2019 Thirty First Annual Fall Bridge Conference











Friday, November 15, 2019 7:15 am - 6:00 pm

Millennium Hotel Buffalo Buffalo, New York

www.abcdwny.org



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A Brief Look at Our History

The deplorable condition of our bridges led to the formation of the Western New York Chapter in 1978, which became the second chapter, nationally, to formally organize. The founding members met at the Williamsville Inn, where officers were elected, by laws were adopted, and "dinner meetings" became the norm. The early association focused on promoting the need for additional bridge funding, and pushed hard for the successful passage of the *Surface Transportation Bill* of 1978 (the Howard Bill).

During the years that followed, ABCD focused on becoming an organization dedicated to education in all facets of the bridge industry. Contractors, government agencies, educators, suppliers, and consultants could all find a place for their cause within the organization. Events such as the annual Kenneth Rybarczyk Bridge Contest, the Fall Bridge Conference, regular Technical Education Seminars, Monthly Dinner Meetings, the Annual Bridge Award, Scholarship Golf Tournament, Joint Association Meetings, participation in Engineer's Week, support of the local university Steel Bridge Teams, E3 Fair, Future Cities participation, support for BEAM, and our continued support of the Statewide Conference on Local Bridges in Syracuse are all part of the Association's yearly activities. Today, ABCD WNY boasts a membership of nearly 300 and is as active as ever. Our goal remains to increase recognition of our industry, promote fellowship among members, and provide the very best in educational opportunities for all involved in bridges.

Message from the President

The Officers and Board of Directors of the Association for Bridge Construction and Design – Western New York Chapter, welcome you to our 31st Annual Fall Bridge Conference.

The Fall Conference has served as a forum for bridge owners, designers, contractors, vendors and students to exchange ideas and information, as well as educate and update



those who work in our profession. We have been fortunate to attract presenters from around the country as well as locally from DOT agencies, leading engineering firms, product manufacturers and contractors.

This event continues to grow, and again this year we anticipate we will be near capacity. We continue to be informed that this is one of the top conferences to attend in New York State. Through this and other events hosted by ABCD – WNY we can provide students with scholarships, universities with research grants and support other bridge related organizations.

The success of this event and our entire organization is a direct result of your participation. Whether you are a conference attendee, presenter, exhibitor, advertiser, sponsor, board member or just somebody who helps from time to time, your contribution is what makes this organization great.

This year's conference chairman, our Vice President, Mike Davidson has developed another outstanding conference. Today's program includes a wide variety of technical topics to further your knowledge. During breaks, you will also have the opportunity to visit with our conference exhibitors and network with other professionals in the industry. We encourage you to gather as much knowledge as possible from today's sessions and enjoy connecting with many of the other professionals in attendance.

Thank you for your participation and I look forward to visiting with you throughout the day and at future ABCD events. A special thank you to Mike Davidson, the presenters, sponsors, advertisers and finally, the Millennium Hotel, host of our 31st Annual Fall Bridge Conference.

Enjoy your day,

William F. Ruga

William Rugg, PE

2019-2020 President

Association for Bridge Construction and Design Western New York Chapter

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Schedule & Speakers

7:15 - 8:15 am Registration, Coffee, Exhibits

Session 1	1.5 PDH Credits
8:15 - 8:30 am	Welcome and Introduction
8:30 - 9:30 am	Incorporating Steel Repairs into Large Scale Bridge Painting Projects Paul Forte, PE - GPI
9:30 - 10:00 am	Controlled Modulus Column (CMC) Rigid Inclusion Support for Embankments and MSE Walls Nina Carney, PE - Menard

10:00 -10:30 am Breaks and Exhibits

Session 2	1.0 PDH Credit
10:30 - 11:30 pm	Cable Stayed Bridges in Ohio Michael Brokaw, PE - ODOT
11:30 - 12:00 pm	Scholarship Awards

12:00 - 1:00 pm Lunch

Schedule & Speakers

Session 3 2 PDH Credits

Session o	2 I Dil Cicuits
1:00 - 2:00 pm	NYSDOT Procedures Harry White, PE - NYSDOT
2:00 - 3:00 pm	Red House Lake Dam & Bridge Rehabilitation Josh Repp, PE - Bergmann
3:00 - 3:30 pm	Breaks and Exhibits
Session 4	1.5 PDH Credits
Session 4 3:30 - 4:00 pm	1.5 PDH Credits Bathymetric Survey Terry McKiven - Prudent
	Bathymetric Survey

Speaker Abstracts & Biographies

Incorporating Steel Repairs into Large Scale Bridge Painting Projects

Abstract:

The integration of Steel Repair and Bridge Painting projects are not always straight forward. This presentation will discuss some of the issues involved with the integration of both of these activities. The presentation will also discuss some special considerations necessary when doing steel repairs, with a few in-progress photos to clarify these concepts. A detailed discussion will also be included regarding the various approaches taken by owners for combining Steel Repairs and Bridge Painting. The Pros and Cons of these various approaches will be discussed. A formal recommendation will be made to provide guidance for Owners and Practitioners.

