CINDY L. MENCHES, PH.D., P.E.

ASSISTANT PROFESSOR
Department of Civil, Architectural & Environmental Engineering
Construction Engineering and Management Program
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EDUCATION

Doctor of Philosophy, Civil Engineering, University of Wisconsin – Madison, May 2006
Master of Science, Architectural Engineering, The Pennsylvania State University, 1995
Bachelor of Science, Civil Engineering – Building Science, University of Southern California, 1989

ACADEMIC POSITIONS

Assistant Professor, Illinois Institute of Technology, January 2010 – Present
Assistant Professor, The University of Texas at Austin, August 2006 – January 2010
Distinguished Research Fellow, University of Wisconsin - Madison, January 2003 – May 2006
Research Assistant, The Pennsylvania State University, May 1993 – May 1995

PUBLICATIONS

PUBLISHED AND ACCEPTED REFEREED ARCHIVAL JOURNAL ARTICLES

1. Kim, D. Y., Menches, C. L., and O'Connor, J. T. (2013). Stringing construction planning and execution tasks together for effective project management. **Accepted for publication** in the *Journal of Management in Engineering*, Sep 2013.
2. Menches, C. L. and Chen, J. (2014). A diary study of the disruption experiences of crew members on a jobsite. *Journal of Management in Engineering*, 30(1), TBD.
3. Menches, C. L. and Dorn, L. (2013). Emotional reaction to variations in contract language. *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction*, 5(2), 97-105.
4. Menches, C. L. and Chen, J. (2013). Using ecological momentary assessments to understand a construction worker's daily disruptions and decisions. *Construction Management and Economics*, 31(2), 180-194.
5. Menches, C. L. and Chen, J. (2012). Facilitating team decision-making through reimbursable contracting strategies. *Canadian Journal of Civil Engineering*, 39(9), 1043-1052.
6. Bauer, E. and Menches, C.L. (2011). Why we need renaissance engineers: Golden Gate Bridge seismic retrofit phase II case study. *Journal of Construction Engineering and Management*. 137(10), 901-905.

7. Cohen, C., Menches, C.L., Jangid, Y., and Caldas, C.H. (2009). Priority-ranking workload reduction strategies to address challenges of transportation construction inspection. *Transportation Research Record, Journal of the Transportation Research Board*, 2098, 13-17.
8. Jeffrey, J.T. and Menches, C.L. (2008). Emergency contracting strategies for federal projects. *Journal of Professional Issues in Engineering Education and Practice*, 134(4), 327-408.
9. Menches, C.L., Hanna, A.S., Nordheim, E.V., and Russell, J.S. (2008). Quantifying the impact of pre-construction planning on project performance in the U.S. electrical construction industry. *Construction Management and Economics*, 26(8), 853-867.
10. Menches, C.L. and Abraham, D. (2007). Women in construction – Tapping the untapped resource to meet future demands. *Journal of Construction Engineering and Management*, 133(9), 701-707.
11. Menches, C.L. and Hanna, A.S. (2006). Conceptual Planning Process for Electrical Construction. *Journal of Construction Engineering and Management*, 132(12), 1284-1293.
12. Menches, C.L. and Hanna, A.S. (2006). Quantitative Measurement of Successful Performance from the Project Manager's Perspective. *Journal of Construction Engineering and Management*, 132(12), 1306-1313.
13. Hanna, A.S., Menches, C.L., Sullivan, K.T., and Sargent, J. (2005). Factors effecting absenteeism in electrical construction. *Journal of Construction Engineering and Management*, 131(11), 1-7.
14. Carpenter, C. L. (now Menches) and Oloufa, A. (1995). Postoccupancy evaluation of buildings and development of facility performance criteria. *Journal of Architectural Engineering*, 1(2), 77-81.

SUBMITTED OR PENDING REFEREED ARCHIVAL JOURNAL ARTICLES

1. Kleps, S. M. and Menches, C. L. (2013). Impact of work flow disruptions on improvisational decisions and actions on construction sites. **Pending submission to** *Journal of Construction Engineering and Management*, October 2013.
2. Kleps, S. M. and Menches, C. L. (2013). Jobsite characteristics that influence improvised decision-making on construction sites. **Submitted to** *Journal of Construction Engineering and Management*, October 2013.
3. Menches, C. L. and Kleps, S. M. (2013). Relationship between foreman personality traits and improvised decisions on construction sites. **Submitted to** *Journal of Management in Engineering*, August 2013.
4. Menches, C. L. and Saxena, J. (2013). Understanding construction workers' risk decisions using Cognitive Continuum Theory. **Submitted to** *Safety Science*, July 2013.
5. Wang, D., Arditi, D., and Menches C. (2013). Human value/motivator linkage for construction project managers. **Re-submitted to** *Engineering Project Organization Journal*, July 2013.
6. Menches, C. L., Chen, J., Carretero Llorente, E., and Kleps, S. M. (2013). Improvisational decisions and actions by electrical journeymen and apprentices following a disruption. **Revised and re-submission to** *Construction Management and Economics*, October 2013.
7. Chen, J. and Menches, C. L. (2012). Selecting a compensation strategy to control project duration: empirical comparison of lump sum and reimbursable strategies. **Under revision for re-submission**.

