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engineer

HELPING MAKE ESB YOUR SOCIETY

**TECHNICAL ARTICLE** 

# **December Board Meeting Located** At Special Venue by Jon Kolber PE

The Engineering Society of Buffalo Board went on the road for its December 2 board meeting, accepting board member Emil Bandriwsky's invitation to meet at the Ukrainian Cultural Center (also known as DNIPRO named for the largest river in the Ukraine) located at 562 Genesee Street in Buffalo.

The group arrived at 5pm to enjoy some fine Ukrainian Obolon lager at the main bar on the building's lower level. Emil, while serving as bartender, provided his own running commentary over the social hour, starting with the history of the building. It was originally constructed in 1914 by Germans and

is built solidly with deep structural members and greater than two foot thick walls. After serving the German community as a social hall for many years, it was obtained by the federal government during the war. An Ukrainian group purchased the building in 1955 and spent a lot of time/effort to customize it to represent the new owners, including adding meticulously painted designs on the walls and ceilings. Much of the painting and remodeling was done by volunteers, when they weren't working their regular full time jobs of course.

More recently, a second generation of Ukrainians resumed the process including reconfiguring the old, inefficient steam heating system. As the group left to tour the rest of the building, Emil pointed out the attractive bar and rail which is one of the longest in this area.

We went upstairs to the second floor bar which was smaller and less elaborate but equally functional. Beyond the bar, Emil took us through two small rooms which now serve as classrooms for "our little angels." In one of the rooms, he showed us windows which were recently installed, a point of pride since it was not prudent to have windows during some previous socially challenging

times. He also explained that the organization has purchased a number of small tracts of land around the building as they became available through foreclosure at minimal cost, creating a buffer space which includes a secure parking lot.

We then preceded to the crown jewel of the building also located on the second floor, the ballroom. This is a magnificent space which has a high ceiling (at least two stories high.) The walls and ceiling are decorated with artwork. Across the top of the stage is a colorful mural which remains intact.



See back page for ballroom photo

Work still remains to be done, although the overall solid character of the building is obvious. The ballroom is used for special events including ethnic/religious celebrations, weddings, and concerts.

We returned to the downstairs bar, where we sat down to pierogi dinners prepared by Euro Deli. Thanks to Yuri Darmograi for making this possible! After dinner, the group went to the Taras Shevchenko Lbrary on the second floor to conduct the December meeting. Emil explained that the library needs a lot of work to make it a first class facility. This will take time and money but the work is already underway.

Future ESB meetings will be held in other places too. Do you have a location that we could use or an interesting one to suggest? Thanks to Emil, we got off to a great start in December!

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#### PRESIDENT'S MESSAGE



"My mentor, my friend -John Beishline"

ESB Executive Administrative Director and dear friend John Beishline passed away on 12/10/13. John was one of the strongest supporters of The Engineering Society of Buffalo. He didn't stop or slow down even when many people his age would have called it quits.

He was a friend of mine and a mentor. He taught me everything I know about race planning and supported me as president of the society.

John was the only man in the history of ESB to be president of the society two times (1970-71 & 1988-89) without running consecutive terms. John was a member of ESB since 1966. He would tell me of the good old days at the society when they had 1000 members and they would run election campaigns to get elected to

the board. I can remember the first phone call I got in my kitchen from ESB. It was John on the other line and he said "We would really like to have you on the board." John knew that a human voice was the way to get people's attention. John started me on my journey here at ESB.

The standing joke at the board meetings was when they went on too long, John would say "I got to get back, Dancing with the Stars is on tonight" regardless of whether the show was on that night or not.

John cared about ESB and helped save the scholarships by creating the annual scholarship run. John along with Lee Jasienski came up with the

424 Main Street, Suite 1820, Buffalo, New York 14202

idea of holding a race to help fund the scholarships. They were codirectors together, funding the race themselves and through sponsors afterward. John himself was also an accomplished runner. At age 50, he ran the Boston Marathon in 3:20:00. That's 7:38 minutes per mile. That still blows my mind! John also helped bring back the Buffalo Marathon in 2000. John was so loved in the community because he gave so much of himself to these events.

