

## **GEORGE MORCOUS, Ph.D., P.E., P.Eng.**

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### **AREAS OF EXPETISE**

Reinforced and Prestressed Concrete, Bridge Engineering, and Infrastructure Management.

### **EDUCATION**

- 1997 – 2000**      **Ph. D.**, Faculty of Engineering and Computer Science, Concordia University, Montreal, Quebec, Canada.  
Major: Construction Engineering  
Thesis: “*Case-Based Reasoning for Modeling Bridge Deterioration*”.
- 1994 – 1997**      **M. A. Sc.**, Faculty of Engineering, Cairo University, Cairo, Egypt.  
Major: Construction Engineering  
Thesis: “*Estimation of Quantities and Cost of P.C. Bridges Over the River Nile in Egypt; Conventional and Neural Networks Approaches*”.
- 1989 – 1994**      **B. Eng. (Honors)**, Faculty of Engineering, Cairo University, Cairo, Egypt.  
Major: Civil Engineering  
Project: “*Analysis of Cable-Stayed Bridges*”

### **PATENTS & AWARDS**

- US Patent No. 10,508,434 “Mechanical Connection for Concrete Structures”, Dec 2019.
- US Patent No. 9,057,170 “Continuously Prestressed Concrete Pile Splice”, June 2015.
- US Patent No. 8,671,634 “Shallow Flat Soffit Precast Concrete Floor System”, Mar 2014.
- Honoree of the 2017 and 2018 UNL College of Engineering Research Celebration.
- Precast/Prestressed Concrete Institute (PCI), 2014 Educator Award.
- PCI, Daniel P. Jenny Research Fellowship, 2012.
- Holling Family Distinguished Senior Faculty Teaching Award, 2011.
- PCI, Daniel P. Jenny Research Fellowship, 2008.
- PCI, Daniel P. Jenny Research Fellowship, 2007.
- Henry Y. Kleinkauf Distinguished New Faculty Teaching Award, 2007.
- University of Nebraska-Lincoln, Layman Award, \$10,000.
- Natural Science and Engineering Research Council of Canada (NSERC), Postdoctoral Fellowship, 2001-2002
- Ph.D. Thesis Nominated for the NSERC Doctoral Prize Award, 2001
- Concordia University Fellowship and Tuition Remission, 1997 – 2000
- Cairo University Award of Excellence, 1994.

## REFEREED JOURNAL PUBLICATIONS

### Published/Accepted Articles:

1. Abo El-Khier, M. and **Morcous, G.** (2021) "Precast Concrete Deck-to-Girder Connection Using Ultra-High Performance Concrete (UHPC) Shear Pockets", *Journal of Engineering Structures*, Elsevier, Accepted in April.
2. Henin, E. and **Morcous, G.** (2021) "Bond behavior of helically wrapped sand coated deformed Glass Fiber-Reinforced Polymer (GFRP) bars in concrete", *Journal of Construction and Building Materials*, Elsevier, V288.
3. **Morcous G.**, and Tawadrous R. (2021) "Circular Shear Pocket Connection for Full-Depth Precast Concrete Deck Construction", *ASCE Journal of Bridge Engineering*, Published online in March.
4. McCabe T., Erdogmus, E, Kodsy A., and **Morcous G.** (2020) "Early Detection of Honeycombs in Concrete Pavement Using GPR", *ASCE Journal of Performance of Constructed Facilities*, Published online in November.
5. **Morcous G.** and Tawadrous, R. (2020) "Precast Concrete Deck-to-Girder Mechanical Connection for Accelerated Bridge Construction", *PCI Journal*, May-June.
6. Kodsy, A., and **Morcous G.** (2019) "Bond Performance of Sanded Surface and Threaded Smooth GFRP Bars", *Civil Engineering Research Journal*, Juniper, 8(4), June.
7. Henin, E., Tawadrous, R., and **Morcous, G.** (2019) "Effect of Surface Condition on the Bond of Basalt Fiber-Reinforced Polymer Bars in Concrete", *Journal of Construction and Building Materials*, Elsevier, V226, 449-458.
8. **Morcous, G.**, Henin, E., and Tadros, M. K. (2019) "Shallow Precast Concrete Floor without Beam Ledges or Column Corbels", *PCI Journal*, July-August.
9. Tawadrous, R. and **Morcous, G.** (2019) "Design of Shear Pocket Connection in Full-Depth Precast Concrete Deck Systems", *Journal of Engineering Structures*, Elsevier, V179, 367-386.
10. Tawadrous, R., **Morcous, G.**, and Maguire, M. (2019) "Performance Evaluation of a New Precast Concrete Bridge Deck System", *ASCE Bridge Engineering Journal*, 24(6).
11. Henin, E., and **Morcous, G.** (2018) "Bond-Dependent Coefficient of Helically-Wrapped Sand-Coated Glass Fiber-Reinforced Polymer (GFRP) Bars", *Journal of Advances in Civil Engineering Materials*, ASTM International, 7(1), 353-366.
12. Tawadrous, R. and **Morcous, G.** (2018) "Shear Strength of Deep Hollow Core Slabs", *ACI Structural Journal*, May, 115(3), 699-710.
13. Tawadrous, R. and **Morcous, G.** (2018) "Interface Shear Resistance of Clustered Shear Connectors for Precast Concrete Bridge Deck Systems", *Journal of Engineering Structures*, Elsevier, 160, 195-211.
14. **Morcous, G.**, Hatami, A., and Jaber, F. (2018) "A New Precast Concrete Deck System for Accelerated Bridge Construction", *Journal of Advances in Civil Engineering Materials*, ASTM International, 7(3).
15. Henin, E., **Morcous, G.**, and Tadros, M. K. (2017) "Design, Fabrication, and Construction of Static-Cast Concrete Poles Reinforced with GFRP", *ASCE Practice Periodical on Structural Design and Construction*, 22(4).
16. **Morcous, G.** and Tadros, M. K. (2016) "Load Rating of Tied-Arch Bridge Systems", *Journal of Civil Structural Health Monitoring*, October (6), 725-737.
17. Alawneh, M, Tadros, M. K., and **Morcous, G.** (2016) "Innovative System for Curved Precast Post-Tensioned Concrete I-and U-Girder Bridges", *ASCE Journal*

of Bridge Engineering, May.

18. Q. Cao, S. Hwang, K. H. Khayat, and **G. Morcous**, (2016) "Design and Implementation of Self-Consolidating Concrete for Connecting Precast Concrete Deck Panels to Bridge Girders", ASCE Journal of Materials in Civil Engineering, March.
19. ElKady, M., Tadros, M.K., Lafferty, M., **Morcous, G.**, and Gremel, D. (2015) "Precast Concrete Corbels for Insulated Panels" ACI Concrete International Journal, October, 53-58.
20. Deng, Y., and **Morcous, G.** (2015) Closure to discussion on "Efficient Prestressed Concrete-Steel Composite Girder for Medium-Span Bridges. I: System Description and Design", ASCE Journal of Bridge Engineering, 20(5).
21. Deng, Y., and **Morcous, G.** (2015) Closure to discussion on "Efficient Prestressed Concrete-Steel Composite Girder for Medium-Span Bridges. II: Finite Element Analysis and Experimental Investigation", ASCE Journal of Bridge Engineering, 20(6).
22. Deng, J., **Morcous, G.**, and Ma, Z., (2015) "Strand Bond Stress-Slip Relationship for Prestressed Concrete Members at Prestress Release", RILEM Journal of Materials and Structures, January, 1-15.
23. Hatami, A., and **Morcous, G.** (2015) "Deterministic and Probabilistic Life-Cycle Cost Assessment: Applications to Nebraska Bridges", ASCE Journal of Performance of Constructed Facilities, 29, May.
24. Assad, S., and **Morcous, G.** (2015) "Evaluating the Impact of Bridge Deck Removal on the Performance of Precast/Prestressed Concrete I-Girders", ASCE Journal of Performance of Constructed Facilities, 29, May.
25. Wang, X., Wang, K., Taylor, P., and **Morcous, G.** (2015) "Effects of Paste-To-Voids Volume Ratio on Performance of Self-Consolidating Concrete Mixtures", ICE Magazine of Concrete Research, 6(14).
26. Henin, E., and **Morcous, G.**, (2015) "Non-Proprietary Bar Splice Sleeve for Precast Concrete Construction", Elsevier Engineering Structures Journal, 83, 154–162.
27. Samir, P., and **Morcous, G.** (2014) "Precast Prestressed Concrete Truss Girder for Roof Applications", Journal of Structures, 2014, 1-13.
28. Wang, X., Wang, K., Taylor, P., and **Morcous, G.** (2014) "Assessing Particle Packing Based Self-Consolidating Concrete Mix Design Method", Elsevier Journal of Construction and Building Materials, 70, 439–452.
29. Henin, E., **Morcous, G.**, and Tadros, M. K. (2014) "Precast/Prestressed Concrete Sandwich Panels for Thermally Efficient Floor/Roof Applications", ASCE Practice Periodical on Structural Design and Construction, 19(3), 1-13.
30. **Morcous, G.**, Assad, S., Hatami, A., and Tadros, M. K. (2014) "Implementation of 0.7 in. Diameter Strands at 2 in. by 2 in. Spacing in Pretensioned Bridge Girders", PCI Journal, 59(3), 145-158.
31. El-Kady, M., **Morcous, G.**, and Tadros, M. K., (2014) "Review of Transverse Reinforcement Requirements for Precast Load Bearing Wall Panels with Large Openings", ASCE Journal of Architectural Engineering, 20(2), 1-4
32. El-Safty, A., Zinszer, M., and **Morcous, G.**, (2014) "Bridge Platform Failure Due to Errors in Design and Construction Practice", Journal of the American Institute of Constructors (AIC), 38(1), 32-40.
33. Hanna, K., **Morcous, G.**, and Tadros, M. K. (2014) "Effect of Supplementary Cementitious Materials on the Performance of Concrete Pavement", ASCE Journal of Materials in Civil Engineering, 26(4), 789-793.