PUBLISHED AND ACCEPTED REFEREED CONFERENCE PAPERS AND ABSTRACTS

1. Tsao, C. C. Y., Azambuja, M., Hamzeh, F. R., Menches, C. L., and Rybkowski, Z. K. (2013). Teaching lean construction – Perspectives on theory and practice. 21st Annual Summit of the International Group for Lean Construction, Fortaleza, Brazil, November 2013.
2. Menches, C. L., Chen, J., Carretero Llorente, E., and Kleps, S. M. (2013). The dyadic nature of improvisation in construction. *4th International Construction Specialty Conference*, Canadian Society of Civil Engineering, Montreal, Quebec, May 2013.
3. Menches, C. L., and Dorn, L. (2013). Reactions to emotive language in contract clauses. *7th International Structural Engineering and Construction Conference*, Honolulu, HI, June 2013.
4. Menches, C. L., Chen, J., and Hull, K. (2011). Understanding characteristics of projects that make cost reimbursable contracting an appropriate strategy. Cheung, S. O., Yazdani, S., Ghafoori, N., and Singh, A. (eds.), *Modern methods and advances in structural engineering and construction*, 6th International Structural Engineering and Construction Conference, Zurich, Switzerland, June 2011.
5. Menches, C. L. and Chen, J. (2011). Facilitating team decision-making through reimbursable contracting strategies. *Proceedings, 3rd International Construction Specialty Conference*, Canadian Society of Civil Engineering, Ottawa, Ontario, June 2011.
6. Chen, J. and Menches, C. L. (2010). Contracting strategy decision framework for highway maintenance. *Proceedings, Construction Research Congress 2010*, ASCE, Reston, VA.
7. Muramatsu, T. and Menches, C. L. (2010). Development of an index to rate the completeness and quality of mitigation project definition. *Proceedings, Construction Research Congress 2010*, ASCE, Reston, VA.
8. Chen, J., Menches, C. L., and Khwaja, N. (2010). Innovative contracting strategies for transportation maintenance outsourcing. *Proceedings of the 2010 Transportation Research Board*, Washington, D.C., January 2010.
9. Menches, C. L., Seekins, R., and Eissler, C. (2009). Mitigation project information system. *7th Int'l Workshop on Remote Sensing and Disaster Response*, Austin, Texas.
10. Menches, C. L. and Pekar, G. (2009). Mitigation project technical assistance program. Presentation and publication at the *2009 Hazards and Disasters Researchers Workshop*, Bloomfield, Colorado, July 2009.
11. Bou Nasr, Z. and Menches, C. L. (2009). Aligning pre-construction planning and project management in the electrical construction industry. *Proceedings, Construction Research Congress 2009*, ASCE, Reston, VA.
12. Menches, C. L., O'Connor, J.T., Caldas, C.H., Cohen, C., and Jangid, Y. (2009). Efficient workload reduction strategies for transportation construction inspection. *Proceeding, 2009 Transportation Construction Management Conference*, Orlando, Florida, February 2009.
13. Cohen, C., Menches, C. L., O'Connor, J. T., and Caldas, C. H. (2009). Prioritizing workload reduction strategies to address transportation construction inspection challenges. *Proceedings of the 2009 Transportation Research Board*, Washington, D.C., January 2009.
14. Menches, C. L., Markman, A. B. and Jones, R. J. (2008). Innovative method for investigating the facility damage assessment process. *Proceedings of the 2008 Architectural Engineering Institute Conference*, Denver, Colorado, September 2008.

15. Menches, C. L., Markman, A. B. and Jones, R. J. (2008). Differences in perception of building damage severity: Critical need to transfer knowledge from engineers to non-engineers. Presentation and publication at the *2008 Hazards and Disasters Researchers Meeting,* Bloomfield, Colorado, July 2008.
16. Jeffrey, J. and Menches, C. (2007). Effective emergency contracting strategies for the U.S. Navy. *Proceedings, Construction Research Congress 2007,* ASCE, Reston, VA.
17. Menches, C. (2007). Framework for evaluating the effect of pre-construction planning and project management on performance. *Proceedings, Construction Research Congress 2007,* ASCE, Reston, VA.
18. Menches, C., Hanna, A., and Russell, J. (2005). Effect of pre-construction planning on project outcomes. *Proceedings, Construction Research Congress: Broadening Perspectives*, ASCE, Reston, VA, 388-392.
19. Menches, C., Hanna, A., and Russell, J. (2005). Benchmarking effective pre-construction planning. *Proceedings, Building Futures Council: The Future of the AEC Industry*, The BFC, Alexandria, VA, 1-10.

SUBMITTED REFEREED CONFERENCE PAPERS AND ABSTRACTS

1. Menches, C. L. and Saxena, J. (2013). Factors that influence intuitive and deliberative decision-making about construction jobsite hazards. **Submitted to** *Construction Research Congress 2014,* September 2013.

PUBLISHED TECHNICAL REPORTS

1. Menches, C. L. and Kleps, S. (2012). *Best practices and benefits of estimating techniques and technology*. Bethesda, MD: National Electrical Contractors Association.
2. Menches, C. L., Chen, J. and Hull, K.A. (2012). *Factors that differentiate reimbursable contracting from lump sum contracting.* Research Report 260-11. Austin, TX: Construction Industry Institute.
3. Menches, C. L., Chen, J., and Hull, K.A. (2011). *CII Guide to reimbursable contracting*. Implementation Resource 260-2. Austin, TX: Construction Industry Institute.
4. Menches, C. L. and Chen, J. (2011). *Reimbursable contracts*. Research Summary 260-1. Austin, TX: Construction Industry Institute.
5. O'Brien, W. J., Menches, C. L., Yi, J., and Ali, S. (2009). *Project Controls Team Learning and Development Program*. Implementation Resource 244-5. Austin, TX: Construction Industry Institute.
6. O'Brien, W. J., Menches, C. L., and Yi, J. (2009). *Global Project Controls and Management Systems: Adapting Your PCMS Program for Success*. Implementation Resource 244-2. Austin, TX: Construction Industry Institute.
7. O'Brien, W. J., Menches, C. L., and Yi, J. (2009). *Global Project Controls and Management Systems*. Research Summary 244-1. Austin, TX: Construction Industry Institute.
8. Menches, C. L., Caldas, C. H., O'Connor, J. T., and Cohen, C.A. (2009). *TxDOT Synthesis of the Construction Inspection Workload Reduction Strategies.* Report FHWA/TX-09/0-5799-P1. Austin, TX: Texas Department of Transportation

