**MARWA M. HASSAN, PhD, PE, LEED AP BD+C**

**Director** Tran-SET University Transportation Center

**President,** Construction Research Congress (CRC)

10408 Springridge Avenue 3092585091

Baton Rouge, LA, 70810 marwa@lsu.edu

**EDUC A T ION**

Virginia Polytechnic and State University**, Blacksburg, VA**  **2003**

**Ph.D.** in Environmental Design and Planning

Dissertation: “Framework for evaluation of active solar collection systems.”

**Cairo University**, Cairo, Egypt  1999

**M.S.** in Civil and Environmental Engineering (Materials)

Thesis: “Stiffness optimization of fibrous composite laminates.”

**American University in Cairo**, Cairo, Egypt  1996

**B.S.** in Construction Engineering.

Final Project: “Feasibility and life-cost analysis for using epoxies as a binder for steel bridge decks subjected to hot weather.”

**PROFESSIONAL EXPERIENCE**

* **Construction Education Trust Fund (CETF) Ethics** Distinguished Full Professor, Louisiana State University, LA, August 2016 - present.
* **Director**, Tran-SET University Transportation Center, Nov. 2016- Nov. 2022.
* **President**, Construction Research Congress, 2017-2018.
* **Vice President**, Construction Research Congress, 2016-2017.
* **Secretary,** Construction Research Congress, 2015-2016.
* **Construction Education Trust Fund (CETF) Ethics** Distinguished Associate professor, Louisiana State University, LA, January 2015 – July 2016
* **Performance Contractors** Distinguished Associate professor, Louisiana State University, LA, Aug 2013 – January 2015.
* **Performance Contractors** Distinguished Assistant professor, Louisiana State University, LA, January 2012– July 2013
* **Graduate Coordinator**, Louisiana State University, LA, 2012 – present.
* Assistant professor, Louisiana State University, LA, Aug 2010 – Dec. 2011
* **Performance Contractors** Distinguished Assistant professor, Louisiana State University, LA, Aug 2008 – July 2010
* Assistant professor, Louisiana State University, LA, Aug 2007 – July 2008
* **Assistant specialty Editor**, Construction Materials and Methods, Journal of Construction Engineering and Management, Jan 2013 – Present
* **Associate Editor**, Advances in Civil and Environmental Engineering Journal July 2013 – Present
* **Associate Editor**, Journal of Coating Science and Technology, August 2013 - Present
* **Assistant professor**, Bradley University, IL, January 2005 – July 2007
* **Post Doctorate/Lecturer**, Virginia Polytechnic and State University, Blacksburg, VA: June 2003 – December 2004.

**PROFESSIONAL REGISTRATION**

 P.E. (Civil Engineering - Geotechnical), State of Virginia, License # 0402042744

 LEED Accredited Professional Building Design and Construction, 2013 (LEED AP BD+C)

 Sloan C Certified online instructor. 2013.

 OSHA Certified instructor, Excavation Safety 2014.

**PATENT**

* 2015 **Hassan, Marwa**, and Kiletico\*,M., Patent Application Number 14/638180 “Energy Efficient Shingles”.
* 2014 **Hassan, Marwa**, and Kiletico\*,M., Provisional Patent Application 61/952515 “Method for the Manufacturing of Energy Efficient Shingles using TiO2 Coated Recycled Glass Cullet”.
* 2013 **Hassan, Marwa**, Provisional Patent Application 61/888767 “Method For The Manufacture of Energy Efficient Shingles Using Recycled Glass”

**HONORS A ND MEMBERSHIPS**

- Holder of the CETF Professorship, 2013-present.

- Nominated for Rain-Maker mid-Career Award, 2014.

- Outstanding Reviewer Award, ASCE Journal of construction Engineering and management, 2013.

- Nominated for LTRC Foundation Outstanding Young Researcher Award, 2011.

- Holder of the Performance Contractors Professorship, 2011-2013.

- Featured in the advocate newspaper, San Francisco Chronicles 2009, 2011.

- Architectural Research Centers Consortium King Medal, 2003-2004.

- Sigma Lambda Chi Beta Chapter Honorary Society in Construction 2002 – present.

- Member, Standing Committee on Basic Research and Emerging Technologies Related to Concrete, (TRB), AFN10, 2015-2017.

- Member, Nanotechnology Based Concrete Materials, (TRB), AFN15T, 2014-2015.

- Member, Portland Cement Concrete Pavement Construction, (TRB), AFH50, 2012-present.

- Member, ACS Chemical Society, 2013-present.

- Member, USGBC Louisiana Chapter, 2013-present.

- Member, emerging technologies in design & construction committee (TRB), 2004-present.

- Member, sustainable pavement subcommittee (TRB), 2010-present.

- Member, young member subcommittee (TRB), 2010-present.

- American Society of Engineering Education (ASEE), 2015, ASEE # 78271.

- American Society of Civil Engineering (ASCE), 2002 ASCE # 393099.

- American Society of Heating, Refrigeration, and Air Conditioning (ASHRAE) 2001.

- American Solar Energy Society (ASES) 2002.

- Participated in the communication across the curriculum, Summer 2008.

- Member, Construction Industry Institute, Academic Committee (CII), 2010-present.

**RESE A RCH IN TER E S T S**

- Advanced Sustainable materials

- Integration of nano materials in construction applications

- Sustainable construction (LEED, NAHB, Green Roads, Green Lites, etc.)

