

Catarina Pestana

Instructor

School of Civil and Construction Engineering

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EDUCATION

- 2016 **Ph.D.**, Major - Civil Engineering, Minor – Statistics, Oregon State University, Corvallis, OR

Dissertation: “Multi-Criteria Risk Mapping Using Lean Tools for the Architecture, Engineering, and Construction Industry.”

Faculty Advisor: John Gambatese, Ph.D., P.E. (CA)
- 2011 **M.S.**, Civil Engineering, San Diego State University, San Diego, CA

Thesis: “*Application of Lean Concepts to Office Related Activities in Construction.*”

Faculty Advisor: Thais da C. L. Alves, Ph.D.
- 2008 **M.S.**, Economics and Social Sciences, Technical University of Valencia, Valencia, Spain

Thesis: “*San Diego’s Single-Family Housing Market – Hedonic Regression Models Applied to Real Estate Appraisal.*”

Faculty Advisor: Natividad Guadalajara, Ph.D.
- 1998 *Licenciatura* (5 year undergraduate degree), Civil Engineering, Technical University of Lisbon, Lisbon, Portugal

PROFESSIONAL EXPERIENCE

ACADEMIC

- 09/2016 – Present **Instructor**, School of Civil and Construction Engineering, Oregon State University. CEM 343 – Construction Planning and Scheduling; CCE 101 – Civil and Construction Engineering Orientation
- 04/2016 – 06/2016 **Instructor**, School of Civil and Construction Engineering, Oregon State University.
- 04/2015 – 06/2015 **Instructor**, School of Civil and Construction Engineering, Oregon State University.
- 01/2014 – 03/2014 **Co-Instructor**, School of Civil and Construction Engineering, Oregon State University.
- 01/2013 – 12/2013 **Teaching Assistant**, School of Civil and Construction Engineering, Oregon State University.

- 01/2013 – 12/2016 **Graduate Research Assistant**, School of Civil and Construction Engineering, Oregon State University.
- (1) *“Multi-Criteria Risk Mapping of On-Site Processes Using Lean Tools.”*
Explored advancements in the AEC industry by integrating risk management practices and lean techniques in the development of multi-criteria decision making for the delivery of construction project. My research involved tracking construction activities, modeling flow of those activities and assessing their risks (cost, schedule, and safety).
 - (2) *“Connection between Lean Design/Construction and Construction Worker Safety.”*
Investigated the relationship between lean design and construction practices and the risk of worker injuries and fatalities on construction sites to provide evidence of how to advance the practice of lean design/construction enhance construction site safety while also improve the efficiency of delivering AEC projects.
 - (3) *“Use and Re-use of Formwork: Safety Risks and Reliability Assessment.”*
Mapped the on-site life-cycle of formwork and identified and quantified site operations and environmental impacts to formwork.

- 01/2010 – 12/2010 **Graduate Research Assistant**, School of Civil and Construction Engineering, Oregon State University.
- “Application of Lean Concepts to Office Activities in Construction.”*
Applied Lean Thinking principles to streamline the submittal process of a construction project. The research work required weekly visits to the construction site to collect data through the analysis of the submittal’s log, the submittals and transmittals, the specification book and the drawings. Used lean indicators, such as cycle times and lead times, and lean tools, such as value stream maps, to identify where improvements to the process could be made.

PROFESSIONAL

- 07/2012 – 01/2013 **CH2M Hill, Industrial & Advanced Technology - Lean Promotion Group**, Portland: July 2012 – January 2013
- Project Manager for Research Development – Applied Research***
Applied Lean Thinking principles to develop a design quality assessment tool based on requests for information.
I was responsible for the design and the selection of the assessment tools to be implemented by the design group and promoting a continuous improvement culture on the company’s design process.

03/2011 – 06/2012 **California Department of Transportation (Caltrans), San Diego: March 2011 – June 2012**

Office Engineer for District 11 - On-call Management Services on several projects, such as: (1) Pala Creek Bridge Replacement on HW 76 (\$ 3.3M); (2) Grind Portland Cement Concrete Pavement, Cold Plane Asphalt Concrete, and Replace Slabs, Metal Beam Guard Rail, and Traffic Signal on SD route 163 (\$8.8M); (3) Upgrade Median Guardrail To Concrete Barrier on SD I5 (\$6.5M); (4) Bonded Wearing Course Asphalt Concrete Surfacing on HW 78 – Pilot Project (\$2M); (5) Replace Portland Cement Concrete Slabs on SD I8 (\$2M); and (6) Freeway and Bridge Widening and Bridge Removal on SD I8 (\$13M).

Coordinated the interface between Caltrans District Office, Field Office, and General Contractors to ensure compliance to project, State, and Federal requirements for the construction of the projects, such as quality control requirements, safety requirements, labor compliance requirements, and project closeout requirements.

Composed and administered contract change orders; performed force account analysis; performed time impact analysis; inputted, verified and approved and extra work bills; processed monthly pay estimates; reviewed and verified plans to identify design deficiencies related to constructability; reviewed and analyzed the contractors' critical path method, schedules and project staging; inputted, verified, and approved lane closure requests. Verified that construction was according to the plans and specifications, determined executed quantities and composed diaries and Q-sheets.

