



ASCE Illinois Section

# News

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**INSIDE:**

**President's  
Notes**  
2

**A Profile on the  
Career of Retiring  
Northwestern  
University Professor  
Charles Dowding**  
4

**Stormwater  
Management Goes  
Underground in  
Northbrook, Illinois**  
5

**ASCE-IL Section  
Mentorship Program**  
7

**ASCE Membership  
Update**  
8

**News & Secretary  
Report**  
17

**Section Activities**  
18

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## Inspection and Evaluation Considerations for Bascule Bridges

*By Patrick Laux, P.E., S.E., M.ASCE*

**T**he high concentration of bascule bridges in northern Illinois, and the fact that they are such an important part of the architectural make-up of Chicago, means that many Illinois engineers have the unique challenge and opportunity to ensure the longevity of these structures that are so integral to our home. Since the maintenance and operational needs of bascule bridges far exceed those of fixed bridges, it is important for engineers to consider their complex structural challenges while inspecting and evaluating them.

When the Jefferson Street Bascule Bridge in Joliet was being repainted in 2015, the contractor discovered that the southwest supporting girder for the west movable leaf had significantly deflected. The bridge was not at risk in its closed position under traffic, but it did present a risk when open. When rotating to the open position, the movable leaf rolls along and places its entire load on the

**The high concentration of bascule bridges in northern Illinois, and the fact that they are such an important part of the architectural make-up of Chicago, means that many Illinois engineers have the unique challenge and opportunity to ensure the longevity of these structures that are so integral to our home.**

supporting “track” girder, creating a situation where the leaf could come out of alignment or deflect out of position. WSP’s movable bridge engineers prepared emergency repairs for the track girder that included a temporary support and subsequent repairs to address the damage and deflection. This case highlights the importance for inspectors of bascule bridges to examine not only the main load-carrying members under live load traffic but also the support (continued on page 9)



As I sit here writing this President's report, big, wet flakes of snow are blanketing the evergreens in the backyard creating a winter wonderland. The problem is that there has been no electricity ... for the past 6 hours. There is a blustery wind and the temperature is at 28 degrees and dropping. My fingertips and nose are icicles as I gather my thoughts. The local electric company is predicting power to be back in 48 hours and I am with my elderly parent who has limited mobility; so I am definitely concerned about heat.

So how does my wintry morning in northeast Ohio equate to Civil Engineering in the Chicagoland area?

I am so grateful for our Illinois infrastructure and the resources we have available to us as one of America's leading cities. We have premier pavement, bridges, water and sewer service and responsive electric and gas providers to keep our families in the luxury of a 1<sup>st</sup> world quality of life. **Doesn't it seem obvious in times of crisis that we, as a society, must be putting adequate planning and maintenance resources towards sustaining our infrastructure?** Unfortunately, this is not the case.

The 2018 ASCE Report Card for Illinois' Infrastructure gives the state a combined grade of C-. We are barely above the national average and we are supposed to be America's infrastructure hub. The details of the existing conditions can be found in the [2018 Report Card](#). These details are critical for

us as civil engineers since we understand the fine points of structurally deficient, international roughness index and water loss rate. But you do not need to be an engineer to feel the pain of \$3400/year that each American family spends due to the poor state of our infrastructure. In addition, the latest federally proposed infrastructure plan puts greater onus on states for funding than in the past. As Illinois' current low grades show us, we are struggling to meet current investment needs.

**So rather than rant, how can we make a difference?** We can join in one voice to speak to our elected leaders who have the ability to approve necessary legislation to make sure that the power outages, the structurally deficient bridges and the typical 2-ft deep Chicago-style potholes are addressed.

Part of ASCE's mission is to promote the public good and use our expertise to highlight the needs of our community; we need to provide our legislators with the necessary material they need to make informed decisions.

The ASCE 2018 Springfield Legislative Day is scheduled for April 25, 2018. I am reaching out to you to join me for one day that could help change the trajectory of our failing infrastructure. Please reach out to me directly at [draj@collinsengr.com](mailto:draj@collinsengr.com) if you are willing and able to join us.

ASCE Illinois Section  
**News**

**ILLINOIS SECTION NEWSLETTER**  
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## Junior Engineers Dream Big



### ASCE Volunteers

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Andrew Boysen, UIC (Student)  
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Sandy Homola, EXP  
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Dhooli Raj, Collins Engineers, Inc.  
Kris Salvatera, CMT, Inc.  
Tim Scully-Granzeier, Arcadis  
Don Wittmer, HNTB



The ASCE Illinois Section sponsored a day at the Museum of Science and Industry for Chicago Public School (CPS) students on February 1, 2018. Students had the chance to view the Dream Big: Engineering Our World film in the Giant Dome Theater and work in teams with ASCE volunteers on a hands-on engineering activity. A special thank you to efforts of Monica Crinion, WBK Engineering LLC, and Amy Koonce, CPS, for coordinating over 250 middle school students in an educational, fun filled day!

# A Profile on the Career of Retiring Northwestern University Professor Charles Dowding

By Brandon Hughes, S.E., P.E.

This past month I had the opportunity to interview a local geotechnical legend and distinguished member of ASCE. Charles “Chuck” Dowding, Professor Emeritus of Civil & Environmental Engineering at Northwestern University, was chosen for Distinguished Member status of ASCE in 2017. This is the highest honor that ASCE can bestow on an individual member. He was also selected by the ASCE Illinois Section as the 2014 Civil Engineer of the Year. Prof. Dowding has had an extensive career as both an engineer and educator. He has influenced the careers of numerous ASCE Illinois section members, including myself. He is recognized as a leader for his contributions to geotechnical engineering that have revolutionized remote monitoring of soil and rock worldwide and for his contributions to engineering education. This past January, after more than 40 years at Northwestern University, Prof. Dowding has retired from teaching.