- Life cycle assessment

- Modeling and simulation of building energy performance

- Integration of solar engineering in construction

- Construction simulation

**TE A CHING INTERESTS**

- Construction Simulation

- Sustainable construction

- Civil and Construction materials

 - Soils/Geotechnical Engineering

- Building system integration

**TE A CHING EXPER IENC E**

At LSU, LA: **Assistant/Associate/Full Professor:**

– CM 3503: “Soils in Construction.”  Spring 2015

– CM 7213: “Advanced Soils in Construction.”  Fall 2012, Fall 2014

– CM 4206: “Soils in Construction.”  Fall 2012

– CM 3400: “Construction Materials.”  Fall 2007, 2008, 2010 Spring 2008, 2009

– IE 7722: “Sustainable Construction.”  Fall 2008.

– CM 4203: “Sustainable Construction.”  Spring 2009.

– CM 3121: “Construction Estimating.”  Fall 2009.

– CM 4200: “Construction Administration.”  Spring 2010.

– IE 7722: “Construction Simulation.”  Spring 2011.

At Bradley University, IL: **Assistant Professor:**

– CE 537: “Construction Simulation.”  Spring 2005

– CE 592: “Construction Contract Administration.”  Spring 2005

– CON 124: “Emerging technologies in design and construction.”  Spring 2006

– CE 356: “Pavement Design.”  Spring 2005

– CON 224: “AutoCAD.”  Fall 2005, Fall 2006

– CE 590: “Project and Company Management.”  Fall 2005

– CE 591: “Sustainable construction.”  Spring 2006

Virginia Polytechnic and State University, Blacksburg, VA:

**Instructor** – BC 2114: “IT in Design and Construction.”  2004

**Assistant Lecturer** – BC 1224: “Introduction to Building Construction & Lab.”  2003

**Assistant Lecturer** – BC 2024: “Construction Principles II.”  2003

**Assistant Lecturer** – BC 4014: “Building System Technology II.”  2003

**Teaching Assistant** – BC 1214 in “Intro. To Building Construction.”  2001 Collaborated on curriculum and exam development, met with students upon request, and graded all written work, including final exams.

**RESEARCH EXPER IENCE**

**Professor, Louisiana State University, LA, Aug 2007 – Present**

25 projects were funded, 18 of which I serve as a PI, and Six where I serve as a Co-PI totaling $17, 542,039 split between $16,630,947 coming from Federal and international sources and $911,092 coming from state, foundations and industry.

*Current and Past Funded Research Projects:*

1. "Transportation Consortium of South-Central States (Tran-SET) ", sponsored by DOT OST-R, (PI), $14.25 million. 11/30/2016-11/30/2022.
2. "A Decision-Making Tool for Incorporating Sustainability Measures into Pavement Design", sponsored by LTRC, (PI), $155,686. 08/01/2016-07/31/2018.
3. "Reuse and Recycling of Drill Cuttings in Concrete Applications” for funding", sponsored by CIRS, (PI), $33,000. 07/20/2015-07/19/2016.
4. "Development of A Simple Tool To Design Energy-Efficient, Low-Emission, And Cost Effective Commercial Buildings", sponsored by QNRF (Qatar National Research Foundation), (PI), $812,607.50. LSU share $130,916. 7/01/2015-6/30/2018.
5. "Mimicking Self-Healing Mechanisms of Living Organisms in Reinforced Concrete Structures", sponsored by QNRF (Qatar National Research Foundation), (PI), $866,537.38. LSU share $250,421. 11/01/2013-10/31/2017.
6. "Acquisition of a Strong Reaction Floor for Large-scale Testing of Coastal Infrastructure Systems", sponsored by BOR Enhancement, (Co-PI), $125,000. 06/01/2013-05/31/2014.
7. "Novel Method for Recycling of Glass Cullet in Roof Shingles to Alleviate Thermal Loads and Heat Island Effects", sponsored by FIER, (PI), $27,402. 07/01/2013-06/31/2014.
8. "Analyzing Traffic Layout Using Dynamic Social Network Analysis", sponsored by NCITEC, (Co-PI), $81,507. 07/01/2012-12/31/2013.
9. "Investigation of Best Practices for Maintenance of Concrete Bridge Railings", sponsored by Louisiana Transportation Research Center (LTRC), (PI), $35,000. 07/01/2012-06/31/2013.
10. "Support Study for Evaluation of Warm Mix Asphalt Technology in Flexible Pavements", sponsored by LTRC, (PI), $5,576.0. 07/01/2012-12/31/2012.
11. "Collaborative Research: Virtual Laboratory for Engineering and Applied Sciences Education (EASE)", sponsored by National Science Foundation (NSF), TUES-Type 1, (PI), $254,151, LSU share $68,621. 06/01/2012-05/31/2014.
12. "Photocatalytic Pervious Concrete for Ambient Air purification and Water Quality Improvements", sponsored by Louisiana Transportation Research Center (LTRC), (PI), $30,000. 07/01/2011-06/31/2012.
13. "Improving the self-healing properties of concrete materials by using composite action with fiber reinforced polymers and shape-memory alloys", sponsored by UTC, (Co-PI), 98,960. 10/01/2011-09/30/2012.
14. "Field and Laboratory Investigation of Photocatalytic Pavements", sponsored by UTC, (PI), 72,233. 10/01/2010-09/30/2011.
15. "NSF: A New Approach to Recycle Asphalt Shingles in Hot Mix Asphalt", sponsored by NSF, (Co-PI), 163,952. 10/01/2010-09/30/2013.
16. "TGEF: Invited Presentation: Effect of ultrafine/nano titanium dioxide on the performance grade of asphalt binders", sponsored by Board of Regents - TGEF, (PI), $1,200. Summer 2010
17. 10."EAGER: A Breakthrough Concept in the Preparation of Highly-Sustainable Asphalt Mixtures", sponsored by NSF, (PI), 31,000. 07/01/2010-06/30/2011.
18. "Quantification of SOx purification capabilities of Concrete Pavements Coated with Ultrafine/nano Titanium Dioxide", sponsored by Board of Regents/NSF - PFUND, (PI), $10,000. 07/01/2010-06/30/2011.
19. "Evaluation of the thermal performance and cost effectiveness of radiant barrier thermal insulation materials in residential construction", sponsored by Board of Regents - ITRS, (PI), $75,500. 06/01/2009-06/30/2012.
20. "Use of Ultrafine/nano Titanium Dioxide to Improve Performance and Air Purifying Capabilities of Concrete Pavements", sponsored by Louisiana Transportation Research Center (LTRC), (PI), $29,985. 07/01/2009-06/30/2010.
21. "A Heterogeneous-Based Modeling Approach to Describe the Constitutive Behavior of Asphalt Concrete", sponsored by Board of Regents - RCS, (Co-PI), $119,243. 06/01/2009-06/30/2012.
22. "Evaluation of the effectiveness of balloon lighting system as a solution for glare in nighttime highway construction", sponsored by LSU's office of research and economic development, (PI), $10,000. 07/01/2008-06/30/2009.
23. "Development of Patentable Intellectual Property for an integrative low cost solar collection system", sponsored by Longwell Family Foundation Fund for Innovation in Engineering Research, (PI), $32,500. 01/01/2008-12/31/2008.
24. "Nighttime Construction: Evaluation of Lighting Glare for Highway Construction in Illinois", sponsored by IDOT (Co-PI). As part of this project, acceptable levels of glare and trespass light will be determined $216,000. 01/01/2006-12/31/2008.
25. "Evaluation of Construction Productivity of the I74 Project", sponsored through the Caterpillar Fellowship (PI). In this research project, discrete-event simulation techniques are used to determine the optimum construction strategies that would improve the productivity of the on-going reconstruction of the I74 project (Phase III). $5,000. 01/01/2005-12/31/2006

