



▶ POST FIRE STRUCTURAL EVALUATIONS 9



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○ ISSUE 7 | ○ VOLUME 85 | ○ MARCH 2013

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WNY engineer

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MEMBER SPOTLIGHT

Don Owens, SOIL MAN!

By Matthew J. Plizga, PE

Ask someone about soils and they will tell you that dirt turns to mud when wet. Ask Don Owens about soil and prepare for a long conversation, and don't even think about asking him about trains! The extent of his knowledge on soils and the surrounding topography is endless. Don has discovered and named 12 new soil series in his career. I'd like to introduce you to Don, President and part owner of Earth Dimensions which he incorporated in 1977.

Don's company works on soil investigations for expanding landfill sites; drilling for design and installation of new infrastructure including bridges, sewers and water lines;



wetland delineations for a new bikepath in the Town of Tonawanda; proposed sub-divisions in Lancaster, Hamburg, and Clarence; and designing and monitoring wetland mitigation projects all over Western New York.

What really piqued my interest is what Don said about his favorite projects, in particular, Love Canal. Love Canal was a toxic chemical dump site for Hooker Chemical and the US military after WWII. 21,000 tons of chemicals were dumped at the site in the 40's and 50's. Hooker Chemical sold the land to the Niagara Falls School Board with the disclosure of it having been a dump site. In 1954, the City of Niagara Falls School Board decided to build a new school on the site and ended up puncturing the clay cap over the dump site. Don was called in 1978 to drill every 10 to 20 feet along the proposed collector line.

"The soil borings defined the depth of the various layers along the collector line. Subsequent investigations included excavating trenches across roads. The borings defined potential migration pathways and extent of the contamination."

Continued on page 16

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PRESIDENT'S MESSAGE



*“If you want to
make enemies,
try to change
something.”*

*-Woodrow Wilson
28th US President*

Has anyone ever asked you to change something that you are doing? It doesn't really go over very well, does it? None of us like change. It's comfortable staying right where we are. It feels uncomfortable to change. I don't want to do it that way because I have always done it this way and that's what I'm used to and it works and your way can't be better and...

People sure will go to great lengths just to avoid feeling uncomfortable. I'm not going there because I might not know anyone. I'm not calling them because they might say no. I'm not going to start a new venture because I don't know everything yet. Man, this avoidance strategy is a real killer if you're trying to find new clients, achieve results, and create success.

We each have this thing called our comfort zone. It's where we feel comfortable, of course. It's the same old, same old. Breaking news (ok not really that breaking but I'm trying here LOL) ...when we're in our comfort zone, change can't happen. It's only when you step out of your comfort zone that things can change. When you do

something that you haven't done before, you might feel scared, you're going to face resistance, and you might even doubt yourself. Well, it's entirely up to you! God has given you the ability to choose. Isn't that wonderful? So you can choose to be comfortable, to settle for the ordinary, to be stuck where you are. Or you can choose to expose yourself, to rock the status quo, to take risks, to feel fear, to scare your pants off! I'm pretty sure time will carry on with either choice that you make.

Risk a lifetime of existing to gain a lifetime of living? That certainly doesn't sound like a bad thing to me. Sounds like something worth feeling a little uncomfortable for. Don't settle for the common, conventional, tolerable, the ordinary. Probe for the exceptional, inspired, the incomparable. If you're serious about creating change, then get comfortable feeling uncomfortable.

Back to covering the ESB office...

Robin M Closs PE SE
ESB President
robin@rjrpc.com
716-864-4419

CALENDAR OF EVENTS

03-04-13	6 pm	Ways and Means Meeting
03-04-13	7 pm	Director's Meeting
03-06-13	Noon	OF Luncheon
04-01-13	6 pm	Ways and Means Meeting
04-01-13	7 pm	Director's Meeting
04-03-13	Noon	OF Luncheon
04-27-13	9 am	Adopt A Highway Spring Clean Up
08-06-13		Annual Golf Tournament

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ESB NEWS

ESB Corporate Members

If you are a corporate member, five people from your organization are allowed to be a member of ESB. Can we update our records with additional names?