Presenter:

Paul Forte P.E., P.C.S.

Paul Forte is Director of Special Projects for the Western, NY office of Greenman-Pedersen, Inc. (GPI). Paul has over 36 years of experience in the design and construction of transportation and infrastructure projects and has been involved in numerous large scale bridge painting projects in the eastern United States. Paul obtained a Bachelor of Science Degree in Civil Engineering at Rensselaer Polytechnic Institute and is a Professional Engineer in NY and FL. Paul is an SSPC



Certified Protective Coatings Specialist, a NACE Certified Level 3 Coatings Inspector and an SSPC C3 Supervisor/Competent Person for the De-Leading of Industrial Structures. He is a member of several technical organizations including NACE, SSPC, ASCE and is currently the Project Manager for the ongoing Peace Bridge recoating project.

Speaker Abstracts & Biographies

Controlled Modulus Column (CMC) Rigid Inclusion Support for Embankments and MSE Walls

Abstract:

Controlled Modulus Column (CMC) Rigid Inclusions are grouted, auger-displacement elements that are installed using a specially designed tool at the working end of a high torque, high down-pressure drilling machine. The tool is hollow so that flowable cementitious grout can be placed from the bottom up once the tooling has advanced to the desired depth. The patented CMC system fits in the generic category of rigid inclusions. There are a number of other types of inclusions that are currently designed and constructed using stone, grout, and concrete. The design technology behind the development of the CMC rigid inclusions makes them uniquely efficient for the immediate support of MSE walls and embankments on soft, compressible soils for public transportation, other infrastructure facilities, large storage tanks, and building facilities.

CMC rigid inclusions are an ideal solution for the immediate support of fill walls and embankments for bearing capacity and settlement control, as compared to other solutions with long consolidation periods such as wick drains with surcharge. The CMC rigid inclusion system relies on a granular Load Transfer Platform (LTP) which efficiently distributes the load from the structure or embankment to the rigid inclusions, while limiting the amount of load transferred to the surrounding soils. CMC rigid inclusions are designed using special proprietary finite element techniques that include the effects of load sharing between the LTP, the columns, and the surrounding improved ground.

This presentation will include a technical overview of the design theory of CMC rigid inclusions for embankment support, case studies of projects completed in the region, and finally, the results of full-scale instrumented testing of CMC rigid inclusion projects. We will compare actual performance monitoring data to the key predictions of the finite element models.

Presenter:

Nina Carney, P.E.

Nina Carney has a B.S. in physics from Allegheny College, a B.S. in Civil and Environmental Engineering from the University of Massachusetts Lowell and a M.S. in Civil and Environmental Engineering from Carnegie Mellon University. Ms. Carney has worked at Menard USA for over 3.5 years as a design engineer. Prior to her position at Menard, she worked as an environmental and geotechnical engineer at various consulting firms. Ms. Carney specializes in the design of various ground improvement techniques, as well as, provides construction support to aid in the safe execution of projects with the highest degree of quality. Ms. Carney is a licensed professional engineer in Pennsylvania, Ohio, New Jersey, West Virginia, North Carolina, South Carolina, Virginia, the District of Columbia, Tennessee, Georgia and Florida.



Speaker Abstracts & Biographies

Cable Stayed Bridges in Ohio

Abstract:

This talk will provide an overview of Ohio's bridge inspection program and highlight some of the differences from New York DOT's program. The majority of the presentation will be focused on Ohio's experience with managing an inventory of cable-stayed structures. The oldest cable stayed bridge on Ohio's border opened to traffic 30 years ago and the most recent opened to traffic 2 years ago. General challenges will be shared and a few specific case studies will be discussed.

Presenter:

Michael Brokaw, P.E.

