Mahmud M.S. Dwaikat, Ph.D., M.Sc.
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CURRENT POSITION

Assistant Professor, Civil Engineering Dep., An-Najah National University, 2013 – Present

EDUCATION

• **Ph.D. Civil and Environmental Engineering, Michigan State University, 2006-2010.Distinction.**
Thesis: "*Response of Restrained Steel Beams Subjected to Fire-Induced Thermal Gradients*".
Through experimental and analytical studies, developing design guidelines and response equations for steel beam-columns (restrained beams) under fire conditions.
This research was in collaboration with Princeton University and jointly funded by NSF and NIST.

• **MSc. Concrete Structures, Imperial College London, 2005-2006 (+DIC.)Distinction.**
Thesis *"Analysis and Design of Reinforced Concrete Shear Walls".*
Used moment-curvature approach for relating elastic to inelastic design of RC shear walls under combined loading.

• **BSc. Civil Engineering, An-Najah National University, Nablus, 1999-2004.** Top on the department.
Developed "Foundation Analysis and Design (FAD)" software for analysis and design of various types of foundations (Geotechnical and Structural Design) for local engineering practice.

WORK EXPERIENCE

- **Assistant Professor,** January 2013 - Present. Civil Engineering Department, An-Najah National University, Nablus, West Bank, Palestine. Teaching core courses instructural engineering and mechanics.

- **Research Associate,** June 2010-Dec. 2010, Michigan State University.
Experimental and numerical research with Prof. Kodur at Michigan State University on the influence of damaged fire proofing insulation materials on fire resistance of steel structures.

- **Guest Researcher,**May 2007 – August 2007. National Institute for Standards and Technology – Building and Fire Research Laboratory "NIST-BFRL", Gaithersburg, MD., US.Numerical researching using Finite Element on Fire Resistant Steel "FR-Steel"

- **Site Engineer,** June 2004 - Sep. 2005. Engineering Works Department – AnNajah National University, New Campus, Nablus.
Supervising construction of projects: Building of college of science, Building of college of pharmacy and medicine.AnNajah new campus infrastructure, AnNajah new campus main arched gate and guards building.

- **Structural Designer,**June 2002 – Sep. 2003. Al-Asi Consultants Office – Nablus.
Design and supervision of different residential structures.

ADDITIONAL CAREER EXPERIENCE - PART TIME

- **Teacher and Researcher "Docent",** Jan.2011-Oct. 2012. Industrial Design IO Technical University Delft. The Netherlands.
Researching on the modelling and design of nano- and macro-composites for industrial use and products applications. Development of teaching materials and teaching courses related to engineering mechanics.

- **Research and Teaching Assistant,** Sep. 2006 – May 2010. Michigan State University.
Aided in teaching undergraduate courses (CSE101, CE221, and CE808).Aided my advisor in writing up many proposals, and giving guidance (start-up) for new PhD students.

SOCIAL AND ORGANIZATIONAL SKILLS

- Organizational skills gained through working with international team of researchers during my stay at MSU, 2006-2010, and at TUDelft 2011-2012.
- Aided in the set-up of fire tests in the Civil and Infrastructures' Laboratory, MSU.
- Helped in parental tours organized by the CEE department for newcomer students and their parents at MSU.
- Aided in technical and organizational set-up of CEE/MSU bi-weekly seminars.

COMPUTER SKILLS

- High-Fidelity Nonlinear Finite Element Commercial Packages (ANSYS, ABAQUS, COMSOL).
- Programming tools: MATLAB R2008, ADPL, FORTRAN 77-95, Visual Basic 6.0
- CAD: (SolidWorks, SpaceClaim, AutoCAD)

TRAINING

- Experimental Characterization of Materials at TUDelft, The Netherlands. 3-day workshop, hands-on. June 2011
- Reducing Earthquake Losses in the Extended Mediterranean Region (RELEMR) at Aqaba, Jordan. 5-day workshop, hands-on determining seismic parameters from realtime recordings of shear waves in buildings and on-site. Focused on the communication between Earthquake Engineers and Seismic Scientists, April 2004.

AWARDS

- Third Best Poster Award. Sixth International Conference on Structures in Fire, East Lansing, MI., US. June 2010.
- Outstanding Graduate Student Award: Civil & Environmental Engineering at MSU. Selected because of exemplary scholastic progress in the Civil & Environmental Engineering department. March 2010.
- PhD Dissertation Completion Fellowship from the Civil and Environmental Engineering Department at MSU, Spring 2010.
- Nordberg Fellowship from the Civil and Environmental Engineering Department at MSU March. 2009.
- Distinction certificate and Diploma of Imperial College "DIC", Imperial College, London, First honor class distinction in M.Sc. degree. Sept. 2006.
- Hani Qaddumi Scholarship Foundation. Amman, Jordan (www.hq-sf.org). Full grant for M.Sc. study at Imperial College 2005-2006.