Additionally, we would like to spotlight some of our corporate members in future editions of the newsletter. Please consider submitting a write up about your company to ESB1894@gmail.com.

Newsletter Submissions



All submissions to be included in the ESB newsletter are due by the 15th of each month. Do you have anything you would like to write about?

Contact us at 716-873-4455 or ESB1894@gmail.com if you have an idea for the newsletter.

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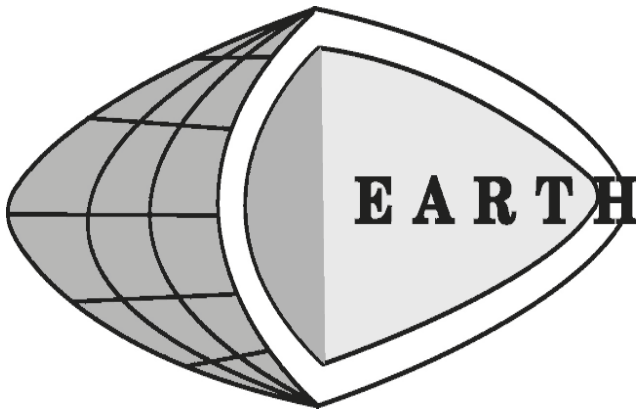


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Post-Fire Structural Evaluations

By Matthew E. Buckner, PE

A post-fire structural evaluation consists of determining whether the structural components of a building involved in a fire remain adequate to meet their original design intent. This evaluation can involve both destructive and non-destructive testing of concrete, steel and wood components.

Depending on the extent and heat of the fire, components may need to be cleaned to remove soot and other contaminants in order to allow visual analysis. The manner in which areas are cleaned is dictated by which cleaning method will cause the least collateral damage. The components may be cleaned using abrasive blasting (sand, baking soda or glass), pressure washing, or chemical washing. Everyday items, such as lamps, door handles, plumbing, windows, plastics, and picture frames are often also there to be inspected. Damage to these items can assist in evaluating the duration and intensity of the fire.

Steel

As the temperatures rise during a fire, structural steel can also become affected. Intense heat can weaken steel members such that they deform in response to applied loads. After a fire, steel members should be examined for warping, buckling or deformation. Members should be checked for plumb and straightness. The extent of distortion is part of the decision as to which members are to be replaced.

Another issue that can occasionally involve fires and metal structural members is contamination resulting from exposure to the products of combustion of materials that burned in the vicinity. For example, some plastics that burn emit chlorides as products of combustion. Structural steel suspected as having been exposed to corrosive attack should be tested. The usual approach is to take wipe samples of the suspected contaminant and then subject the samples to laboratory examination. Should aggressive contaminants be identified, a decision can then be made as to a responsive action. As examples, steel can be media blasted or pressure washed, and then perhaps given a surface treatment such as painting.

Concrete

The concrete exposed to fire can be expected to remain unaffected by heat up to 500 °F. When exposed to temperatures over 500 °F, concrete is subject to cracking or

spalling. At these temperatures, heat from a fire can vaporize water within the concrete, resulting in forces that expand the concrete. The color of the concrete after exposure to fire is an indication of the level of damage. For example, a pinkish-reddish color indicates that the concrete did reach temperature levels sufficient to affect its strength. Concrete that is a whitish-grey has lost most of its strength and also the bond with any encased reinforcing steel, if present. When examined after a fire, concrete with a pink tint or concrete that is white and chalky should be considered for replacement.

An easy test method involves tapping on the concrete with a hammer. If the concrete emits a ring, the indication is that the concrete is still in good condition. If the concrete emits a deep thud, further testing is required. Another test is the use of a rebound hammer to compare the strength of one area of concrete to another. A rebound hammer is a device that exerts a force onto a concrete surface and measures the rebound off the concrete. The rebound is a measure of the relative concrete strength. Obtaining and testing core samples of the concrete is yet another analysis method. Core samples can be tested to determine actual strength.