34. **Morcous, G.**, Henin, E., Fawzy, F., Lafferty, M., and Tadros, M. K. (2014) "Shallow Precast/Prestressed Concrete Floor System", Elsevier, Engineering Structures, Vol. 60, Feb., 287-299.
35. Deng, Y., and **Morcous, G.** (2013) "Efficient Prestressed Concrete-Steel Composite Girder for Medium-Span Bridges. I: System Description and Design" ASCE Journal of Bridge Engineering, 18(12), 1347-1357
36. Deng, Y., and **Morcous, G.** (2013) "Efficient Prestressed Concrete-Steel Composite Girder for Medium-Span Bridges. II: Finite Element Analysis and Experimental Investigation", ASCE Journal of Bridge Engineering, 18(12), 1358-1372
37. Maguire, M., **Morcous, G.**, and Tadros, M. K. (2013) "Structural Performance of Precast/Prestressed Bridge Double Tee Girders Made of High Strength Concrete, Welded Wire Reinforcement and 18 mm Diameter Strands", ASCE Journal of Bridge Engineering, 18(10), 1053-1061.
38. Deng, Y., and **Morcous, G.** (2013) "Calibration of Strength Design of Pretensioned Flexural Concrete Members at Release", International Journal of Advances in Structural Engineering, 16(10), 1781-1800.
39. Henin, E., **Morcous, G.**, and Tadros, M. K. (2013) "Shallow Flat Soffit Precast Concrete Floor System", ASCE Practice Periodical on Structural Design and Construction, 18(2), 101-110.
40. Hatami, A., and **Morcous, G.** (2012) "Deterioration Models for Life-Cycle Cost Analysis of Bridge Decks in Nebraska", Journal of Transportation Research Record, 2313, 3-11.
41. Henin, E., Goedert, J., and **Morcous, G.** (2012) "Shallow Flat Soffit Precast Floor System: A Construction Comparative Analysis", Journal of the American Institute of Constructors (AIC), October, 36(2), 18-25.
42. Patzlaff, Q., **Morcous, G.**, Hanna, K., Tadros, M. (2012) "Bottom Flange Confinement Reinforcement in Precast Prestressed Concrete Bridge Girders", ASCE Journal of Bridge Engineering, 17(4), 607-616.
43. **Morcous, G.**, Hatami, A, Maguire, M., Hanna, K., and Tadros, M. K. (2012) "Mechanical and Bond Properties of 18 mm (0.7") Diameter Prestressing Strands", ASCE Journal of Materials in Civil Engineering, 24(6), 735-744.
44. **Morcous, G.**, Hanna, K., Deng, Y., and Tadros, M (2012) "Concrete-Filled Steel Tubular Tied Arch Bridge System: Application to Columbus Viaduct", ASCE Journal of Bridge Engineering, 17(1), 107-116.
45. **Morcous, G.** (2011) "Construction Quality Assurance Using Ground Penetrating Radar", Journal of the American Institute of Constructors (AIC), 35(2), 5-11.
46. Hanna, K., **Morcous, G.**, and Tadros, M. (2011) "Design, Detailing, and Testing of Non-Post-Tensioned Transverse Connections in Adjacent Box Girder Bridges", PCI Journal, 56(4), 94-107.
47. **Morcous, G.**, Hanna, K., and Tadros, M. (2011) "Use of 0.7 in. Diameter Strands in Precast/Prestressed Bridge Girders", PCI Journal, 56(4), 65-82.
48. **Morcous, G.**, Maguire, M., and Tadros, M. K. (2011) "Welded Wire Reinforcement versus Random Steel Fibers in Precast/Prestressed Concrete Bridge Girders", PCI Journal, 56(2), 113-129.
49. **Morcous, G.**, and Erdogmus, E. (2010) "Accuracy of Ground Penetrating Radar for Concrete Pavement Thickness Measurement", ASCE Journal of Performance of Constructed Facilities, 24(6), 610-621.
50. **Morcous, G.**, Hanna, K., and Tadros, M. (2010) "Transfer and Development Length of 0.7 in. Diameter Strands in Pretensioned Concrete Bridge Girders",

High Performance Concrete (HPC) Bridge Views, Issue 64, Nov.-Dec., 7-9.

51. **Morcous, G.**, Cho, Y., El-Safty, A., Chen, G. (2010) "Structural Behavior of FRP Sandwich Panels for Bridge Decks", *Journal of the Korean Society of Civil Engineers (KSCE)*, 14(6), 879-888.
52. **Morcous, G.**, and Sekpe, V. (2010) "Inspection of Insulated Concrete Form Walls Using Ground Penetrating Radar", *ASC International Journal of Construction Education and Research*, 6(4), 303-317
53. **Morcous, G.**, Lounis, Z., and Cho, Y. (2010) "An Integrated System for Bridge Management Using Probabilistic and Mechanistic Deterioration Models: Application to Bridge Deck" *Journal of the Korean Society of Civil Engineers (KSCE)*, 14(4), 527-537.
54. Hanna, K., **Morcous, G.**, Tadros, M. (2009) "Transverse Post-Tensioning Design and Detailing of Precast Prestressed Adjacent Box Beam Bridges", *PCI Journal*, Fall 09, 64-78.
55. **Morcous, G.**, Maguire, M., and Tadros, M. K. (2009) "Shear Capacity of Ultra-High Performance Concrete I-Girders with Orthogonal Welded Wire Reinforcement", *American Concrete Institute (ACI)*, SP-265-24, 511-532.
56. Hanna, K., **Morcous, G.**, Tadros, M. (2009) "Effect of Class C Fly Ash on Controlling Alkali Silica Reaction in Concrete Pavement", *ASC International Journal of Construction Education and Research*, 5, 167-181.
57. **Morcous, G.** (2009) "Performance Evaluation of Conservatories under Wind and Snow Loads", *ASCE Journal of Architectural Engineering*, Sept., 15(3), 102-109.
58. **Morcous, G.** (2007) "Pareto Analysis for Multi-Criteria Optimization of Bridge Preservation Decisions", *Transportation Research Record, TRB*, No.1991, 62-70.
59. **Morcous, G.** (2006) "Performance Prediction of Bridge Deck Systems Using Markov Chains", *Journal of Performance of Constructed Facilities, ASCE*, 20(2), 146-155
60. **Morcous, G.** (2006) Discussion on "Bridge Management and Non-Destructive Evaluation", by Kevin L. Rens, Carnot L. Nogueira, and David J. Transue, *Journal of Performance of Constructed Facilities, ASCE*, 20(3), 300-301
61. **Morcous, G.**, and Lounis, Z. (2006) "Integration of Stochastic Deterioration Models with Multi-Objective Decision Theory for Maintenance Optimization of Bridge Decks", *Canadian Journal of Civil Engineering, NRC*, 33(6), 756-765
62. **Morcous, G.**, and Lounis, Z. (2005) "Maintenance Optimization of Highway Bridges Using Genetic Algorithms and Markovian Models", *Journal of Automation in Construction, Elsevier*, 14(1), 129-142.
63. **Morcous, G.**, and Lounis, Z. (2005) "Prediction of Onset of Corrosion in Concrete Bridge Decks Using Neural Networks and Case-Based Reasoning", *Journal of Computer-Aided Civil and Infrastructure Engineering*, 20, 108-117.
64. Hanna, A. M., **Morcous, G.**, and Helmy, M. (2004) "Efficiency of Pile Groups Driven in Cohesionless Soil Using Artificial Neural Networks", *Canadian Geotechnical Journal*, 41, 1241-1249.
65. **Morcous, G.**, (2003), Discussion on "Improving Design Coordination for Building Projects" by T. Hegazy, E. Zaneldin, and D. Grierson, *Journal of Construction Engineering and Management, ASCE*, 129(4), 470-471.
66. **Morcous, G.**, Lounis, Z., and Mirza, S. M. (2003) "Identification of Environmental Categories for Markovian Deterioration Models of Bridge Decks", *Journal of Bridge Engineering, ASCE*, 8(6), 353-361
67. **Morcous, G.**, and H. Rivard, (2003) "Computer Assistance in Managing the Maintenance of Low-Slope Roofs", *Journal of Computing in Civil Engineering*,