9. Menches, C. L., Caldas, C. H., O'Connor, J. T., and Cohen, C. A. (2008). *Synthesis of Workload Reduction Strategies for Construction Inspection*. Report FHWA/TX-09/0-5799-1. Austin, TX: Texas Department of Transportation
10. Hanna, A. and Menches, C. (2003). Normal project duration. *Productivity: Quantifying the Impacts of Adverse Working Conditions on Electrical Construction*. (Professional Pamphlet). Bethesda, MD: National Electrical Contractors Association.
11. Hanna, A. and Menches, C. (2003). Project peak workforce. *Productivity: Quantifying the Impacts of Adverse Working Conditions on Electrical Construction*. (Professional Pamphlet). Bethesda, MD: National Electrical Contractors Association.
12. Hanna, A. and Menches, C. (2003). Rate of manpower consumption. *Productivity: Quantifying the Impacts of Adverse Working Conditions on Electrical Construction*. (Professional Pamphlet). Bethesda, MD: National Electrical Contractors Association.

UNPUBLISHED TECHNICAL REPORTS AND DISSERTATIONS

1. Menches, C. (2006). *Effect of pre-construction planning on project performance*. Unpublished doctoral dissertation, University of Wisconsin-Madison, Madison, Wisconsin.
2. Menches, C. and Hanna, A. (2004). *Trends in electrical pre-construction planning*. Technical report submitted to The Electrical Contracting Foundation. Bethesda, MD.

RESEARCH PRESENTATIONS AND POSTER SESSIONS

1. Menches, C. L. (2013, July). *Best practices and benefits of estimating techniques and technology*. Presentation at the Semi-Annual Meeting of Electri International, Chicago, IL.
2. Menches, C. L. (2013, June). *Reactions to emotive language in contracts*. Presentation at the 7th Annual International Structural Engineering and Construction Conference (ISEC-7), Honolulu, HI.
3. Menches, C. L. (2013, May). *The dyadic nature of improvisation in construction*. Presentation at the 4th International Construction Specialty Conference of the Canadian Society of Civil Engineers, Montreal, Quebec, Canada.
4. Menches, C. L. (2011, July). *Busting myths about reimbursable contracting*. Implementation session presented at the 2011 Construction Industry Institute Conference, Chicago, IL.
5. Menches, C. L. (2011, June). *Understanding characteristics of projects that make reimbursable contracting an appropriate strategy*. Presentation at the 6th Annual International Structural Engineering and Construction Conference (ISEC-6), Zurich, Switzerland.
6. Menches, C. L. (2011, June). *Facilitating team decision-making through reimbursable contracting strategies*. Presentation at the 3rd International Construction Specialty Conference of the Canadian Society of Civil Engineers, Ottawa, Quebec, Canada.
7. Menches, C. L. (2010, May). *Contracting strategy decision framework for highway maintenance*. Presentation at the 2010 Construction Research Congress, American Society of Civil Engineers, Banff, Alberta, Canada.
8. Menches, C. L. (2010, January). *Achieving performance improvement through an effective project management strategy*. Presentation at the Semi-Annual Meeting of Electri International, Naples, FL.

9. Chen, J. Menches, C. L., and Khwaja, N. (2010, January). *Innovative contracting strategies for transportation maintenance outsourcing.* Presentation at the 2010 Presentation at the Transportation Research Board, Washington, D.C.
10. Menches, C. L., Seekins, R., and Eissler, C. (2009). *Mitigation project information system*. Presentation at the 7th Int'l Workshop on Remote Sensing and Disaster Response, Austin, Texas.
11. Menches, C. L. and Pekar, G. (2009, July). *Mitigation project technical assistance program*. Presentation and publication at the 2009 Hazards and Disasters Researchers Workshop, Bloomfield, Colorado, July 2009.
12. Menches, C. L. (2009, July). *Benefits of aligning pre-construction planning and project management in the electrical construction industry*. Presentation at the Semi-Annual Meeting of Electri International, Chicago, IL.
13. Bou Nasr, Z. and Menches, C. L. (2009, April). *Aligning pre-construction planning and project management in the electrical construction industry*. Presentation at the 2009 Construction Research Congress, Seattle, Washington.
14. Menches, C. L. (2009, March). *Pre-construction planning and alignment with project management*. Presentation at the National Electrical Contractors Association Midwest Meeting, Kauai, HI.
15. Menches, C. L., O'Connor, J. T., Caldas, C. H., Cohen, C., and Jangid, Y. (2009, February). *Efficient workload reduction strategies for transportation construction inspection.* Presentation at the 2009 Transportation Construction Management Conference, Orlando, Florida.
16. Cohen, C., Menches, C. L., O'Connor, J. T., and Caldas, C. H. (2009, January). *Synthesis of strategies to reduce construction inspection workload.* Presentation at the Transportation Research Board, Washington, D.C.
17. Cohen, C., Menches, C. L., O'Connor, J. T., and Caldas, C. H. (January, 2009). *Prioritizing workload reduction strategies to address transportation construction inspection challenges*. Poster presentation at the Transportation Research Board, Washington, D.C.
18. Menches, C. L., Markman, A. B. and Jones, R. J. (2008, September). *Innovative method for investigating the facility damage assessment process.* Presentation at the 2008 Architectural Engineering Institute Conference, Denver, CO.
19. Menches, C. L., Markman, A. B., and Jones, R. J. (2008, August). *Innovative method for investigating the facility damage assessment process*. Poster presented at the Construction Industry Institute Annual Conference, Keystone, CO.
20. Menches, C. L., Markman, A. B. and Jones, R. J. (2008). *Differences in perception of building damage severity: Critical need to transfer knowledge from engineers to non-engineers*, Presentation and publication at the 2008 Hazards and Disasters Researchers Meeting, Bloomfield, Colorado, July 2008.
21. Menches, C. L., Markman, A. B., and Jones, R. J. (2007, December). *Virtual environments for assessing the accuracy of damage estimates and repair costs*. Poster presented at the Texas Homeland Security Conference, San Antonio, TX.
22. Armstrong, N. and Menches, C. (2007, December). *Factors that impacted the disaster recovery of coastal facilities at U.S. Coast Guard installations*. Poster presented at the Texas Homeland Security Conference, San Antonio, TX.

