

SCOTT A. CIVJAN, P.E., Professor

University of Massachusetts at Amherst

College of Engineering

Department of Civil and Environmental Engineering

232 Marston Hall, 130 Natural Resources Road, Amherst, MA 01003-5205

Phone: (413) 545-2521 (office)

(413) 586-7841 (home)

e-mail: civjan@umass.edu

EDUCATION

Ph.D. in Engineering (Structural), The University of Texas at Austin, August 1998

M.S.C.E (Structural), The University of Texas at Austin, May 1995

B.S.C.E, Washington University, St. Louis, May 1989

PROFESSIONAL REGISTRATION

P.E. Registration Massachusetts (#42419) and Texas (#81440)

OSHA 10 Hour Certification

OSHA Hot Work Training

3A Hoisting License (expired)

PROFESSIONAL EXPERIENCE

The University of Massachusetts, Amherst

Professor, CEE	2018-Present
Associate Professor, CEE	2004-2018
Assistant Professor, CEE	1998- 2004
Adjunct Professor, Architecture and Design	2004-2008

The University of Texas at Austin

Graduate Research Assistant	1993-1998
-----------------------------	-----------

Black and Veatch Architects and Engineers, Overland Park, KS

Civil Engineer 03	1989-1993
-------------------	-----------

Work included the structural analysis, design, detailing, checking, and construction contact for power plant facilities. Work included the design and detailing of deep pit concrete and pump structures, computer finite element analysis of structural mats for power plant buildings, and initial design of steel superstructures for boiler buildings. Culverts, retaining walls, site layouts and pipe routing were also performed. Coordinated with field engineers, consortium partners, contractors, and equipment manufacturers. Supervised drafters and entry-level engineers.

UMass Activities

CEE DEI Committee – Chair	2020-Present
Structural Engineering/Mechanics Group Coordinator	2005-2011
CEE Chief Undergraduate Advisor	2007- 2009
CEE Personnel Committee	2005-2008, 2020-present

Chair	2006-2007
CEE Curriculum Committee – Chair	2007-2009
Member	2013-2016
CEE ABET Committee	2013-2016
CEE Technical Needs Committee	2010-2015
CEE History and Heritage Lecture Planning Committee – Chair	2015-2018
Environmental Performance Advisory Committee (EPAC Chancellor Appointment)	2007-2012
ASCE Student Chapter co-advisor	2006-2008
AGC Student Chapter Faculty Advisor	2016-present
EERI Student Chapter Faculty Advisor	2015-present
Advisor of Steel Bridge Team (ASCE student chapter)	Yearly
Advisor of EERI Student Seismic Design Team	2015-2018, 2020-present

RESEARCH INTERESTS:

Structural Engineering with an emphasis on experimental research. Specific areas of interests include seismic design of structures, composite steel/concrete structures, steel design and structural monitoring. Interactions between disciplines (such as architectural/structural components, soil-structure interaction and wildlife/structure interactions) are of special interest.

COURSES TAUGHT AT UMASS

CEE434	Structural Steel Design
CEE542	Advanced Topics in Steel Design
CEE550	Bridge Design
CEE646	Seismic Concepts and Design of Structures
CEE433	Design of Reinforced Concrete Structures
CEE488	Professional Practice Seminar
ENGIN111	Introduction to Civil and Environmental Engineering
CEE365	Laboratory Experience for Students in Civil/Environmental Engineering
CEE241/MIE211/Bio-Med Eng 297M	Strength of Materials
CEE241A	Strength of Materials Laboratory
ARCH DES 690T	Tectonics III (Architecture)

Critiques of Architecture Studio Projects

AWARDS

CEE Department *Faculty Service Award*, 2021
 Student nominated COE *Commencement Speaker*, May 2006
 ASCE Student Chapter *Teacher of the Year*, 2006
 ASCE Student Chapter *Teacher of the Year*, 2013
 ASCE Student Chapter *Teacher of the Year*, 2017
James L. Tighe Distinguished Teaching Award, 2015
 College of Engineering *Outstanding Teaching Award*, 2016

PROFESSIONAL ACTIVITIES

EERI Annual Meeting 2015 Local Organizing Committee – Chair, 2014-2015
EERI Regional New England Chapter Founding President, 2013-2014
EERI Regional New England Chapter Past-President, 2014-2016
EERI Regional New England Chapter Board Member, 2016-present
Associate Editor: ASCE Journal of Structural Engineering, 2004-2007

Memberships/Committees

American Concrete Institute

Associate Member, Paper Awards Committee, 2001-2004

Chair – Subcommittee SC-1 (Construction) Committee, 2003-2004

Associate Member, ACI335, “Composite and Hybrid Structures” 1999-2005

American Institute of Steel Construction

Partners in Education Committee, 2004- 2016

American Society of Civil Engineers

BSCE Structural group Committee, Member, 2002- 2007

Lecture Series Committee Member, 2002 – 2007

Earthquake Engineering Research Institute

National Steel Bridge Alliance

Structural Engineering Institute

Building Seismic Safety Commission Technical Subcommittee TS11 – Composite Structures. Corresponding Member, 2006 - 2009

Reviewer for the following:

Proposals: NSF Proposals (Sensing and Systems, NEESR Small Group Buildings , NEESR Individual Investigator – Concrete, Natural and Man-Made Hazards Mitigation, Large Structural and Building Systems, Unsolicited Proposal Review - Hazards and Structures), **Cooperative Grants Program of the U.S. Civilian Research and Development Foundation, NEES site review team (2007)**

Journals: ASCE *Journal of Structural Engineering* , ASCE *Journal of Bridge Engineering*, ACI *Structural Engineering Journal*, ACI *Concrete International*, ACI *Special Publication on Composite Steel-Reinforced Concrete Structures*, AISC *Engineering Journal*, Elsevier *Engineering Structures*, *Journal of Green Building*, Techno Press *Structural Engineering and Mechanics*, *Transportation Research Record*

FUNDED RESEARCH:

- Massachusetts Department of Transportation (co-PI) PI: Sergio Brena, co-PI: Scott Civjan, Symeon Gerasimidis, Jessica Boakye “ Revised Load Rating Procedures for Deteriorated Prestressed Concrete Beams” (\$199,955) **2021-2023**
- Massachusetts Department of Transportation (co-PI) PI: Symeon Gerasimidis “Post-Fire Damage Inspection of Concrete Structures – Phase II – Experimental Phase” (\$160,000) **2021-2023**
- Massachusetts Department of Transportation (co-PI) PI: Symeon Gerasimidis “Post-Fire Damage Inspection of Concrete Structures” (\$99,998) **2020-2021**
- Department of Environmental Protection (co-PI) PI: Scott Jackson “Maximum Extent Practicable Guidance and Feasibility Study” (\$149,714) **2020-2021**
- New England Transportation Consortium (PI) co-PI Betsy Dumont “NETC14-2 Investigation of Northern Long-Eared Bat Roosting Sites on Bridges” (\$204,546) **2015-2017**
- Massachusetts Department of Transportation (PI) “12-7 Performance of Adhesive and Cementitious Anchorage Systems” (\$229,791) **2014-2017**
- Northeast States Emergency Consortium (PI) “Structural Engineering Review and Collaborative Opportunity: Hazard Risk of Unreinforced Masonry Structures in the Northeast US.” (\$16,506) **2015**
- Massachusetts Department of Transportation (PI) “Better Bridge Joint Technology Synthesis Project” (\$50,578) **2015**
- New England Transportation Consortium (co-PI) PI: Sergio Breña “NETC 13-1: Development of High Early Strength Concrete for Accelerated Bridge Construction” (\$174,927) **2014-2015**
- Hycrete, Inc. (Sub-award from Army Corp of Engineers) (PI) “Analysis and Interpretation of Hydrophobic Admixture Concrete Chloride Data and Recommended Parameters for LIFE-365” (\$20,062) **2013**
- Vermont Agency of Transportation (PI) “Continued Monitoring of Vermont Bridges by UMass Amherst” (\$6,411) **2014-2015**
- Vermont Agency of Transportation (PI) co-PI: Sergio Breña “Supplemental Funding/Storm Damage: Performance Monitoring of Jointless Bridges – Phase III” (\$88,080) **2013-2014**
- MassDOT Accelerated Bridge Program (PI) co-PI: Sergio Breña “Field Instrumentation and Monitoring of NEXT Beam Bridge” MOU – MassDOT to provide approximately \$75,000 of equipment plus all incidental construction costs. **2010-2013**
- MassDOT Accelerated Bridge Program (PI) co-PI: Sergio Breña “Field Instrumentation and Monitoring of Folded Plate Bridge” MOU – MassDOT to provide approximately \$65,000 of equipment plus all incidental construction costs. **2010-2013**
- MassDOT Accelerated Bridge Program (PI) co-PI: Sergio Breña “Field Instrumentation and Monitoring of ‘Bridge in a Backpack’ Bridge” MOU – MassDOT to provide approximately \$80,000 of equipment plus all incidental construction costs. **2010-2013**

- Army Corp of Engineers/Subcontracted through Mandaree Enterprises (PI)
“Development of Parameters for Hydrophobic Concrete Admixture Life and
Return on Investment Predictions” (\$22,002) **2010-2011**
- All States Materials (PI): “Testing of Anti-Icing Materials for Roadway Applications”
(\$15,144) **2010**
- All States Materials (PI): “Undergraduate Research - Testing of Anti-Icing Materials for
Roadway Applications” (\$3,500) **2009-2010**
- Vermont Agency of Transportation (PI) co-PI: Sergio Breña “Supplemental
Funding/Change in Scope: Performance Monitoring of Jointless Bridges – Phase
III” (\$182,357) **2010-2014**
- Vermont Agency of Transportation (PI) co-PI: Sergio Breña “Performance Monitoring of
Jointless Bridges – Phase III Supplemental Equipment Funding” (\$80,000)
2008-2014
- Vermont Agency of Transportation (PI). co-PI Sergio Brena. “Performance Monitoring
of Jointless Bridges – Phase III” (\$295,984) **2007-2014**
- NETC (PI), Co PI’s Sergio Brena and Michael Knodler “Enhancing the Reflectivity of
Concrete Barriers Phase I”. (\$48,000) **2009-2010 Project still not implemented
due to NETC administration put on hold/reorganization from 2009-present**
- MegaMold (co-PI) Sergio Brena (PI): “Testing of MegaMold Products for Structural
Formwork Applications” \$8,090 **2008-2009**
- American Institute of Steel Construction (PI) “Development of Core Teaching Aids for
Structural Steel Design Courses” (\$20,000) **2007-2009**
- NETC (co-PI), Sergio Brena (PI) “Advanced Composite Materials in New England’s
Transportation Infrastructure: Phase I Implementation Selection of Prototype”
(\$25,909) **2007-2009**
- FHWA (Research Team Personnel) PIs: John R. Mullin and Jack Ahern “Feasibility
Study for a Recreational and Wildlife Passage across Route 2 in Concord,
Massachusetts” (\$172,500) **2006-2008**
- Massachusetts Executive Office of Transportation Proposal (PI) Co-PI Ray Mann
“Terrazzo Cracking” (\$59,594) **2006-2008**
- Vermont Agency of Transportation (co-PI) PI: Sergio Breña “Evaluation of Bridge
Performance and Rating Through Non-destructive Load Testing.” (Supplemental
Contract) (\$3,125) **2005-2007**
- Vermont Agency of Transportation (co-P.I.), P.I. Sergio F. Breña; “Evaluation of Bridge
Performance and Rating Through Non-destructive Load Testing” (\$166,320)
2005-2007
- NETC (PI) “Field Studies of concrete Containing Salts of an Alkenyl-substituted
Succinic Acid” (\$140,000) **2004-2007**
- NETC (co-PI), PI: Sergio Brena “Advanced Composite Materials for New England’s
Transportation Infrastructure: A Study for Implementation and Synthesis of
Technology and Practice” (\$53,339). **2003-2006.**
- MassHighway (PI), co-PI Segio Brena, Jason DeJong. “Behavior of Integral Abutment
Bridges: Field Data and Computer Modeling”.(\$126,521) **2002-2005**
- Anhydrides and Chemicals Affiliate Broadview Technologies (PI) “Long Term
Performance of HyCrete DSS and other Corrosion Inhibiting Admixtures.”
(\$2,400) **2003-2004**

Weidlinger Associates, Inc. (PI). "Investigation of a Cambered "Tuned" Strut for Use in Large Excavations." (\$10,000) **2003-2004**

MassHighway Submittal (PI), co-PI Segio Brena. "Data Collection at the Orange-Wendell Bridge". (\$24,495) **2002**

MassHighway Submittal (PI), co-PI Segio Brena. "Data Collection at the Orange-Wendell Bridge". (\$14,495) **2001-2002**

NETC (PI) "Performance Evaluation and Economic Analysis of Combinations of Durability Enhancing Admixtures (Mineral and Chemical) in Structural Concrete for the Northeast U.S.A." NETC 97-2. (\$127,000) **1998-2002**

Faculty Research Grant (PI) "Capacity of Shear Studs in Composite Construction Subject to Cyclic Loads" (\$10,000) **1998-1999**

NSF Major Research Instrumentation Jan. 1999. This was not chosen to go forward by the University, but **resulted in the allotment of \$50,000 from the Chancellor for Research** for equipment in addition to startup funding to be used towards the purchase of laboratory equipment.