COURSES TAUGHT (B.Sc.)

- Statics and Dynamics
- Design of Steel Structures
- Mechanics of Materials
- Computer for Science and Engineering

PUBLICATIONS

REFEREED JOURNALS (Peer-Reviewed):

1. Kodur V.K.R., Yu B. and **Dwaikat M.M.S**., (2013) "A simplified approach for predicting temperatures in fire exposed concrete members", *in Press*: *Fire Safety Journal,* pp. 1-22.
2. Kodur, V.K.R, Aziz, E., **Dwaikat, M.M.S** (2013) "Evaluating Fire Resistance of Steel Girders in Bridges", *In Press*, *Journal of Bridge Engineering, ASCE*.
3. **Dwaikat M.M.S** and Kodur V.K.R., (2013) "A simplified approach for predicting temperatures in fire exposed steel members", *Fire Safety Journal*, Vol. 55(1), pp. 87-96.

4. **Dwaikat, M.M.S,**Spitas, C. and Spitas, V. (2012) "Effect of the stochastic nature of the constituents' parameters on the predictability of the elastic properties of fibrous nano-composites", *Journal of Composite Science and Technology*, 72(15), pp. 1882-1891.
5. Pakala, P., Kodur, V.K.R. and **Dwaikat, M.M.S.**, (2012) "Critical factors influencing the fire performance of double angle connections", *Journal of Engineering Structures*, (42), pp. 106-114.
6. **Dwaikat, M.M.S**,Spitas, C. and Spitas, V. (2012) "Predicting Nonlinear Stress-Strain Curves of Unidirectional Composites Incorporating Stick-Slip", *Journal of Composites Part B: Engineering*, 44(1), pp. 501-507.
7. **Dwaikat, M.M.S** and Kodur, V.K.R. (2012) "A simplified approach for predicting temperature profile in steel members with locally damaged fire protection", *Journal of Fire Technology*. v. 48 (2) p. 493-512
8. Tempelman E., **Dwaikat M.M.S.,** and Spitas, C. (2012) "Experimental and Analytical Study of Free-fall Drop Impact Testing of Portable Products", *Journal of Experimental Mechanics*, 52(9), pp. 1385-1395.
9. **Dwaikat, M.M.S,**Spitas, C., Spitas, V. (2011) "A Model for Elastic Hysteresis of Unidirectional Fibrous Nano Composites Incorporating Stick-Slip", *Journal of Material Science and Engineering A: Structural Materials: Properties, Microstructure and Processing*, 530 (15), pp. 349–356.
10. **Dwaikat, M.M.S** and Kodur, V.K.R. (2011) "Modelling Fracture and Delamination of Spray Applied Fire Resisting Materials under Static and Impact Loads", *Journal of Engineering Mechanics, ASCE*, Vol 137, No. 12, pp. 901-910.
11. **Dwaikat, M.M.S** and Kodur, V.K.R. (2011) "An Engineering Approach for Predicting Fire Response of Restrained Steel Beams." *Journal of Engineering Mechanics, ASCE*, Vol. 137, No. 7, pp. 447-461.
12. **Dwaikat, M.M.S** and Kodur, V.K.R. (2011) "A performance-based methodology for fire design of restrained steel beams", *Journal of Constructional Steel Research*, 67(3), pp. 510-524.
13. **Dwaikat, M.M.S** and Kodur, V.K.R. (2011) "Strength Design Criteria for Steel Beam-Columns with Fire Induced Thermal Gradients", *Engineering Journal, AISC*. 48(2), pp.127-140.
14. **Dwaikat, M.M.S.,**Kodur, V.K.R., Quiel, S.E., Garlock, M.E.M., (2011) "Experimental Behaviour of Steel Beam-Columns Subjected to Fire-Induced Thermal Gradients", *Journal of Constructional Steel Research,* 67(1), pp. 30-38.
15. **Dwaikat, M.M.S** and Kodur, V.K.R. (2010) "A Simplified Approach for Evaluating Plastic Axial and Moment Capacity Curves for Beam-Columns with Non-uniform Thermal Gradients", *Engineering Structures*, 32(5), pp.1423-1436
16. **Dwaikat, M.M.S,** and Kodur V.K.R, (2010) "Effect of Location of Restraint on Fire Response of Steel Beams", *Journal of Fire Technology*, (46)1, pp. 109-128.
17. Kodur, V.K.R., **Dwaikat, M.M.S**, and Fike R., (2010) "High-Temperature Properties of Steel for Fire Resistance Modelling of Structures", *Journal of Materials in Civil Engineering*, ASCE, 22(5), 423-434
18. Kodur, V.K.R., and **Dwaikat, M.M.S**, (2010) "Effect of High Temperature Creep on the Fire Response of Restrained Steel Beams", *Materials & Structures Journal*, 43(10), pp.1327-1341.
19. Kodur V.K.R. and **Dwaikat M.M.S**. (2009), "Response of Steel Beam–Columns Exposed to Fire", *Engineering Structures*, (31), pp. 369-379.
20. Kodur V.K.R, **Dwaikat M. M. S.,** and Dwaikat M. B. (2008), "High-Temperature Properties of Concrete for Fire Resistance Modelling of Structures", *ACI Material Journal*, 105(5), pp. 517-527.