The Engineering Society of Buffalo was lucky that John picked our group to join and dedicate so much of his time to. John will always be a legend in my eyes.

> Matthew J. Plizga, P.E. ESB President mplizga811@aol.com





E-mail: rknoer@knoergroup.com

#### **CALENDAR OF EVENTS**

01-06-14	6 pm	Ways and Means Meeting
01-06-14	7pm	Directors Meeting
01-16-14	7pm	PE Exam Review Classes Begin
01-22-14	530pm	Catholic Health Building Tour
02-03-14	6pm	Ways and Means Meeting
02-03-14	7pm	Directors Meeting
02-15-14 to	02-22-14	Engineers Week Volunteer

1091 Jamison Rd, Elma (Earth Dimensions)
1091 Jamison Rd, Elma (Earth Dimensions)
University at Buffalo North Campus
144 Genesee Street, Buffalo
2660 William St, Buffalo (Construction Exchange)
2660 William St, Buffalo (Construction Exchange)
Buffalo Museum of Science



#### ESB NEWS

## Catholic Health Construction Tour By Matthew J Plizga PE

January 22, 2014 at 5:30 pm Come see this building up close and personal with a construction tour from Construction Manager Denis Steszewski For reservations, contact Matt Plizga at mplizga811@aol.com or 716-541-5840 1.0 PDH Pending Cost \$25 members/\$30 non members Food and drink included

Located at 144 Genesee St just as you get off the Kensington expressway is the newest building in downtown buffalo. The six story steel framed building is Catholic Health's major plan to centralize its employees instead of being at eight scattered locations. I took a pre-tour and wanted to share with you.

The building uses as much of the site as possible with only a seven foot setback from the street. The \$46 million dollar new building will encompass 140,000 square feet of space. The first and second floors will be office and meeting space. Floors three, four and five will be more office space.

The structure of wide flange steel sections have welded moment connections on the flanges and A325 bolted web connections. The floors are steel deck with shear studs protruding from the wide flange beams. The decking is covered with concrete with an unfinished floor height to allow a 2-5/8" floating floor for network connections.

The building will also have its own parking ramp with over 900 spaces for vehicles. Both the building and the parking ramp will be supported on circular piles. The four floor parking ramp will be made from precast concrete and will be connected to the building via a walkway.

The outside of the building will have brick on the lower two stories and curtain wall construction extending up to the roof. One of the building challenges was setting the lintels. The composite concrete floors had to be poured first before setting the lintels. "We needed the deflection to take the camber out of the beams in order to properly set the lintels," said Project Manager Denis Steszewski.

Walking through the building, one can get a sense of how great the building will be. This building should be a tipping point for the economic development and growing work population of the downtown area.

Thank you to Denis Steszewski and Ed W from Uniland for the great tour. Thank you to George Eberl from Eberl Iron Works for acting as the Knowledge base for the surrounding area. George actually grew up one block away on Sycamore. I would also like to thank Therese Hickok and Erin Casell from Uniland for putting the tour together.





#### **ESB CORPORATE MEMBERS**

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ESB NEWS

# **Engineers Week**

Soon it will be Engineers Week. How will you impact the world?

Would you be interested in running an engineering demo in your discipline at the Buffalo Museum of Science?



When? Any day from Feb 15 thru 22 Time?

Any time from 1030am to 330pm



Free museum admission for you plus two additional guests on the day of volunteering! Free parking too. Contact Robin Closs at robin@rjrpc.com by Feb 5.