- ASCE, 17(4), 230-242.
68. **Morcous, G.**, Rivard, H., and Hanna, A. M. (2002) "Modeling Bridge Deterioration Using Case-Based Reasoning", Journal of Infrastructure Systems, ASCE, 8 (3), 86-95.
  69. **Morcous, G.**, Rivard, H., and Hanna, A. M. (2002) "Case-Based Reasoning System for Modeling Infrastructure Deterioration", Journal of Computing in Civil Engineering, ASCE, 16 (2), 104-114.
  70. Bakhoum, M., **Morcous, G.**, Taha, M., El-Said, M. (1998) "Estimation of Quantities and Cost of Prestressed Concrete Bridges Over the Nile in Egypt", Journal of Egyptian Society of Engineers / Civil, 37 (4), 17-32.

#### **REFEREED CONFERENCE / SYMPOSIUM / WORKSHOP PUBLICATIONS**

1. Abo Elkhier, M., and **Morcous, G.** (2020) "Design and Detailing of Bridge Approach Slabs: Cast-in-Place and Precast Concrete Options", Sustainable Issues in Infrastructure Engineering, Springer, December.
2. Kodsy, A., and **Morcous, G.** (2020) "Shear Strength of Ultra-High-Performance Concrete (UHPC) Bridge Girders", Sustainable Issues in Infrastructure Engineering, Springer, December.
3. Morcous, Maguire, M., Tadros, M. K., (2019) "High performance materials in concrete bridge construction", Proceedings of the 2019 GeoMEast International Congress and Exhibition, "Recent Research in Sustainable Infrastructure", Springer.
4. Morcous, G., Badie, S., Tadros, M. K., Abo Elkhier, M., Zamani, A., and Sun, C. (2019) "Innovative Full Depth Precast Deck Panel System with Discrete UHPC Joints at 6 ft (1.8 m) Spacing", 2<sup>nd</sup> International Interactive Symposium on UHPC, Albany, NY, June 2-5.
5. Abo Elkhier, M., Morcous, G., and Hu, J. (2019) "Interface Shear Resistance of Ultra-High Performance Concrete (UHPC)", 2<sup>nd</sup> International Interactive Symposium on UHPC, Albany, NY, June 2-5.
6. Mendonca, F., Hu, J., and Morcous, G. (2019) "FRESH AND HARDENED BEHAVIOR OF UHPC PREPARED WITH DIFFERENT MIX DESIGN PARAMETERS AND MIXERS", 2<sup>nd</sup> International Interactive Symposium on UHPC, Albany, NY, June 2-5.
7. Abo Elkhier, M., Morcous, G., and Wood, R. (2018) "Live Load Moment and Shear Distribution Factors for Prestressed Concrete Inverted Tee Girder Bridges", 10<sup>th</sup> International Conference on Short and Medium Span Bridges", CSCE, Quebec City, QC, July 31- August 3.
8. Abo Elkhier, M., Morcous, G., and Kodsy, A. (2018) "Precast Concrete Deck-to-Girder Connection Using UHPC", 10<sup>th</sup> International Conference on Short and Medium Span Bridges", CSCE, Quebec City, QC, July 31- August 3.
9. Tawadrous, R. and Morcous, G. (2018) "Interface Shear Resistance of Clustered Shear Connectors for Precast Concrete Bridge Deck Systems" 2018 PCI Annual Convention and National Bridge Conference, Denver, CO, February.
10. Tawadrous, R., Morcous, G., and Maguire, M. (2018) "Performance Evaluation of a New Precast Concrete Deck System", 97<sup>th</sup> TRB Annual Meeting, Washington, DC.
11. Morcous, G., Jaber, F., and Volz, J (2017) "A New Precast Concrete Deck System for Accelerated Bridge Construction", GeoMEast International Congress, Sharm El-Sheikh, Egypt, July.
12. Tawadrous, R., and Morcous, G. (2017) "Shear Strength of 16 in. Thick Hollow-Core Slabs", 2017 PCI Annual Convention and National Bridge Conference,

Cleveland, OH, March.

13. Morcou, G., Jaber, F., and Volz, J (2017) "Implementation of A New Precast Concrete Deck System to the Kearney East Bypass Project", 2017 PCI Annual Convention and National Bridge Conference, Cleveland, OH, March.
14. Asaad, M., and Morcou, G. (2016) "Constructability and Structural Performance of Self-Consolidating Concrete in Cast-in-Place Bridge Construction", Proceedings of the 6<sup>th</sup> North American Conference on the Design and Use of SCC, Washington, DC.
15. Asaad, M., Morcou, G., Wang, X, Taylor, P., and Wang, K., (2016) "Prediction of Mechanical Properties of Self-Consolidating Concrete for Cast-in-Place Bridge Construction", Proceedings of the 6<sup>th</sup> North American Conference on the Design and Use of SCC, Washington, DC.
16. Morcou, G., and Tadros, M. K. (2015) "Load Rating of Tied-Arch Bridge Systems", HBRC-ISHMII, 2<sup>nd</sup> International Conference on Bridge Testing, Monitoring, and Assessment, Cairo, Egypt, Dec.
17. Henin, E., and Morcou, G. (2015) "REINFORCING BAR SPLICE SLEEVE FOR PRECAST CONCRETE CONSTRUCTION", Ain Shams University, 14th International Conference on Structural and Geotechnical Engineering, Cairo, Egypt, Dec.
18. Morcou, G. (2015) "Self-Consolidating Concrete (SCC) for Connecting Precast Concrete Deck Panels and Bridge I-Girders", Research on Concrete Applications for Sustainable Transportation, MS&T Newsletter V2(4), October.
19. Morcou, G., and Tadros, M. K. (2014) "Implementation of 2nd Generation of Precast Concrete Deck System NUDECK to the Kearney East Bypass Project", 2014 PCI Annual Convention and National Bridge Conference, Washington, DC, September.
20. Morcou, G., Assad, S., Hatami, A., and Tadros, M. K. (2014) "Implementation of 0.7 in. Diameter Strands at 2.0 in. By 2.0 in. Spacing in Pretensioned Bridge Girders", 2014 PCI Annual Convention and National Bridge Conference, Washington, DC, September.
21. Hatami, A., and Morcou, G. (2014) "Life-Cycle Cost Assessment for Bridge Management: An Application to Nebraska Bridges"; 2014 ICCCB and CIB W078; ASCE, ISCCBE, and CIB; Orlando, FL, June.
22. Alawneh, M., Morcou, G., and Tadros, M. K. (2013) "Curved Precast Prestressed Concrete Girder Bridges", 2013 PCI Annual Convention and National Bridge Conference, Grapevine, TX, Sept.
23. Samir, P., Alawneh, M., and Morcou, G. (2013) "Precast Prestressed Concrete Truss Girders", 2013 PCI Annual Convention, Grapevine, TX, Sept.
24. Alawneh, M., El-Kady, M., Sekpe, V., and Morcou, G. (2013) "Comparison of Predictive Models for Self-Consolidating Concrete Formwork Pressure", 5th North America Conference on the Design and Use of SCC, Chicago, May.
25. Morcou, G., Wang, K., Taylor, P., Shah, S. P. (2013) "Self-Consolidating Concrete for Cast-in-Place Bridge Components", 5th North America Conference on the Design and Use of SCC, Chicago, May.
26. Morcou, G., Lafferty, M., Gremel, D., and Tadros, M. K. (2013) "THiN Wall Energy Efficient Composite Wall System and Applications", University of Southern California, Façade Tectonics Workshop, Los Angeles, CA, February.
27. Lotfy, I., Morcou, G., Tadros, M. K. (2012) "Prestressed Concrete Wind Turbine Supporting System", 2012 PCI Annual Convention, Nashville, TN.
28. El-Kady, M., Morcou, G., Pavel, R., Tadros, M. K. (2012) "Transverse Reinforcement Requirement for Load Bearing Wall Panel with Large Openings",