**Research Faculty, Virginia Tech, Blacksburg, VA, 2003 – Dec. 2004**

- Submitted research proposals related to utilization of renewable energy in building to potential sponsors (e.g., National Science Foundation)

- Part of a research team experimentally testing and documenting the performance of

O/M solar collection system Conducted research related to reducing energy consumption of buildings

- Created simulation models to predict building performance

**Graduate Research Assistant, Virginia Tech, Blacksburg, VA, 2002**

*Research Activities:*

- Effectiveness of integrated solar energy collection systems using finite element analysis and building simulators such as Energy Plus and DOE2

- Improve the reliability of weather data using Monte Carlo Simulation and statistical tools

- Evaluate the feasibility of using different materials in building construction

- Helped prepare a National Science Foundation proposal related to utilization of solar energy in residential buildings

**Internship, Permatile Concrete, Bristol, VA, 2000**

- Supervised precast concrete activities

- Performed Quality control testing

- Site visits to ensure proper construction of the precast concrete elements

**Production Line Manager, Procter and Gamble, Cairo, Egypt, 1999**

- Supervised and monitored 40 technicians

- Responsible for training programs, and promotions

- Conducted daily line inspections

- Responsible for maintenance, and line operation to achieve the daily production plans

- Implemented an international safety program on the production line

**Head of Technical Office, Ciba Specialty Chemicals, Cairo, Egypt, 1998**

- Responsible for materials specifications

- Technical support to costumers

- Site visit inspection to ensure proper material installation

**Assistant Project Manager, AAW Consulting Firms, Cairo, Egypt, 1997**

- Responsible for creating and updating project schedules

- Cost update and control

- Helped prepare tender documents for a water-treatment plant project

- Supervised some of the construction activities in a water treatment plant project