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**TECHNICAL ARTICLE** 

## The Ice Man Cometh By Dan Lewis

The Tenana River is a 584 mile waterway flowing northwesterly in Alaska. It starts near the state's border with Canada's Yukon Territory and empties into the Yukon River in the center of the state. It's not used much as a means for transportation during the winter, in part because the area it runs though is sparsely populated, and in part because around this time of year, it begins to freeze over. At one point, near the Alaskan city of Nenana, the ice reaches an average thickness of roughly 40 to 43 inches.

At some point in the spring, the ice starts to melt. And when it does, someone wins big. Because since the early 1900s, Alaskans have been gambling on the event -- a respite from the otherwise boring wait for a river to thaw.

The rules of what is now called the Nenana Ice Classic are simple -- ante up, guess when the ice breaks, and win the pot. When the contest began in 1906, it was informally organized by the participants, a small group of about a half-dozen locals with the winner earning himself a few rounds of drinks. The contest wasn't repeated until 1917, when a bunch of railroad workers rebooted it, collecting about \$800 (\$14,000 in today's dollars) and earning themselves an audience of would-be participants in the process. It's become a local phenomenon ever since.

Over the years, determining "when the ice breaks" has lead to the invention seen below as a way to give a definitive and objective answer. After the river freezes, organizers put what they call the "tripod" (a misnomer, as it has four legs) on the ice. To play, participants simply buy a ticket and write the date and time -- to the minute -- that they think the tripod will move down the river. The tripod is connected to a clock and, once the tripod moves a large-enough amount, the clock stops and we're left with our official winning time.

The event now is an annual fundraiser for local charities and has made some

people rather well-off. Last year, the winning couple took home a \$318,500 prize purse. That's the win of a lifetime, for most.

But not for the 2012 winner. For him, it was the third win of a lifetime. That year, the prize went to a mental health technician named Tom Waters, who took home about \$250,000 (after accounting for Federal taxes, apparently). For Waters, the victory was nothing new -- he had shared the prize in both 1983 and 1979 before taking the whole thing in 2012. And in 2011, he came close to another victory -- he was only a minute off. He had a system, one which is hard to argue with given the results.

Each year, he drills his own holes in the ice, hoping to gather data about the ice thickness and thaw rates of that season (without disturbing the tripod, of course). Then he does a bunch of math to narrow down the possibilities, and, once he has a small enough range, buys tickets. In 2011, he only bought ten tickets (at \$2.50 each), even though in prior years he had bought hundreds. In 2012, he wasn't about to miss out by a minute here or there, so he bought 2,000 tickets at the total price of \$5,000. It took him an estimated 1,200 hours to determine the range -- that's roughly the equivalent of six months of full-time work (and so much time that he had to cancel his vacation to Hawaii) -- so winning is a good deal, but hardly a great one.

As for 2013, Waters definitely participated to some degree but didn't win. It's not all that surprising -- this year, the tripod moved at the latest recorded date in the Ice Classic's history. And if you want to give Waters and the rest a run for their money in 2014? Tickets should go on sale around February 1.

Dan Lewis is the director of New Media Communications for Sesame Workshop. He gets to work with Cookie Monster, Grover, and Elmo but he is not a monster himself. Subscribe to his daily free email newsletter at NowIKnow.com to keep learning!



# 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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02/04/14	1	Webinar	Two Engineering Ethics Case Studies - Model Results & Contractor Pressure	\$299					
02/04/14	1.5	Webinar	LRFD for Geotechnical Engineering Features: Micropile Foundations	\$349					



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# News Blurbs Now! (NBN)

Picone Construction Corp was honored, once again, by Business First of Buffalo for being one of Western New York's top private companies. Christopher Picone received the 15 year Citation of Service Award from the Construction Specifications Institute's Buffalo Chapter for his notable contributions to the construction industry in Buffalo and Western New York. Picone has begun work on Sacred Heart Academy's new 14,000 sq ft gymnasium. The gymnasium will sit to the rear of the existing school and will consist of a 9,500 square foot pre-engineered Butler Metal Building System and a 4,500 sq ft conventional steel framed masonry building. The gymnasium will have seating for approximately 500 people and the conventional building will have locker rooms, storage, a snack area, fitness room, dance studio, and offices. The façade of the gymnasium will be brick with composite panels and storefront. Picone Construction Corp has been providing Professional Construction Services to the Western New York area since 1931. The firm specializes in Design/Build, General Contracting, and Construction Management services. Past projects stand as enduring testimonials to the integrity and commitment that has always characterized their work. Extensive experience and knowledge insures that all clients will receive the quality and value they demand.