Prof. Dowding began his interest in civil engineering after completing a paper on rocks in sixth grade. His decision to study engineering was also influenced by the launching of the Soviet satellite Sputnik and by his cousins who



*Prof. Dowding consulting on the Panama Canal*

were electrical engineers. As a freshman engineering student at the University of Colorado at Boulder, he had considered becoming an electrical engineer. However, a summer internship at Rocky Mountain National Park where he surveyed water wells swayed him to focus on civil engineering. During his junior year he became involved with ASCE. As a student member he was active in fundraising for his local chapter which allowed for student activities and speaker sponsorship. He went on to become the presi-

dent of his student chapter before graduating with a bachelor’s degree in civil engineering. After establishing his career, he continued his involvement in ASCE and served on the ASCE Illinois Section Board. When asked what advice he would give to a young person considering entering the civil engineering field, he strongly recommended summer internships and the importance of pursuing areas that interest you.

Upon completing his undergraduate degree, Prof. Dowding attended the University of Illinois to continue his studies. During the late 1960’s the University of Illinois was at the center of the geotechnical engineering world. Prof. Dowding had the honor to study under the leadership of geotechnical greats like Ralph Peck, A.J. Hendron, Don Deere, Roy

**When asked what advice he would give to a young person considering entering the civil engineering field, he strongly recommended summer internships and the importance of pursuing areas that interest you.**

Olson and Nate Newmark. He credits Ralph Peck with giving him some of the best career (continued on page 11)

# Stormwater Management Goes Underground in Northbrook, Illinois

By Paul Siegfried, P.E.

Wescott Park in the Village of Northbrook is home to an underground detention structure capable of holding more than 7.7 million gallons of stormwater, making it the largest StormTrap® system by volume currently in existence. This stormwater storage facility, located beneath a restored ballfield, was constructed using more than 1,720 precast concrete modules. The ambitious project also included installation of almost one-quarter mile of new 42-inch diameter storm sewer to convey stormwater to the storage facility. As an additional benefit, a portion of the stored runoff can be used for the park's new irrigation system and other purposes.

**More than 1,720 precast concrete modules form an underground detention chamber capable of holding over 7.7 million gallons of stormwater**

More than three years in the making, the \$9.7 million project was conceptualized in the Village's Master Stormwater Management Plan as a way to address ongoing flooding issues in the Sunset Fields subdivision and downstream areas. The subdivision was



developed more than 65 years ago and experienced severe flooding of homes, yards, and roadways due to a lack of detention facilities, adequately sized storm sewer, and overland flow routes that could safely convey stormwater. A collaborative effort between the Village, Northbrook Park District, and Northbrook/Glenview School District 30 resulted in a creative solution to help reduce local flooding, while maintaining Wescott Park's highly valued open space and recreational amenities.

A rainwater harvesting system was added to the project with the help of \$475,000 in green infrastructure funding from the Metropolitan Water Reclamation District of Greater Chicago. This system utilizes stored stormwater to meet typical seasonal water needs of the park's new irrigation system. More than 177,400 gallons of stormwater is stored in a sump area located below the gravity outlet of the storage facility, which provides eight complete irrigation cycles without replenishment. A spigot was added to the system so the harvested water (continued on page 15)



ASCE Illinois Section volunteers were proud to participate with IIT Alumni in Wheaton at the **DuPage Area STEM Expo** as national Engineers Week closed on February 24, 2018.



This was a specialized event designed to promote learning and the awareness of opportunities provided among STEM (science, technology, engineering and math) fields. ASCE volunteers were proud to represent the Civil Engineering profession with hands on activities for K-8 students.

# ASCE-IL Section Mentorship Program

By Kris Salvatera, P.E.

As civil engineers progress in their careers, they aim to continue to grow their skills through professional development. Whether you are at a point in your career studying as a college student, or are an experienced professional engineer, we as individuals continue to strive on improving our skills to help us enhance

**To help continue the development of civil engineers into their community and professional network, the ASCE-IL Section Student Outreach Committee implemented its first official Mentorship Program for the year.**

ourselves to be better at our jobs. More so, beyond the technical skills we look to improve, the people we meet in our industry on a more personal level helps us better ourselves through leadership, networking and social skills.

To help continue the development of civil engineers into their community and professional network, the ASCE-IL Section Student Outreach Committee implemented its first official Mentorship Program for the year. Back in early October, the Student Outreach Committee formed a Mentorship Committee to help initiate and manage an ASCE Mentorship Program. After a program was established, applications from interested students and professionals were

submitted in early November, and Mentors and Protégé applications were paired by their civil engineering discipline and common interests.

**We currently have 24 Mentor/Protégé active pairs for this year. Thus far, there has been positive feedback from many program participants.**

The Mentorship Program not only aimed to pair Mentors and Protégé's together, but it also challenged them to attend: ASCE technical events, social get-togethers, and volunteer outreach opportunities. Mentor/Protégé pairs that complete participation in a set number of outings together are then sponsored for free to our annual ASCE-IL Spring Dinner occurring on April 12, at Maggiano's Restaurant.



Figure 1- Mentor Joseph Garb of Omega Associates with Protégé Marc Cauinian of IIT at the ASCE Holiday Party

We currently have 24 Mentor/Protégé active pairs for this year. Thus far, there has been positive feedback from many program participants. Mentor

Joseph Garb from Omega Associates commented, "What I like most about the program is giving back to the engineering community. The benefits for the professional include expanding relationships with the younger engineering community." His Protégé Marc Cauinian from IIT shared, "I personally like the opportunity to have a working relationship with a Professional, which this program does very well in. I am able to reach out to my mentor with any questions I might have regarding the professional world, transitioning from school to the working world and even getting to share ASCE-IL events with a seasoned member."