Wood

Determining fire damage to wooden members involves visual inspection. As wood chars, the outer layers of the wood are consumed. The wood member is now reduced in size, and consideration has to then be given as to whether there remains sufficient integrity to meet original design intent.

When it comes to damage assessment of structural wood, concrete and steel components after a fire, there may be more to the job than meets the eye. Testing may be appropriate to identify and quantify the extent of damage. With this information in hand, repair and replacement alternatives can then be considered.

Matthew E. Buckner, PE is located in Nashville, TN and can be reached at mbuckner@edtengineers.com. Engineering Design & Testing Corp. is a national engineering consulting firm that provides damage engineering evaluations for insurance companies, law firms, manufacturing companies, and private industry. These services include root cause evaluation, damage assessment, fire cause and origin, repair/replacement evaluation and monitoring, and testing and analysis. For more information, visit www.edtengineers.com.

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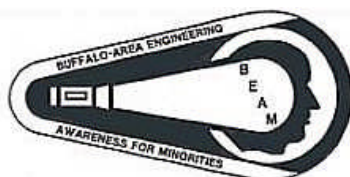
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Adopt A Highway Spring Clean Up

**New
Meeting
Location**

Saturday April 27th at 9am is the scheduled date and time. We need volunteers to help out for less than 2 hours to clean up our two mile stretch of Colvin Boulevard. The more volunteers that come, the less time it will take to do the clean up.

Students, this is a great opportunity to give back to the Society and to meet other members.

Please meet at the corner of Colvin and Brighton in the Family Video parking lot. Let us know you are coming at ESB1894@gmail.com or 716-873-4455.

Free Conference and PDH's

ESB has obtained complimentary registration certificates for NASCC The Steel Conference to be held in St. Louis, Missouri from April 17-19. They include all plenary, technical sessions, a Wednesday welcome reception, and admission to the exhibit hall.

There are also additional certificates to provide a free boxed lunch, a free dinner ticket, and up to \$175 for travel expenses for students interested in attending.

If you are interested in these certificates, please contact our office at ESB1894@gmail.com or 716-873-4455.

Moving Onward and Upward

Our office administrator Kim Burr handed in her resignation last week after working for ESB for five years. We would like to wish Kim Burr the best of luck as she moves onto the next stage of her life!

During our transition, please make a note that we have changed our office email address to ESB1894@gmail.com so that it can be checked regularly.



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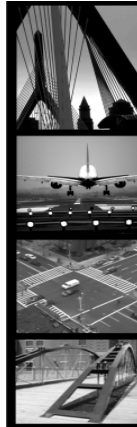
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ROBERT HENLEY

ESB History ~ Pan-American Exposition

By John Patrick O'Keefe

I came across an envelope containing hundreds of Engineer's Society of Western New York documents that were written in anticipation of the Pan-American Exposition which was held in Buffalo from May 1st to November 2nd, 1901. (By the way, the Engineer's Society of Western New York is now called ESB.) The Society provided Engineers visiting the Exposition with a work place in the Ellicott Square Building. It provided rooms to meet, a telegraph office, a telephone station and even a restaurant.

Besides the content which radiates excitement and anticipation of the event, there are many other aspects of these "ancient manuscripts" that tend to stand out in contrast to today's society.

The handwritings are impeccable and extremely precise as far as margins, spelling, structure, etc. I would also have to admit that the intelligence behind the content seems to be something that we've lost in our "dumbing down" of our modern English. Other things that tend to stand out to me are things like courtesy, professionalism, and an overwhelming politeness when it comes to issues of conflict between the various pen authors.

After reading through quite a few of these documents, I couldn't help but think of some of the various correspondences I have had with my distinguished colleagues. I think if this letter were to be rewritten today, it might read a little something like this...