With steady growth increasing demands on management and staff, Eberl Iron Works, Inc. has created three new positions, hiring two new employees and promoting another. John Granelli has been named product line manager;



Tasha Alloy has been hired as office and sales assistant; and Justin Carr has been promoted to sales representative for rooftop support systems. "These are all new positions," said Nora E. Eberl, chief financial officer, who coowns the company with John C. Eberl, her cousin and chief executive officer. "We've made strategic additions that enhance our capacity to strengthen current customer relationships and pursue new opportunities." Established in 1923, Eberl Iron Works serves markets across the Northeast. Its manufacturing and distribution businesses include custom metal fabrication, Unistrut metal framing products, traffic safety products, rooftop support systems and systems installation.

University at Buffalo computer science students are pretty good at hackathons. By the way, originally hack just meant to code and develop computer software. Hackathons are just a group of people (often students) who participate in super intense, time sensitive program development. You don't need a mouse or a keyboard to browse the internet anymore thanks to a four student team who won first place and \$4000 in prizes at a Kent State University event. The four almost strangers met a few days prior, rented a car, and drove over three hours together. Nate Burgers got the honors for completing the most technically difficult hack on his way to placing in the top 10 of over 1000 competitors during a 36 hour codefest called MHacks. He created a new programming language that allows applications on iPhones and iPads to be edited while the application is running. He won an iPad and \$2000 cash. More importantly, he was invited to interview for an internship at one of the world's largest computer companies.

IRROMETER Company of Riverside, CA, has released its NEW Solar Powered IRROmesh Wireless Solar Powered Data Logging System for the agricultural market. IRROmesh simplifies irrigation management for precision farming like never before. Solar powered nodes "talk" to each other, relaying critical data for site-specific irrigation management. This selfinitializing, self-routing and self-healing mesh radio incorporates IRROMETER's popular WATERMARK Soil Moisture Sensors and can transmit to the web for cost effective and convenient 24/7 data access. This system was developed in conjunction with iDUS Controls, Ltd., an intellectual property-based technology company. Together with their 900 Monitor Series, the IRROMETER Company offers simple solutions for data monitoring and irrigation management all over the world.

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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# Local/Online Opportunities

The University at Buffalo will host the following career events.

02-13-14	Non-Profit & Public Service Fair
02-27-14	Economics Networking Reception
03-12-14	CareerFEST-All Majors Job &
	Internship Fair
03-27-14	Transnational Studies Networking
	Reception
04-08-14	Summer Jobs Fair
04-24-14	Environmental Studies Networking
	Reception

UC Davis Extension (www.extension.ucdavis.edu/ technology) serves lifelong learners in all 50 states and nearly 100 countries. Enrollment for online courses is open until February 10 and courses must be completed by March 23. Group discounts are available. For \$905, take their "CAD for 3D Printing and Rapid Prototyping" using Autodesk Inventor course. For \$1500, take their "Properties of Materials" course. The ISA Tech Expo will occur on 8 April 2014 and will be located at the Marriott in Amherst. The International Society of Automation will also be taking the following tours: Automation tour of Unifrax 20 January 2014

Automation tour of Calspan in February 2014 Tour of Steuben Foods Inc in May 2014.

Roof Hugger will host the following 30 minute webinars that begin at 330pm.