Our ASCE-IL Section community

**Our ASCE-IL Section community feel that both professionals and students benefit from the program's interactions. We are excited to see many of our pairs currently attending many of our ASCE-IL Section and Insitute events.**

feel that both professionals and students benefit from the program's interactions. We are excited to see many of our pairs currently attending many of our ASCE-IL Section and Institute events. If you have any questions regarding the Mentorship Program or ASCE Student Outreach, please contact us at [stoutcommittee@gmail.com](mailto:stoutcommittee@gmail.com). (continued on page 16)

# ASCE Membership Update

By Matt Huffman, P.E.

For the graduating Student Members and Associate Members who recently passed the PE, make sure to advance your membership grade, which can be done online ([link](#)):

- **Associate Member** -- an individual which has a bachelor's degree from an ABET/EAC accredited school in civil engineering or a current member in another engineering society which ASCE has a reciprocal membership agreement.
- **Member** -- an individual which has a bachelor's degree from an ABET/EAC accredited civil engineering program with a PE or five years of experience; master's or doctorate in civil engineering with a PE or four years of experience; degree from a non-ABET/EAC accredited school with a PE and five years of experience.

The state of membership within the Illinois Section of ASCE is in good health to start off the 2018 year, with 2,782 active engineers, students and retirees. The makeup of our Section consists of 1,553 Members (56%), 471 Associate Members (17%), 540 Student

## Graduating Students and new PEs, upgrade your membership grade

Members (19%), 112 Fellows (4%), 3 Honorary Members (<1%), 2 Distinguished Members (<1%), and 100 Affiliate Members (4%). The Illinois Section also has 408 Life Members (15%) who have made a lifetime commitment to ASCE and the profession by remaining a member for the length of their

## Have you considered applying to be an ASCE Fellow???

career. For our experienced and accomplished members, if you have been an ASCE member for over 10 years and have made celebrated contributions and/or developed creative solutions to help change lives, have you

## Keep your contact and employment information current by logging into your ASCE account

considered applying to be an ASCE Fellow???. This prestigious honor is held by fewer than 3.5% of ASCE members and recognizes

the important contributions civil engineers make to society. The ASCE Illinois Section encourages our members to consider applying for this honorary membership grade. More information regarding the application process and other exclusive benefits of being an ASCE Fellow can be found on the [ASCE website](#).

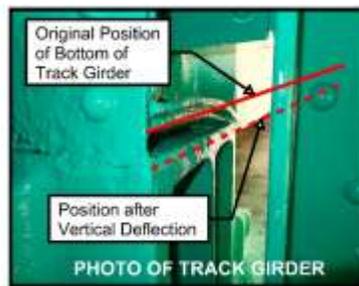
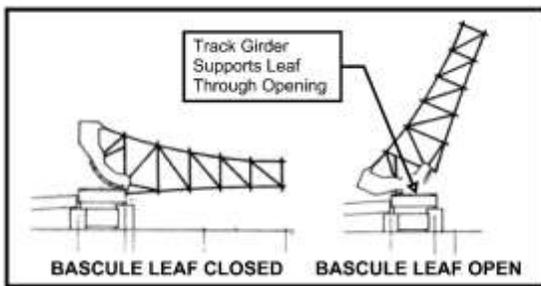
Remember to keep your ASCE account up to date with your latest employment and contact information via your online ASCE account ([Login](#)). Also, when renewing your 2018 membership, please remember to pay the Section dues (\$30), which constitutes a majority of our Section income. Please note that ASCE has a membership renewal grace period which lasts until mid-March, so make sure to renew soon!!

Please contact Matt Huffman, the Illinois Section Membership Committee Chair, with any membership related questions at [mhuffman@cbbel.com](mailto:mhuffman@cbbel.com).

*Matt Huffman is a Project Manager at Christopher B. Burke Engineering, Ltd. within the Phase I Engineering Department.*

# Inspection and Evaluation Considerations for Bascule Bridges

(continued from page 1)

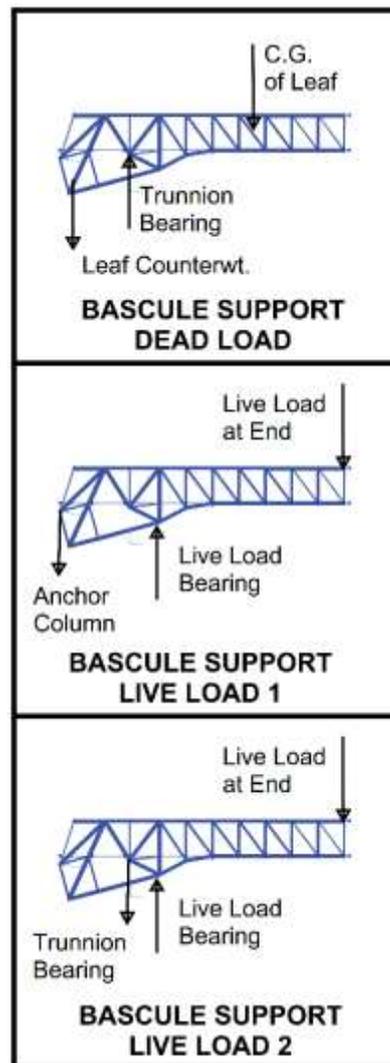


system for the movable bridge leaf, elements such as track girders, trunnion girders and posts, and machinery girders. Additionally, structural inspectors must work alongside mechanical and electrical engineers to ensure the bridge will continue to function properly.