2012 PCI Annual Convention, Nashville, TN.

29. Ruga, J., Tadros, M. K., and Morcou, G. (2012) "Insulated Precast Concrete Panels for Structure Requiring Drywall Finish", 2012 PCI Annual Convention, Nashville, TN.
30. Goedert, J. D., Subramaniam, M., Cho, Y. K., and Morcou, G. (2011) "Virtual Interactive Construction Education (VICE): A Project-Based Pedagogical Model using Cyber-infrastructure Tools" Proceedings College and University Level BIM Curricula & Applications, December, Washington, DC.
31. Hanna, K., Henin, E., Toneies, N., Morcou, G., and Tadros, M. K. (2011) "Design, Detailing, and Testing of Cladding Panels Using GFRP Ties", Proceedings of the PCI 57th Annual Convention, October, Salt Lake City, UT.
32. Morcou, G., Henin, E., Lafferty, M., and Tadros, M. K. (2011) "Design and Testing of Tornado-Resistant Precast/Prestressed Concrete Sandwich Panels with GFRP Ties", Proceedings of the PCI 57th Annual Convention, October, Salt Lake City, UT.
33. Henin, E., Morcou, G., and Tadros, M. K. (2011) "Precast Concrete Sandwich Panels for Floor and Roof Applications", Proceedings of the PCI 57th Annual Convention, October, Salt Lake City, UT.
34. Hatami, A., and Morcou, G. (2011) "Job-Built Insulated Concrete Form (ICF) for Building Construction", Proceedings of the 47th ASC Annual International Conference, April, Omaha, NE
35. Henin, E., Morcou, G., Tadros, M. (2011) "Construction of Shallow Flat Soffit Precast Floor System", Proceedings of the 47th ASC Annual International Conference, April, Omaha, NE
36. Deng, Y., and Morcou, G. (2011) "Construction Challenges of Cast-in-Place Self-Consolidating Concrete", Proceedings of the 47th ASC Annual International Conference, April, Omaha, NE
37. Hatami, A., Morcou, G., Hanna, K., Tadros, M. K. (2011) "Evaluating the Bond of 0.7 in. Diameter Prestressing Stands for Concrete Bridge Girders", Proceedings of the 2011 Annual Meeting of Transportation Research Board.
38. Cho, Y., Morcou, G., Kabassi, K., and Neal, J., (2010) "BIM-driven Economic Analysis for Zero Net Energy Test Home", CIB W78 2010 Conference and Accelerating BIM Research Workshop, Cairo, Egypt.
39. Hanna, K., Morcou, G., and Tadros, M. K. (2010) "Columbus Viaduct on US Hwy 30 in Platte County Nebraska" Proceedings of the 8th International Conference on Short and Medium Span Bridges", Niagara Falls, ON, August.
40. Morcou, G., Tadros, M. K., Lafferty, M., and Gremel, D. (2010) "Optimized NU Sandwich System for Energy, Composite Action, and Production Efficiency" fib/PCI 2010 Convention, Washington, DC, June.
41. Morcou, G., and Tadros, M. K., (2010) "Shallow Flat Soffit Precast Concrete Floor System", fib/PCI 2010 Convention, Washington, DC, June.
42. Stubbe, A., Hanna, K., Morcou, G., and Tadros, M. K. (2010) "Design and Detailing of Diaphragms in Threaded Rod Continuity Systems", fib/PCI 2010 Convention, Washington, DC, June.
43. Patzlaff, Q., Morcou, G., Hanna, K., and Tadros, M. (2010) "Bottom Flange Reinforcement of Precast Prestressed Concrete Bridge I-Girder", PCA Concrete Bridge Conference, Phoenix, AZ, Feb.
44. Hanna, K., Morcou, G., and Tadros, M. K. (2009) "Non-Post-Tensioned Transverse Connections for Adjacent Box Beam Bridges" PCI National Bridge Conference, San Antonio, TX, Sept.
45. Stubbe, A., Hanna, K., Morcou, G., and Tadros, M. K. (2009) "Design Aids of

- Nebraska (NU) Precast/Prestressed Concrete I-Girder Bridges” PCI National Bridge Conference, San Antonio, TX, Sept.
46. Maguire, M., Morcou, G., Hanna, K., and Tadros, M. K. (2009) “Ultra-High-Performance Concrete in Standard Precast/Prestressed Concrete Products” PCI National Bridge Conference, San Antonio, TX, Sept.
  47. Patzlaff, Q., Morcou, G., Hanna, K., and Tadros, M. K. (2009) “Transfer and Development of 0.7 inch Strands in Precast/Prestressed Concrete Bridge Girders” PCI National Bridge Conference, San Antonio, TX, Sept.
  48. Song, X., Morcou, G., Lafferty, M., Gremel, D., Tadros, M. K. (2009) “Effect of NU-Tie Distribution on the Composite Action of Precast/Prestressed Concrete Sandwich Panels” PCI Annual Convention, San Antonio, TX, Sept.
  49. Fawzy, F., Morcou, G., Lafferty, M., Tadros, M. K. (2009) “Continuous Precast/Prestressed Concrete Shallow Floor System” PCI Annual Convention, San Antonio, TX, Sept.
  50. Meyer, K., Erdogmus, E., Morcou, G., and Naughtin, M. (2008) “Use of Ground Penetrating Radar for Accurate Concrete Thickness Measurements”, Proceedings of the 2008 Architectural Engineering Conference, Architectural Engineering Institute (AEI), Denver, CO, September. (Awarded the most outstanding structures paper).
  51. Paczkowski, P., Nowak, A. S., Morcou, G., Kaszynska, M., (2008) “Development of Self-Consolidating Concrete for Bridge Construction and Repairs”, Proceedings of the Fourth International Conference on Bridge Maintenance, Safety, and Management, Seoul, Korea, July.
  52. Hanna, K., Morcou, G., and Tadros, M. (2008) “Standardized Precast Prestressed Concrete Panels for Bridge Decks”, 2008 Concrete Bridge Conference, PCA, St. Louis, MO, May.
  53. El-Safty, A., Zinszer, M., and Morcou, G., (2008) “Forensic Investigation of a Bridge Construction Scaffolding Collapse”, 2008 Structures Congress, SEI-ASCE, Vancouver, BC, April.
  54. Paczkowski, P., Kaszynska, M., Morcou, G., Nowak, A. S. (2008) “Development of SCC Procedures for On-Site Bridge Applications” Proceedings of the 87th Annual Meeting of Transportation Research Board, Washington - DC, January.
  55. Hanna, K., Morcou, G., Tadros, M. (2007) “Transverse Design and Detailing of Adjacent Box Beam Bridges”, PCI-FHWA National Bridge Conference, Phoenix, AZ, October.
  56. Morcou, G., and Lounis, Z. (2007) “Probabilistic and Mechanistic Deterioration Models for Bridge Management”, Proceedings of the 2007 ASCE Workshop on Computing in Civil Engineering, Pittsburgh - PA, July.
  57. Morcou, G., and Akhnoukh, A. (2007) “Reliability Analysis of NU Girders Designed Using AASHTO LRFD”, Proceedings of the 2007 Structures Congress, Long Beach - CA, May.
  58. Chen, G., Morcou, G., Cho, Y., Youn, J., and Jung, U, (2007) “Remote Assessment of FRP Bridge Deck System Using Wireless Sensors”, Proceedings of the 2007 SPIE Conference, San Diego - CA, March
  59. Morcou, G. (2007) “Pareto Analysis for Multi-Criteria Optimization of Bridge Preservation Decisions”, Proceedings of the 86th Annual Meeting of Transportation Research Board, Washington - DC, January.
  60. Morcou, G., and Lounis, Z. (2006) “Maintenance Management of Bridge Decks Using Stochastic Deterioration Models And Multi-Criteria Optimization“, 7th International Conference on Short and Medium Span Bridges, CSCE, Montreal – QC, August.
  61. Fam, A., Morcou, G., and Bakhom, M. (2006) “Computer-Aided Geometric