**STUDEN T S U PERV I SED (GRA DU A T ED 2 PHD A ND 12 MASTERS)**

|  |  |  |  |
| --- | --- | --- | --- |
| *UG, MS, or PhD* | *Completion**Date* | *Names of Students**Supervised* | *Title* |
| PhD | 05/2021 | Sujata Subedi | Quantifying pavement sustainability during the use phase |
| PhD | 01/2019 | Max Aguirre Deras | Performance evaluation of Self-healing Asphalt Pavements |
| PhD | 05/2020 | Hassan Noorvand | Cost Effective Engineered Concrete Composites for high performance concrete |
| PhD | 05/2019 | Sharaeh Shirzad | Micro-Encapsulation of Bio-based Asphalt Rejuvenators |
| PhD | 12/2017 | Neveen Talaat Soliman | A Decision-Making Tool for Incorporating Sustainability Measures into Concrete Pavement Design |
| PhD | 08/2017 | Luis Bonilla(Graduated) | Integration of SMA and self-healing microcapsules to enhance concrete durability |
| PhD | 05/2017 | Gabriel Acre(Graduated) | Characterization of self-healing processes in concrete |
| PhD | 05/2017 | Jose Milla(Graduated) | Calcium nitrate microcapsules for self-healing concrete |
| PhD | 05/2013 | Heather Dylla (Graduated) | Quantification of the Environmental Impact of Titanium Dioxide Photocatalytic Pavements for Air Pollution Remediation |
| PhD | 05/2012 | Somayeh Asadi (Graduated) | Evaluation of effectiveness and efficiency of radiant barrier insulation in residential |
| MSCM | 05/2018 | Maziar Foroutan | Reuse and Recycling of Drill Cuttings in Concrete  |
| MSCM | 05/2019 | Sujata Subedi  | Non thesis masters |
| MSCM | 05/2018 | Sharaeh Shirzad | Non thesis masters |
| MSCM | 05/2018 | Hassan Noorvand | Non thesis masters |
| MSCM | 05/2016 | Gabriel Acre(Graduated) | Non thesis masters |
| MSCM | 12/2016 | Luis Bonilla(Graduated) | Non thesis masters |
| MSCM | 01/2016 | Max Aguirre Deras(Graduated) | Micro-Encapsulation of Asphalt Rejuvenators using Melamine-Formaldehyde  |
| MSES | 05/2015 | Jose Milla(Graduated) | Non thesis masters |
| MSES | 05/2011 | Somayeh Asadi (Graduated) | Non thesis masters |
| MSES | 05/2011 | Heather Dylla (Graduated) | The Effects of Highway Environmental Conditions on Photocatalytic Pavement Ability to Reduce Nitrogen Dioxides |
| MSES | 05/2012 | David Osborn (Graduated) | Quantification of nitrate concentration in storm water as a result of photocatalytic pavements |
| MSES | 06/2012 | James Gilford (Graduated) | Micro-encapsulation of self-healing concrete properties |
| MSES | 05/2013 | Aaron Lodge (Graduated) | Quantification of Binder Variability in recycled asphalt shingles |
| MSES | 05/2014 | Angel Lence (Graduated) | Benchmarking of Best Practices for Maintenance of Concrete Bridge Railings against mold and mildew growth |
| MSCM | 05/2014 | Micah Kiletico(Graduated) | Recycling of glass cullets in asphalt shingles |
| UG | 05/2011 | Daniel Lundsford (Graduated) | Field efficiency of photocatalytic pavements |
| UG | 05/2011 | Troy Thomspon (Graduated) | Lab evaluation of photocatalytic efficiency of warm mix asphalt pavements |

**MSCM Online STUDEN T S UPERVISED**

1. ***Michael Batsche***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2014.
2. ***Michael Degruy***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2015.
3. ***Jerome Maddox***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2015.
4. ***Aaron Partrich***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2015.
5. ***Harrison Rogers***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2015.
6. ***Jay Tanjuan***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2015.
7. ***Melvin Mcelwee***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. August 2015.
8. ***Troy Callahan***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. August 2015.
9. ***Jasmin Richardson***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. August 2015.
10. ***Jared Tomaszewski***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. August 2015.
11. ***Hudleston, Ronald***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. August 2015.
12. ***Abedi, Kwabena***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. August 2016.
13. ***lien, Jason***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. August 2016.
14. ***leaker, Ben***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. August 2016.
15. ***Beck, Zachary***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2015.
16. ***Beckworth, Daniel***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2016.
17. ***Banks, Travis***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2015.
18. ***Berryman, Christina***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2016.
19. ***Brewer, Stacey***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2016.
20. ***Edwards, James***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2016.
21. ***Ellis, Lorenzo***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. August 2016.
22. ***Evan, Anthony Davidson***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. August 2016.
23. ***Galin, Jessica***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2016.
24. ***Hardy, Nick***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2016.
25. ***Jimenez, DaFrilia***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2015.
26. ***Karwick, Ryan***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2016.
27. ***Landry, Garry***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2015.
28. ***Miller, Jared***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. August 2016.
29. ***Miller, Jay***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2016.
30. ***Nowell, Andre***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2015.
31. ***Oberlander, Robert***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2017.
32. ***Peltz, Jonathon***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. August 2016.
33. ***Reitz, Anthony Scott***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2016.
34. ***Renfrow, Philip***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2015.
35. ***Richey, William***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2015.
36. ***Scallan, Debra***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2016.
37. ***Schissel, Amy***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2016.
38. ***Sears, Russell***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2017.
39. ***Smith, J Douglas***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2016.
40. ***Sonnier, Linda***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2016.
41. ***Thobe, Robert***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2015.
42. ***Trueman, Scott***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. May 2016.
43. ***Valenzuela, David***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2015.
44. ***Williams, Leonard***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2015.
45. ***Young, Wesley***. M.S. in Construction Management. Non Thesis Masters. Professional Degree. December 2015.