23. Covington, J. L., Menches, C. L., and Britt, J. T. (2007, December). *Automated process for documenting vegetative debris following a disaster*. Poster presented at the Texas Homeland Security Conference, San Antonio, TX.
24. Menches, C. L. (2007, July). *Achieving Performance Improvement through an Effective Project Management Strategy*, Presentation at the Foundation for Electrical Construction Semi-Annual Meeting, Grapevine, TX.
25. Menches, C. L. (2007, May). *Framework for Evaluating the Effect of Pre-Construction Planning and Project Management on Performance*, Presented at the Construction Research Congress, Grand Bahama Island.
26. Menches, C. L. (2007, May). *Effective Emergency Contracting Strategies for the U.S. Navy*, Presented at the Construction Research Congress, Grand Bahama Island.
27. Menches, C. L. (2007, April). *Life-cycle cost analysis for emerging pavement technologies*. Presentation at Caterpillar, Inc., Peoria, IL.
28. Menches, C. L. (2007, April). *Workforce development partnership: What the construction industry can share with the transportation industry*. Presentation at the Center for Transportation Research Symposium, Austin, TX.
29. Menches, C. L. (2007, January). *Women in construction: A roadmap for increasing women's employment in the U.S. construction industry*. Presentation at the Center for Women and Gender Studies, Colloquium on Gender, Politics, and Leadership, Austin, TX.
30. Menches, C. and Hanna, A. (2005, July). *Effect of pre-construction planning on project performance*. Poster presented at the annual conference of the Construction Industry Institute, Dallas, TX.
31. Menches, C., Hanna, A., and Russell, J. (2005, April). *Effect of pre-construction planning on project outcomes*. Presentation at the Construction Research Congress, San Diego, CA.
32. Menches, C., Hanna, A., and Russell, J. (2005, April). *Effect of pre-construction planning on project outcomes*. Poster presented at the Construction Research Congress, San Diego, CA.
33. Menches, C., Hanna, A., and Russell, J. (2005, March). *Benchmarking Effective Pre-Construction Planning*, Presentation at The Building Futures Council, Las Vegas, NV.

RESEARCH EXPERIENCE

CURRENT FUNDED RESEARCH

1. Title: Affective Reactions to Construction Contract Framing
   Status: Funded; in progress
   Role: Principal Investigator
   Co-PI: Dr. Scott Morris
   Sponsor: Illinois Institute of Technology Educational and Research Initiative Fund
   Total Award Requested: $25,000
   Starting Date: 01/01/2013; Ending Date: 12/31/2013

2. Title: Flexible Decision-making in Response to Disruptive Events on Construction Sites
   Status: Funded; in progress
   Role: Principal Investigator
   Co-PIs: Dr. Dror Ben-Zeev and Dr. Scott Morris
   Sponsor: National Science Foundation
   Total Award: $324,556
   Starting Date: 09/01/11; Ending Date: 8/31/14

CURRENT AND PENDING PROPOSAL SUBMISSIONS

1. Title: Momentary Risk-taking and the Value of Time to Construction Workers
   Status: Under review
   Role: Principal Investigator
   Co-PI: Dr. J. Kemp Ellington
   Sponsor: Illinois Institute of Technology Educational and Research Initiative Fund
   Total Award Requested: $25,000
   Starting Date: 01/01/2014; Ending Date: 12/31/2014

2. Title: An Innovative Tool to Increase Daily Productivity: Formalizing the Foreman's Backlog
   Status: Under Review
   Role: Principal Investigator
   Sponsor: ELECTRI International
   Total Award Requested: $45,000
   Starting Date: 06/01/2014; Ending Date: 05/31/2015

3. Title: Measuring the Benefits of Pre-Construction Planning and Pre-Fabrication
   Status: Under Review
   Role: Principal Investigator
   Sponsor: ELECTRI International
   Total Award (anticipated): $45,000
   Starting Date: 06/01/2014; Ending Date: 05/31/2015

4. Title: CAREER: Foundations of Intuitive and Deliberative Decision-making in High Hazard Environments
   Status: Under Review
   Role: Principal Investigator
   Sponsor: National Science Foundation
   Total Award (anticipated): $400,000
   Starting Date: 01/01/2014; Ending Date: 12/31/2018

5. Title: Modeling Heuristic Decision-making in the Construction Context
   Status: Pending Submission
   Role: Principal Investigator
   Co-PI: Dr. J. Kemp Ellington
   Sponsor: National Science Foundation
   Total Award Requested: $325,000
   Starting Date: 08/20/2014; Ending Date: 08/19/2017

6. Title: Heuristic Decision-making about Hazards
   Status: Pending Submission
   Role: Principal Investigator
   Co-PI: Dr. J. Kemp Ellington
   Sponsor: National Institute for Occupational Safety and Health
   Total Award Requested: $350,000
   Starting Date: 01/01/2015; Ending Date: 12/31/2018

COMPLETED FUNDED RESEARCH

1. Title: Benefits Resulting from Native File Sharing During Electrical Cost Estimating and Bidding
   Status: Funded; in progress
   Role: Principal Investigator
   Sponsor: Foundation for Electrical Construction
   Total Award: $50,000
   Time: April 2011 – August 2012

2. Title: Reimbursable Contracts
   Co-PIs: Dr. Randolph Thomas and Mr. Steve Nelson
   Sponsor: Construction Industry Institute
   Grant: $227,776
   Time: September 2008 – August 2010