- Design of Highway Bridges”, 7th International Conference on Short and Medium Span Bridges, CSCE, Montreal – QC, August.
62. Morcoux, G., and Akhnouk, A. (2006) “Stochastic Modeling of Infrastructure Deterioration: An Application to Concrete Bridge Decks”, International Conference on Computing and Decision Making in Civil and Building Engineering, ASCE, Montreal- QC, June.
  63. Morcoux, G., and Rivard, H. (2006) “Service Life Prediction of Low-Slope Roofing Systems in Building”, Building Integration Solutions, Architectural Engineering Conference, ASCE-AEI, Omaha – NE, March 29-April 1.
  64. Akhnouk, A., and Morcoux, G. (2006) “Review of the State-of-the-Art Bridge Management Systems in North America”, International Conference on Bridge Management Systems – Monitoring, Assessment, and Rehabilitation, Cairo – Egypt, March
  65. A. Schwer, D. Dufner, and G. Morcoux (2005) “Project Management Informatics”, Proceedings of the 2005 Midwest Section Conference of the American Society for Engineering Education, Fayetteville, Arkansas, September.
  66. Morcoux, G. (2005) “Modeling Bridge Deck Deterioration Using Decision Tree Algorithms”, 6th International Bridge Engineering Conference, TRB, Boston, MA, July.
  67. Morcoux, G. (2005) “Predicting Bridge Deck Performance Using Markovian Models” 1st CSCE Specialty Conference on Infrastructure Technologies, Management, and Policy, CSCE, Toronto, ON, June.
  68. Shakshuki, E., and Morcoux, G. (2005) “Software Agents in Bridge Management”, The 2005 International Multi-Conference in Computer Science & Computer Engineering, Las Vegas, NV, June.
  69. Morcoux, G. and Bakhoun, M. M. (2004) “Preliminary Estimation of Quantities for Segmental Cast-in-Situ Bridges in Egypt Using Decision Trees”, Fib Symposium on Segmental Construction in Concrete, November, New Delhi.
  70. Hanna, A. M., Morcoux, G., and Helmy, M. (2004) “Estimation of Pile Group Efficiency Using Artificial Neural Networks”, International Conference on Geotechnical Engineering, I. Shahrou (Editor), Beirut, Lebanon, May, 559-564
  71. Morcoux, G. (2003) “An Object-Oriented Database for Bridge Management”, Proceedings of the 5th Alexandria International Conference on Structural and Geotechnical Engineering, F. Abd-Rabboo (Editor), Alexandria, Egypt, December, MG1-MG11.
  72. Morcoux, G. and Lounis, Z. (2003) “A new Approach to Programming Maintenance Activities For Concrete Bridge Decks”, Proceedings of the 31st CSCE Annual Conference, M. Massiera (editor) Moncton, NB, Canada, June, GCP-135
  73. Morcoux, G., Lounis, Z., and Mirza, S. M. (2003) “Improving Markov-Chain Deterioration Models Using Genetic Algorithms”, Proceedings of the 10th International Colloquium on Structural and Geotechnical Engineering, A. Dessouki (editor), Cairo, Egypt, April, F03MG06 1-10.
  74. Morcoux, G., Lounis, Z., and Mirza, S. M. (2002) “Service-Life Prediction of Concrete Bridge Decks Using Case-Based Reasoning”, Proceedings of the 6th International Conference on Short & Medium Span Bridges, P.H. Brett, N. Banthia, and P.G. Buckland (editors.) Vancouver, BC, Canada, July, 769-776.
  75. Morcoux, G., and Rivard, H. (2002) “Computerized Maintenance Management System for Low-Slope Roofs”, Proceedings of the 30th CSCE Annual Conference, M. Nollet (editor), Montreal, QC, Canada, June, GE-116
  76. Morcoux, G. (2002) “Comparing the Use of ANN and CBR for Modeling Bridge Deck Deterioration”, Proceedings of the 30th CSCE Annual Conference, M.

Nollet (editor), Montreal, QC, Canada, June, TR-115.

77. Morcou, G., Lounis, Z., and Mirza, S. M. (2002) "Life-Cycle Assessment of Highway Bridges", Proceedings of the Taiwan - Canada Workshop on Bridges, National Center of Research on Earthquake Engineering, C. H. Loh and M. S. Cheung (editors), April, Taipei, Taiwan, 61-82.
78. Morcou, G., Bakhom, M., Taha, M., El-Said, M. (2001) "Preliminary Quantity Estimate of Highway Bridges Using Neural Networks", Proceedings of the 6th International Conference on the Applications of Artificial Intelligence to Civil and Structural Engineering, H. V. Topping and B. Kumar (editors), Vienna, Austria, September, no. 21.
79. Morcou, G., Rivard, H., and Hanna, A. M. (2001) "Predicting the Condition of Bridge Decks Using Case-Based Reasoning", Proceedings of the 29th CSCE Annual Conference, D. Noakes (editor), Victoria, BC, Canada, June, A048.
80. Morcou, G., Rivard, H., Hanna, A. M. (2000) "Case-Based Reasoning System for Bridge Management Systems", 8th International Congress on Computing in Civil and Building Engineering, R. Fruchter, F. Pena-Mora, and W. M. K. Roddis (editors), ASCE, Stanford University, CA, USA, August, 1363-1370.
81. Morcou, G., Rivard, H., Hanna, A. M. (2000) "Case-Based Reasoning System for Modeling Bridge Deterioration", Bridge Engineering Conference, Abdel-Hady H. Hosny (editor), Sharm El-Sheikh, Egypt, March, 165-176.
82. Morcou, G., Taha, M., Bakhom, M., El-Said, M. (1997) "Application of Neural Networks to Preliminary Quantities Estimate of Bridges in Egypt" International Conference on New Technologies in Structural Engineering, S. P. Santos and A. M. Baptista (editors), Lisbon, Portugal, July, 1077-1081.
83. Morcou, G., Taha, M., Bakhom, M., El-Said, M. (1996) "Construction Cost Break Down of Prestressed Concrete Bridges in Egypt", 7th International Colloquium on Structural and Geotechnical Engineering, Abdel-Hady H. Hosny (editor), Ain Shams University, Cairo, Egypt, December, 100 – 110.

### **Externally-Funded Research Projects**

1. Morcou and Hu, "Low-Cement Concrete Mixture for Bridge Decks and Rails", NDOT, \$112k, July 2021 – May 2023.
2. Hu and Morcou, "Production of Cast-in-Place UHPC for Bridge Applications", NDOT, \$84k, July 2021 – May 2023.
3. Maguire and Morcou, "PCI Design Studio", PCI Foundation, \$100k, July 2021 – June 2025.
4. Morcou and Tadros, "UHPC Decked I-Beam for Accelerated Bridge Construction", NDOT, \$98k, July 2020 – May 2022.
5. Morcou, "Design and Detailing of Cast-in-Place and Precast Concrete Approach Slabs", NDOT, \$78k, July 2019 – May 2021.
6. Wittich, Wood, and Morcou, "Phased Construction of Bridges: Monitoring and Analysis for Traffic-Induced Vibration", NDOT, \$117k, July 2019-May 2021.
7. Morcou, "UHPC Mix Development and Testing", \$13.5k, PNK Group, Inc., May 2020 – October 2020.
8. Morcou, "Bond-Dependent Coefficient of Machined and Helically Wrapped GFRP Bars", \$17k, Owens Corning, Inc., January 2020 – August 2020.