Engineers' Society of Western New York.

WILLIAM A. HAVEN, President.
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975 ELLICOTT SQUARE,

Buffalo, N. Y., March 12, 1901.

The Pan-American Exposition to be held in this city the present year will offer much of interest to Engineers. We regret that the plan proposed for a separate engineering exhibit has been found impracticable.

The Engineers' Society of Western New York desires to extend to visiting engineers every possible courtesy. Its rooms are most centrally located in the Ellicott Square. The Headquarters of the Exposition, Telegraph Office, Telephone Station, Restaurant, etc., are in the building.

During the Exposition our rooms will be open during the day, and we extend a most cordial invitation to the members of your Society and all visiting Engineers to make use of them while in Buffalo. Your mail addressed care of "Engineers' Society of Western New York, No. 975 Ellicott Square," will be cared for and information gladly furnished regarding the Exposition and other points of interest to Engineers in the city and vicinity.

A stenographer will be in attendance whose services may be procured by visiting engineers.

Meetings of the Society are held the first Tuesday in each month, at which all visiting engineers will be most heartily welcomed.

Yours respectfully,

WILLIAM A. HAVEN, President.

G. C. DIEHL, Secretary.

The Pan American thing downtown is going to totally ROCK! The plans for a separate table to do our thing has been totally scrapped. Lame.

The Eng Soc Of WNY is doing it up right for all our bro's as a total courtesy. Our gig is located in the middle of the Ellicott Square Building next to the Frogurt stand. There is a Starbucks with Wi-Fi next to our zone and we just tap into their wireless. (Don't tell anybody! Shhhhhh!) Also—the terrace bar starts happy hour at 5pm—2 4 1 pounders! And dose-quarto-uno Margarita's for all our Hispanic bro's.

Our rooms will be open during the day so come on by and chill with us. We want to totally get to know you—especially those from out of town.

You can have your snail mail delivered to our care at "E.S.O.W.N.Y", no 975 Ellicott Square" and we'll hold onto it until you pick it up or someone totally trashes it by mistake. All other info of the Expo provided upon request.

Just a reminder - we get together at Timmy Ho's the first Tue of every month - so come on out and bring a friend!

Billy—Out!

John Patrick O'Keefe is a musician, singer, and songwriter and can be reached at <http://www.johnpatrickokeefe.com>

A fire engineer, who could not speak Arabic, was finding it difficult to market his newly invented fire extinguisher in the Arabian continent .He consulted an expert who advised him to use photographic symbols. He proceeded with a three-stage demonstration pictorial, namely (1) a car on fire, (2) a man fighting the fire with the device, then (3) a clean car. Meanwhile the Arabs read from right to the left, so they avoided the device completely. Oops!

Haha!
Haha!

**Engineers are like slinky's.
Both aren't good for much
but they are sure fun
to push down the stairs.**

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“I determined that the contamination was deeper than currently understood. It was originally thought that contamination was only in the sandy Lake Tonawanda sediments at the surface and not in the Lake Dana clayey sediments. I found that these clays were desiccated and had an interconnected prismatic cracking pattern. The very first boring noted contamination down to the contact with the soft clays at 12 feet below ground surface. Based on further investigation, I had predicted that the east-west

contamination would not migrate beyond 97th and 99th streets respectively. Later, after many millions of dollars of further investigation, my prediction was confirmed.”

Don ended up testifying in Albany about the Love Canal site. Don was kicked off further investigation of the site because he was working for the State and the State of NY was suing the federal government over responsibility since it was designated a super fund site.

While not fighting for the rights of mere mortals, Don likes to travel the world. “I traveled on a train across Russia-(took 10 days, 7 time zones); went to the Antarctic and saw penguins; went above the Arctic Circle in Norway and Sweden by train; travelled in Japan twice on bullet trains; also visited Australia, again, travelling by train.” I think there is a pattern developing here. Don can't stay away long because he has 6 children, 17 grandchildren, 2 great-grandchildren and one very hungry cat back in the states. I thought that Don's proudest moment would have been working on the nationally known super fund site Love Canal, but it was actually when he married his wife Barbara. Now that's a man we can all look up to.