3. Title: Achieving Performance Improvement through an Effective Project Management Strategy
   Sponsor: Foundation for Electrical Construction
   Grant: $135,500
   Time: January 2008 – December 2009

4. Title: Synthesis Study on Innovative Contracting Techniques for Routine and Preventive Maintenance Contracts
   Sponsor: The Texas Department of Transportation
   Grant: $81,388
   Time: November 2008 – December 2009

5. Title: Facilitating the Transfer of Knowledge About Building Damage by Understanding the Cognitive Aspects of Severity Judgments
   Sponsor: The University of Texas at Austin Vice President of Research
   Grant: $6,000 (seed funding)
   Time: October 2008 – August 2009

6. Title: Effect of Roof Material on Water Quality for Rainwater Harvesting Systems
   Co-PIs: Dr. Mary Jo Kirisits and Dr. Kerry Kinney
   Sponsor: Texas Water Development Board
   Grant: $50,000
   Time: September 2008 – August 2009

7. Title: Global Procurement and Materials Management
   Co-PIs: Dr. Carlos Caldas and Dr. Pedro Reyes
   Sponsor: Construction Industry Institute
   Grant: $254,962
   Time: September 2007 – August 2009

8. Title: Synthesis Study of Programs Used to Reduce the Workload for Inspection Personnel
   Co-PIs: Dr. Carlos Caldas and Dr. James O'Connor
   Sponsor: Texas Department of Transportation
   Grant: $113,413
   Time: September 2007 – August 2008

9. Title: Project Controls and Project Management Systems
   Co-PI: Dr. William O'Brien
   Sponsor: Construction Industry Institute
   Grant: $165,227
   Time: September 2006 – August 2008

10. Title: Framing Caterpillar's Strategic Direction for Improving Productivity in Road Renewal
    Sponsor: Caterpillar Inc.
    Grant: $50,000
    Time: April 2007 – October 2007

11. Title: Planning for Contractor Involvement in Damage Assessment Operations
    Sponsor: The University of Texas at Austin Vice President of Research
    Grant: Summer Research Grant of $17,000
    Time: July 2007 – August 2007

CURRENT UNFUNDED RESEARCH

7. Title: Understanding Why Foremen and Crew Members Take Risks (even when they don't have to)
   Status: In progress
   Role: Principal Investigator
   Sponsor: Illinois Institute of Technology
   Starting Date: 01/01/2013; Ending Date: 12/31/2013

COMPLETED UNFUNDED RESEARCH

1. Title: Factors that Impact the Accuracy of Cost Estimates
   Sponsor: The U.S. Air Force
   Grant: Air Force Student Support
   Time: September 2006 – May 2008
   Research Assistant: Capt. T.J. Fryar, USAF

2. Title: Factors that Impact Facility Resilience on U.S. Coast Guard Installations
   Sponsor: U.S. Coast Guard
   Grant: Coast Guard Student Support
   Time: September 2006 – December 2007
   Research Assistant: Lt. Neal Armstrong, USCG

3. Title: Automated Debris Incident Removal and Tracking: Leaning Trees and Hanging Limbs
   Sponsor: U.S. Army Construction Engineering Research Laboratory
   Grant: Data, equipment, and personnel support
   Time: August 2007 – December 2007
   Research Assistant: Capt. James Covington

4. Title: Effective Emergency Contracting Strategies for the U.S. Navy
   Sponsor: U.S. Navy
   Grant: Naval Student Support
   Time: September 2006 – August 2007
   Research Assistant: Lt. John Jeffrey, USN

COMPLETED RESEARCH AS A GRADUATE RESEARCH ASSISTANT

5. Title: Effect of Pre-Construction Planning on Project Performance
   Sponsor: Foundation for Electrical Construction
   Grant: $98,000
   Time: 2003-2006
   Role: Research Assistant

6. Title: Developing a Framework for an Environment-Behavior Based Post-Occupancy Evaluation
   Sponsor: U.S. Air Force
   Grant: Unfunded/Student Support
   Time: 1993-1995
   Role: Research Assistant

ACADEMIC HONORS, AWARDS, AND FELLOWSHIPS

- **Research Fellow,** Next Generation of Hazards and Disasters Researchers, sponsored by the National Science Foundation, July 2009-June 2010.
- **Faculty Fellow**, Center for Women and Gender Studies, The University of Texas at Austin, September 2006-August 2007.
- **M.A. Mortenson Company Distinguished Fellowship**, University of Wisconsin – Madison, Department of Civil and Environmental Engineering, 2003 - 2006.
- **Air Force Institute of Technology, Civilian Institute Program**, full scholarship at The Pennsylvania State University, 1993-1995.
- **Air Force ROTC Scholarship**, full scholarship, University of Southern California, 1985-1989.
- **Resident Honors Program**, full scholarship, University of Southern California, 1984.

ACADEMIC AND TEACHING EXPERIENCE

CURRENT COURSES TAUGHT

Lean Construction and Control, Illinois Institute of Technology, Every Spring

Graduate Course. The objective of this course is to introduce construction engineering and management students to Lean principles and the Lean Project Delivery System (LPDS). The Lean philosophy emphasizes: (1) customer value, which involves understanding what the customer places value on and establishing the flow of activities that will add value and eliminate waste from the construction cycle; (2) performance improvement rather than productivity improvement by promoting superior reliability (i.e., keeping commitments); (3) significantly improved processes for flawless coordination, and establishing the project as a "collective enterprise" rather than independent efforts; (4) Close collaboration among all parties; and, (5) Tools and Measurement

Techniques for managing projects under the Lean philosophy, including First Run Studies, Value Stream Mapping, and Kaizen methods.