9. Tadros, Lawler, Klein, Morcoux, and Lucier, "Implementation of Ultra-High Performance Concrete in Long Span Precast Prestensioned Elements for Concrete Buildings and Bridges", PCI, \$600k, November 2018 – June 2021.
10. Shen, Erdogmus, and Morcoux "Early Detection of Near-Surface Void Defects in Concrete Pavement Using Drone-Based Thermography and GPR Methods", NDOT, \$95k, July 2018 – Dec. 2019.
11. Morcoux "Precast Concrete Deck-to-Girder Connection Using UHPC", NDOT, \$50k, July 2018 – Dec. 2019.
12. Morcoux and Wood "Repair Practices for Damaged Precast/Prestressed Concrete Girders", NDOT, \$60k, July 2018 – Dec. 2019.
13. Hu and Morcoux "Feasibility Study of Development of UHPC for Highway Bridge Applications in Nebraska" NDOR, \$104,000, July 2017 – Dec. 2018
14. Zhu and Morcoux "Development of a Non-Destructive Testing (NDT) Tool for in-Situ Assessment of Prestressed Components", NDOR, \$80,000, July 2017 – Dec. 2018
15. Woods and Morcoux "Performance Evaluation of Inverted Tee (IT) Bridge System", NDOR, \$100,242, July 2016 – Dec. 2017.
16. Morcoux, "Long-Term Performance Evaluation of NUDECK in Kearney East Bypass", NDOR, \$109,007, July 2014 – Dec. 2017.
17. Badie, Morcoux, and Tadros "Simplified Full-Depth Precast Concrete Deck Panel Systems", NCHRP, \$400,000, July 2013 – Dec 2016.
18. Morcoux "Self-Consolidating Concrete for Connecting Precast Concrete Deck Panels and I-Girders", MS&T UTC, \$42,378, Jan. 2013 – June 2014
19. Tadros and Morcoux, "Precast Prestensioned Concrete Pile Splicing Hardware", Nebraska Research Initiative (NRI), \$80,000, Jan. 2013 – June 2014.
20. Morcoux, "Fatigue Testing of Rail Road Ties", Union Pacific, \$19,500, 2012.
21. Morcoux, "Optimizing Concrete Deck Removal in Concrete I-Girder Bridges", MATC, \$57,000, July 2012-Dec. 2013
22. Morcoux, "Implementation of 0.7 in. Diameter Strands in NU I-Girders", NDOR, \$14,400, July 2012 – Dec. 2013.
23. Morcoux, "Evaluating the Impact of Deck Removal Method on the Performance of NU Girders", NDOR, \$32,922, July 2012 – June 2014.
24. Morcoux, "Evaluating the Constructability of NUDECK Precast Panels for Kearney Bypass Project", NDOR, \$34,742, Dec. 2012 – Dec. 2014.
25. Morcoux and Tadros, "Implementation of Precast Deck Panel NUDECK", NDOR, \$36,319, July 2012 – Dec. 2013.
26. Morcoux "Precast Prestressed Concrete Truss-Girders for Roof Applications", PCI, \$20,000, Aug. 2012 – July 2013.
27. Morcoux, Wang, and Taylor "Self-Consolidating Concrete for Cast-in-Place Bridge Components", NCHRP 18-16, \$449,831, June 2011 – Dec. 2014.

28. Morcouc and Tadros, "High Performance Self-Consolidating Concrete and 0.7 in. Diameter Strand for the 14th Street Bridge Over I-80, Lincoln, NE", FHWA IBRD Program, \$216,000, July 2011 – Dec. 2013. (Awarded but not funded)
29. Morcouc, "Curved Precast Prestressed Concrete Girder Bridges", e-Construct, LLC, \$30,000, Aug. 2010 – July 2013.
30. Morcouc, "Precast Concrete Insulated Wall Panel Corbels Without Thermal Bridging", e-Construct, LLC, \$30,000, Aug. 2011 – May 2013.
31. Goedert, Morcouc, and Cho "Virtual Interactive Construction Education (VICE-Bridge)", NSF, \$199,795, May 2011 – April 2013.
32. Morcouc "Life Cycle Cost Assessment of Nebraska Bridges", NDOR, \$37,232, July 2011 – May 2013
33. Morcouc "Developing Pontis Deterioration Models for Nebraska Bridges", NDOR, \$32,917, July 2010 – June 2011.
34. Morcouc, Hanna, and Tadros "Load Rating of Complex Bridges", NDOR, \$23,518, July 2009 – June 2010.
35. Hanna, Morcouc, and Tadros "Bottom Flange Reinforcement", NDOR, \$29,754, July 2009 – June 2010.
36. Hemsath, Hind, Schwer, Yong, Morcouc, Lomneth, and Jameton, "Zero Net Energy Building Science Research Cluster", Nebraska Research Initiative (NRI), \$98,797, Apr. 2009 – May 2011.
37. Tadros and Morcouc "Continuous Shallow Hollow-Core Floor System", Charles Pankow Foundation, \$105,000, Nov. 2008 – Aug. 2010.
38. Morcouc and Tadros "Ultra-High Performance Concrete in Standard Prestressed Concrete Products", PCI, \$20,000, Aug. 2008 – July 2009.
39. Hanna, Morcouc and Tadros "Design Aids for NU-I Girder Bridges", NDOR, \$59,636, July 2008 – June 2009.
40. Morcouc and Tadros "Shallow Continuous Inverted Tee for Hollow Core Floors", Concrete Industries, Inc., \$25,000, Jan. 2008 – Dec. 2008.
41. Morcouc and Erdogmus "Use of Ground Penetrating Radar for Construction Quality Assurance of Concrete Pavement", NDOR, \$28,667, July 2007 – June 2008
42. Tadros and Morcouc "Application of Ultra-High Performance Concrete to NU-I Girders", NDOR, \$39,533, July 2007 – June 2008
43. Morcouc and Tadros "Guidelines for Transverse Design and Detailing of Adjacent Box Beam Bridges", PCI, \$20,000, Aug. 2007 – July 2008.
44. Tadros and Morcouc "Impact of Large 0.7 inch Stands on NU-I Girders", NDOR, \$244,408, July 2007 – June 2010
45. Morcouc and Tadros "Welded Wire Reinforcement versus Random Steel Fibers in UHPC Girders", WRI, \$25,366, May 2007 – April 2008
46. Morcouc "Detecting Steel in ICF Walls", J.D. & Associates, \$6,729, June 2007 – Aug.

2007.

47. Tadros and Morcouc "Columbus Viaduct System" NDOR, \$26,023, Aug 2006–Dec. 2008.
48. Tadros and Morcouc "Rapid Construction of Pacific Street Bridge", NDOR, \$139,442, Oct. 2005 – Sept. 2010.
49. Tadros and Morcouc "Second Generation of Precast Deck Panels" NDOR, \$150,560, July 2004 – June 2008.
50. Tadros and Morcouc "Design Aids for Threaded Rod Continuous Girders", NDOR, \$101,594, May 2004 – June 2007.
51. Nowak, Morcouc, and Tuan, "Developing Guidelines for Cast-in-Place Self Consolidating Concrete", NDOR, \$58,730, July 2006 – June 2007.
52. Morcouc, "Lateral and Vertical Deflections of Sunrooms", Lancaster Conservatories Inc., \$19,966, June 2006 – Sept. 2006.
53. Morcouc and Tadros, "Use of LRFD for Bridge Substructure and Earth Retaining Structures", NDOR, \$14,350, May 2006 – June 2006.
54. Goedert, Holmes, Morcouc, Cho, Schwer, and Bernstein, "Plans for Rebuilding New Orleans ", HUD, \$293,859, Mar. 2006 – Feb. 2008.
55. Tadros and Morcouc "Class C Fly Ash in Concrete Pavement", NDOR, \$312,379 Jan. 2005 – June 2009.
56. Rivard, Fazio, and Morcouc "Building Envelope Life Cycle Asset Management" Institute of Research in Construction (IRC-NRC), \$28,000, Oct. 00 – Aug. 01.

#### **Internally-Funded Research Projects**

1. Morcouc, "Concrete Pressure on Insulated Concrete Forms" UCARE, \$2,000, Aug. 2008 – May 2009.
2. Morcouc, "Construction Quality Assurance Using Ground Penetrating Radar" UCARE, \$2,000, Aug. 2007 – May 2008.
3. Morcouc, Cho, and Youn, "Remote Assessment of New Bridge Systems Using Smart Wireless Sensors", PKI-UNL-UNO Collaborative Research Grants, \$25,000, June 2006 – May 2007.
4. Morcouc, "Construction Quality Assurance Using Ground Penetrating Radar", Layman Fund, \$10,000, May 2006 – May 2007.
5. Dufner, Morcouc, and Schwer, "Project Management Informatics for Engineering", PKI-UNL-UNO Collaborative Research Grants, \$5,000, June 2005 – May 2006.
6. Morcouc "An Object-Oriented Database for Bridge Management", Research Office – Acadia University, \$1,500, Dec. 2003 – April 2004.

