outing
 - Education
 - Program Committee
 - Scholarship Run
 - Business & Community Affairs



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- \$30 Retired
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 - Top spot on donation A-frames at race
 - Inclusion in promotional email to runners

Platinum Sponsor - \$500

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 - Also advertised at **our Golf Tournament** with a business banner and tee box sign!
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 - Included on donation A-frames at race

Gold Sponsor - to \$250

- One year on www.tesb.org home page
- Included on donation A-frames at race

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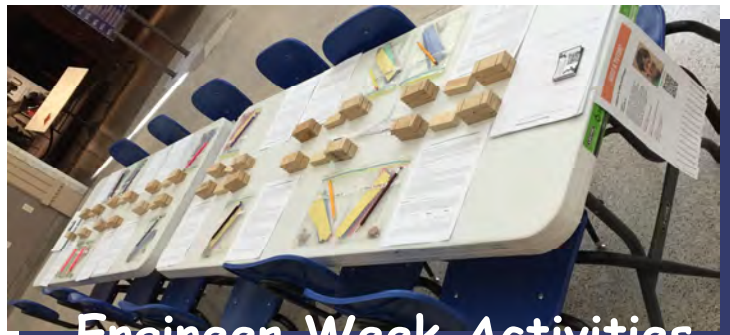
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