Legal Issues in Civil Engineering, Illinois Institute of Technology, Every Fall
This class introduces students to the legal aspects of engineering and construction, contract documents, contract clauses, ethics, and licensing. Upon completion of this class, students will be able to: (1) identify the elements of contract formation; (2) interpret contract clauses; (3) explain the rights and duties of the parties involved in design and construction; and (4) evaluate changes and their root causes. Students will also be able to objectively identify and analyze legal liabilities, ethical dilemmas, and the expected professional standard of architects, engineers, and contractors.

Legal Aspects of Real Estate, Illinois Institute of Technology, Every Spring
The objective of this course is to introduce civil engineering students to the legal aspects of real estate and the real estate development process. Students will learn the fundamentals of land, air, and water rights; legal interests of parties; purchase agreements, contractual relationships, and real estate contracts; closing real estate transactions; legal aspects of financing; government regulations that impact property transactions; and recent developments in green development law. This course will help civil engineering students learn legal skills that can be applied to real estate purchasing and development processes.

Real Estate Fundamentals for Engineers/Architects, Illinois Institute of Technology, Every Fall
The objective of this course is to introduce civil engineering students to the real estate process. Students will learn techniques and methodologies for evaluating real estate investment opportunities using engineering economic analysis principles. Students will use Time Value of Money analysis for evaluating real estate transactions, including how to carry out calculations using formulas, financial calculators, and spreadsheets. This course will help civil engineering students learn financial skills that can be applied to professional and personal investment decisions.

PREVIOUS COURSES TAUGHT

Advanced Project Control, Illinois Institute of Technology, Spring 2010
Graduate Course. Principles and applications of schedule and cost control techniques for construction projects using the Earned Value Management System (EVMS). Introduction to the terminology and equations used to measure performance using the EVMS. Review of scheduling, estimating, and risk assessment techniques. Establishment of a performance measurement baseline, collection of performance data, completing performance measurement calculations, identifying variances, developing corrective actions, and performance reporting.

Cost Estimating, The University of Texas at Austin, Fall 2009
Principles and application of construction cost estimating. Techniques of quantity surveying from plans and specifications, unit prices, lump sum estimates, labor estimates, Masterformat categories and estimates, overhead, profit, and bidding procedures.

Contracts, Liability, and Ethics, The University of Texas at Austin, Every Fall 2006-2009
Undergraduate Course. An introduction to the legal aspects of engineering and construction contracts and specifications. Principles of contract formation; contract interpretation; roles, responsibilities, rights, and duties of the parties involved in design and construction; and change management and root causes of changes. Identification and analysis of legal liabilities, ethical dilemmas, and the professional standard of architects, engineers, and contractors.

Project Development for Disaster Mitigation, The University of Texas at Austin, Spring 2007-2009

Graduate Course. An introduction to the development of projects for submission to the federal Hazard Mitigation Grant Program. This is a service learning class in which students work directly with a community to (1) develop a scope of work, (2) prepare a cost estimate, (3) verify/validate that the project is technically feasible, (4) conduct a benefit-cost analysis to determine the estimated reduction in damages that will result from the project, (5) collect backup data to support the need for the project, and (6) prepare the complete application package for submission. This class will examine the relationship between mitigation of future disasters, community resilience, and local economic, social, and physical sustainability.

Project Controls, The University of Texas at Austin, Fall 2007

An introduction to the principles and applications of planning, scheduling, and schedule control for construction projects. Overview and application of planning principles and practices. Principles and applications of scheduling techniques, including critical path method. The course involves teaming with, and mentoring by, construction industry professionals.

Front-End and Project Planning, The University of Texas at Austin, Spring 2007

An introduction to the principles and applications of early project planning techniques for capital facility owners and construction contractors. Application of owner front-end planning, including decision making, risk management, planning processes, and project definition rating tools. Application of contractor pre-construction planning, including an overview of team selection, scope and budget review, buyout, sequencing, scheduling, and planning assessment tools. The course involves teaming with, and mentoring by, construction industry professionals.

Project Management, University of Wisconsin-Madison, Fall 2004.

Principles and practices of design management, cost estimating, bid development, execution planning, cost and schedule control, project execution, project management, and closeout of construction projects. The course also covered workforce productivity.

CONTINUING EDUCATION COURSES TAUGHT

Negotiating Construction Change Orders, The University of Texas at Austin, Facilities Services, November 2008.

Development of a principles and organized process for negotiating contract change orders. The key is to conduct a change assessment and perform a technical audit of the contractor's change proposal.

Materials Management, The University of Texas at Austin, Every April, July, and October.

Strategic concepts and tactical applications of materials management practices for Engineering/ Procurement/Construction (EPC) projects.

Principles and Practices of Estimating for Engineering and Design Professionals, University of Wisconsin-Madison, June 2003, December 2003, June 2004, and December 2004.

Principles and concepts of cost estimating; estimating of earthwork, concrete structures, concrete formwork, steel structures, and interior finishes.

Principles and Practices of Estimating for Engineering and Design Professionals (Webinar), University of Wisconsin-Madison, March 2004 and February 2005.

Web-based seminar on principles and concepts of cost estimating.

