

PROMOTION RECOMMENDATION

The University of Michigan
College of Engineering

Sherif El-Tawil, associate professor of civil and environmental engineering, with tenure, Department of Civil and Environmental Engineering, College of Engineering, is recommended for promotion to professor of civil and environmental engineering, with tenure, Department of Civil and Environmental Engineering, College of Engineering.

Academic Degrees:

Ph.D.	1996	Cornell University, Civil Engineering, Ithaca NY
M.S.	1992	Cairo University, Structural Engineering, Cairo, Egypt
B.S.	1989	Cairo University, Civil Engineering, Cairo, Egypt

Professional Record:

2005-Present	Associate Professor (with tenure), Department of Civil and Environmental Engineering, University of Michigan
2002-2005	Associate Professor (without tenure), Department of Civil and Environmental Engineering, University of Michigan
1996-2002	Assistant Professor, School of Civil Engineering, University of Central Florida, Orlando, FL
1996-1996	Visiting Scientist, School of Civil Engineering, Cornell University, Ithaca, NY
1995-1996	Research Engineer, Nippon Steel Corporation, Chiba, Japan
1992-1995	Research Assistant, School of Civil Engineering, Cornell University, Ithaca, NY
1989-1991	Teaching Assistant, School of Engineering, Cairo University, Cairo, Egypt

Summary of Evaluation:

Teaching: Professor El-Tawil has taught five different courses ranging from sophomore (200-level) Statics and Dynamics to advanced graduate (600-level) Earthquake Engineering. The latter course, as well as CEE 510 Finite Element Analysis were reintroduced at Michigan after several years of dormancy. In CEE 412 Structural Analysis, he significantly upgraded the course content with a rigorous treatment of matrix structural analysis. Professor El-Tawil's course evaluations have averaged Q1 = 4.17 and Q2 = 4.48. In his three undergraduate courses, his evaluations are consistently and substantially higher than the course averages. Professor El-Tawil has advised or co-advised seven Ph.D. students at Michigan. One has completed his degree; another two are scheduled for completion during this academic year. He has also graduated two additional Ph.D. students at the University of Central Florida. His students, both graduate and undergraduate are highly complimentary of his pedagogic skills and his caring mentorship. For his innovative teaching efforts, Professor El-Tawil has received the *James M. Robbins Teaching Award* from the Great Lakes District of Chi Epsilon, the Civil Engineering Honor Society (2005) and the University of Michigan's *Faculty Recognition Award* (2006). These teaching awards were preceded by three others at the University of Central Florida.

Research: Professor El-Tawil's research focuses on mitigation of potentially catastrophic effects of severe loading on the built infrastructure with the clear objective of reducing loss of life and injuries due to natural and manmade disasters, including earthquakes, collisions and blasts. He has made seminal contributions to the development, implementation and application of computational structural simulation technology, which is the primary tool by which he conducts his work. His computational models are widely utilized to investigate how steel structures respond to strong seismic shaking.

Since coming to the University of Michigan, Professor El-Tawil has been involved in nine sponsored research projects. He was the PI on six of the projects. The total budget of these grants has been \$2.3 million of which his share has been \$1.0 million. Professor El-Tawil has published extensively in the top peer-reviewed journals in his field, including six different ASCE Journals, the *ACI Structural Journal* and the Earthquake Engineering Research Institute's (EERI) *Earthquake Spectra*. He has 33 articles in refereed publications and 35 papers in refereed conference proceedings. As testimony to the high caliber of his research, Professor El-Tawil has been the recipient of numerous prestigious recognitions including three highly coveted ASCE awards; the *Norman Medal*, the *Wellington Prize* and the *Huber Research Prize*.