**Since the maintenance and operational needs of bascule bridges far exceed those of fixed bridges, it is important for engineers to consider their complex structural challenges while inspecting and evaluating them.**

In addition to inspection, evaluation is an important aspect of bascule bridge design. An evaluation of an existing bascule bridge requires an understanding of the structure type and of the theoretical and real support conditions. AASHTO's *Movable Bridge, Evaluation, and Maintenance Manual 2nd Edition*, which was revised under the direction of WSP in 2016, provides extensive information on the design and operation of bascule bridges. When it comes to the analysis of in-service movable bridges, the manual recommends

“to determine the safe load capacity when the movable spans are in the closed position and carrying normal vehicular traffic.” It would seem that then the

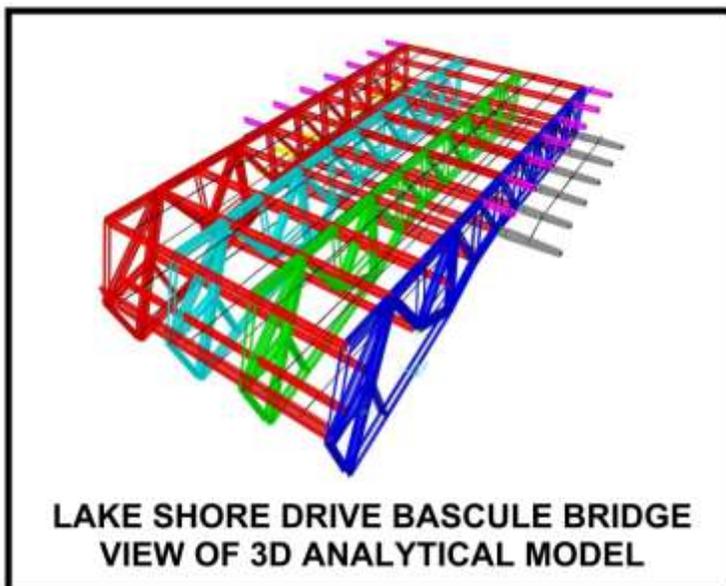
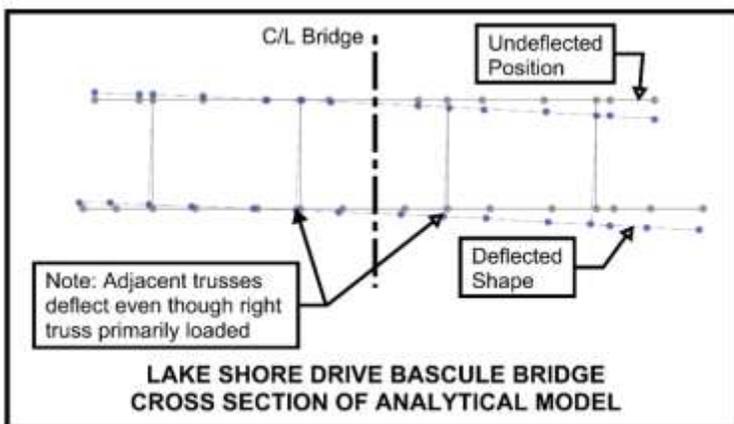
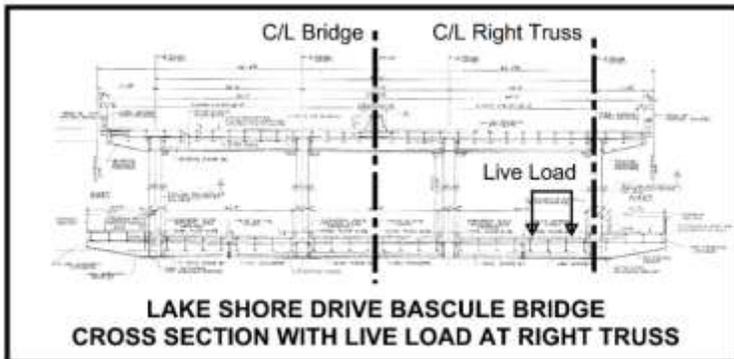


bascule bridge evaluation or load rating would be done as a beam or truss analysis, like a fixed bridge. While this is generally true, the support conditions of a bascule bridge are not as obvious as those of a fixed bridge. Whereas a fixed bridge typically sits on a single bearing at the supports, a bascule bridge is supported in different ways depending on the loading. For dead load, the bascule bridge will (or should) carry its entire load primarily through its trunnion bearing. The trunnion is an axle-like component which has a circular bearing that allows the rotational movement necessary for opening. Under dead load, the bascule bridge will be nearly balanced, allowing for the bridge to be opened with minimal mechanical energy. For live load, the bascule bridge relies upon a live load bearing and in some cases anchor columns and heel locks. The live load bearing sits in front of the trunnion bearing and is where the bascule leaf rests when closed. The illustration to the left shows the reaction couple from a live load placed on the bascule leaf for two different configurations. It's worth noting that the live load can actually reduce the load on the trunnion in the second configuration.

An example which considered the two live load configuration is the Lake Shore Drive Bascule Bridge over the Chicago River, which will soon be rehabilitated and retrofitted to have a much wider sidewalk to improve flow on the popular Lakefront Trail. The giant bascule bridge features four (continued on page 10)

# Inspection and Evaluation Considerations for Bascule Bridges

(continued from page 9)



trusses per leaf, two levels of traffic, and two sidewalks. When doing the evaluation of the Lake Shore Drive Bascule Bridge, WSP

utilized a 3D finite element analysis which considered various support conditions for various load placements. The 3D analysis

proved to be insightful, as the load share between the four trusses was made visual—something not typically considered in bascule bridges that were designed in 2D. The image on the left illustrates the 3D effect with a truck loading near the right truss at the center of the bridge. While structural

**With a focus on quality inspection and evaluation, bascule bridges will continue to be points of pride for the community and fascinating projects for Illinois engineers.**

analysis programs can provide refined capabilities, it is always recommended to undertake simple analyses first to verify the loads against those shown in the plans.

Bascule bridges are impressive, multi-faceted structures that serve both ground and water transportation modes, as well as contribute to our region's landscape. With a focus on quality inspection and evaluation, bascule bridges will continue to be points of pride for the community and fascinating projects for Illinois engineers.