PUBLICATIONS AND PRESENTATIONS

Journal Publications:

Invited Forum Article: Civjan, S. A. (2021) "Ethics Instruction: Ideas for Moving Forward" *Structure Magazine*. C3 Ink. Reedsburg WI.

Invited Forum Article: Civjan, S. A. (2021) "Ethics Instruction: Are We Covering What We Need To?" *Structure Magazine*. C3 Ink. Reedsburg WI.

Menz, N., Gerasimidis, S., **Civjan, S. A.**, Czach, J., Rigney, J. (2021) "A Review of Post-Fire Inspection Procedures for Concrete Tunnels" *Transportation Research Record*. Washington D. C.

Invited Reprint: Civjan, S. A. (2020) "An Integrated Teaching Method for Design Courses" *Journal of Higher Education Theory and Practice*. North American Business Press. Volume 20; doi:10.33423/jhetp.v20i11.3773

Civjan, S. A., Guihan, T. & Peterman, K. (2020) "Testing of Oxyacetylene Weld Strength." *Journal of Constructional Steel Research*. vol 168.

Civjan, S. A., Berthaume, A., Bennett, A. and Dumont, E. (2017) "Bat Roosting in Bridges: Pros and Cons of Assessment Methods from a New England Regional Study" *Transportation Research Record*.

Quinn, B. H. and **Civjan, S. A.**, (2017) "Parametric Study on Effects of Pile Orientation in Integral Abutment Bridges" *Journal of Bridge Engineering*, v 22, n 4.

Civjan, S. A., Sit, M. H. and Breña, S. F. (2016) "Field and Analytical Studies of the First Folded Plate Girder Bridge" *Journal of Bridge Engineering*, v 21, n 11.

Quinn, B. H. and **Civjan, S. A.** (2016) “Assessment of Bridge Joint Performance in the Northeastern States”. *Transportation Research Record*. Vol. 2550. Pp. 46-53.

Danai, K., **Civjan, S. A.** and Styckiewicz, M. (2013) “Sensor Location Selection for Structures via Identifiability Analysis in the Time-Scale Domain” *Journal of Sound and Vibration*. Elsevier. V332, n24, Pp 6296-6311. DOI: 10.1016/j.jsv.2013.06.015

Civjan, S. A., Kalayci, E., Quinn, B. H., Breña, S. F. and Allen, C. A. (2013) “Observed integral abutment bridge substructure response” *Engineering Structures*. v56 n3. Pp. 1177-1191. DOI information: 10.1016/j.engstruct.2013.06.029

Breña, S. F., Jeffrey, A., and **Civjan, S. A.** (2013) “Evaluation of a Non-composite Steel Girder Bridge through Live-Load Field Testing”. *Journal of Bridge Engineering*. ASCE. v18 n7. Pp 690-699.

Kalayci, E., **Civjan, S.A.**, Breña, S.F. (2012) “Parametric study on the thermal response of curved integral abutment bridges” *Engineering Structures*, v 43, p 129-138.

Danai, K., **Civjan, S. A.** and Styckiewicz, M. M. (2012) “Direct method of damage localization for civil structures via shape comparison of dynamic response measurements” *Computers and Structures*, v 92-93, p 297-307.

Civjan, S. A., Mitchell, M. J., Mann R. K. (2011) “Terrazzo Design: Avoiding Stress Related Deterioration and Cracking” *Journal of Performance of Constructed Facilities*, ASCE. v 25, n 6, p 514-521. **Nominated for “Outstanding Paper Award 2011”**

Kalayci, E., **Civjan, S.A.**, Breña, S.F., and Allen, C.A. (2011) “Load testing and modeling of two integral abutment bridges in Vermont, USA”. *Structural Engineering International: Journal of the IABSE (SEI)*. Vol 21, No. 2. pg.181-188. **Invited Paper.**

Civjan, S. A., Mitchell, M. Fortin, D., Mann, R. K. (2011) “Deterioration of terrazzo” *Journal of Architectural Engineering*, v 17, n 2, p 51-58.

Ahern, Jack, Warren, Paige, Charney, Noah, Jackson, Scott, Mullin, John, Kotval, Zenia, Brena, Sergio, **Civjan, Scott**, Carr, Ethan. (2009) “Issues and Methods for Transdisciplinary Planning of Combined Wildlife and Pedestrian Highway Crossings”. *Transportation Research Record*. Vol 2123. pp. 129-136.

Civjan S.A., Bonczar C.H., Breña S.F., DeJong J.T., and Crovo D.S. (2007) “Integral Abutment Bridge Behavior: Parametric Analysis of a Massachusetts Bridge”, *Journal of Bridge Engineering*, ASCE, Vol 12, No 1. pp. 64-71.

Breña, S.F., Bonczar, C.H., **Civjan, S.A.**, DeJong, J.T., and Crovo, D.S. (2007) “Evaluation of Seasonal and Yearly Behavior of an Integral Abutment Bridge”, *Journal of Bridge Engineering*, ASCE, Vol 12, No 3. pp 296-305

Civjan, Scott A. and Crellin, Benjamin J. (2006) “A New Admixture to Mitigate Corrosion Problems”, *Concrete International*. Pp. 2-6.

Civjan, Scott A., LaFave, James M., Trybulski, Joanna E., Lovett, Daniel, Lima, Jose, and Pfeiffer, Donald. (2005) "Effectiveness of Corrosion Inhibiting Admixture Combinations in Structural Concrete" *Cement and Concrete Composites*, Vol. 27 Issue 6. Pp. 688-703.

Civjan, Scott A., Bonczar, Christine Crellin, Benjamin (2005) "A New Admixture to Minimize Corrosion: Overall Performance of DSS Concretes" – New Product Watch. *Structure Magazine*. Pp. 38-40.

Civjan, Scott A., Brena, Sergio F., Butler, David A., and Crovo, Daniel S. (2004) "Field Monitoring of an Integral Abutment Bridge in Massachusetts" *Design of Structures 2004. Transportation Research Record*, No. 1892. Pp. 160-169.

Clouston, Peggi, **Civjan, Scott A.** and Bathon, Leander. (2004) "Shear Behavior of a Continuous Metal Connector for a Wood-Concrete Composite System" *Forest Products Journal*. 54(6) Pp. 76-84.

Civjan, Scott A. and Singh, Prabhjeet (2003) "Behavior of Shear Studs Subjected to Reversed Cyclic Loading", *ASCE Journal of Structural Engineering*. Pp. 1466-1474.