#### **PROFESSIONAL EXPERIENCE**

**01/08 - Present**     *STRUCTURAL ENGINEER*

Consultant/Technical Advisor to the following firms:

- 1- e-Construct.US, Omaha, NE
- 2- Superior Concrete Poles, Texas, USA

- 3- Grupo GIC, Mexico.
- 4- Hughes Brothers Inc.
- 5- Thin-Wall, LLC., Lincoln, NE
- 6- CoreSlab Structure, Omaha, NE
- 7- Concrete Industries Inc., Lincoln, NE
- 8- Engineering & Software Consultants, Inc.
- 9- OceanPower Inc., China
- 10- LiteForm Technologies, Inc., South Sioux City, NE
- 11- Enterprise Precast Inc., Omaha, NE.
- 12- Heliwalls, Inc., Omaha, NE.
- 13- Neuvokas Corp., Ahmeek, MI
- 14- PNK Group, Moscow, Russia.
- 15- Owens Corning, Inc.
- 16- Kiewit Infrastructure Engineering (KIE).

**01/05 - Present**

***PROFESSOR***

Durham School of Architectural Engineering and Construction - University of Nebraska-Lincoln, Omaha, NE, USA

Instructed the following courses:

- Reinforced Concrete Design (CIVE 440/840)
- Reinforced Concrete Design II (CIVE 447/847)
- Formwork Systems (CONE 4170/8170)
- Prestressed Concrete (CIVE 850)
- Concrete Bridge Design (CIVE 949)
- Introduction to Structures (CIVE 341)
- Design and Construction of Foundation (CET 4180)
- Heavy/Civil Estimating (CONE 4660/8660)
- Graduate Design Project (AE 8010/8020)

**09/02 – 12/04**

***ASSISTANT PROFESSOR***

School of Engineering - Acadia University, Wolfville, NS, Canada

Instructed the following courses:

- Mechanics of Materials (APSC 1133)
- Engineering Economics (APSC 2413)
- Engineering Design II (APSC 1863)
- Computer Programming II (APSC 2613)

**11/00 – 08/02**

***POST-DOCTORAL FELLOW***

Department of Building, Civil, and Environmental Engineering, Concordia University, and Dept. of Civil Eng. and Applied Mechanics – McGill Uni., Montreal, QC, Canada.

Instructed the following course:

- Foundation Engineering

- Renovation and Preservation of Infrastructure

Participated in the second phase of the NRC-IRC BELCAM (Building Envelope Life Cycle Asset Management and bridge maintenance optimization research projects.

**09/97 – 10/00**

**RESEARCH ASSOCIATE**

Department of Building, Civil, and Environmental Engineering, Concordia University, Montreal, QC, Canada.

Instructed the following courses:

- Technical Drawing (ENGR 211)
- Civil Engineering Drawing (CIVI 211)
- Engineering Economics (ENGR 401)

**09/94 – 08/97**

**RESEARCH ASSISTANT**

Faculty of Engineering – Cairo University, Giza, Egypt

Instructed the tutorials and labs of the following courses:

- Project Management
- Technical Drawing
- Structural Analysis and Design using SAP
- Construction Management Capstone project.

**09/96 – 08/97**

**PROJECT MANAGEMENT ENGINEER**

ORASCOM Construction Industries, Inc., Cairo, Egypt.

Prepared the schedule and cost estimate of the following projects:

- Dar El-Fouad Hospital
- El-Shiek Zaid Hospital
- Extension of the American University in Cairo (AUC) library.

**09/94 – 08/96**

**BRIDGE ENGINEER**

Samaan & Fam Consulting Engineering Firm, Giza, Egypt.

Prepared the structural analysis and design of the following projects:

- Prestressed concrete bridges: El-Moneeb, El-Warrak, and Sherbeen.
- Steel bridges: Shobra El-Mazalat and Nikla.
- Several steel and reinforced concrete commercial and residential buildings.

**INVITED SPEAKER PRESENTATIONS/LECTURES**

1. “Accelerated Bridge Construction in Nebraska”, SEACON Annual Meeting/Newsletter, April 2021.
2. “Design and Construction of UHPC Structural Members and Elements”, Workshop of the 2021 TRB Annual Meeting, January 22, 2021.
3. “Precast/Prestressed UHPC Piles”, Speaker in the 2020 PCI Committee Days, September 14, 2020.
4. “Hardened Properties of Self-Consolidating Concrete”, Speaker in the 2020 TRB Sponsored Webinar, June 11, 2020.
5. “UHPC Mechanical Properties and Bridge Applications”, Speaker in Kiewit Lunch and Learn Session, January 23, 2020.
6. “Simplified shear pocket for full-depth Precast Concrete deck Systems”,

- Presentation in a technical session, 2020 TRB Annual Meeting, Washington, DC. Jan. 2020.
7. "Hardened Properties of Self-Consolidating Concrete", Presentation in a technical session, 2020 TRB Annual Meeting, Washington, DC. Jan. 2020.
  8. "Fully Precast Concrete Bridge System for Accelerated Construction", Presentation at 2019 Mid-Continent Transportation Research Symposium, Ames, IA, August 2019.
  9. "Shear and Bond Strength of Self-Consolidating Concrete for Cast-in-Place Bridge Applications", Presentation in a technical session, 2017 ACI Fall Convention, Anaheim, CA.
  10. "Prediction Models of Interface Shear Resistance of Clustered Shear Connectors for Precast Concrete Deck Systems", Presentation at 2017 Mid-Continent Transportation Research Symposium, Ames, IA, August 2017.
  11. "Innovative Precast Concrete Deck Systems for Accelerated Bridge Construction", Invited lecture at the 2017 GeoMEast International Congress, Sharm El-Sheikh, Egypt, July 2017.
  12. "SELF-CONSOLIDATING CONCRETE FOR CAST-IN-PLACE BRIDGE COMPONENTS", Presentation to AASHTO T-10 Committee, Cleveland, OH, March 2017.
  13. "Testing of Modified ZeLift Lifting Inserts for Precast Concrete Insulated Wall Panels" Poster presented at the 2017 PCI Convention, Cleveland, OH, March 2017.
  14. "NCHRP Research Report 819: SELF-CONSOLIDATING CONCRETE FOR CAST-IN-PLACE BRIDGE COMPONENTS", Recorded Webinar by NCHRP, February 2017.
  15. "Assessment of Insulated Concrete Forms Using Ground Penetrating Radar", Presentation to the ARCHES Workshop on the Assessment, Rehabilitation, and Conservation of Historical and Existing Structures", Nov. 2016, Omaha, NE.
  16. "Fabrication and Erection of Precast concrete deck Panels for Kearney East Bridge Project", Presentation to PCI Bridge Producers Committee, Chicago, IL, October 2016.
  17. "Kearney Precast concrete deck Panel Bridge Project", Presentation to NCPA 37th Annual Concrete Paving Workshop, Jan. 2016, Lincoln, NE.
  18. "Constructability of Precast Concrete Deck Panels in the Kearney East Bypass Project", Presentation at 2015 Mid-Continent Transportation Research Symposium, Ames, IA, August 2015.
  19. "Thermal Performance of Precast Concrete Sandwich Wall Panels", Workshop Presentation at the 2nd PCI International Symposium, Dubai, UAE, January 2015.
  20. "Precast Prestressed Concrete Truss Using Self-Consolidating Concrete", Technical Session on SCC for Precast Concrete Applications, ACI Committee 237, Fall Convention, Washington, DC, October 2014.
  21. "Self-Consolidating Concrete for Connecting Precast Concrete Deck Panels and I-Girders", Transportation Infrastructure Conference, Rolla, MO, October 2014.
  22. "Evaluating Deck Removal Methods in Concrete I-Girder Bridges", ACI Committee 345 on Bridge Construction, Maintenance, and Repair, Reno, NV, March 2014.
  23. "Correlation Among SCC resistance-to-segregation test methods", Technical Session on Segregation Resistance, ACI Committee 237, Spring Convention,