*Patrick Laux, PE, SE, M.ASCE is part of the Movable Bridge Group at WSP USA (formerly Parsons Brinckerhoff) and currently serves as the Special Events Chair for the Structural Engineering Institute.*

# A Profile on the Career of Retiring Northwestern University Professor Charles Dowding

(continued from page 4)

advice, which was “pick one area of expertise and focus on it”. Through his thesis advisor Skip Hendron, Prof. Dowding became interested in the response of structures to blasting vibrations. This experience shaped his future career and research.

**He credits Ralph Peck with giving him some of the best career advice, which was “pick one area of expertise and focus on it.”**

After completing post-doctoral research at the Norwegian Geotechnical Institute and an assistant professorship at MIT, Prof. Dowding joined Northwestern University in 1976. During his tenure at Northwestern University, Prof. Dowding mentored 62 M.S. and 18 Ph.D. students. Many of the theses written by his graduate students became the basis of journal articles or parts of his books. When asked what have been some of his most notable achievements through his career, Prof. Dowding mentioned his work with the US Bureau of Mines, his collaboration on a startup company Digital Vibration Inc. and later his work with Northwestern University’s Infrastructure Technology Institute (ITI). In the 1970’s, his continued research in vibration response helped the US Bureau of Mines establish guidelines for allowable vibratory ground motion based upon structural dynamics and the importance of strain. This work led to national regulations through the Surface Mining

Control Act and the National Fire Prevention Association code NFPA 495. This work also led to the development of his first of four books “Blast Vibration Monitoring and Control” in 1986. Additional years of consulting, research and teaching led to the extension of the concepts of structural dynamics in his second book “Construction Vibrations” published in 1996. His book “Construction Vibrations” is frequently referenced in engineering journal articles and is used worldwide by both practicing engineers and researchers. In the 1980’s Prof. Dowding collaborated with computer specialists to start and then eventually sell a business. The company, Digital Vibration Inc., developed Tele-Blast, the first computerized system to remotely monitor the response of structures to blasting vibrations. Prof. Dowding’s work with ITI resulted in collaborations with computer systems specialists to measure micrometer crack response autonomously and remotely. Autonomous Crack Measurement (ACM)

**He noted, as a young engineer he had the opportunity to come of age during a time of significant infrastructure expansion. The types of projects on which he worked on a would not have been possible without public funding.**

allowed direct comparisons of climatological induced crack generators with construction vibra-

tions. Through ITI, technology transfer brought ACM from academia to the engineering community.

When asked what he thought was the greatest challenge facing future generations of engineers, Prof. Dowding noted the importance of convincing the public to continue to fund infrastructure. He noted, as a young engineer he had the opportunity to come of age during a time of significant infrastructure expansion. The types of projects on which he worked on would not have been possible without public funding.

In retirement, Prof. Dowding will continue to have a presence at Northwestern University. Even though he will no longer be instructing classes, he looks forward to continuing to work with students and further his research. He also plans to write a new edition of his popular textbook “Construction Vibrations”.

Northwestern University will honor Prof. Dowding with a symposium on the Evanston Campus on April 28, 2018. The symposium is scheduled to include a technical program from his former students and associates. On a personal note, Prof. Dowding believes that retirement will allow him to have more opportunity to travel and spend time with his wife Jane and family. He looks forward to traveling to Alaska for a fishing excursion and taking his (continued on page 12)

# A Profile on the Career of Retiring Northwestern University Professor Charles Dowding

(continued from page 11)

wife and four grandchildren to Iceland walk in the Mid Atlantic rift.



*Prof. Dowding and Family at the Crazy Horse Monument*

Local ASCE Illinois section members had the following memories to share of Prof. Dowding's extensive career.

### **Former Student Brett Gitskin, P.E. BS 84', MS 90'**

"As an undergraduate in 1983 or 1984, I was taking Prof. Dowding's Rock Mechanics class, which was primarily a graduate course. Part of the class included a field trip to the STS Cabin near Baraboo Wisconsin (undergraduates rarely get this kind of perk, but Prof. Dowding made sure I was included). As one of the few students with a car, I was asked to

drive several of us up there. Being an undergraduate, I still had a bit of child in me. At the time, I had a set of flip cards to flash at other cars as we drove. They ranged from the mundane "Thank you for allowing me to pass" to the edgy "You're cute", or "How about we meet up later?" Well, as it turns out, Chuck's wife Jane and their two daughters were also in their car, they were about 10-12 years old at the time. So, we flashed a few of the signs to them, and the girls thought we were the bomb. A few weeks after the trip (which was a blast, still the best pork chops I have ever had, who was that chef?), Jane was at Chuck's office and said "Hey, I have to show you something", she had made 2 sets of flip charts for her daughters. I think that weekend was the start of an almost 35 year (so far) friendship."

### **Former student David Kosnik, P.E. MS 09', PhD 12'**

"For me, the Autonomous Crack Monitoring project encapsulates some of Prof. Dowding's major contributions to engineering research, practice, and education. In particular, ACM and related ITI projects taught me the value of (1) careful selection of engineering quantities to measure and appropriate measurement technologies, (2) identification of the right places on a structure or facility to take measurements, and (3) a priori consideration of data reduction and analysis plans to answer the questions posed in a research or consulting project. Such planning

requires in-depth understanding of the physical phenomena of interest (e.g. ground vibration), the engineering context (rock and soil mechanics, structural dynamics), measurement technology (sensing and data acquisition), and the kinds of decisions that might be made based upon the data (e.g. blast design or regulatory limits). Prof. Dowding possesses such multidisciplinary knowledge and imparts to his students and collaborators. Prof. Dowding also taught me the importance of engineering "wisdom": cross-cutting lessons gleaned from wide bodies of technical literature, case studies, anecdotes and best-practices advice from experienced engineers, and one's own experience. I distinctly remember receiving a course packet entitled "Foundation Wisdom" collected by Prof. Dowding from various authorities on foundation engineering. As is probably the case with many of my fellow students, documents such as that packet form the nucleus of my own frequently-consulted "wisdom file"."