Jones, Sean C. and **Civjan, Scott A.** (2003) "Application of FRP Overlays to Extend Steel Fatigue Life", *ASCE Journal of Composites for Construction*. Pp. 331-338.

LaFave, James M., Pfeifer, Donald W., Sund, Daniel J., Lovett, Daniel and **Civjan, Scott A.** (2002), "Using Mineral and Chemical Durability Enhancing Admixtures in Structural Concrete", *Concrete International*. Pp. 71-78.

Civjan, Scott A., Engelhardt, Michael D., and Gross, John L. (2001) "Slab Effects in SMRF Retrofit Connection Tests", *ASCE Journal of Structural Engineering*. Pp. 230-237.

Civjan, Scott A., Engelhardt, Michael D., and Gross, John L. (2000) "Retrofit of Pre-Northridge Moment Resisting Connections". *ASCE Journal of Structural Engineering*. Pp. 445-452.

Civjan, Scott A., Jirsa, James O., Carrasquillo, Ramon L., and Fowler, David. W. (1998) "Instrument to Evaluate Remaining Prestress in Damaged Prestressed Bridge Girders", *PCI Journal*. Pp. 62-71.

Web Material

Civjan, S. A. "Core Teaching Aids for Structural Steel Design Courses" *American Institute of Steel Construction*. Web Address: <https://www.aisc.org/education/university-programs/ta-core-teaching-aids-for-structural-steel-design-courses/>

Final Reports:

Menz, N., Gerasimidis, S. **Civjan, S.** (2021) “Post-Fire Damage Inspection of Concrete Structures.” Massachusetts Department of Transportation. Final Report, 184 Pages.

Civjan, S. A., Dumont, E., Bennett, A. and Berthaume, A. (2017) “Investigation of Northern Long-Eared Bat Roosting Sites on Bridges.” New England Transportation Consortium (NETC) Final Report, 362 Pages.

Civjan, S. A., Mendoza, M., Droesch, D. and Wang, R. (2017) “Performance of Adhesive and Cementitious Anchoring Systems.” UMTC/MassDOT Final Report, 157 Pages.

Civjan, S. A. and Quinn, B. H. (2015) “Better Bridge Joint Technology” Final Report to Massachusetts Department of Transportation. 110 Pages.

Civjan, S. A. (2015) “State Building Codes and Structural Safety Provisions for Unreinforced Masonry (URM) Buildings in the Northeast States” Final Report to Northeast States Emergency Management Consortium (NESEC). 20 Pages.

Civjan, S. A., Quinn, B. H. and Breña, S. F. (2014) “Bridge-in-a-Backpack: Fitchburg, MA” Final Report to Massachusetts Department of Transportation. 15 Pages.

Civjan, S. A. and Moradi, M. (2014) “Analysis and Interpretation of Hydrophobic Concrete Chloride Data and Recommended Parameters for LIFE-365” Final report to Broadview Industries, Inc. as part of a subcontract to an Army Corp of Engineers contract. 16 Pages.

Civjan, S. A., Breña, S. F., Quinn, B. H., Kalayci, E. (2014) “Performance Monitoring of Jointless Bridges – Phased III Final Report Part 2”

[http://vtransengineering.vermont.gov/sites/aot_program_development/files/documents/materialsandresearch/completedprojects/2014%20-](http://vtransengineering.vermont.gov/sites/aot_program_development/files/documents/materialsandresearch/completedprojects/2014%20-%2007%20Performance%20Monitoring%20of%20Jointless%20Bridges%20-%20Phase%20III.pdf)

[%2007%20Performance%20Monitoring%20of%20Jointless%20Bridges%20-%20Phase%20III.pdf](http://vtransengineering.vermont.gov/sites/aot_program_development/files/documents/materialsandresearch/completedprojects/2014%20-%2007%20Performance%20Monitoring%20of%20Jointless%20Bridges%20-%20Phase%20III.pdf) (Pgs 199-349 of document)

VTrans Report 2014-07. 141 Pages.

Civjan, S. A., Breña, S. F., Kalayci, E., Quinn, B. H. (2014)

“Performance Monitoring of Jointless Bridges – Phased III Final Report Part1”

[http://vtransengineering.vermont.gov/sites/aot_program_development/files/documents/materialsandresearch/completedprojects/2014%20-](http://vtransengineering.vermont.gov/sites/aot_program_development/files/documents/materialsandresearch/completedprojects/2014%20-%2007%20Performance%20Monitoring%20of%20Jointless%20Bridges%20-%20Phase%20III.pdf)

[%2007%20Performance%20Monitoring%20of%20Jointless%20Bridges%20-%20Phase%20III.pdf](http://vtransengineering.vermont.gov/sites/aot_program_development/files/documents/materialsandresearch/completedprojects/2014%20-%2007%20Performance%20Monitoring%20of%20Jointless%20Bridges%20-%20Phase%20III.pdf) (Pgs 1-198 of document)

VTrans Report 2014-07. 173 Pages.

Civjan, S. A. and Moradi, M. (2014) “Instruction for Using Hycrete in Life-365” White Paper to Broadview Industries, Inc. as part of a subcontract to an Army Corp of Engineers contract. 6 Pages.

Civjan, S. A., Sit, M. H. and Breña, S. F. (2014) “Folded Plate Girder Bridge: Uxbridge, MA” Final Report to Massachusetts Department of Transportation. 23 Pages.

Ericson, D., Breña, S. F., **Civjan, S. A.** and Singh, A. (2013) “Evaluation of Live-Load Distribution Factors for NEXT-F Beam Bridges” Submitted to the Precast/prestressed Concrete Institute. 63 Pages.

Jeffrey, A. E., Breña S.F and **Civjan, S. A.** (2009) “Evaluation of Bridge Performance through Non-Destructive Load Testing” Vermont Agency of Transportation Final Report 2009-1. 271 Pages.

Civjan, Scott A. and Crellin, Benjamin. (2008) “Field Studies of Concrete Containing Salts of an Alkenyl-Substituted Succinic Acid” NETC03-2. Final Report prepared for the New England Transportation Consortium (NETC). NETR73. 135 Pages
http://www.netc.umassd.edu/reports_listing.html

Civjan, Scott A., Kinoshita-Mann, Ray, and Mitchell, Mike J. (2007) “Terrazzo Cracking” Cooperative Research Program Task Order #11 Final Report, Executive Office of Transportation. 128 Pages.

Ahern, Jack, Warren, Paige, Charney, Noah, Jackson, Scott, Mullin, John, Kotval, Zenia, Brena, Sergio, **Civjan, Scott**, Carr, Ethan. (2007) “Walden Passage Feasibility Study” FHWA.

