

Michael J. McGinnis, Ph.D., P.E.

Associate Professor Civil Engineering

The University of Texas at Tyler



Education:

Ph.D. Civil and Environmental Engineering, Lehigh University, 2006
M.S. Civil Engineering, University of Connecticut, 1998
B.S. Civil Engineering, University of Connecticut, 1996
P.E. Texas

Honors and Awards:

- ASCE ExCEED Teaching Fellow, 2011 ASCE ExCEED National Young Educator of the Year
- UT Tyler White Teaching Fellow 2015
- UT Tyler 2012 Outstanding Research Award

Research Interests:

Currently, I spend most of my efforts deploying non-destructive measurement techniques in field and lab settings, and then building simplified numerical models that might be used in a design office to describe the measured behavior. This practical approach to research dovetails well with the needs of East Texas, the Civil Engineering Department practice oriented approach, and with UT Tyler's overarching theme of "Creating Solutions." My research passion areas is in nondestructive evaluation of structures, especially those exposed to extreme events such as fire and earthquake, and in in-situ evaluation of infrastructure. I have done work with coupled concrete shear wall systems, concrete structures in fire, the advanced Core Drilling Method for concrete bridge girder monitoring and assessment, smart framing and masonry systems in residential construction to meet emerging sustainability needs, and monitoring of ultra high performance bridge girders, to name a few areas of contribution.



Areas of Research Interests

Digital Image Correlation:

- Monitoring infrastructure systems during structural testing
- Full field, strain, displacements, cracking, rotation, etc. for high speed and low speed loadings

Recycled Concrete Aggregates

- Economic and environmental impacts of RCA concrete for structural applications
- Strength and durability testing of RCA concrete



Smart Framing with Masonry Facade

Smart Framing with Masonry Facade

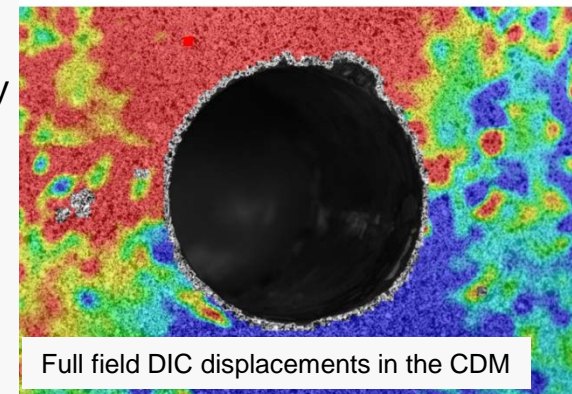
- Innovative structural system to provide performance benefits
- Less wood, more insulation - better energy demand, sustainability

Ultra High Performance Concrete Bridge Girders

- 18 -25 ksi concrete – reduced weight superstructures
- UHPC can reduce maintenance issues and increase design life

Core Drilling Method (CDM)

- Determine in-situ stress in concrete
- Determine in-situ prestressing force in bridge girders



Full field DIC displacements in the CDM



Recycled Concrete Aggregates (RCA)

Select Publications:

Manning, M. P., Weldon, B. D., McGinnis, M. J., Jauregui, D. V., Newton, C. M. (2016) Behavior Comparison of Prestressed Channel Girders from High Performance Concrete and Locally Developed Ultra-High Performance Concrete,” *Transportation Research Record (TRR)*, Journal of the Transportation Research Board – in press.

McGinnis, M. J. (2015) “In situ Stresses in Bridge Beams. Part II: Prestress Force,” *Magazine of Concrete Research*, 67 (9), 467-475.

Barbachyn, S., Kurama, Y., McGinnis, M., and Sause, R. (2016) “Testing and Behavior of a Coupled Shear Wall Structure with Partially Post-Tensioned Coupling Beams,” *ACI Structural Journal*. 113, (01), 111-124.

Mueller, K. A., Kurama, Y. C., McGinnis, M. J. "Out-of-Plane Behavior of Two RC Bearing Walls under Fire: A Full Scale Experimental investigation," *ACI Materials Journal*, (111) No. 1-6 (2014).

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