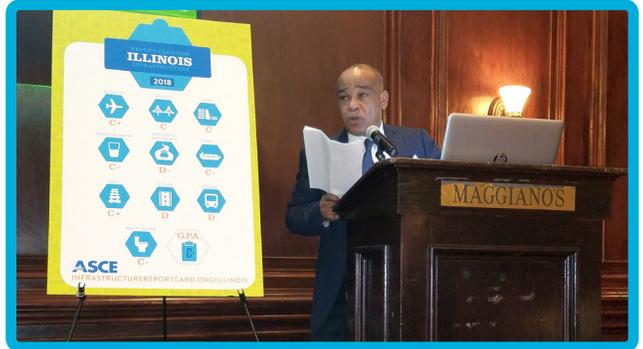
### **Prof. Jim Hambleton, Colleague at Northwestern University**

"The Department of Civil and Environmental Engineering at Northwestern University is a truly special place, and it owes much of that to Chuck. He is admired for his vitality, scholarship, altruism, humor and pragmatism. As the occupant of Chuck's old office, I can feel it in the walls. Frequently I can hear it through the walls since he moved next door to carry (continued on page 15)



**Dignitary Speakers**

- Illinois Senate, Karen McConaughay
- MPC, Audrey Wennink
- IDOT, Omer Osman
- Tollway, Clarita Lao
- CDOT, Dan Burke
- Cook County, Tara Orbon
- CDWM, Randy Conner
- MWRDGC, Catherine O'Connor
- Illinois Farm Bureau, Adam Nielsen





ASCE Members, public agency leaders and students gathered at Maggiano’s in Chicago, IL for the launch of the 2018 Report Card for Illinois’ Infrastructure. The Report Card was written over the past year by more than 30 volunteer civil engineers in Illinois who assigned the grades according to the following eight criteria: capacity, condition, funding, future need, operation and maintenance, public safety, resilience, and innovation.

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## Profile on the Career of Retiring Northwestern University Professor Charles Dowding

(continued from page 12)

on as Emeritus Professor, a position he has assumed with no less vigor but rather more trips to the golf course. Less frequently he bursts through the door to my office reflexively, having subconsciously counted the steps down the corridor to his old office. Whether by chance or by design, I relish every encounter and look forward to many more to come, and to learning as much as I can from a person who has seen it all.”

### *Prof. Ray Krizek, Colleague at Northwestern University*

“In the approximately four decades that Professor Dowding has “plied his trade” at Northwestern University he has left an indelible mark on the University, many of his faculty colleagues, and a

plethora of undergraduate and graduate students, not to mention the numerous professional associates with whom he has interacted in the “real world”. When he was lured from MIT to the civil engineering faculty at Northwestern, he filled a glaring void in rock mechanics and engineering geology and by so doing complemented our formidable strength in traditional geotechnical engineering. To his credit, and no small accomplishment, Chuck is held in high esteem by virtually everyone with whom he has interacted, including fellow faculty, students, and professional colleagues. His advice is frequently sought and highly respected on a wide variety of community problems. He has always manifested the highest

integrity in all of his dealings and his positions are invariably “based on the facts” (measurements and appropriate analyses) of a given situation.”

**Northwestern University will honor Prof. Dowding with a symposium on the Evanston Campus on April 28, 2018.**

*Brandon Hughes, S.E., P.E. is a Design Engineer for Thatcher Foundations Inc. focused on the design and construction of earth retention systems and deep foundations. Brandon is a former student of Prof. Dowding and the current Chair of the ASCE IL Section Geo-Institute.*

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## Stormwater Management Goes Underground in Northbrook, Illinois

(continued from page 5)

could be used for trees and plants at locations outside the park, and for use with non-sanitary equipment, such as vacuum trucks and street sweepers.

The stored stormwater is filtered and sanitized before being pumped into the irrigation system. Pretreatment filtration is provided by a baffle box filter that removes debris, sediment, and hydrocarbons. Up to 90 percent of suspended solids are removed at this stage, resulting in cleaner discharge to the downstream storm sewer and, ultimately, to the

West Fork of the North Branch of the Chicago River. The water then passes through a UV sanitization system, where UV bulbs kill

**The addition of a rainwater harvesting system allows the park’s new irrigation system to utilize excess stormwater that might otherwise cause flooding.**

bacteria and pathogens with radiation. Additional filtration prior to the UV treatment removes suspended solids that can reduce

the effectiveness of the bulbs. This type of sanitization system requires minimal contact time, and has the advantage of being chemical- and odor-free.

An automated controls system uses online weather forecast data to pump stored water to the downstream sewer in advance of large storms so the maximum stormwater storage volume is available when it is needed most. A touchpad control screen is located on-site in a locked enclosure and can be used to  
(continued on page 16)

# Stormwater Management Goes Underground in Northbrook, Illinois

(continued from page 15)

perform system checks, adjust system settings, view alarms, and shut down or start up the system. A web interface is also available to monitor the system remotely. The project included several park improvements, including a shared use path meeting ADA requirements and the planting of

**An automated controls system pumps water stored in the sump of the underground detention facility to the downstream sewer system in advance of large storm events to maximize the structure's available storage capacity**

70 trees and 50 shrubs. Reconstruction of the north ballfield and grassy outfield area was complicated by installation of backstop and dugout fence posts over the footprint of the storage facility. Sufficient cover was not available to install standard post foundations at appropriate depths, so spread footings were designed for each post to resist anticipated structural loads.

Completion of the Wescott Park Stormwater Storage Facility project and renovated park amenities was celebrated with an official ribbon cutting ceremony on Nov. 15, 2016. This innovative approach to stormwater management and reuse has earned multiple accolades, including a

2017 Special Achievement Award for Engineering Excellence from the American Council of Engineering Companies of Illinois, a Green Ribbon Award from the Friends of the Chicago River, and the 2017 Outstanding Civil Engineering Achievement Award for projects under \$10 million from the American Society of Civil Engineers, Illinois Section.