Breña S.F., **Civjan S.A.**, and Goodchild M. (2006) “Advanced Composite Materials for New England’s Transportation Infrastructure: A Study for Implementation and Synthesis of Technology and Practice”, *Final Project Report: NETC 01-1 (NETCR62)*, New England Transportation Consortium. 77 Pages.
http://www.netc.umassd.edu/reports_listing.html

Bonczar, Christine H., **Civjan, Scott A.**, Brena, Sergio F., DeJong, Jason (2005) “*Behavior of Integral Abutment Bridges: Field Data and Computer Modeling*”, Final Report prepared for the Massachusetts Highway Department. UMTC-05-04. 201 Pages.

Civjan, S. A., LaFave, J. M, Lovett, D., Sund, D. J., Trybulski, J. (2003) “*Performance Evaluation and Economic Analysis of Combinations of Durability Enhancing Admixtures (Mineral and Chemical) in Structural Concrete for the Northeast U.S.A.*” NETC 97-2 Final Report prepared for the New England Transportation Consortium. 165 Pages
http://www.netc.umassd.edu/reports_listing.html

Civjan, Scott A., Engelhardt, Michael D. (1998) “Experimental Investigation of Methods to Retrofit Connections in Existing Seismic-Resistant Steel moment Frames”, Summary

Final Report to the National Institute of Standards and Technology, The University of Texas at Austin.

Civjan, Scott A., Jirsa, James O., Carrasquillo, Ramon L., and Fowler, David. W. (1995) "Method to Evaluate Remaining Prestress in Damaged Prestressed Bridge Girders", Research Report CTR 0-1370-2, Center for Transportation Research.

Invited KEYNOTE Presentation:

Civjan, S. A., Breña, S. F. "Bridge Instrumentation Programs and Maintenance Issues from UMass Experiences" **KEYNOTE Lecture**. *First International Bridges Conference – Chile 2014, Future Challenges: Design, Construction and Maintenance*. Santiago, Chile. September 24, 2014.

Invited Presentations:

Civjan, S. A., Mendoza, M., Droesch, D. and Wang, R. "Performance of Adhesive and Cementitious Anchorage Systems" *New England Research and Materials Annual Meeting*, Hopkinton, MA June 2017.

Civjan, S. A. and Quinn, B. H. "An Assessment of Bridge Joint Performance in the Northeastern States". *AASHTO Western Bridge Preservation Partnership Workshop*. Salt Lake City, UT. May 2016.

Berthaume, A., **Civjan, S. A.**, Bennett, A. and Dumont, E. *Bridge Assessment Workshop: Evaluation of Bats in New England Bridges*, Massachusetts, Connecticut, Rhode Island March 2017

Berthaume, A., **Civjan, S. A.**, Bennett, A. and Dumont, E. *Bridge Assessment Workshop: Evaluation of Bats in New England Bridges*, New Hampshire, Vermont, Maine March 2017

Berthaume, A., **Civjan, S. A.**, Bennett, A. and Dumont, E. "Assessment of Bat Roost Potential in New England Bridges" *Maine Bat Working Group Annual Meeting*, November, 2017

Civjan, S. A., Mendoza, M. and Droesch, D. "Anchor Testing at UMass Amherst per AASHTO TP-84 and Recommendations" *American Concrete Institute Annual Meeting - Presentation to ACI 355.4 Committee*, Philadelphia, PA. October 2016

Castine, S., Breña, S. F., **Civjan S. A.** "Development of High-Early Strength Concrete for Accelerated Bridge Construction Closure Pours Connections". *PCI Bridge Technical Committee Meeting*". PCI Bridge Technical Committee Meeting, Sturbridge, MA. June 2015.

Civjan, S. A., Breña, S. F. “Integral Abutment Bridges Behavior and Design Observations from UMass Studies” Presentation at Universidad Católica de Valparaíso, Valparaiso, Chile. September 23, 2014.

Civjan, S. A. and Droesch, D. “Adhesive and Grouted Anchorage Systems: Researching the Behavior of Anchors” North Eastern States’ Materials Engineers Association Annual Meeting. Boston, MA. October 20-21, 2014

Breña S.F., **Civjan S.A.** and Singh A. “Field Monitoring of an Integral Abutment Prestressed Concrete NEXT Beam Bridge in Massachusetts” *PCI-Northeast Bridge Technical Committee Meeting*. Publick House, Sturbridge, MA. June 2012.

Civjan S.A. Allen, C. A., Kalayci, E., Breña S.F. “Performance Monitoring of Jointless Bridges”, *NESGE Annual Meeting*. Burlington, VT. October 2010.

Civjan, Scott A. “Core Teaching Aids for Courses in Structural Steel Design”, NASCC Educators Session, Phoenix, AZ, April 2009.

Civjan, Scott A., Larsen, Gershon and Hines, Eric M. “Historic Shear Connections: Rivet and Moment Capacity Data”, *Connections VI Sixth International Workshop on Connection in Steel Structures*, Chicago, June 2008.

Civjan, Scott A., Galloway, Judd, Kirmani, Minhaj, Aristorenas, George, “Experimental and Analytical Verification of the “Tuned Strut” Concept”, *ASCE Structures Congress*. St. Louis, MO May 2006.

Civjan, Scott A. and Rhodes, Philip S. “Hycrete: Innovative Admixture for Extending Structural Life of Concrete--Chemistry and Test Results” (P05-0030) *Transportation Research Board* Washington D.C. January 2005.

Civjan, Scott A., Bonczar, Christine H., Brena, Sergio F., DeJong, Jason, and Crovo, Daniel. “Integral Abutment Bridges: A Case Study and Parametric Analysis”, Louisiana Structures Congress, September 9, 2005 (CANCELLED)

Civjan, Scott A. and Crellin, Benjamin, “Hycrete – DSS An Innovative Admixture for Concrete: An Update on NETC 03-2” *16th Annual NE Materials and Research Meeting* Concord, NH June 7, 2005.

Civjan, Scott A. “Evaluation of DSS Corrosion Inhibitor”, *North Eastern States Materials Engineers’ Association 80th Annual Meeting*, Portsmouth, NH October 19, 2004.

Civjan, Scott A., and Engelhardt, Michael D. “Experimental Testing Utilizing E70T-4 Electrodes in Pre-Northridge SMRF Connections.” Invited Delegate/Presenter. *U.S./Japan Seminar on Advanced Stability and Seismicity Concepts for Performance-Based Design of Steel and Composite Structures*, Kyoto, Japan July 23-27, 2001.