Mike Brokaw is a licensed Professional Engineer with 16 years of bridge inspection experience. He graduated from Ohio Northern University with a Bachelor of Science in Civil Engineering. Upon graduation he spent five years climbing big bridges around the country with Burgess and Niple Inc., a consulting firm based in Columbus, Ohio. Some of the east coast bridges Mike worked on included both the In-Depth Inspections on the Peace Bridge and installing accelerometers



on the Brooklyn Bridge in 2004. He transitioned to the Ohio Department of Transportation in 2008. Mike has written and updated Ohio's Manual of Bridge Inspection, developed and taught the in-house Comprehensive Bridge Inspection Training and developed and taught the in-house Bridge Inspection Refresher Trainings. Mike is currently working as Ohio's Bridge Inspection Program Manager.

Speaker Abstracts & Biographies

NYSDOT Procedures

Abstract:

How do Standards become Standards? What is the process for discovering, reviewing, testing, verifying, and monitoring the details and specifications that are used for bridge design every day? This presentation will walk through the NYSDOT process to take an idea from conception through construction and performance.

Presenter:

Harry White, P.E.

Harry White is the Director of the Structure Policy and
Innovation Bureau for the New York State DOT Office of
Structures. He previously led the NYSDOT Standards and
Policies Unit, the NYSDOT Research and Development
Bureau - Structures Unit, the NYSDOT Quality Assurance
Chemistry Laboratories, and was a NYSDOT Structures
Design Squad leader. He graduated from Union College
in Schenectady, NY with a Bachelor of Science in Civil
Engineering, and is a registered professional engineer in NY State.



Speaker Abstracts & Biographies

Red House Lake Dam & Bridge Rehabilitation

Abstract:

The Red House Lake Dam & Bridge are located in the heart of the scenic Allegany State Park in the Town of Red House, Cattaraugus County, NY. The original dam and arched bridge was built across Red House Brook in 1929 to create a recreational lake for the park. Bergmann was contracted by NYS Office of Parks Recreation and Historic Preservations (NYS OPR&HP) in 2013 to perform a comprehensive inspection and assessment of the dam and bridge structure. This included development of a full Engineering Assessment (EA), gauging the performance and condition of the dam according to the NYS DEC Dam Safety Regulations, as well as a condition assessment and concept study for the bridge to determine rehabilitation and replacement alternatives. A load rating for the 3-span arch bridge was also conducted. Bergmann provided NYS OPR&HP a report outlining the findings of the EA, identifying areas recommended for dam safety compliance improvements, and investigating bridge repair/replacement options. Ultimately, replacement of the bridge superstructure was recommended and implemented, along with numerous dam safety improvements. The replacement superstructure was constructed with precast arch span units to have a similar appearance to the original bridge. The project was constructed by Union Concrete and Construction Corp. at a cost of approximately \$6M.

Presenter:

Joshua M. Repp, P.E.

Joshua Repp is a Senior Project Manager and Structural Engineer with Bergmann in Buffalo, NY. He received his BS and ME in Civil Engineering from the State University at Buffalo and has worked on heavy civil projects for most of his career. Josh joined Bergmann in 2004, where he has been involved with a number of large and small bridge and waterway structures projects. His experience includes the evaluation, design, and rehabilitation of bridges, locks, dams, and flood protection structures. Josh was project manager for the Red House Lake Dam Rehabilitation Project at Bergmann.



Speaker Abstracts & Biographies

Bathymetric Survey

Abstract:

With the rising waters across New York State, hydrography and underwater inspections are becoming a more crucial element in the infrastructure inspection process than ever. Fortunately, with the advancements in hydrographic technology, our present capabilities allow us to perform these inspections quicker, more accurately, and with greater detail.

This presentation will cover some of the advanced technologies currently available to firms and agencies across New York State. We will discuss the difference in technologies and how to pick the right one for your project. I will explain how to verify the various forms of information that you are receiving so you can be sure that you are getting what you want.