*Paul Siegfried has focused on designing effective flood mitigation projects and implementing creative stormwater management solutions for more than 11 years. He can be reached at (815) 444-3360 or [psiegfried@baxterwoodman.com](mailto:psiegfried@baxterwoodman.com).*

# ASCE-IL Section Mentorship Program

(continued from page 7)



Figure 2- Mentor Antonio Acevedo from Clark Dietz with Protégé Darpit Shah from IIT at an ASCE-YMG Dinner Event



Figure 3- Protégé Aaron Grudawski from IIT and Mentor Rachael Berthiaume from V3 & Williams Creek Consulting at last year's ASCE Spring Dinner

*Kris Salvatera is a Senior Transportation Design Engineer with Crawford, Murphy & Tilly and he is the chair for the Illinois Section ASCE Student Outreach Committee.*

**Spring 2018**

In an effort to inform Illinois Section members of the discussions at the monthly Board meetings, the Section Secretary contributes this article to the newsletter. Any questions or comments on the Board activities are welcome by contacting Megan McDonald, at [megan.mcdonald@clarkdietz.com](mailto:megan.mcdonald@clarkdietz.com)

**■ Treasurer’s Report**

▲ A treasurer’s report was presented at the December, January, and February meetings. All reports were approved.

**■ Highlights from Illinois Section Activities and Group Reports.**

▲ **Technical Group Scholarships** – The IL Section technical groups will once again be offering scholarships for students studying civil engineering at Northwestern University, University of Illinois – Chicago, and Illinois Institute of Technology. Applications and details are available on the Section website.

▲ **Construction Committee** – The IL Section has started up the new Construction Committee. The goal of this committee is to bring designers, owners, contractors, construction managers and academia together to develop relationships that provide information on different project deliveries and how they can be used locally with our funding issues. If you are interested in joining this committee please contact Zachary Pucel, [zjpucel@transystems.com](mailto:zjpucel@transystems.com).

▲ **ASCE Mentorship Program** – This new initiative began in November 2017. IL Section looks forward to its success and thanks the membership for submitting their applications to be paired with students for this exciting program.

▲ **STEM Night at Helen Keller Elementary School** – Looking for volunteers to help lead hands-on activities for elementary students. Event is at Helen Keller Elementary School on March 22, 2018 from 5:30pm-7:30pm. Contact Kris Salvatera if interested, [ksalvatera@cmtengr.com](mailto:ksalvatera@cmtengr.com).

▲ **Naperville’s STEM Discovery Night** – Volunteers needed for the STEM fair at Meadow Glens Elementary School on March 14, 2018. Contact Brian Castro if interested, [bcastro@omegaassociates.com](mailto:bcastro@omegaassociates.com).

▲ **Geo-Institute** – March Dinner Meeting with SEI and CI will be on VE Alternative Foundation Design at the Circle Interchange. It will be a panel discussion with Ryan Clark (Kenny Construction), Zachary Pucel (TranSystems), and Amish Bhatt (AECOM). March 13, 2018 at Pazzo’s beginning at 5:15pm.

▲ **Environmental & Water Resources Institute** – Green Infrastructure Seminar will be coming up in the Summer/Fall of 2018. Details to come.

▲ **Transportation & Development Institute** – March Luncheon will feature Bob Schillerstrom – Illinois Tollway

Board Chairman. It will be held March 21, 2018 at 11:30 am at Maggiano’s Oakbrook.

▲ **Congratulations to our IL Section Student Outreach Committee** – The IL Section Student Outreach Committee was honored with the ASCE IL Section 2017 Public Involvement award for all their outstanding outreach activities.

▲ **PE Exam Study Group** – The PE Exam Study Group hosted by the YMG has begun. The study group runs from February 27-March 31 at WSP.

▲ **Urban Planning & Development Group** – The UP&D group is back up and running. If you’re interested in joining, please contact Bill Cussen for details, [wcussen@gsg-consultants.com](mailto:wcussen@gsg-consultants.com).

▲ **Congratulations to the Environmental & Water Resources Institute for being selected as the Outstanding Institute Chapter!!**

The Illinois Section Board Meetings are held every first Monday of every month with the exception of holidays. The next board meeting is scheduled for March 5, 2018 at 5:30pm at the Clark Dietz office located at 118 S. Clinton Street, Suite 700, Chicago, IL. Please note the meeting location. Future meetings will be held on April 2, May 7, and June 4.

By Megan McDonald  
ASCE Secretary 2017-2018  
[megan.mcdonald@clarkdietz.com](mailto:megan.mcdonald@clarkdietz.com)

**SCHEDULE**  
**Tuesday, April 17**  
 8:00 am - Registration  
 8:30 am - 4:30 pm - Training  
 5:00 pm - 7:00 pm - Optional Facility Tour and Reception  
**Wednesday, April 18**  
 8:00 am - 12:00 pm - Training

**COST**  
 \$350  
 \$425 after March 15

**Reserve Your Spot**  
 Space is Limited

**Join us April 17 & 18, 2018**  
**Commercial and Industrial Parking Lot Training**

**How to Build**  
 Considerations for Constructing Quality Pavements

**How to Maintain**  
 Maximize the ROI of Your Pavement Investment

**How to Rehabilitate**  
 Proactive Pavement Rehabilitation Options

**What Lies Ahead**  
 The latest in Asphalt Technologies

**APA** ASPHALT PAVEMENT ALLIANCE

In today's world, being efficient and effective with resources is the name of the game to keep your customers and tenants returning year after year. Join us for in depth training and education related to the unique requirements of your commercial and industrial parking lot installations. From construction to maintenance, materials to proper pavement design, learn what is required to keeping your facility in tip-top shape.