**JOURN A L PUBLIC A T IONS (\* INDIC A TES GR A D U A T E STUDENT CO- A UTH O RS, \* \* INDIC A TES UNDERGR A D U A T E STUDENT CO- A UTH O RS)**

1. Milla, J. \*, Hassan, M., and Rupnow, T., (2017) “Evaluation of Self-Healing Concrete with Microencapsulated Calcium Nitrate.” ASCE Journal of Materials in Civil Engineering, In press.
2. Al-Ansari, M., Abu Taqa, A., Hassan, M., Senouci, A. \*, and Milla, J., (2017) “Performance of Self-Healing Concrete with Calcium Nitrate Microencapsulation.” Construction and Building Materials, In press.
3. Bonilla, L\*, Hassan, M., Noorvand, H. \*, Rupnow, T., and Okeil, A., (2017) “Self-Healing Evaluation of Reinforced Concrete Beams with Calcium Nitrate Microcapsules.” Paper # 17-00603, Journal of Transportation Research Record (TRR), In press.
4. Shirzad, S. \*, Hassan, M., Aguirre, M\*, Mohammad, L., Cooper, S., and Negulescu, (2017) “Microencapsulated Sunflower Oil for Rejuvenation of Asphalt Mixtures.” Journal of Materials in civil engineering, In press.
5. Aguirre, M\*, Hassan, M., Shirzad, S. \*, Mohammad, L., Cooper, S., and Negulescu, I., (2017) “Performance of Asphalt Rejuvenators in Hot Mix Asphalt Mixtures Containing Recycled Asphalt Shingles.” Paper # 17-00574, Journal of Transportation Research Record (TRR), In press.
6. Aguirre, M\*, Hassan, M., Shirzad, S. \*, Mohammad, L., Cooper, S., and Negulescu, I., (2017) “Laboratory Testing of Self-Healing Microcapsules in Asphalt Mixtures Prepared with Recycled Asphalt Shingles.” Paper # MTENG-5460R1, ASCE: Journal of Materials in civil engineering, In press.
7. Arce, G., \*, Hassan, M., Mohammad, L., and Rupnow, T., (2017) “Characterization of Self-Healing processes induced by Calcium Nitrate Microcapsules in Cement Mortar.” Paper # MTENG-4503, ASCE: Journal of Materials in Civil Engineering, Vol. 29 No. 1: 1-10.
8. Mohammad, L. \*, Hassan, M., and Kim, M., (2017) “Effects of Paver Stoppage on Temperature Segregation in Asphalt Pavements.” ASCE: Journal of Materials in Civil Engineering, Vol. 29 No. 2: 1-7.
9. Shirzad, S. \*, Hassan, M., Aguirre, M., and Mohammad, L., (2016) “Evaluation of Sunflower Oil as a Rejuvenator and its MicroEncapsulation as a Healing Agent.” ASCE: Journal of Materials in Civil Engineering, Vol. 28 No. 11:1-9.
10. Hassan, M., Milla, J. \*, Rupnow, T., Al-Ansari, M., and Daly, W., (2016) “Micro-Encapsulation of Calcium Nitrate for Concrete Applications.” Paper # 16-0421, Journal of the Transportation Research Record, National Research Council, No. 2577, pp. 8-16.
11. Milla, J. \*, Hassan, M., Rupnow, T., Al-Ansari, M., and Arce, G., (2016) “Effect of Self-Healing Calcium Nitrate Microcapsules on Concrete Properties.” Paper # 16-0422, Journal of the Transportation Research Record, National Research Council, No. 2577, pp. 69-77.
12. Raghavendra, A., Medeiros, M., Hassan, M. M., Mohamed, L., and King, B., (2016). “Laboratory and Construction Evaluation of Warm-Mix Asphalt” ASCE: Journal of Materials in Civil Engineering, Vol. 28, No. 7: 04016023-1-9.
13. Aguirre, M., \*, Hassan, M., Daly, W., and Mohammad, L., (2016) Micro-Encapsulation of Asphalt Rejuvenators using Melamine-Formaldehyde.” Journal of construction and Building material, Elsevier, Vol. 114, No. 1: 29-39.
14. Asadi, A., Hassan, M., Beshesti, A., and Berryman, C., (2015). “Quantification of Residential Energy Consumption Reduction using Glass-Modified Asphalt Shingle” ASCE: Journal of Architectural Engineering, Vol. 21, No. 4: 04015035-1-6.
15. Mostavi, E.,\* Asadi, S.,\* and Hassan, M., Al-Ansari, M., (2015). "Evaluation of Self Healing Mechanisms in Concrete with Double Walled Sodium Silicate microcapsules." ASCE: Journal of Materials in Civil Engineering, Vol. 27, No. 12: B4015003-1-8.
16. Nadiri, A., Hassan, M. M., and Asadi, S., \*, (2015). "Supervised Intelligence Committee Machine to Evaluate Field Performance of Photocatalytic Asphalt Pavement for Ambient Air Purification." Paper # 15-1664, Journal of the Transportation Research Record, National Research Council, No. 2528, pp. 96-105.
17. Kiletico, M. \*, Hassan, M. M., Alvergue, A., and, Mohammad, L., (2015). " A New Approach to Recycle Glass Cullet in Asphalt Shingles to Alleviate Thermal Loads and Reduce Heat Island Effects." ASCE Journal of Materials in civil engineering, ASCE journal of Materials in Civil Engineering, Vol. 27, No. 8: 04014219-1-9.
18. Mohammad, L., Hassan M., Vallabhu , B. \*, and Kabir S., (2015). “Louisiana’s Experience with WMA Technologies: Mechanistic, Environmental, and Economic Analysis.” ASCE journal of Materials in Civil Engineering, Vol. 27(6): 0414185-1-13.