01-19-14	Retrofit Metal Roof Benefits
01-20-14	Metal Retrofit Vs Coatings/Overlays
01-23-14	Retrofit Roof Design for Wind/Snow
02-03-14	Getting a Good Estimate
02-06-14	Retrofitting for Energy Upgrades
02-17-14	Selling Retrofit Roofs
02-20-14	Retrofit Metal Roof Benefits
03-03-14	Metal Retrofit Vs Coatings/Overlays
03-06-14	Retrofit Roof Design for Wind/Snow
03-17-14	Getting a Good Estimate
03-20-14	Retrofitting for Energy Upgrades
03-20-14	Selling Retrofit Roofs
04-03-14	Retrofit Metal Roof Benefits
04-14-14	Metal Retrofit Vs Coatings/Overlays
04-17-14	Retrofit Roof Design for Wind/Snow

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#### **ESB NEWS**



Do you want to see your name here? Are you itching for your fifteen minutes of fame? Do you dream of being a published author? Submit your article and we can make that dream come true!

All submissions to be included in the newsletter are due by the 15th of each month.

Do you know someone who might like to read our newsletter? Does someone try to steal your copy? Don't let them be a thief -

send their home or business address to ESB1894@gmail.com!

DID YOU KNOW? All members are allowed simple job listings on our website including job title, company name, and web link.

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MAKE YOUR CHECK PAYABLE TO "ESB"

## Shoulda, Woulda, Coulda! By Ronald A. McKenzie

"I have a problem," said Igor to the King and Slide Rule of Building Blocks Inc., the head architect for the Castle. Slide was having Sunday dinner with Igor, from Moat Designs Ltd., who was the general contractor for the Castle, and also the King of the Castle. "Another round of brew for everyone," said the King, waving his hand in the air. Servants immediately surrounded the party. "What kind of problem are you having, Igor?"

"Well, it's not a big deal. But I'm going to lose some sleep over it."

"Perhaps Slide and I can help you? Why don't you tell us about it? I'm sure we can help."

"I've agreed to write an article for a magazine, and I'm sort of stuck on it. Can't seem to get it going."

"Igor, that's wonderful news. Writing an article for a magazine is one of the best ways to promote yourself. People will respect your opinion, and see you as an expert. You can use it after the article comes out to promote yourself, and you can also say you wrote for so-and-so magazine."

Slide is now depressed because he wasn't given the opportunity to write an article and get on the good side of the King. The King pushed himself away from the table. "So, what's the article on, if I may ask? Maybe you can quote me in the article, which will give you a lot of credibility."

"I don't know what it's on."

"What do you mean? Didn't the magazine ask you to write something specific?"

"No, they just asked if I would like the opportunity to write for their magazine, and I said yes." "Well, no matter. I'm sure Slide and I can help. When is your article due?" Igor tipped his brew and drained it in a long series of gulps. "Igor. When is it due?" asked the King in a firm voice.

"It's due on Monday."

"Oh, so you've got a week to get it done. You'll be in good shape."

"No, it's due this Monday, not next Monday."

"Tomorrow?" Slide is now laughing at Igor and very happy. "Igor, what are you thinking about? You should have started this at least a couple of weeks ago. I don't think I can help you."

"Please, I need your help."

"What magazine is it going to be in?"

"The Farm and Grower Building Gazette."

"Great. I can hardly wait to read it," replied the King sarcastically.

"Your Majesty, I really do need your and Slide's counsel on this problem."

"Well first of all-shoulda, coulda, woulda! You shoulda started much earlier to get your ideas established, which means you coulda been done by now, and you woulda impressed everyone with your professionalism."

"I know."

"So, the first thing you should do is read 'Overcoming Procrastination: A 42 Year Report' written by the author of this column. It took over 42 years to write this short report on how writers can overcome procrastination." "Really?"