Civjan, Scott A. and Engelhardt, Michael D. “Experimental Testing of Retrofit Steel Moment Connections”, *Connections in Steel Structures IV: Steel Connections in the New Millennium* international, Roanoke, Virginia, October 22-25, 2000.

Conference Presentations/Proceedings:

Civjan, S. A. (2020). An Integrated Teaching Method for Design Courses. Paper #29315. *2020 ASEE Virtual Annual Conference*. American Society for Engineering Education. 16pgs.

Civjan, S. A. (2020). “Coordinating Field Trips for Design Courses.” Paper #29322. *2020 ASEE Virtual Annual Conference*. American Society for Engineering Education. 18pgs.

Civjan, S. A. and Tooker, N. (2020). “Integrating Ethics into the Curriculum through Design Courses.” Paper 29335. *2020 ASEE Virtual Annual Conference*. American Society for Engineering Education. 19pgs.

Jalali, Y. and **Civjan, S. A.** (2020). “Many Facets of Imagination: What Really Matters in Engineering Ethics Instruction?”. Paper 30780. *2020 ASEE Virtual Annual Conference*. American Society for Engineering Education. 13pgs.

Menz, N., Gerasimidis, S., **Civjan, S. A.**, Czach, J., Rigney, J. “A Review of Post-Fire Inspection Procedures for Concrete Tunnels” *Transportation Research Board Annual Meeting 2020*. Washington D. C. January 2020.

Invited Poster: Civjan, S. A., Mendoza, M., Droesch, D., Wang, W. Grieco, J., Antoniadis, N. "Performance of Adhesive and Cementitious Anchorage Systems: MassDOT Project 12-7" Sweet 16 Awardee Invited Poster. *Transportation Research Board Annual Meeting 2020*. Washington D. C. January 2020.

Civjan, S. A., Lacroix, J., Higgins, K. and Takeuchi, A. "Curved Steel Girder Integral Abutment Bridges in Vermont, USA " *Transportation Research Board Annual Meeting 2020*. Washington D. C. January 2020.

Civjan S., Mendoza M., Droesch, D. and Wang, R. (2018) "Bonded Anchor System Test Methods for Creep". MassDOT Innovation and Mobility Exchange Conference. Worcester, MA. 4/9/2018.

Civjan, S. A., Mendoza, M., Droesch, D. and Wang, R. (2017) “Performance of Adhesive and Cementitious Anchorage Systems” New England Research and Materials Annual Meeting. Hopkinton, MA. 6/13/2017

Civjan, S. A., Berthaume, A., Bennett, A. and Dumont, E. “Assessing Methods to Evaluate Bat Roosting in New England Bridges” *International Conference on Ecology and Transportation*, Salt Lake City, UT. May 2017.

Civjan, S. A., Mendoza, M. and Droesch, D. “Comments on Post Installed Bonded Anchoring System Test Methods to Evaluated Sustained Loading Capacity.” *Transportation Research Board Annual Meeting 2017*, Washington, D.C. January 2017.

Civjan, S. A., Berthaume, A., Bennett, A. and Dumont, E. "Bat Roosting in Bridges: Pros and Cons of Assessment Methods from New England Regional Study". Workshop Presentation. *Transportation Research Board Annual Meeting 2017*, Washington, D.C. January 2017.

Civjan, S. A., Berthaume, A., Bennett, A. and Dumont, E. “Inspection Methods to Identify Bat Bridge-Roosting Potential: Pros and Cons” *Northeast Bat Working Group Winter Meeting*, January 2017.

Civjan, S. A., Berthaume, A., Bennett, A. and Dumont, E. "Bat Roosting in Bridges: Details and Results from a New England Project". *46th Annual Symposium on Bat Research*, San Antonio, TX. October 2016

Berthaume, A., **Civjan, S. A.**, Bennett, A. and Dumont, E. “Assessment of bat roost potential in New England bridges”. *Northeastern Transportation and Wildlife Conference*. Lake Placid, NY. 2016.

Dexter, T. and **Civjan, S. A.** "Bats in Bridges/Federal Endangered Long-Eared Bat". *MassDOT Innovation and Technology Transfer Conference*, Worcester, MA. March 2016.

Civjan, S. A. and Quinn, B. H. “An Assessment of Bridge Joint Performance in the Northeastern States”. *Transportation Research Board Annual Meeting*. Washington D.C. 2016.

Civjan, S. A. Berthaume, A., Bennett, A. and Dumont, E. “Evaluation of Bats in Bridges throughout New England: Research in Progress”. *Transportation Research Board Annual Meeting*. Washington D.C. 2016.

Civjan, S. A., Quinn, B. H., Breña, S. F., Allen, C. A. “Integral Abutment Data from Three Steel Girder Bridges”. *World Steel Bridge Symposium*. Toronto, ON. 2014.

Civjan, S. A., Sit, M. H. and Breña, S. F., “Field and Analytical Studies of the First Folded Plate Girder Bridge” *Transportation Research Board Annual Meeting*. Washington D.C. 2014.

Quinn, B. H., **Civjan, S. A.**, Breña, S. F., Allen, C. A. “Single Span Integral Abutment Bridge Response – Straight and Skew Alignments” *Transportation Research Board Annual Meeting*. Washington D.C. 2014. Poster Presentation.

Bahjat, R., Ericson, D., Breña, S. F., **Civjan, S. A.** “Evaluation of Moment Live-Load Distribution of a NEXT-F Beam Bridge Through Field Load Testing and FE Modeling” *PCI Annual Meeting and National Bridge Conference*. Washington D. C. 2014.

Civjan, S. A., Breña, S. F. “Integral Abutment Bridges Behavior and Design Observations from UMass Studies” *First International Bridges Conference – Chile 2014, Future Challenges: Design, Construction and Maintenance*. Santiago, Chile. September 24-26, 2014

Quinn, B., **Civjan, S. A.**, Lahovich, A. and Breña, S.F. “Data from the Fitchburg Bridge, an Innovative FRP Arch Structure”, *Transportation Research Board Annual Meeting*. Washington D.C. 2013

Civjan, S. A., Kalayci, E., Breña, S.F. and Allen, C. A. “Instrumentation and Long Term Monitoring of Three Integral Abutment Bridges in Vermont” *Transportation Research Board Annual Meeting*. Washington D.C. 2013.

Breña S.F., **Civjan S.A.** and Singh A. “Field Monitoring of an Integral Abutment Prestressed Concrete NEXT Beam Bridge in Massachusetts” Research and Development Session. *PCI Annual Convention*. Nashville, TN. September 30, 2012.

Civjan S.A., Kalayci, E., Breña S.F., Allen C. A. “Integral Abutment Bridge Monitoring Program in Vermont”, *Transportation Research Board Annual Meeting*. Washington D.C. January 2010.