**Instructors**

**Tim Murphy** PE, President, Murphy Pavement Technology, Inc.



Tim promotes best practices within the asphalt industry on local, regional, and national levels. He works collaboratively with agencies, associations, consultants, suppliers, and contractors to ensure asphalt quality construction at the most economical price.

**Michael L. Groh**, Principal, Pavement Consulting LLC



Michael has been associated with the paving industry for four decades. His experience has been as a contractor, material supplier, and consultant with over twenty of his 40+ years working in the consulting industry.

**Dan Staebell**, Northcentral Regional Director, APA

Dan has 35 years+ of Asphalt Paving knowledge working in all facets ranging from Estimating, Project Management, Construction, Liquid Binder Technologies, and Marketing. Dan works with APA Partners, NAPRA, AI and the Regional State Asphalt Paving Associations.

Join us April 17 & 18, 2018  
**Commercial and Industrial Parking Lot Training**

NIU Naperville Conference Center  
 1120 E Diehl Rd, Naperville, IL 60563

**6 Hours** of PDH's credits for Professional Engineers will be provided with training.

**Space is limited.** To reserve your spot today go to [www.asphaltroads.org](http://www.asphaltroads.org) or contact the Asphalt Pavement Alliance office – Sandy Hager at [shager@asphaltroads.org](mailto:shager@asphaltroads.org) or 904.446.0758.



2230 Park Avenue, Ste. 200U  
 Orange Park, FL 32073



**Additional 2018 Training Locations**  
**Kansas City and Minneapolis**  
 Location and dates TBD

**PAVE**press Pavement design training using Pave/press software

**ASCE IL Section Scholarship Applications Due**

Date: Friday, March 9  
[Scholarship Instructions & Application](#)

**ASCE IL Section SEI, Geo-Institute and Construction Institute Dinner Meeting**

Date: Tuesday, March 13  
 Time: 5:30pm  
 Place: Pazzo's at 311  
 311 S. Wacker Dr.  
 Chicago, IL 60606  
 Cost: \$45-with reservation  
 \$35-government/education  
 \$25-for fulltime students – with reservation  
 \$5-without/late RSVP

Make checks payable to ASCE Structural Group  
 PDH: 1.0 PDH will be awarded for continuing education  
 RSVP: [Event Registration](#) by March 9, 2018  
 Additional information: [Click Here](#) or contact Emery Waterhouse, at [asce.il.struct@gmail.com](mailto:asce.il.struct@gmail.com)

**ASCE IL Section T&DI Board Meeting**

Date: Wednesday, March 14  
 Time: 5:30pm - 6:30pm  
 Place: HDR  
 30 N. LaSalle Street  
 Chicago, IL 60602  
 RSVP: [mkirby@hntb.com](mailto:mkirby@hntb.com)

**For all Section, Group and Committee events, check out the Section website at:**  
[www.isasce.org/calendar/](http://www.isasce.org/calendar/)

**ASCE IL Section Student Outreach – STEM Discover Night (Naperville)**

Date: Wednesday, March 14  
 Time: 5:30pm - 8:00pm  
 Place: Meadow Glens Elementary School  
 1150 Muirhead Ave.  
 Naperville, IL 60565  
 Contact: Kris Salvatera at [ksalvatera@cmteng.com](mailto:ksalvatera@cmteng.com)

**ASCE IL Section UP&DG March Meeting**

Date: Thursday, March 15  
 Time: 5:30pm  
 Place: Chandlers  
 401 N. Roselle Rd.  
 Schaumburg, IL  
 Cost: None  
 RSVP: Bill Cussen: [wcussen@gsg-consultants.com](mailto:wcussen@gsg-consultants.com); 630-529-8000

**ASCE IL Section YMG March Dinner Event**

Date: Thursday, March 15  
 Time: 5:30pm – 7:00pm  
 Place: Jacobs  
 525 W. Monroe St.  
 Chicago, IL  
 Cost: General \$30, Gov't \$20, Student \$10, at Door \$40  
 RSVP: Sherryl Malanao: [sherryl.malanao@jacobs.com](mailto:sherryl.malanao@jacobs.com)  
 Attire: Business Casual  
 RSVP: [Register through 123signup](#)

**ASCE IL Section T&DI March Luncheon Event**

*Bob Schillerstrom – Illinois Tollway Board Chairman*  
 Date: Wednesday, March 21  
 Time: 11:30am - 1:15pm  
 Place: Maggiano's Oak Brook  
 240 Oakbrook Center  
 Oak Brook, IL 60523  
 Cost: \$50-Members

\$60-General  
 \$35-Government  
 \$25-Student  
 \$100 Bronze Level (Includes 1 seat)  
 \$200 Silver Level (Includes 2 seats)  
 \$400 Gold Level (Includes 5 seats-half table)  
 \$650 Gold Level (Includes 10 seats-full table)

Lunch will be provided and attendees receive 1 PDH credit.  
 RSVP: [Register here](#) by March, 19th

**ASCE IL Section Student Outreach – STEM Discover Night at Helen Keller Elementary School**

Date: Thursday, March 22  
 Time: 5:30pm - 7:30pm  
 Place: Helen Keller Elementary School  
 7846 W. 163<sup>rd</sup> St.  
 Tinley Park, IL 60477  
 Contact: Kris Salvatera at [ksalvatera@cmteng.com](mailto:ksalvatera@cmteng.com)

**ASCE IL Section Spring Dinner (SAVE THE DATE)**

Date: Thursday, April 12  
 Place: Maggiano's  
 111 W. Grand Ave.  
 Chicago, IL

**2018 ASCE Springfield Legislative Day (SAVE THE DATE)**

Date: Wednesday, April 25  
 Place: Springfield, IL  
 Details to follow.

**Professor Charles H. Dowding Symposium and Retirement Celebration**

Date: Saturday, April 28  
[Event Brochure](#)