At the end of the presentation attendees will be able to:

- Know the right bathymetric product that meets the needs.
- Determine the scope of work to make sure you are receiving suitable data sets.
- Check your bathymetric deliverables for accuracy

Presenter:

Terry McKiven

Terry McKiven, a U.S. Army veteran, has over 15 years of experience in the land and hydrographic surveying and mapping profession. As Prudent Engineering's full-time hydrographic project manager, Mr. McKiven is responsible for coordinating all hydrography operations. He is a U.S. Coast Guard-certified Master Captain with expertise in a range of hydrographic operations, such as single- and multi-beam bathymetric surveys; sub-bottom surveying and profiling; side-scan surveys; bottom classification mapping; and endangered species studies. Mr. McKiven has successfully completed hydrography projects on bodies of water of varying size, from small ponds to large



waterways, including Raritan Bay off Staten Island, Long Island Sound, New York Bight, the NYS Canal System, and the Hudson River. Mr. Mckiven has been certified by the New York State Department of Transportation as a Fathometer Chief to do underwater bridge surveys for the last 3 years. In addition to his technical skills, Mr. McKiven is a HYPACK-certified professional with proficiency using SonarWiz 6.

Speaker Abstracts & Biographies

Franklinville Bridge No. 22 Replacement

Abstract:

Franklinville Bridge No. 22 carries Five Mile Road (CR 19) over Ischua Creek in the Town of Franklinville, Cattaraugus County. The existing 90-ft long two-span through-girder bridge had a superstructure depth of only 3 feet. The hydraulic conditions at the site included a negative freeboard for a 10-yr storm event and overtopping of the approaches during a 50-yr storm event. These hydraulic conditions prohibited any significant increases in the roadway profile, which in turn, prohibited the use of a simple span multi-beam or girder structure to clear span the creek.

The replacement bridge was designed as a steel multi-girder rigid frame structure, greatly reducing the required superstructure depth. This allowed the waterway opening to be increased by constructing a longer 124-ft single span. This improved the hydraulic conditions at the site, reducing the water surface elevation for the 50-yr storm by 9 inches and significantly reducing the frequency that the bridge approaches are overtopped. Chromium-alloyed steel reinforcement and metalized steel girders were incorporated in the design of the new bridge to provide an extended service life.

This presentation will discuss the project background, site characteristics, structure type selection, geotechnical considerations, hydraulic modeling, rigid frame analysis and construction of the bridge.

Presenters:

Bill Fox, P.E.

William Fox graduated from The Citadel, The Military College of South Carolina, with a Bachelor of Science in Civil Engineering in 1989. Mr. Fox has been with Cattaraugus County since 1998, serving as the county's Senior Civil Engineer. Prior to coming to Cattaraugus County, Mr. Fox began his career in 1989 working as a consultant for a Rochester, NY based firm; then in 1995 he joined a Mid-Atlantic consulting firm located in Raleigh, NC. As a consultant, he has been involved in the design and development of highway, bridge, wetland restoration, recreational trail and building projects. He has acted as a structural engineer for bridges



in New York, North Carolina, South Carolina, Virginia and Georgia. His current duties at Cattaraugus County include administering the county's federal aid program, managing the County's capital bridge improvement projects, performing designs for in-house projects and administering the code compliance program for county-owned buildings.

Speaker Abstracts & Biographies

Presenters, continued:

Mark Laistner, P.E.

Mark Laistner earned a Bachelor of Science Degree in Civil Engineering from the State University of New York at Buffalo in 1987. He is a Licensed Professional Engineer in the states of New York, Pennsylvania, and Maine. He has 32 years of experience in the design, inspection, and load rating of bridges. Mr. Laistner has been the Project Manager and/or Lead Structural Engineer on 50+bridge replacement and rehabilitation projects, including 35 LAFA projects. His design experience includes numerous pre-stressed concrete, steel and timber bridges, as well as the rehabilitation of historic, railroad, truss, arch and cable suspension bridges. Mr.



Laistner is currently the Director of the Bridge Design Division at Popli Design Group where he is responsible for managing the firm's bridge design staff, the management of bridge projects and the development of new business. Mr. Laistner is a past ABCD WNY Chapter Board Member, serving as President in 2007-2008 and 2017-2018.

Mike Savino, P.E.

Mike Savino earned a Bachelor of Science Degree in Civil Engineering Technology from the Rochester Institute of Technology in 2012. He is a Licensed Professional Engineer in the states of New York and Pennsylvania. He has 7+ years of experience in the design, inspection, and load rating of bridges. Mr. Savino's experience includes the design of over 7 bridge replacements and rehabilitations. He is a Project Engineer in the Bridge Design Division at Popli Design Group, where he is responsible for preparing structural design calculations, hydraulic analyses, and the development of contract plans and specifications.



Thank You's

The Board of Directors extends a special thank you to all the Presenters, Exhibitors, Sponsors and Advertisers who make the ABCD Fall Conference possible. Also a special thank you to the Millennium Buffalo Hotel for hosting this event, and to Sound Video Solutions for providing Audio Visual support.