"Yes, but for you, your first step is to write down all of your ideas, sort of like brainstorming on paper, and then develop those ideas by circling them and then connecting the bubbles together to generate some sort of thesis and subpoints for your article. Next, you need to write a rough draft. Ideally, when you have completed that, you would then read it the next day, and start the editing process."

#### "Editing?"

"Yes, writing is the art of re-writing. There are not many writers around that can write perfect fresh copy, unless you're Hemingway or some famous author. Do you know what Hemingway said about writing?"

"No. I don't even know anybody named Hemingway."

"He said: 'There is nothing to writing. All you do is sit down at a typewriter and bleed.""

"Great, now I'm going to bleed," said Igor. Another round was served to them and the King quickly removed the chilled mug from in front of Igor. The King waved at a Knight who immediately provided a stick of charcoal to write with and a piece of paper. The King placed them in front of Igor.

"You can take the first step. Don't worry about Slide and I. We're going to be sitting here, along with all my Knights, servants and serfs, watching you create your first article. I know next time you'll plan ahead in writing your article."

"I want to say thank you."

"You want to say thank you?"

"Well, perhaps I should say, shoulda, coulda, woulda."

Ronald A. McKenzie is the president of COMPASS Consultants Corp, a strategic planning and marketing company specializing in developing business growth. He has made nationwide presentations on the subject of strategic planning and marketing. He can be reached by visiting www.compassconsultantscorp.com and currently resides in Las Vegas, Nevada. This article is reprinted by permission of Modern Trade Communications and originally appeared in the July 2013 issue of Metal Architecture.

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### Transport Types By Marco van Daal

As professionals in our business, we sometimes become blind to the fact that not everybody possesses the same knowledge when it comes to the terminology of equipment. This article makes an attempt to differentiate between the various different types of specialized transport equipment and explains why it is named the way it is. In terms of naming equipment, a starting point is in hydraulic platform transporters versus trailers. I am a great believer in addressing the hydraulic platform transporter (from now on called transporter) with its correct name and to not have them mixed up with general "over the road" trailers.

Let's start with a statement: A hydraulic platform transporter distinguishes itself by the hydraulic suspension of the axles and the way these axles can be plumbed into axle groups to ensure stability. It is important to understand the value of the above statement and to understand that various add-ons and special features such as power packs, the modularity of these transporters, the capacity, the maneuverability, the steering (mechanical or electronic), the self unloading capability, and so on, by themselves do not warrant entry in the transporter category. Prior to the development of these add-ons, the hydraulic suspension of the axles and grouping capability were, and are, the only reasons that these transporters were called a hydraulic platform transporter.

Another issue comes with the terms "truck" or "prime mover" versus "power pack" or "power unit". Here is where the difference between a pull-type transporter and a self propelled transporter is made. It goes without saying that a pull type transporter (or pull behind transporter) is pulled by a unit of some sort – a truck or prime mover. These prime movers are heavy duty vehicles, attached to the transporter by means of a tow bar, draw bar or pull bar or by a transporter add-on called a goose neck. Where the prime mover is attached to the transporter by a bar arrangement, counterweight is stacked on the prime mover at the rear (drive) axles to prevent the tires from losing traction and slipping when the combination is accelerating. Where the prime mover is attached to the transporter via a goose neck, the arrangement of counter weight is not required since part of the dead weight of the transporter and load is transferred (via hydraulic cylinders) from the transporter to the fifth wheel of the prime mover.

A self propelled transporter is not equipped with a prime mover. The transporter is therefore not pulled but it is propelled by a unit of some sort – a power pack. A power pack is a diesel engine and one or more hydraulic pumps. The diesel engine powers the hydraulic pump(s) and these pumps drive the hydraulic drive motors on the axles of the transporter. The amount of oil per interval of time (the flow) determines the speed of the drive motors and, therefore, the velocity of the transporter. The operator controls the oil flow. The number of axles that require a drive motor depends largely on the applications for which the transporter will be used. The more drive motors

the higher the pulling power.