- Reno, NV, March 2014.
24. "High Performance Concrete Applications in Bridge Superstructure", 1st International PCI Symposium, Dubai, UAE, December 2013
  25. "Feasibility Validation of a Novel Prestressed Concrete-Steel Composite Girder through Lab Fabrication and Testing", 2013 Mid-Continent Transportation Research Symposium, Ames, Iowa, August 2013.
  26. "Concrete Deck Removal Methods in Concrete I-Girder Bridges", NDOR Project Managers Conference, Kearney, NE, March 2013.
  27. "THiN Wall Energy Efficient Composite Wall System and Applications", University of Southern California, AIA Façade Tectonics Workshop, Los Angeles, CA, February 2013.
  28. "Deterioration Models and LCCA for Nebraska Bridge Decks", Midwest Bridge Preservation Partnership, Council Bluffs, IA, October 2012.
  29. "Developing Deterioration Models for Nebraska Bridges", NDOR Nebraska Research Conference, Lincoln, NE, April 2012.
  30. "Developing Deterioration Models for Life-Cycle Cost Analysis of Nebraska Bridges", AHD 35 Committee on Bridge Management, 91st Annual Meeting of the Transportation Research Board, Washington, DC, January 2012.
  31. "Design and Production of Precast/Prestressed Concrete Sandwich Wall Panels", PCI Foundation Lecture Series, University of Northern Florida, Jacksonville, FL, October 2011.
  32. "Self-Consolidated Concrete for Cast-in-Place Applications", 52nd National Concrete and Aggregate Association Annual Convention, Lincoln, NE, February 2011.
  33. "Ultra-High Performance Concrete for Bridge Double T-Girders", Technical Session on Ultra-High Performance Concrete for Bridges, ACI Committee 343, Spring Convention, Chicago, IL, March 2010.
  34. "Bottom Flange Reinforcement", PCI Committee Days, Committee on Bridges, Chicago, IL, April 2009.
  35. "Production Challenges of using 0.7 inch diameter strands", PCI Committee Days, Committee of Bridge Producers, Chicago, IL, April 2009.
  36. "Construction Graduate Programs at the Charles W. Durham School of Architecture Engineering and Construction", 2008 ASC Annual Competition, Nebraska City, NE, October 2008
  37. "Recent Development in the Use of NU I-Girders with High Performance Materials" 3rd Latin America Congress on Prefabricated Structures, Guadalajara, Mexico, September 2008.
  38. "Life Cycle Performance and Management of Core Public Infrastructure", NRC Workshop, Ottawa, ON, July 2008.
  39. "0.7 inch Diameter Strands in Bridge I-Girders", 2008 Annual AASHTO Bridges and Structures Conference, Omaha, NE, May 2008.
  40. "Construction Engineering and Management-Omaha", AGC/MICA/DBIA Nebraska Chapters, Omaha, NE, Dec. 2007 and February 2008.
  41. "Welded Wire Reinforcement versus Random Steel Fibers in Ultra-High Performance Prestressed Concrete Girders", Welded Wire Institute Fall Meeting, Amelia Island, FL, October 2007.
  42. "Construction Research Initiatives at University of Nebraska-Lincoln", Advances in Engineering Workshop, UNL and Szczecin University, Szczecin, Poland, May 2007.
  43. "Construction Engineering and Management Division", Advances in

Engineering Workshop, UNL-WUT, Warsaw, Poland, May 2007.

44. "Project Management Informatics for Engineering" at the UNL/UNO Collaborative Research Faculty Retreat – Omaha – December 05.
45. "R & D Construction Initiatives in The Academic World" at the Joint meeting of the Association of General Contractors (AGC) and Corps of Engineers (COE) – Omaha, May 2005.

### **PROFESSIONAL ACTIVITIES**

- Licensed Professional Engineer in the State of Nebraska, USA since 2007
- Licensed Professional Engineer in Nova Scotia Province, Canada, since 2004.
- Licensed Professional Engineer in Egypt since 1994.
- Chair of the Construction Programs Promotion and Tenure Committee since 2020
- Associate Editor of the Journal of Sustainable Civil Infrastructure by Springer since 2019
- Associate Editor of the ASCE Journal of Bridge Engineering since 2015.
- Member of the Editorial Board of Journal of Construction Engineering since 2012 and the Scientific World Journal since 2013.
- Member of the Board of Directors of ACI Nebraska Chapter, 2011 - 2014
- Program Coordinator of UNL Construction Engineering, 2010 - 2012
- Director of Structural Laboratory at UNO, 2009 - 2010.
- Faculty Advisor of the AGC student chapter, 2010 - 2013.
- Member of the Durham School Executive Council, 2010 - 2012
- Member of the UNO Faculty Senate (External Member) and member of UNO Committee on Academic and Curriculum Affairs, 2007 – 2010
- Member of the Advisory Committee of several graduate students at UNL
- Member of several search committees for faculty positions at UNL
- Lecturer of PCI one-day seminars and PCI Foundation Education Sessions.
- Member of the external review committee for the graduate program at the University of Miami.
- Associate Member of the American Society for Civil Engineers (ASCE)
- Member of the Precast/Prestressed Concrete Institute (PCI): voting member of Student Education Committee, International Committee, Journal Award Committee, UHPC Sub-Committee, and associate member of Bridge Committee.
- Member of the American Concrete Institute (ACI): voting member of Committee 237 Self-Consolidating Concrete and associate member of Committees 347 Formwork for Concrete and 345 Bridge Construction.
- Member of the Transportation Research Board (TRB): Voting member of Committee AHD35 on Bridge Management.
- Member of the International Association of IABMAS organization.
- Member of the Honorary Society Sigma, Lambda, Chi. since 2006.

- Member of the organizing committee of the 31<sup>st</sup> World Congress of Housing, International Association of Housing Science (IAHS), Montreal 2003.
- Member of the Scientific Committee of the 2006 ASCE Conference on Computing in Civil Engineering, Montreal, QC.
- Member of the Scientific Committee of the 2013 5<sup>th</sup> North American Conference on the Design and Use of Self-Consolidating Concrete (SCC), Chicago, IL
- Moderator of several technical sessions in international conferences.
- External Reviewer of Promotion and Tenure Dossier of faculty at other institutions.
- Member of the technical panel for NCHRP projects.
- Reviewer of several scholar journals:
  - ASCE Journal of Computing in Civil Engineering, Structural Engineering, Construction Engineering and Management, Performance of Constructed Facilities, Bridge Engineering, Materials in Civil Engineering
  - PCI Journal
  - ACI Structure Journal
  - Journal of Computer-Aided Civil and Infrastructure Engineering
  - TRB Transportation Research Record
  - American Institute of Constructors (AIC) Journal
  - International Journal of Construction Education and Research
  - Automation in Construction
  - Engineering Structures
  - Journal of Construction Engineering

#### **Ph.D. Graduate Students Supervised**

1. Kromel Hanna, Civil Engineering, Co-Chair, Dec. 2008
2. Amin Akhnoukh, Construction Engineering, Chair, Dec. 2008
3. Eliya Henin, Construction Engineering, Chair, May 2012
4. Yaohua Deng, Construction Engineering, Chair, Aug. 2012
5. Musa Alawneh, Construction Engineering, Chair, Aug. 2013
6. Afshin Hatami, Construction Engineering, Chair, Aug. 2014
7. Micheal Asaad, Construction Engineering, Chair, May 2016
8. Raed Tawadrous, Construction Engineering, Chair, August 2017
9. Mostafa Abo El-Khier, Construction Engineering, Chair, May. 2021
10. Antony Kodsy, Construction Engineering, Chair, August 2021

#### **M.Sc. and MAE Graduate Students Supervised**

1. Genmiao Chen, M.Sc., Civil Engineering, Chair, Aug. 2006
2. John Heinmann, MAE, Architectural Engineering, Chair, May 2009
3. Marc Maguire, M.Sc., Civil Engineering, Chair, Aug. 2009
4. Faten Fawzy, M.Sc., Civil Engineering, Chair, Aug. 2009
5. Xiaoyue Song, M.Sc., Construction Engineering, Chair, Dec. 2009

6. Alec Stubbe, M.Sc., Civil Engineering, Co-Chair, Dec. 2009
7. Quinton Patzlaff, M.Sc., Civil Engineering, Co-Chair, Aug. 2010
8. Ibrahim Lotfy, M.Sc., Civil Engineering, Co-Chair, May 2012
9. Emily Hanish, MAE, Architectural Engineering, Chair, May 2012
10. Nathan DeWit, M.Sc., Architectural Engineering, Chair, May 2012
11. Jenna Hansen, M.Sc., Civil Engineering, Co-Chair, May 2012
12. Videgla Sekpe, M.Sc., Construction Engineering, Chair, Aug. 2012
13. Mohamed Elkady, M.Sc., Construction Engineering, Chair, May 2013
14. Peter Samir, M.Sc., Construction Engineering, Chair, May 2013
15. Kyle Klabunde, MAE, Architectural Engineering, Chair, Dec. 2013
16. Shaddi Assad, M.Sc., Construction Engineering, Chair, Aug. 2014
17. Kurt B. Thomsen, MAE, Architectural Engineering, Chair, April 2015
18. Mark J. Hanigan, MAE, Architectural Engineering, Chair, April 2016.
19. Eric Roberts, MAE, Architectural Engineering, Chair, April 2017.
20. Ruqaya Al Riyami, MAE, Architectural Engineering, Chair, April 2018.
21. Shamsa Al-Salami, MAE, Architectural Engineering, Chair, April 2019