2019 ABCD Fall Conference Exhibitors

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2019 ABCD Academic Scholarships

The Western New York Chapter of ABCD has been providing college scholarships to area students and schools since 1998. This year we offered three (3) scholarships to students enrolled in an undergraduate bridge related curriculum. The scholarships are awarded based on eligibility, scholastic performance, a written essay, extra-curricular activities/employment, and references.

The award and scholarship types are as follows:

- \$6,000 Phillip F. Frandina Memorial Scholarshipawarded to Dylan Atwater (Alfred State)
- \$3,000 ABCDWNY Bachelor's Degree Scholarshipsawarded to Riley Blasiak (UB)
 and
 Wakil Pranto (UB)





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Philip F. Frandina, PE, LS Memorial Undergraduate Scholarship



Congratulations to Scholarship Recipients:

2019 – Dylan J. Atwater, Alfred State, 2020

2018 - Christopher W. Miller, UB, 2020

2017 - Rebecca C. Kohlman, RIT, 2018

2016 - Cody Coonradt, UB, 2017

2015 - Ryan O'Malley, UB, 2016

2014 - Edward Almeter, UB, 2015

2013 - Dana White, UB, 2014



The WNY chapter of ABCD was founded in 1978 and Phil Frandina served as its first president. In 2012, Phil endowed this scholarship to assist future bridge engineers to complete their studies. Sadly, he passed away in February 2013 at the age of 84, before the first scholarship was awarded. ABCD and the Frandina family jointly evaluate applications to select the recipients.

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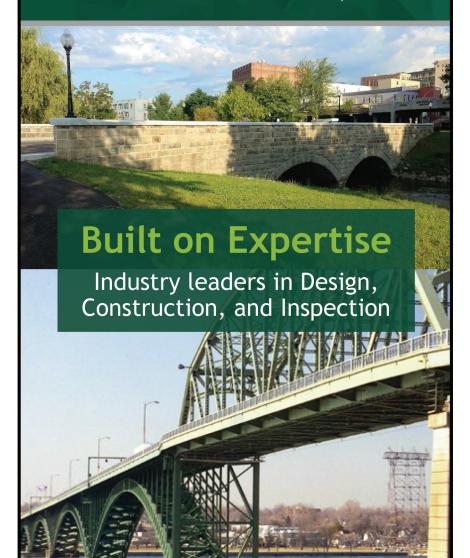
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We commend the work of those associated with the inspection, maintenance, design, and construction of our Bridges!

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History of ABCD WNY Research Grants

2011 - 2013 - BRIM (Bridge Information Modeling)

\$5,000 Fellowships were awarded to several Graduate and PHD candidates to conduct a research project on advancing a bridge oriented integrated project delivery method which is called BRIM (Bridge Information Modeling). The project extended the knowledge base of applying virtual design and construction approaches to bridges.

2014 – 2015 – Extreme Event Response of Ultra-High Performance Concrete for Segmental Columns

\$10,000 Research Grant awarded to:

Dr. Pinar Okumus, Dr. Andrew Whittaker, Jerome O'Connor – University at Buffalo

Findings were presented at the 2015 ABCD Fall Conference.

2016 - Field Determination of Dead Load Stresses in Concrete Bridges

\$10,000 Research Grant awarded to:

Jerome O'Connor, PE, Executive Director on behalf of Technical POC and Principal Investigator Andreas Stavridis, PhD – University at Buffalo

2017 – Two awards to study girder web corrosion on steel girder bridges

\$10,000 Research Grant awarded to:

Amanda Bao, PhD, PE, Associate Professor – Rochester Institute of Technology

Evaluation of shear strength in deteriorated I-plate steel girder bridges

\$10,000 Research Grant awarded to:

Dr. Pinar Okumus, Assistant Professor - University at Buffalo

Steel Bridge Girders with Web Corrosion: Remaining Capacity and Load Distribution

2018 – Investigate structural capacities of corroded steel girders and develop a reliable quantitative load rating procedure to evaluate deteriorated steel bridges \$7,500 Research Grant awarded to:

Amanda Bao, PhD, PE, Associate Professor – Rochester Institute of Technology

Testing, Evaluation and Mapping of New York State Deteriorated Steel Bridges

2019 and beyond – Input from ABCD members is welcome so as to expand research needs in bridge engineering.