19. Hassan, M. M., Kiletico, M. \*, and Asadi, A., (2015). "Glass modified asphalt shingles for mitigation of urban heat island effect." Cityscape: A Journal of Policy Development and Research, Vol. 17(1): 247-252.
20. Dylla, H.\*, Hassan, M. M., and Thibodeaux, L., (2014). “Kinetic Study of Photocatalytic Degradation of Nitrogen Monoxide using Concrete Pavements” Paper # 14-2717, Journal of the Transportation Research Record, No. 2441, Concrete Materials 2014, National Research Council, ISSN:0361-198, pp. 38-47.
21. Dylla, H. \*, and Hassan, M. M., (2014). “Effect of vehicle classification and activity on photocatalytic concrete pavements' ability to remove nitrogen oxides-A case study.” International Journal of Pavement Research and Technology, Vol. 7 (5):369-375.
22. Asadi, S. \*, Hassan, M. M., Kevern, J., and Rupnow, T., (2014) “Nitrogen Oxide Reduction and Nitrate Measurements on TiO2 Photocatalytic Pervious Concrete Pavement” International Journal of Pavement Research and Technology, Vol. 7 (4):273-279.
23. Ying, H.\*, Elseifi M., Mohammad L., and Hassan, M. M., (2014). “Heterogeneous Finite Element Modeling of the Dynamic Complex Modulus Test of Asphalt Mixture Using X-ray Computed Tomography.” ASCE journal of Materials in Civil Engineering, Vol. 26, No. 9: 04014052.
24. Hassan M., Lence, A., \*, Rupnow, T., and Zayor, A. \*, (2014). “Best Practices for Preventative Maintenance against Mold and Mildew Growth of Concrete Bridge Elements.” International Journal of Bridge Engineering, Vol. 2, No. 1: pp. 53-72.
25. Asadi, S. \*, Hassan, M. M., and Nadiri, A., Dylla, h., (2014). “Artificial Intelligence Modeling to Evaluate Field Performance of Photocatalytic Asphalt Pavement for Ambient Air Purification.” Environmental Science and Pollution Research, Springer, Volume 21 Issue 14, pp. 8847 - 8857.
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66. Hassan, M. M. (2009). “Life-Cycle Assessment of Titanium Dioxide coatings.” Building a sustainable future, Proceedings of the 2009 construction research congress, Seattle, ASCE, Vol. 2, 836-843.
67. Hassan, M. M. and Beliveau, Y., (2009). “Performance testing of an Integrated Solar Collector System.” Building a sustainable future, Proceedings of the 2009 construction research congress, Seattle, ASCE, Vol. 1, 568-577.
68. Nahmens, I. and Hassan. M M., (2008). “Exploring Skilled Workforce Shortage in the Homebuilding Industry.” Annual Conference of the Housing Education and Research Association. Indianapolis, IN.
69. Hassan, M. M., Elseifi, M. Wakim, J\*, and Elrayes, K. (2008). “Evaluation of Pavement Reflectance Characteristics for a Balloon Lighting System.” Paper No. 08-0522 Accepted for Presentation at the 87th Transportation Research Board, National Research Council, Washington, D.C.
70. Hassan, M. M. (2008). “Developing a LEED specification for design and construction of flexible pavements.” Proc., 44th Annual Conference of the Assorted Schools of Construction, Auburn, Alabama.
71. Hassan, M. M., Gruber S., (2007). “Estimation of concrete paving construction productivity using discrete event simulation.” Proc., 43th Annual Conference of the Associated Schools of Construction, Flagstaff, Arizona.
72. Hassan, M.M. (2007). “A Methodology to select environmentally friendly construction Materials.” Proc., 43th Annual Conference of the Associated Schools of Construction, Flagstaff, Arizona.
73. Hassan, M. M., and Gruber, S. (2007). “Evaluation of Asphalt Paving Operations on Interstate-74 Using Discrete-Event Simulation.” Paper No. 07-1087 Accepted for Presentation at the 86th Transportation Research Board, National Research Council, Washington, D.C.
74. Hassan, M.M. (2006). “Use of Real Life Construction Projects as an Effective Tool for Teaching Construction Simulation.” Proc., 42th Annual Conference of the Associated Schools of Construction, Fort Collins, Colorado.
75. Beliveau, Y., and Hassan, M.M. (2003). “Designing an integrated low-cost solar collection system.” Proc., 39th Annual Conference of the Associated Schools of Construction, Clemson, SC.
76. Hassan, M.M., and Beliveau, Y. (2003). “Performance evaluation of a solar system consisting of a building integrated solar thermal roof collector and a phase change material thermal storage.” Proc. of Solar 2003, Austin, TX.
77. Hassan, M.M., Beliveau, Y., Thomas, J., and Jones, J. (2003). “Finite element modeling of a specially design solar roof.” Proc., Hawaiian International Conference on arts and Humanities, Honolulu, HI.