Recent and Significant Publications:

- Kamat, V. R. and El-Tawil, S. (2007), "Rapid Post-Disaster Evaluation of Building Damage Using Augmented Reality," *Journal of Computing in Civil Engineering*, 21(5), pp. 303-310.
- Khandelwal, K and El-Tawil, S. (2007), "Collapse Behavior of Steel Special Moment Resisting Frame Connections," *Journal of Structural Engineering*, 133(5), pp. 646-655.
- El-Tawil, S., Severino, E. and Fonseca, P. (2005), "Vehicle Collision with Bridge Piers," *Journal of Bridge Engineering*, 10(3), pp. 345-353.
- El-Tawil, S. and Ortega, J. (2004), "Prestressing Concrete Using Shape Memory Alloy Tendons," *Structural Journal of the American Concrete Institute*, 101(6), pp. 1-6.
- Spacone, E. and El-Tawil, S. (2004), "State-of-the-Art in Nonlinear Analysis of Composite Systems," *Journal of Structural Engineering*, 130(2), pp. 159-168.
- Jin, J. and El-Tawil, S. (2003), "Inelastic Cyclic Model for Steel Braces," *Journal of Engineering Mechanics*, 129(6), pp. 548-557.
- El-Tawil, S. and Deierlein, G. G. (2001), "Nonlinear Analyses of Mixed Steel-Concrete Moment Frames. Part I - Beam-Column Element Formulation," *Journal of Structural Engineering*, 127(6), pp. 647-655.
- El-Tawil, S., Mikesell, T. D., and Kunnath, S. K. (2000) "Effect of Local Details and Material Properties on Inelastic Behavior of FR Steel Connections," *Journal of Structural Engineering*, 126(1), pp. 79 - 87.

Service: Professor El-Tawil's service record is already one that would be expected of a senior faculty member. As the managing editor of the ASCE *Journal of Structural Engineering* he stewards the oldest and most respected journal in his field. It is arguably also the top journal in the civil engineering profession. Professor El-Tawil chairs the ASCE Technical Administrative Committee on Metals which oversees nine national subcommittees. At the State level, he co-chairs the Michigan Transportation Research Board Committee on Bridges where he is instrumental in promoting government funding for bridge research. At the University of Michigan, he has been a member of the CEE Graduate Committee, has chaired a faculty search committee, serves as advisor to the Student Chapter of ASCE, has been a member of a promotion and tenure committee, chairs the Information Technology Committee for CEE, is a member of the CoE Scholastic Standing Committee among others. His list of professional and technical committee memberships, conference session activities and review assignments is extensive.

External Reviewers:

Reviewer A: "His models have a strong foundation in fundamental mechanics....Dr. El-Tawil is careful to compare, validate and calibrate his models with experimental data."

Reviewer B: "Professor El-Tawil's record to date in developing new research areas is an excellent indicator that he will continue to grow as a researcher, educator and leader of the profession. ...[he] would have a very strong record for consideration for promotion at [my institution]."

Reviewer C: "I have felt increasingly that he has consistently produced what is quite possibly the most creative and innovative work in his field... His creativity in linking information technology with sophisticated structural analysis place [sic] him among the top few computational experts nationally within structural engineering."

Reviewer D: "Among analysts who compute with state-of-the-art tools he is a virtuoso with modeling and has some notable contributions to methods development in areas where the existing technology has simply not been sufficient to solve the problem at hand."

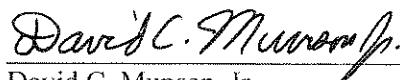
Reviewer E: "... his accomplishments are equal to or ahead of those of other individuals whose case for appointment to Full Professor I have reviewed in the recent past and who subsequently did secure such an appointment."

Reviewer F: "I rank Dr. El-Tawil amongst the top five researchers in the world in this area; in particular, his work is comparable to that of a much larger research group at [my institution]."

Reviewer G: "Dr. El-Tawil is without a doubt among the top two or three researchers internationally in the areas of specialization I have highlighted..."

Reviewer H: "Importantly, he has used his skills as a computational mechanician to solve problems of importance to practicing structural engineers."

Summary of Recommendation: Professor El-Tawil excels in all criteria expected of senior faculty at the University of Michigan. He is an exceptional, hardworking teacher and respected mentor. His professional service is at the top echelons of his field. His external reviewers compare him favorably with an elite group of academicians in his field and his work has attracted several of the most sought after awards in the civil engineering profession. It is with the support of the College of Engineering Executive Committee that I recommend Sherif El-Tawil for promotion to professor of civil and environmental engineering, with tenure, Department of Civil and Environmental Engineering, College of Engineering.



David C. Munson, Jr.
Robert J. Vlasic Dean of Engineering
College of Engineering

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