Several of the Fellowships and Research Grants have been significantly co-funded by the Federal Highway Administration.



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WSP

Association for Bridge Construction and Design



The Western New York Chapter was established in 1978 and is one of six chapters nationally. The current chapters include the following:

Buffalo, NY (Western New York Chapter, est. 1978) **www.abcdwny.org**

Albany, NY (Eastern New York Chapter, est. 1994) **www.abcdeny.org**

Harrisburg, PA (Susquehanna Chapter, est. 2001) **www.abcd-susquehanna.org**

Pittsburgh, PA (Pittsburgh Chapter, est. 1976) **www.abcdpittsburgh.org**

Columbus, OH (Central Ohio Chapter, est. 2013) **www.abcdcoh.org**

Cleveland, OH (Northeast Ohio Chapter, est. 1998) **www.abcdneoh.org**



2019 ABCD Model Bridge Contest - Buffalo



The 27^{th} annual *Kenneth T. Rybarczyk* Memorial Model Bridge **Contest** was held February 14, 2019 at Classics V Banquet Hall in Amherst. Four (4) schools were represented by 131 students.

100 bridges were presented, judged and tested until failure. Bridges were checked to ensure all requirements were met on bridges' weight, length and height. Judging consisted of review and assignment of scoring for: Complexity, Engineering, Workmanship and Efficiency.

The winning bridge, built by Wyatt Kuebler from North Tonawanda High School, weighed 55 grams and carried a load of 121 pounds.

In 2^{nd} place was Daniel Slotman of Lake Shore Central. In 3^{rd} place was the team of Eammon Burke and Elijah Kunze from North Tonawanda.

2020: Event is scheduled for February 13, 2020 at Classics V in Amherst. Please contact Todd Swackhamer if you are interested in assisting.

Bridge of the Year Awards

For over 25 years the Western New York Chapter of ABCD has recognized outstanding new and replacement bridge projects. Our annual Bridge of the Year Awards are awarded for the best project over \$2 million, and the best project under \$2 million, completed the previous year. Nominations are due in early Spring, and the awards are presented at our May meeting.

In 2019, six bridges were nominated for the Under \$2 Million category.

2019 Bridge of the Year - Under \$2 Million



Stroh Road Bridge Replacement

Owner: Genesee County

Designer: Clark Patterson Lee

General Contractor: L.C. Whitford Company, Inc.

Bridge of the Year Awards

Two bridges were nominated for the Over \$2 Million category.

2019 Bridge of the Year - Over \$2 Million



Red House Lake Dam & Bridge Rehabilitation Allegany State Park

Owner: NYS Office of Parks, Recreation & Historic Preservation

Designer: Bergmann

General Contractor: Union Concrete & Construction Corporation

Look for the upcoming request for nominations for the 2020 ABCD Bridge Award in the near future.

Mark your calendars as nominations will be due in April 2020.

We look forward to seeing your nominations!

ABCD 2020 Meetings/Events

January 30, 2020: Old Blenheim Bridge

Burgundy Basin Inn, Pittsford

Mid-February 2020: Presentation To Be Determined

Classics V Restaurant, Amherst

March 12, 2020: TSC Joint Dinner Meeting

University at Buffalo GRoW House

Salvatore's Italian Garden, Lancaster, NY

March 27, 2020: Annual Spring Technical Seminar

Batavia Downs

Mid-May 2020: Annual Meeting / Bridge Awards /

Election of Officers

Location to be determined.

June 18, 2020: Annual Scholarship Golf Outing

Terry Hills, Batavia



www.abcdwny.org



ABCD Spring **Seminar**

Friday, March 27, 2020

CALL FOR PAPERS

ABCD's Spring Conference will be held on March 27, 2020, at Batavia Downs, Batavia, New York. This has proven to be a very popular event, where attendance has grown to

over 100 professionals, from inspectors to engineers to contractors. We are interested in all aspects of bridge construction and design, from lessons learned to the latest research, codes and design parameters, constructability and construction techniques.



If you have an interesting topic that would benefit the Bridge Community, consider submitting a presentation for our Spring Seminar.

Contact either Jason Messenger or Rob Fleming for further information:

Jason Messenger, PE Lu Engineers (585) 385-7417, ext. 241 jmessenger@luengineers.com Rob Fleming, PE Bergmann (585) 498-7817 rfleming@bergmannpc.com

2019 Thirty First Annual Fall Bridge Conference Buffalo, NY Friday, November 15, 2019