#### Self propelled or not

Why are there pull type and self propelled transporters? It used to be that the ever-increasing loads to be moved were initially still pulled by a prime mover. It started however, to pose serious limitation on the maneuverability and accuracy of the transport. For starters, the turning radius (especially in existing congested infrastructure areas) was often a challenge. A separate push and pull prime mover was often used to overcome the turning limitations. These kinds of exercises however slowed down the transport and added to the risk of handling heavy loads. The turning radius of a self propelled transporter on the other hand, given its physical dimensions, is smaller than its pulled counterpart. Another limitation of a pull type transporter is the accuracy of final positioning over, for example, anchor bolts. With a self propelled transporter which is electronically controlled, accuracies of a few millimeters are achievable. Not necessarily impossible with pull type transporters but definitely much harder to achieve.

#### Axles and axle lines

An over the road type trailer has wheel sets that attach to an axle shaft that runs across the full with of the trailer. Transporters, on the other hand, have pendulum axles. A pendulum axle is not attached to such a shaft; a shaft is simply not present on a transporter. Instead there are two independent axle assemblies, one on the left and one on the right side of the transporter. Each assembly is mounted on a turntable against the underside of the transporter deck. Each pendulum axle can rotate in the horizontal plane.

The turntable holds the upper leg of the axle, which is fixed. The turntable and the upper leg are bound to make the same motion. The upper leg ends in a knee joint that joins the upper leg to the lower leg, the lower leg in turn connects to the wheel assembly. The knee joint allows the lower leg to pivot in respect to the upper leg. This pivoting motion is initiated by the hydraulic axle cylinder. It is these hydraulic axle cylinders that can be plumbed into groups that form the hydraulic suspension for which transporters are so well known.

The pendulum design brings with it a possible clash in terminology. When talking about trailer axles, an axle really means one axle. When talking about pendulum axles, however, one axle in reality means two axles. For this reason the term "axle lines" was introduced. One axle line includes the pendulum axles between the left and the right sides of a transporter.

#### **Taking turns**

The steering of the pull type transporter is affected by physically connecting every axle to the next axle by means of steering rods. A plate is horizontally connected to the side of the axle just below the turntable. The plate contains a hole pattern to which steering rods are connected from one plate to the

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## The Path To Professional Licensure By Donald R McMahon PE and Robin M Closs SE PE

The road to professional engineering licensure can take many paths, but the path most followed involves first graduating from an ABET accredited engineering program with a bachelor of science degree. The second step is to take and pass the Fundamentals of Engineering (FE) Exam. The next step is to obtain four years of qualified engineering experience. And the final step is to take and pass the Principles and Practice of Engineering (PE) Exam.

It is possible to graduate from a non accredited engineering program. If this is the case, then eight years of qualified experience is required instead of the four mentioned above. It is easy to see why a majority of people choose an ABET accredited college. It is actually even possible to become licensed without even attending college! (This really isn't recommended however and you will need to go do some digging to figure out how...on your own time.)

The FE Exam is often taken in the final semester of the undergraduate program. It is not required to be taken this early, however much of the information will be fresher in your brain if you take this exam as soon as possible.

The qualified engineering experience is similar to the medieval craft system in which an apprentice works for a given period under the supervision of the master before he can work the trade by himself.

A comprehensive application that documents the years of experience is required. Keep an accurate log book of where you worked, who you worked under, and precise types of work that you performed. If you haven't already, take a look at the application that you will be required to fill out. The PE Exam applications are located on many websites under the board for engineering and/or state education departments. For New York state, the application can be found at http://www.op.nysed.gov/prof/ pels/peforms.htm and don't just think any experience will do. You will need experience that will be acceptable to the engineering board in the state that you apply for licensure in. Each state is a little bit different. NCEES.org can be helpful as well, especially if you want to be licensed in multiple states.