REFEREED CONFERENCES (Proceedings):

1. M. M. S. Dwaikat, K. M. B. Jansen, C. Spitas (2012)"Damping model for carbon nanotube composites in sports applications." XI International Conference on Nanostructured Materials. Rhodes, Greece.

2. Dwaikat, M.M.S. and Kodur, V.K.R., (2011) "A deflection based approach for evaluating fire resistance of restrained steel beams ", 10th International Symposium on Fire Safety Science, pp. 247-258, Baltimore, MD.
3. Kodur V.K., Dwaikat M.S., (2011) "An approach for evaluating fire resistance of restrained steel beams based on strength and deflection limit states", Proceedings of NSF Engineering Research and Innovation Conference, Atlanta, Georgia.
4. Kodur V.K.R., Esam M. A. and Dwaikat M.M.S. (2011) “Evaluating Fire Resistance of Steel Girders in Bridges” 6th International Symposium on Steel Structures: ISSS 2011, Seoul, Korea.
5. Dwaikat, M.M.S. and Kodur, V.K.R., (2011) “A Simplified Approach for Predicting Steel Temperatures under Design Fires”, Application of Structural Fire Engineering, 29 April 2011, Prague, Czech Republic, pp. 67-71.
6. Pakala, P., Kodur, V., Dwaikat M.M.S., (2011) “Performance of Steel Angle Connections at Elevated Temperatures”, Proceedings of the Annual Stability Conference, SSRC, May 10-14, Pittsburgh, Pennsylvania.
7. Dwaikat, M.M.S. and Kodur, V.K.R., (2011) "Evaluating Fire Resistance of Restrained Steel Beams", Proceedings: 10th International Symposium on Fire Safety Science, pp. 1-12, College Park, MD.
8. Kodur V. and Dwaikat M.M.S, (2010) "Strategies for enhancing performance of high performing materials ", Fire Safety International Workshop, Ulster, Ireland, Feb 2010.
9. Kodur, V.K.R. and Dwaikat M.M.S, (2010) "Sensor technologies for mitigating fire hazard in built infrastructure", US (NSF) - Tunisia Workshop on Sensing Technologies, Tunis, Tunisia, Dec. 2010.
10. Dwaikat, M.M.S. and Kodur, V.K.R., (2010) "A Deflection Based Approach for Evaluating Fire Resistance of Restrained Steel Beams”, COST Action C26 International Conference, "Urban Habitat Constructions under Catastrophic Events", pp. 1-12, Naples, Italy.
11. Dwaikat, M.M.S. and Kodur, V.K.R. (2010) “Performance based design approach for evaluating fire resistance of restrained steel beams”, Proceedings of the Sixth International Conference on Structures in Fire (SiF’10), East Lansing.
12. Dwaikat, M.M.S. and Kodur, V.K.R. (2010) “Lateral-Torsional Buckling of Steel Beam-Columns under Fire Exposure”, SSRC Annual Stability Conference, Orlando, Florida.
13. Kodur, V.R, Garlock, M.E, Dwaikat, M.S, Quiel, S.,(2009) “Collaborative Research: Fire Engineering Guidelines for the Design of Steel Beam-Columns”, Proceedings of 2009 NSF Engineering Research and Innovation Conference, Honolulu, Hawaii.
14. Dwaikat, M.M.S., and Kodur, V.R., (2009) “Effect of Fire Induced Restraint on the Fire Response of Steel Beams”, 5th International Symposium on Steel Structures: ISSS ’09, Seoul, Korea.
15. Dwaikat, M.M.S., and Kodur, V.K.R, (2009) “Effect of Restraint Force Location on the Response of Steel Beams Exposed to Fire”, Structures Congress Conference ’09, ACSE, Austin, TX
16. Iqbal, S., Dwaikat, M.M.S., and Harichandran R. S., (2009) “Simple Approach for Calculating Inelastic Deflections of Simply Support Steel Beams under Fire.” Structures Congress Conference ’09, ACSE, Austin, TX.
17. Dwaikat, M.M.S., and Kodur, V.R., (2008) “Fire Performance of Steel Beam-Columns under Design Fire Exposures”, Proceedings of the Fifth International Conference on Structures in Fire (SiF’08), Singapore.
18. Dwaikat, M.M.S., and Kodur, V.R., (2008) "Effect of High Temperature Creep and Fire Scenario on the Response of Steel Beam-Columns", BFRL Fire Conference, NIST/BFRL, Gaithersburg, MD.