**INVITED P R E S ENTAT I ONS (\*I N D I CATE S ST UDENT CO-AUTHORS)**

1. Hassan, M.M. (2014). “Sustainability and the Next Generation Panel.” **Invited Presentation** made at the NAPA Asphalt Sustainability Conference, New Orleans, LA.
2. Hassan, M.M. (2013). “Use of Photocatalytic Pavements For Outdoor Air Purification.” **Invited Presentation** made at the NSF/SFS Workshop Agenda, Baton Rouge, LA.
3. Hassan, M.M. (2013). “Durability and Performance of Titanium Dioxide In Photocatalytic Pavements.” **Invited Presentation** made at the 2013 Louisiana Transportation Conference, Baton Rouge, LA.
4. Hassan, M. M., (2013). “Evaluation of the Photocatalytic Efficiency of Nano-TIO2- Modified Pavements Integrated within Concrete, Pervious concrete and concrete Curing Compounds.” **Invited Presentation** made at the 2013 Transportation Research Board Annual meeting, National Research Council. DC.
5. Hassan, M.M. (2011). “Photocatalytic Pavements.” **Invited Presentation** made at the 2011 Louisiana Transportation Conference, Baton Rouge, LA.
6. Hassan, M.M., Mohammad L., Cooper, S.\*, and Dylla, H.\*, Mohammad L., (2010). “Effect of ultrafine/nano titanium dioxide on the performance grade of asphalt binders.” Second International Conference on Construction in Developing Countries (ICCIDC–II), **Invited presentation**.
7. Hassan, M.M. (2010). Evaluation of the Environmental Effectiveness of Titanium Dioxide Photocatalyst coating for concrete pavements. **Invited Presentation** made at the 2010 Louisiana Transportation Conference, Baton Rouge, LA.
8. Hassan, M.M. (2010). Effect of Application Methods on the Effectiveness of Titanium Dioxide as a Photocatalyst Compound to Concrete Pavement. **Invited Presentation** made at the made at the 2010 Louisiana Transportation Conference, Baton Rouge, LA.
9. Hassan, M.M. (2009). Life-Cycle Assessment - An Environmental and Economic Perspective. **Invited Presentation** made at the 2009 Green Build Conference, Baton Rouge, LA.
10. Hassan, M.M. (2009). Environmental Evaluation of Warm-Mix Asphalt using Life- Cycle Assessment. **Invited Presentation** made at the 2009 Louisiana Transportation Conference, Baton Rouge, LA.

**REFE REED A B ST RA CT S (\* I N DI CA TES STUDE N T CO -A UT HO R S )**

1. Hassan, M. M., and Okeil, A., (2013). “Microencapsulation for Self-Healing of Concrete.” Presented at the 2013 Qatar Foundation Annual Research Conference (QF-ARC) Qatar November 24-25.
2. El-adaway, Islam, Eric Vechan, and Marwa Hassan “Transportation Network Congestion Mitigation Using Dynamic Social Network Analysis”, (2013) University Transportation Center Conference for the Southeastern Region, Southeastern Transportation Research, Innovation, Development, and Education Center, Gainesville, Florida, United States.
3. El-adaway, Islam, Eric Vechan, and Marwa Hassan, “Sustainability of Transportation Systems using Dynamic Social Network Analysis”, 2013 Engineering Sustainability: Innovation and the Triple Bottom Line , Mascaro Center for Sustainable Innovation at the University of Pittsburgh and the Steinbrenner Institute for Environmental Education and Research at Carnegie Mellon University, Pennsylvania, United States.
4. Asadi, S. \*, and Hassan, M. M., (2013). “Exposure to nanoparticles in Asphalt and Concrete Laboratory.” Accepted for presentation at the 2013 Texas Section Spring Conference and Centennial Celebration, Corpus Christi, Tx.
5. Dylla, H.\*, Hassan, M.M., and Thibodeaux, L. (July2012). “Photocatalytic Degradation of Emitted NO Using Asphalt Pavements” Presented at 15th International Congress on Catalysis, Munich, Germany. July 1-July. 6, 2012.
6. Dylla, H.\*, Hassan, M. M., and Thibodeaux, L., (2012). “Photocatalytic Degradation of Emitted NO Using Asphalt Pavements.” Paper #8016, Paper accepted for presentation at the 15th International Congress on Catalysis 2012, Munich Germany, July 1-6.
7. Asadi, S.\*, Hassan, M., and Beheshti, A.\* (2011). "On the Performance Analysis of Attic Radiant Barrier Using Transient Finite Element Model". 61st Institute of Industrial Engineers Annual conference Industrial Engineering Research Conference (IERC): Construction Track, Invited presentation, RENO, NV. May 21-25.
8. Asadi, S.\*, and Hassan, M, and Beheshti, A.\* (2011). "Finite Element Analysis of Attic Radiant Barrier Insulation system performance in Residential Buildings." Engineering Sustainability 2011: Innovation and the Triple Bottom Line Conference, 2011, Pittsburgh, PA, April 10-12.
9. Hassan, M. M. Dylla, H.\*, Rupnow T, and. Wright E, (2010). “Use of ultrafine/nano TiO2 Photocatalyst Coating for Concrete Pavement to Reduce Sulfur Dioxide Concentration in Ambient Air”. Paper Accepted for presentation at the T&DI/ASCE Green Streets and Highways, ASCE, Denver, Co. Nov 14-Nov. 17.
10. Dylla, H.\*, Hassan, M., and Nahmens, I. (2009). "The role of nanotechnology in construction: A route towards sustainable heavy civil construction materials." Engineering Sustainability: Innovations that Span Boundaries, Pittsburgh, PA.