Kalayci, Emre, Brena, Sergio F. and **Civjan, Scott A.** “Curved Integral Abutment Bridges – Thermal Response Predictions through Finite Element Analysis”, 2009 *ASCE Structures Congress*. Austin, TX. April 2009.

Ahern, Jack, Warren, Paige, Charney, Noah, Jackson, Scott, Mullin, John, Kotval, Zenia, Brena, Sergio, **Civjan, Scott**, Carr, Ethan. “Issues and Methods for Transdisciplinary Planning of Combined Wildlife and Pedestrian Highway Crossings”. *Transportation Research Board Annual Meeting*. Washington D.C. January 2009.

Civjan, Scott A. (2005) “A New Corrosion Inhibitor for Concrete Construction” *Construction Materials: Third International Conference on Construction Materials Performance, Innovations and Structural Implications. ConMat’05*. Vancouver, British Columbia, Canada. Full Paper available on Conference CD

Bonczar, Christine H., Brena, Sergio F., **Civjan, Scott A.**, DeJong, Jason, Crellin, Benjamin and Crovo, Daniel, “Field Data and FEM Modeling of the Orange-Wendell Bridge”. *FHWA Conference on Integral Abutment and Jointless Bridges*. Baltimore, MD, March 2005. Pp. 163-173.

Bonczar, Christine H., Brena, Sergio F., **Civjan, Scott A.**, DeJong, Jason, and Crovo, Daniel, "Pile Behavior and Design – Field Data and FEM Studies" . *FHWA Conference on Integral Abutment and Jointless Bridges*. Baltimore, MD, March 2005. Pp. 174-184.

DeJong, Jason T., Howey, Daniel T., **Civjan, Scott A.**, Brena, Sergio F., Butler, David S., Crovo, Daniel S., Hourani, Nabil and Connors, Peter "Influence of Daily and Annual Thermal Variations on Integral Abutment Bridge Performance", American Society of Civil Engineers, *Geo-Trans Conference*, Los Angeles, CA. 2004. Pp. 496-505.

Civjan, Scott A., Brena, Sergio F., Butler, David A., and Crovo, Daniel S. "Field Monitoring of an Integral Abutment Bridge in Massachusetts" *Transportation Research Board*, Washington D. C. January 2004.

Civjan, Scott A., LaFave, James M., Trybulski, Joanna E., Lovett, Daniel, Lima, Jose, and Pfeiffer, Donald. "Effectiveness of Corrosion Inhibiting Admixture Combinations" *ACI Fall Convention*, Boston, MA, October 2003.

Civjan, S. A., and Singh, P. "Shear Stud Capacities Under Fully Reversed Cyclic Loading", Paper #404. *Seventh U.S. National Conference on Earthquake Engineering*, Boston, MA, July 21-25, 2002.

LaFave, J. M., Lovett, D., and **Civjan, S. A.**, "On the Use of Combinations of Durability Enhancing Admixtures (Mineral and Chemical) in Structural Concrete," *ACI Fall Convention*, Toronto, Ontario, Canada, October 15-21 2000.

Civjan, Scott A., Engelhardt, Michael D., and Gross, John L. "Slab Effects on Retrofit Steel Moment Connections", *6th ASCCS International Conference on Steel-Composite Structures*, Los Angeles, CA, March 22-24, 2000.

Civjan, Scott A., Engelhardt, Michael D., and Gross, John L. "Experimental Program and Proposed Design Method for the Retrofit of Steel Moment Connections", *12th World Conference on Earthquake Engineering*, Auckland, New Zealand, Jan. 30-Feb. 4, 2000.

Civjan, Scott A. "Instrument to Determine Prestress Remaining in a Damaged Bridge Girder", Proceedings of the 1998 *Structural Materials Technology Non-Destructive Testing Conference*, March 1998.

Civjan, Scott A. "Steel Moment Frame Connection Retrofit Project- Research in Progress (Preliminary Results)", Poster presentation at the *EERI Annual Meeting*, San Francisco, California, February, 1998.

Zobel, Robert S. and **Civjan, Scott A.** "Repair of Impact Damaged Prestressed Concrete Bridge Girders", *SEAoT State Conference*, Austin, Texas, 1994.

Other Presentations:

Invited Presentation: Civjan, S. A., Jackson, S. “Addressing Ecological Impacts and Transportation Vulnerability Associated with Road-Stream Crossings” Central Massachusetts Regional Planning Commission – Annual Environmental Consultation Meeting.. On-line seminar.

Invited Presentation: Civjan, S. A., Jackson, S. “Let’s talk culverts: Small Structures with Big Impacts” Baystate Roads. On-line seminar. Amherst, MA

Invited Poster: Civjan, S. A., Mendoza, M., Droesch, D., Wang, W. Grieco, J., Antoniadis, N. "Performance of Adhesive and Cementitious Anchorage Systems: MassDOT Project 12-7" Sweet 16 Awardee Invited Poster. *NE Transportation Consortium Symposium*. Concord, NH. June 2019.

Invited Poster: Civjan, S. A., Mendoza, M., Droesch, D., Wang, W. Grieco, J., Antoniadis, N. "Performance of Adhesive and Cementitious Anchorage Systems: MassDOT Project 12-7" Sweet 16 Awardee Invited Poster. *National Research Advisory Committee (RAC) and TRB State Representatives Meeting*. Santa Fe, NM. July 2019.

Invited Presentation: Civjan, S.A., Breña, S.F., “Bridge Field Monitoring Projects at UMass Amherst” *FHWA Task Group on Seismic Connections Scan Tour Meeting*. Cambridge MA. March 2012.

Invited Presentation: Breña, S.F., Civjan, S.A. and Singh, A. “Field Monitoring of an Integral Abutment Prestressed Concrete NEXT Beam Bridge in Massachusetts.” *PCI-Northeast: Bridge Tech Committee Meeting*. Publick House, Sturbridge, MA. June 2012.

Breña, S.F., **Civjan, S.A.,** Jeffrey, A. “Evaluation of Bridge Performance and Rating through Non-destructive Load Testing”, Vermont Agency of Transportation, Montpelier VT. November 2008.

Invited Presentation: Civjan, Scott, Brena, Sergio, and Bonczar, Christine “Integral Abutment Bridge Behavior Case Study and Parametric Analysis” Department Seminar Presentation at Northeastern University, March 2007.