Matthew J. Plizga, PE is the ESB Vice President and can be reached at mplizga811@aol.com.

Bowling Week 22



<u>TEAM STANDINGS</u>	<u>WON</u>	<u>LOST</u>
1. PINHEADS	118	80
2. LOOSE CANNONS	116	82
3. SPLIT HAPPEN	113	85
4. OUTCASTS	101	97
5. ARCHER IMAGING	99	99
6. CAD/CAMS	98	100
7. PROTRACTORS	91	107
8. DEAD LOADS	90	108
9. GO BILLS	82	116
10. TRANSMITTERS	82	116

<u>SCRATCH GAME</u>		<u>SCRATCH SERIES</u>	
ED GREMBOWICZ	257	ED GREMBOWICZ	750
ERIC MURPHY	256	CHRIS GABRIELLI	656
BRIAN OLKOWSKI	247	JULIA HAY	653
CHRIS GABRIELLI	246	ERIC MURPHY	649
CHUCK GIRDLESON	245	PAUL BRAUN	642
PAUL BRAUN	240	TOM MANN	636
JULIA HAY	240	BRIAN OLKOWSKI	628
MERRILL ARTHUR	239	MERRILL ARTHUR	626
TOM MANN	224	JEFF MOONEY	613
DENIS FOUNTAIN	223	PAUL MARROW	612

<u>CROSS ALLEY W/HC</u>	
CHUCK GIRDLESTON	295

The Bowling Pin

Composition	Hard maple
Coating	Plastic
Height	15 inches
Weight	Between 3 lbs 6 oz and 3 lbs 10 oz
Base diameter	2-1/4 inches
Widest circumference	15 inches
Life expectancy	1.5 seasons
Life after use	Used for summer open bowling or given away to a child as their birthday party gift

An Engineer's Typical Day

Wondering what an engineer does all day? Here is a rundown from four area engineers.
Please note: Each career is different and your results may vary.

Robert J Runge PE is a civil engineer at RJR Engineering PC and a member of ESB. He can be reached at bob@rjrpc.com.

- Through my career, I have gotten to work early, usually 7am or earlier.
- The day usually starts with a cup of coffee and I go over what the tasks are for the day.
- When I was a construction engineer, it was to make sure the field crews had what they needed to keep going, from drawings, materials, or permits.
- When doing design, I would pick up from where I left off the previous day. Sometimes you would backtrack a little because you thought of something the night before that you wanted to change.
- If it is a big design project, that you are really into, the time would fly by and before you knew it, it was time for lunch and then time to go home.
- Many civil projects require involvement with municipal agencies. These agencies are usually best contacted in the morning or in the afternoon, before they get going for the day or before they go home at night. Each agency is different and you need to learn the habits of each one. You do not want to get caught up in the design so much that you forget to contact them. This could add more than just a day to the project schedule.
- When your project is in construction, you may spend days in the field. You will have to plan your day around priorities, usually spending the morning in the field and the evening in the office either doing the design, changes for the field work, or keeping projects under design progressing.
- The end of the day is spent making sure others that depend on you are all set for the next day and they are not waiting for you to do your work the next day.
- You had better love civil engineering because it is the lowest paying and most public orientated of the engineering professions.

Lauren Blas EIT is an HVAC engineer at Cannon Design and a past ESB scholarship recipient. She can be reached at LBLAS@cannondesign.com.

8-830	Check and respond to emails
830-930	Project team meeting
930-12	Design work including ductwork modeling, load calculations, energy modeling, etc
12-1230	Lunch
1230-4	Meet with mechanical contractor at site and perform final walkthrough of mechanical room
4-530	Write up site report and submit to construction manager

Brad Bassano is a manufacturing engineer at PCB Piezotronics, Inc and a past president of ESB. He can be reached at bbassano@roadrunner.com.