**TECH N I C A L R E POR T S (\*I N DIC A TES STUDENT C O -AUTHO RS )**

1. Hassan, M. M., (2014). "Production, Characterization and Selection of Self-healing materials and shape memory alloys," Interim Research Report, QNRF.
2. Hassan, M. M., (2013). "Investigation of Best Practices for Maintenance of Concrete Bridge Railings," Research Report State Project 30000660, Final report 532, FHWA/LA. 13/532, Louisiana Transportation Research Center, Baton Rouge, LA.
3. Hassan, M. M., and Mohammad, L., (2013). Collaborative Research: Virtual Laboratory for Engineering and Applied Sciences Education (EASE)," Research Report NSF Award ID: 1140549, Annual report: 1140549, National Science Foundation, DC.
4. Hassan, M. M., and Asadi, S.\*, (2012). "Evaluation of the Thermal Performance and Cost Effectiveness of Radiant Barrier Thermal Insulation Materials in Residential Construction," Final Research Report State Project LEQSF (2009-11)-RD-B-02, Louisiana Board of Regents, Baton Rouge, LA.
5. Hassan, M. M., and Asadi, S.\*, (2012). "Photocatalytic Pervious Concrete for Ambient Air purification and Water Quality Improvements," Research Report State Project 30000309, Louisiana Transportation Research Center, Baton Rouge, LA.
6. Elseifi, M., Hassan, M. M., and Mohammad, L., (2011). A New Approach to Recycle Asphalt Shingles in Hot Mix Asphalt," Research Report NSF Award ID: 1030184, Annual report: 1030184, National Science Foundation, DC.
7. El-Rayes, K., Liu, L.Y., Elseifi, M.A., Pena-Mora, F., Hassan, M., Boukamp, F., and Odeh, I.\* (2007). “Nighttime Construction: Evaluation of Lighting Glare for Highway Construction in Illinois,” Research Report FHWA-ICT-08-014, Illinois Center for Transportation, Urbana, IL.
8. Hassan, M., and Dylla, H.\*, (2010). “Use of Titanium Dioxide to Improve Performance and Air Purifying Capabilities of Concrete Pavements,” Research Report State Project 736-99-1646, Louisiana Transportation Research Center, Baton Rouge, LA.
9. Hassan, M., and Okeil, A., (2011). “Field and laboratory investigation of photocatalytic pavements,” Research Report, GCCETR, Baton Rouge, LA.
10. Hassan, M., and Dylla, H.\*, (2010). “Quantification of SOx purification capabilities of concrete pavements coated with ultrafine/nano titanium dioxide,” Research Report NSF(2010)-PFUND-178, Board of Regents, Baton Rouge, LA.
11. Hassan, M., (2011). “EAGER: A Breakthrough Concept in the Preparation of Highly- Sustainable Asphalt Mixtures,” Research Report NSF **Award ID:** 1032288, Final report: 1032288, National Science Foundation, DC.
12. Hassan, M., and Asadi, S.\*, (2011). “Evaluation of the Thermal Performance and Cost Effectiveness of Radiant Barrier Thermal Insulation Materials in Residential Construction,” Research Report State Project LEQSF (2009-11)-RD-B-02, Louisiana Board of Regents, Baton Rouge, LA.

**B OOK CH APTER**

1. Hassan, M. M., (2008). “An integrated design methodology for evaluating the energy efficiency performance of buildings with active solar collection systems.” Book Chapter-Energy Efficiency Research Advances. Nova Publishers. ISBN: 1-60021-880-6.

**RE SEA R C H EXPERIE N CE S A N D C O M P UTE R S K ILLS**

- Extensive experience with construction simulation tools such as Stroboscope and

Ezstrobe

- Extensive experience with building simulation tools as well as implementation of solar energy collection methods in residential and commercial buildings to reduce reliance on nonrenewable energy sources

- Successfully passed the NCAT professor training in Auburn, Alabama

- Extensive experience with building materials including Portland cement concrete, wood, bamboo, and fiber-reinforced composite materials and their applications in construction

- Familiar with Non Destructive Techniques (NDE) for assessment of existing building condition

**Computer Skills:**

AutoCAD, Stroboscope, EZStrobe, SAS, StatView, Excel, Word, Power Point, Fortran, Energy Plus, DOE2, BLAST, F-Chart, Primavera, Microsoft Project, 3D Studio, Abaqus, ABAQUS CAE.

**ADMIN S TRATIVE APP O INTMEN TS**

* **President**, Construction Research Congress, 2017-2018.
* **Vice President**, Construction Research Congress, 2016-2017.
* **Secretary,** Construction Research Congress, 2015-2016.
* **Graduate Coordinator**, Louisiana State University, LA, 2012 – present.
* **Associate Editor**, Advances in Civil and Environmental Engineering Journal July
	+ 2013 – Present
* **Assistant specialty Editor**, Construction Materials and Methods, Journal Construction Engineering and Management, Jan 2013 – Present
* **Construction Means and Methods Track Chair** – CRC 2014, Atlanta, Georgia.
* **Program Committee Member**, Sustainable design and construction – CRC 2014, Atlanta, Georgia.
* **Moderator**, ASC Annual Conference, 2010, Boston, Massachusetts
* **Moderator**, ASC Annual Conference, 2012, Birmingham, England

**REVIEWI N G ACTIVITI ES**

Reviewer, NSF, CMMI, IUSE, 2012 – present

Reviewer, DOE, ARPA, 2015 - present

Reviewer of the Associated Schools of Construction (ASC).

Reviewer of the Transportation Research Board, emerging technologies in design &

construction committee. (TRB).

Reviewer of the Journal of Cleaner production.

Reviewer of the ASCE Journal of materials in civil engineering. Reviewer of the ASCE Journal of Architectural Engineering.

Reviewer of the International Journal of Construction Engineering and Management. Reviewer of the Journal of Construction Innovation, Information, Process and Management. Reviewer of the Elsevier Journal of construction and the building material.