Civjan, Scott A. and Brena, Sergio B. “FRP Applications in the Northeastern States”, Annual AASHTO Structures Meeting, Presentation to TC-6., June 27, 2005. Also Presented by Brena to MA (Jan 2005), NH (June 2005) and VT (Sept 2005) Departments of Transportation

Invited Presentation: Breña, S.F., Civjan, S.A., and Bonczar, C.H., “Response of an Integral Abutment Bridge under Temperature Changes” (in Spanish), Universidad Iberoamericana, October 24, 2005, Mexico City, Mexico.

Invited Presentation: “Seismic Behavior of Steel Connections, Including Reduced Beam Section (RBS) Design”, Tufts University Civil Engineering Seminar, October, 2004.

Civjan, Scott A., LaFave, James M. , Trybulski, Joanna E., Lovett, Daniel, Lima, Jose, and Pfeiffer, Donald. “Corrosion Inhibiting Admixture Testing at UMass” *ACI Committee 222 Presentation*, Boston, MA, October 2003.

Invited Presentation: Reduced Beam Section (RBS) Research: Problems in the Northridge Earthquake to Steel Moment Resisting Frame Connections”, Northeastern University Civil Engineering Lecture Series, October, 2002.

“Incorporating Structural Engineering in K-12 Curriculum” Invited special lecture for Educ 791L – Engineering for the Classroom” to 14 Middle School Teachers.

“Building Big Teacher Training” Co-trained (with Prof. Hancock of CEE) approximately 25 K-12 teachers on ways to incorporate Engineering in the classroom activities.

Civjan, Scott A. “Moment Connection Retrofit Project-Research in Progress”, Poster presentation at the STEER Conference, The University of Texas at Austin, May, 1997.

Civjan, Scott A. “Moment Connection Retrofit Project-Research in Progress”, Poster presentation at the EERI Annual Meeting, Austin, Texas, February, 1997.

Sample Project Topics:

FIELD MONITORING

“Monitoring Program for Three Innovative Bridge Concepts” Through the **MassDOT Accelerated Bridge Program** three innovative bridge concepts are being constructed. The three bridge types are a fiber reinforced plastic/concrete hybrid structure (“bridge in a backpack”), a prefabricated folded steel plate with concrete deck assemblage, and a newly developed precast section (NEXT Beam developed by PCI New England). The project involves development of an instrumentation plan including documentation of specification language and construction drawings, supervision during the installation of equipment and monitoring. Data will be collected from the construction sequence, live load test and long term data for each bridge.

“Performance Monitoring of Jointless Bridges” Three incrementally challenging integral abutment bridges in Vermont (straight, skewed and curved) are being monitored for three years for the **Vermont Agency of Transportation**. Development of the instrumentation plan, installation of equipment and monitoring were part of the project. Monitoring has included construction sequences, live load testing and seasonal thermal effects. Full finite element modeling of each structure is used to compare to field data and compare to design provisions.

“Behavior of Integral Abutment Bridges: Field Data and Computer Modeling” An investigation for the **Massachusetts Highway Department** monitored a 2 span integral abutment bridge for 3 years. This data was used to evaluate the design methods used for integral abutment structures. Extensive parametric Finite Element Modeling was used to evaluate the effects of design assumptions on structural behavior.

“Evaluation of Bridge Performance and Rating Through Non-destructive Load Testing” An investigation for the **Vermont Agency of Transportation**. The project load tested two damaged highway bridges in the field, one concrete and one steel. Readings were used to determine the load distribution and behavior under load in order to aid in future decisions for load rating of similar structures.

MATERIALS RESEARCH

“Performance of Adhesive and Cementitious Anchorage Systems” Current testing is evaluating the FHWA TP-84 test protocol for long term tension load capacity of post-installed anchor systems.

“Hycrete Research” Hycrete is a concrete admixture and application which is an environmentally friendly alternative for preventing corrosion of reinforcement in concrete structures. UMass Amherst has been at the forefront in investigating the effectiveness of the material. This has included work for the **New England Transportation Consortium** and an **Army Corp of Engineers** subcontract. Investigations have included long term laboratory testing of corrosion rates in concretes which include the admixture, materials testing of concretes including the admixture, evaluation of full scale mixture design (working extensively with ready-mix companies

to determine the acceptability of mixture proportions incorporating the admixture), field implementation in three infrastructure projects throughout New England and simulation of life expectancy comparisons between traditional concretes and those that include Hycrete.

“Evaluation of Corrosion Inhibiting Materials” Several projects are ongoing in this area. These range from evaluation of corrosion inhibiting properties of road applied anti-icing materials to the evaluation of chloride ingress data in field samples, to the expected rate of deterioration of concretes when products are introduced into mixture designs.

“Terrazzo Cracking” An investigation for the **Massachusetts Executive Office of Transportation**. The project evaluated the cause of cracking in terrazzo flooring placed in elevated walkway bridges. Repair methods and future methods of installation were proposed with the goal of introducing these recommendations into future specifications.

Advanced Composite Materials for New England’s Transportation Infrastructure: A Study for Implementation and Synthesis of Technology and Practice” An investigation for the **New England Transportation Consortium**. The project included a comprehensive survey of advanced composite materials use throughout New England and worked towards the implementation of these materials within the regional infrastructure.

“Performance Evaluation and Economic Analysis of Combinations of Durability Enhancing Admixtures (Mineral and Chemical) in Structural Concrete for the Northeast U.S.A.” An investigation for the **New England Transportation Consortium**. The project studied the effectiveness of concrete admixture combinations (single, double, and triple) in preventing corrosion of reinforcing steel. Accelerated corrosion testing was used as a basis of comparison. Previous studies had provided data on the effectiveness of single admixtures, but there was little information on combinations of admixtures as often specified by Highway departments.

CONNECTION RESEARCH

“Performance of Riveted Shear Connections” Connections were obtained from two Boston area structures being renovated. Connections were tested to evaluate their existing capacities under cyclic load. This information is being used to evaluate the seismic resistance of historic structures and guide engineers in calculations during structural renovations. Evaluations also included materials testing of sample rivets and steels.

“Seismic Energy Dissipation of Engineered Cladding Systems” The interaction between precast architectural cladding and steel structural systems was evaluated analytically. The use of engineered cladding attachments were investigated for their ability to alter the overall structural response, resulting in a reduction in earthquake damage.

“Reduced Beam Section” Through both experimental testing and finite element modeling the effects of RBS cutout dimensions on section capacity and performance have been evaluated.

WILDLIFE AND STRUCTURES

“Bat Roosting in New England Bridges” An assessment of bridges throughout New England for roosting potential was completed. The project evaluated a range of methods including tools, inspection forms and acoustic monitoring techniques.

“Wildlife Passage across Route 2 in Concord, Massachusetts” The project evaluated and completed preliminary design for a wildlife passage bridge structure. This was integrated with the overall project which evaluated wildlife regional and migration continuity needs.