PH.D. SUPERVISIONS IN PROGRESS

STUDENT	GRADUATION DATE	AREA
Stephen Kleps	December 2013	CEM
• Flexible Decision Making in Response to Disruptions on Construction Sites		
Mehmet Hanioglu	December 2014	CEM
• Impact of Contract Framing on Affective Reactions and Behavioral Intentions		
Arjun Pandey	December 2014	CEM
• Heuristic Decision-making Process of Construction Foremen		
Lawrence Dorn	May 2016	CEM
• Topic TBD		

PH.D. SUPERVISIONS COMPLETED

STUDENT	GRADUATION DATE	AREA
Dae Young Kim	December 2010	CEPM
• Impact of Alignment of Pre-Construction Planning and Project Management on Performance		

M.S. SUPERVISIONS IN PROGRESS

STUDENT	GRADUATION DATE	AREA
Jaya Saxena	December 2013	CEM
• Logical and Intuitive Decision-making in High-Hazard Environments		

M.S. SUPERVISIONS COMPLETED

STUDENT	GRADUATION DATE	AREA
Tadahisa Muramatsu	May 2010	CEPM
• Relationship Between Project Management and Performance in Electrical Construction		
Katherine Hull	May 2010	CEPM
• Reimbursable Contracting Applications		
Juan Chen	December 2009	CEM
• Innovative Maintenance Contracting Strategies for Routine and Preventive Maintenance		
Ziad Bou Nasr	May 2009	CEPM
• Development of a Model Electrical Project Management Process		
Shaahid Ali	December 2008	CEPM
• Team Learning and Development for Project Controls		
Chelsea Cohen	December 2008	CEPM
• Workload Reduction Strategies To Address Transportation Construction Inspection Challenges		
Ryan Jones	December 2008	CEPM
• Innovative Method to Investigate Bias in the Facility Damage Assessment Process		
Aditi Kadam	December 2008	CEPM
• Survey Sampling Methodology and Metrics for the Modernization of the ASCE Report Card		
Timothy Fryar	May 2008	CEPM
• Factors that Impact the Accuracy of Cost Estimates		

Yetendra Jangid	August 2008	CEPM

- Quality Assurance/Quality Control Practices and Procedures in TxDOT

Anoop Kaul	August 2008	CEPM

- Generational Issues in the Electrical Construction Industry

Neal Armstrong	December 2007	CEPM

- Factors that Impact Facility Resilience of U.S. Coast Guard Installations

James Covington	December 2007	CEPM

- Applying Mobile Mapping to Facilitate The Private Property Debris Removal Process

John Jeffrey	August 2007	CEPM

- An Overview of Federal Emergency Acquisitions Policy and Procedures

Ken Schwalbe	December 2006	CEPM

- Case Study Analysis of Three Lean Six Sigma Process Improvement Pilot Projects within Naval Facilities Engineering Command (NAVFAC)

WORK EXPERIENCE

Project Manager, (Sep 01-Dec 02), J.H. Findorff & Son, Inc., Madison, WI.
- Project Manager for the Overture Center performing arts center in downtown Madison.
- Managed all aspects of the high-end interior construction, acoustics, and theater equipment.
- Duties included budgeting, scheduling, development of bid packages, bidder pre-qualification, bidding, project buy-out, contract administration, and quality control.
- Managed Quality Control, construction recycling, and sustainable construction programs.
- J.H. Findorff & Son is an Engineering News Record Top 400 Construction Company.

Project Manager, (Nov 99-Aug 01), McShane Construction Corp., Rosemont, IL.
- Responsible for design development, cost estimating, permitting, bidding, project buy-out, scheduling, construction administration, and close-out.
- Worked hand-in-hand with subcontractors to guarantee a quality end product.
- Worked directly with customers to ensure total satisfaction.
- Additional responsibilities: initiated a Subcontractor Performance Rating and Rewards Program.
- McShane Construction Corp. is an Engineering News Record Top 100 Construction Company.

Project Manager, (Jul 98-Nov 99), Wight & Company, Downers Grove, IL.
- Project Manager on eight design-build projects worth $22 million. Established a strong rapport with the customers and developed a sense of teamwork with subcontractors.
- Construction Manager/Field Superintendent on two high profile college campus projects.
- Initiated a "get well" program to help the company identify long- and short-term goals, develop a strategic plan for growth, standardize procedures, and market services.
- Wight & Company is an Engineering News Record Top 400 Design Firm.

Engineering Officer, Captain, (Jun 93-May 98), US Air Force, various locations.
- Deputy Chief of Engineering, (Mar 97-May 98), San Antonio, TX.
  - Supervised 27 architects, engineers, and technicians responsible for providing engineering services for industrial facilities, housing units, pavements, and utilities.
  - Managed the design, construction, and project planning for new construction, renovation, and improvements to all real property assets on the military installation.
  - Supervised construction management of 62 construction projects worth $10 million.
  - Supervised design management of 25 diverse design projects worth $8.5 million.

- Environmental Engineering Program Manager, (Jun 95-Mar 97), San Antonio TX.
  - Managed the Environmental Impact Analysis Process for Air Force environmental actions.
  - Responsible for planning, scheduling, and executing worldwide environmental projects in compliance with the National Environmental Policy Act.
  - Led a team of technical experts to assess impacts of activities on the natural environment.
  - Developed environmental phase 1 surveys, environmental assessments, and transportation management plans; saved the government $250,000 by accomplishing the work in-house.
  - Directed a $900,000 project for a natural resources management plan in Hawaii -- winner of the American Planning Association's 1997 Award for Environmental Planning Excellence.
- Graduate Student in Architectural Engineering, (Jun 93-Jun 95), The Pennsylvania State University, State College, PA.
  - Completed an Air Force-sponsored Master of Science degree in Architectural Engineering with an emphasis in Construction Management.
  - Published research results on postoccupancy evaluations of new buildings and the criteria for evaluating new building performance.

Engineering Officer, Lieutenant, (Nov 89-Jun 93), US Air Force, various locations.
- Engineering Division Leader, (Jun 91-Jun 93), Shemya, Aleutian Islands, Alaska.
  - Directed, scheduled and controlled planning, design, and construction management involving new construction, renovation, and maintenance and repair of facilities, utilities, and pavements.
  - Reviewed plans, specifications, cost proposals, schedules, and submittals.
  - Conducted site visits and inspections.
  - Directed the design of ten projects valued at $85 million; took the initiative to get the customers involved and improved the cooperation, coordination, and satisfaction of the customers.
  - Took over a faltering 13-project, $70 million construction program. Got all projects on track, organized files, established budgets, validated schedules, and got customers involved.
- Chief Project Planner, (Nov 89-Jun 91), Tampa, FL.
  - Developed, evaluated and validated requirements for maintenance, repair, minor construction, and major construction on facilities, utility systems, and roads and airfield pavements.
  - Developed initial planning documents for projects, including work description, cost estimate, and proposed schedule.
  - Developed project planning documents on over 30 projects valued at $15 million.