ESB facilitates the engineering licensure process by jointly sponsoring review courses for both the FE and PE exams. The review course for the FE exam always begins in September and the review course for the civil engineering PE exam begins 16 January 2014.





#### **MEETING MINUTES**

Attendees:	Officers: Plizga, Samol, Scofidio
	Board Members: Bandriwsky, Kolber, Masse, Mooney, Owens, Papaj, Wach
	Members: Taboni
Call to Order:	President Matt Plizga called the meeting to order at 6:10pm
Minutes:	The Minutes of November were reviewed and approved.
<b>Committee Reports</b>	
Advertising:	Need to determine which advertisers are in arrears (Don O.)
Audit:	990 form needs to be addressed – waiting for Robin C. to return from vacation (Matt P.)
Bowling:	The "Turkey Shoot" bowling event, which took place on 11/20/13, was very successful (Jeff M.)
Bylaws:	No Report
Education:	Need to advertise better for the FE and PE classes. Attendance is poor. Need more participation from working people (Jon K.)
Endowment:	No Report
Entertainment:	A tour of the Catholic Health Center is tentatively scheduled for Jan. 22, 2014. Tour of local vodka distillery? (Emil B.)
Fundraising:	Continuing to look into raising funds by selling t-shirts, polo shirts, etc. (Matt P.)
Golf:	No Report
Historian:	No Report
Media:	No Report
Newsletter:	No Report
Nominating:	No Report
Scholarship:	No Report
Scholarship Run:	No Report
Sunshine:	Very sad news: John Beishline passed away on Dec. 10, 2013. He will be greatly missed by all who knew him. Our condolences go out to his wife and family.
Adjournment:	The meeting adjourned at 6:35pm.
Next Meeting:	Monday January 6, 2014 - Earth Dimensions office, 1091 Jamison Road, Elma NY 14059

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next. Which hole is used depends on the length (number of axles) of the configuration because the holes in the plate correspond to a certain steering angle. This steering information is shown in a so-called steering diagram that is provided by the manufacturer.

As a side note, it should be mentioned that a mechanically steered transporter does not always have to be a pull type transporter. Self-propelled transporters with mechanical steering are also common in the industry. The difference is that the prime mover is replaced by a power pack and a certain number of axles have to be equipped with drive motors.

Electronic steering is only available on self propelled transporters. Instead of plates and rods, each axle has its own device to rotate it on the turntable. This can either be a set of hydraulic cylinders or a set of worm wheels. There is no mechanical connection between the axles. Each axle receives its signal from the operator's control box via the power pack's central processing unit (CPU). This CPU ensures that each axle receives the correct signal as to how much the turntable is to rotate.

#### Steering difference

As mentioned above, rods do not interconnect the electronically steered axles. This means that each axle can rotate (steer) independently from any other axle, as it is not mechanically bound. This is the most important difference between electronically and mechanically steered axles.

Electronically steered axles can be steered in any angle whereas mechanically steered axles are limited in steering angle. This limitation means that mechanically steered transporters are less maneuverable than electronically steered transporters. Certain transport executions may call for a steering combination that mechanically steered transporters can simply not achieve. An example of such an execution is a "sideways" move. Sideways means that each axle is turned 90 degrees from the longitudinal transporter axis. Obviously, this is a maneuver that mechanically steered transporters cannot make. At best, a mechanically steered transporter can "crab steer" or "diagonally steer" and simulate a sideways motion by moving forwards and backwards while alternating the steering angles.

#### About the author

Marco van Daal has been in the heavy lift and transport industry since 1993. He started at Mammoet Transport from the Netherlands and later was with Fagioli PSC from Italy. His experience extends to five continents, more than 55 countries, and resulted in a book *The Art of Heavy Transport*. Van Daal has a real passion for sharing knowledge and experience – the primary reason for his frequently held seminars all over the world. He lives in Aruba, Dutch Caribbean, with his wife and two daughters.

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