- Arrive at work around 7.
- Log into the network, review emails 715-730.
- Review calendar for meetings that day including design reviews, production readiness, and daily production.
- Prepare "To Do" list and prioritize
- Perform on an "as need" basis some of the following tasks. This can change daily depending on assigned projects. Design fixtures and tooling. Perform failure analysis on production/customer returned product. Write procedures. Create production routers. Create engineering change orders to update drawings, procedures, routers, and/or bill of materials. Work with production personnel on production issues.
- Review emails after lunch, typically 12-1
- Review emails before leaving office around 530

Chad Dugas PE is an electrical engineer at RJR Engineering PC and can be reached at chad@rjrpc.com.

8-830	Review/respond to work emails received since the previous work day.
830-9	Attend daily department meeting/project meeting as applicable.
9-1030	Contact/meet with customers to discuss current/future projects. Discuss work scope, schedule, and budget.
1030-12	Begin electrical calculations for project as required. Typical calculations include load flow, overcurrent protective device sizing, voltage drop, cable sizing, conduit sizing, transformer sizing, short circuit, etc.
12-1230	Take lunch break
1230-130	Continue electrical calculations for project as required
130-3	Develop AutoCAD or hand sketches of electrical system. Typical major electrical system design includes single line diagrams (SLDS), equipment general arrangements, schematics, panelboard schedules, etc
3-330	Meet with electrical drafter to explain work package, sketches, drawing requirements, drafting expectations, schedule and budget. Periodically review drawings/documentation as its progressing to ensure the work package does not need much rework.
330-430	Begin to develop equipment specifications, gather cut sheets/data sheets, etc to support the electrical design and the components being specified

MEETING MINUTES

- Advertising:** No new advertisers, Don asked Board members to solicit their employers to see if they are interested in advertising in the ESB newsletter.
- Audit:** No Report
- Bowling:** Held whiskey shoot in December, St. Patrick's Day Shoot scheduled for March 13th, year end banquet scheduled in April. Tom Glynn stated that he is stepping down as president of the bowling league.
- Bylaws:** No Report
- Community/PR:** Pat Conway issued a press release regarding the election of officers and new Board of Directors members (published in Buffalo News February 1st). Pat has expressed his desire to step down from the Chairman of the Community/PR; therefore there is a need for a new Community/PR Chairman. A suggestion was made to combine Community/PR with Web committee and rename as Media. Marco Scofidio was designated as Chairman of the Media Committee.
- Entertainment:** No Report
- Fundraising:** No Report
- Golf:** Jeff Wach designated as the new Chairman for Golf Committee, Brad Bassano designated as the Board contact. Jeff will schedule to meet with BEAM to coordinate and set cost for the event.
- Nominating:** Need to begin to solicit potential candidates for the board, John recommended that the committee find 8 candidates to run for the Board. Ron Papaj to start looking for candidates.
- Raffle:** It was recommended that the Raffle committee be combined with Fund Raising Committee.
- Scholarship:** Information regarding ESB scholarship has been distributed to the schools in December. Don Kossuth recommended that a scholarship be named in honor of James Smist.
- Scholarship Run:** John stated that NFTA has offered August 7th, 14th, and 28th for possible dates for the race. He will review master race schedule and decide on a final date for the race. John is looking for help. Bob Henley is stepping down from helping with the race. Ron stated that Danielle Monte from his office is interested in helping out with the Scholarship Run. John stated that he is waiting to hear back from last years' Sponsors.
- Sunshine:** No Report.
- Web:** Suggested that Scholarship Race information be added to the website. Possibly to attach race application as a pdf.
- Adjournment:** The meeting adjourned at approximately 6:25 PM
- Next Meeting:** March 4th at the ESB Office



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