Assistant Landscape Designer, (May 89-Nov 89), Emmet L. Wemple & Assoc., Costa Mesa, CA.
- Performed drafting for landscape architects and assisted with the design of landscape projects.
- Drafted landscape plans for two high profile projects: Caesar's Palace in Las Vegas and Richard Nixon Memorial and Library in Yorba Linda, California.
- Assisted with the landscape design of Cathedral City Shopping Center in Cathedral City, California -- winner of a 1989 landscape planning award.

CONSULTING EXPERIENCE

- **Engineering expert** to the Texas Governor's Division of Emergency Management (Jan 08 – present). Assisted with the review and development of Hazard Mitigation Grant Applications and performance of Benefit-Cost Analyses.
- **Project consultant** to an electrical construction company in Boston (Jan – Mar 04). Evaluated the cost escalation resulting from schedule compression on an apartment building. Substantiated the contractor's claim for recovery of additional costs.
- **Project consultant** to an electrical construction company in Michigan (Jan – Mar 04). Evaluated the impact of changes on labor productivity and developed a claim support document that

quantified the impact of those changes. Substantiated the contractor's claim for recovery of additional costs.
- **Project consultant** to an electrical construction company in New Jersey (Mar 04). Documented the impact of delays on labor productivity and timely completion of a middle school construction project. Supported the contractor's claim for recovery of additional costs.

PROFESSIONAL LICENSES

- Licensed Professional Engineer in Illinois; License Number 062-054003
- Licensed Professional Engineer in Pennsylvania; License Number PE075045
- National Record on file with the National Council of Examiners for Engineering and Surveying.

PROFESSIONAL MEMBERSHIPS AND COMMITTEES

- Lean Construction Institute, Chicago Community of Practice, Academic Liaison, Former Co-Chair, 2011-present
- Transportation Research Board Committee on Contract Law, 2009-present
- ASCE Committee on Critical Infrastructure, board committee member, 2007-present
- American Society of Civil Engineers, member, since 2003
- ASCE Construction Institute, member, since 2003
- ASCE Architectural Engineering Institute, member, since 2007
- ASCE, Construction Research Council, since 2006
- Knowledge Management Committee, Construction Industry Institute, academic liaison, 2008-present
- Women in Engineering Program Committee, College Chair, The University of Texas, 2008-2009

RELEVANT SERVICE ACTIVITIES

- Disaster Reservist, State of Texas Governor's Division of Emergency Management
- Editorial Board Member, Construction Management and Economics
- Reviewer, Journal of Construction Engineering and Management
- Reviewer, Automation in Construction
- Reviewer, Canadian Journal of Civil Engineering

VITA

Cindy L. Menches is an Assistant Professor of Civil, Architectural & Environmental Engineering at the Illinois Institute of Technology in Chicago. Dr. Menches holds a Bachelor of Science degree in Civil Engineering-Building Science from the University of Southern California, a Master of Science degree in Architectural Engineering from The Pennsylvania State University, and a Doctor of Philosophy degree in Civil Engineering from the University of Wisconsin.

Dr. Menches' current research involves studying the reactions, behavior, and decisions of construction professionals and workers in response to circumstances on construction projects, including reactions to disruptions, safety incidents, and contract language. Specifically, Dr. Menches is conducting research on flexible, fast decision-making on the construction jobsite in response to disruptions to the flow of work. She is investigating how electrical construction workers react to a task disruption by improvising creative workarounds that allow the work to continue. The study aims to identify how decisions made

by workers in response to disruptive events can lead them to flexibly restructure tasks (i.e., develop a work-around) in order to adapt to a disruption as it unfolds.

Dr. Menches is also studying how workers make intuitive decisions when faced with a decision about a hazard. She notes that individuals rely on two complementary modes of thought when making decisions about risks: logic and intuition. Logic is relatively slow, controlled, and effortful while intuition is quick, impulsive, and effortless. Consequently, the two modes of thinking might produce dramatically different responses to the same hazard. Her research aims to establish the factors and conditions that encourage or discourage logical and intuitive decision-making by construction workers under hazardous conditions.

Furthermore, Dr. Menches is conducting research on emotive contract language and structure. The study will identify specific features of contract clauses that communicate a positive or negative emotive tone, and then, through experimentation, Dr. Menches will establish how specific language and features in the contract evoke specific emotional reactions in individuals.

Dr. Menches' prior work consists of research on various aspects of contracting, including innovative contracting strategies for highway maintenance, reimbursable contracting strategies for Engineer/ Procure/ Construct (EPC) projects, and emergency contracting strategies for public agencies.

Dr. Menches teaches courses on Lean Construction and Construction Contracting. She is the academic liaison and former co-Chair of the Chicago Lean Construction Institute (LCI) Community of Practice, whose vision is to unlock the potential for success in all stakeholders within the Chicago Architecture, Engineering, and Construction (AEC) industry through Lean thinking, collaborative relationships, and continuous improvement.

Dr. Menches has conducted research for the Construction Industry Institute, the Foundation for Electrical Construction, the Texas Department of Transportation, and the National Science Foundation. Prior to joining the faculty at the Illinois Institute of Technology, she was a professor at The University of Texas at Austin. Dr. Menches completed nine years as a civil engineer/project manager in the U.S. Air Force followed by five years in private industry in Chicago, IL and Madison, WI. Dr. Menches is a licensed professional engineer in Illinois. She is a member of the American Society of Civil Engineers and the Lean Construction Institute.