2002 – 2005

PBC – Consultores de Património e Obras, Lda, Portugal

Project Manager

Coordinated the Engineering team for the design of several projects such as the new 15-story residential tower in Luanda, Angola (construction cost €4.0 million), and two Woman's Hospitals in Timor (13,000 sq. ft. and construction cost €1 million each).

Coordinator and Real Estate Appraiser

Coordinated and supervised a team of five engineers/real estate appraisers and verified and certified their appraisal reports.

Appraised property and investment projects of several property types, such as residential developments (e.g., residential complex of 12 4-story buildings and 32 single-family houses), office buildings (e.g., a 4-story building in downtown Lisbon), warehouses (e.g. 55.000 sq. ft.), parking structures and hotels.

1998 – 2002

Odebrecht, S.A, Portugal***Assistant Project Manager/Project Steward - Liquid Natural Gas Terminal, Sines, Portugal***

Design/build contract awarded for €190 million on a European consortium of four firms: TRACTEBEL (Belgium) / ENTREPOSE (France) / ODEBRECHT and SOMAGUE (Portugal). This was a fast track project where the design and the construction were developed simultaneously.

Coordinated the design efforts, resolved design conflicts between the different disciplines to ensure that the design efforts were kept ahead of the construction forces. Established the design's schedule, quality goals, and milestones. Tracked the design development and updated the design schedules.

I was required to hold daily meetings with the architect, consultants, and contractor's teams assigned for the project and to report the design advancements and setbacks to the construction teams as well as report that information on weekly meetings with the owner.

Civil Engineer - Bidding department, Lisbon, Portugal

Reviewed Requests for Proposals and perform quantity take-offs, to allocate labor, equipment, and requested subcontractors' bids; established schedule and budget for bids on several public projects.

I was responsible for coordinating a team of Engineers to integrate the schedule and the budget of the bids, ensuring the consistency of the documents.

Assistant Project Manager – Railroad enhancement, Albergaria-dos-Doze/Alfarelos, Portugal: August 2000-December 2000

Design/build contract awarded for €90 million on a consortium of five firms: ODEBRECHT / SOMAGUE / MSF / FERGRUPO / NEOPUL

Coordinated and supervised the work to establish substantial completion of the project and release of European funds (Cohesion funds). Established schedule, budget and quality goals, and milestones for the work to be completed. Prepared weekly progress reports to discuss with the owner.

I was responsible for ensuring the substantial completion of the project, including railroad, access roads, under and overpasses, and stations.

Project Engineer – MARL (Lisbon Region Supplies Market)

Design/build project awarded for €65 million on a national (Portugal) consortium of three firms for the construction of the Lisbon's new distribution wholesale center as design/build projects with 230 acres.

Reviewed the infrastructures' design, identified design deficiencies related to constructability, and developed modifications on the design to accommodate field conditions. Coordinated, supervised and inspected the infrastructures' construction work of construction teams and

subcontractors, and prepared as-built to project documentation. Established schedule, budget and quality goals, and milestones for the infrastructures. Prepared monthly progress reports to discuss with the project manager of the project.

I was responsible for the construction of roads, water supply, wastewater, drainage systems, electrical supply, fire protection systems, landscaping, and containing walls.

INSTRUCTIONAL SUMMARY

Credit Courses

Number	Course Title	Term/Year	Credits	Enrollment
CE 424/524	Contracts and Specifications	Spring 2015	4	56
CE 424/524	Contracts and Specifications	Spring 2016	4	36
CCE 101	Civil and Construction Engineering Orientation	Fall 2016	2	193
CEM 343	Construction Planning and Scheduling	Fall 2016	2	74

Student and Participant Evaluations

Term	Enrollment	# Responding	Student Evaluation (#1/#2) *	Department Medians (#1/#2)*	Δ	Required /Elective
SP 2015	56	46	4.3/4.3	4.8/5.1	-0.5/-0.8	Required
SP 2016	36	29	5.1/5.3	4.7/4.9	+0.4/+0.4	Required

*#1 – Course as a whole / #2 – Instructor's Contribution; Maximum score 6.0/6.0

PUBLICATIONS

Refereed Journal Publications

Gambatese, J., **Pestana, A.C.**, and Woo Lee, H. (2016). "Alignment between Lean Principles and Practices and Worker Safety Behavior." *ASCE J. Constr. Eng. Manage.*, 10.1061/(ASCE)CO.1943-7862.0001209, 04016083.

Alves, T.C.L., **Pestana, A.C.**, Gilbert, E., Hamzeh, F., (2016). "Lean Principles for the Management of Construction Submittals and RFIs." *ASCE J. Prof. Issues Eng. Educ. Pract.*, 10.1061/(ASCE)EI.1943-5541.0000285, 05016004

Pestana, A.C., Alves, T.C.L., Barbosa A.R. (2013). "Application of Lean Construction Concepts to Manage the Submittal Process in AEC Projects." *ASCE J. Manage. Eng.*, 10.1061/(ASCE)ME.1943-5479.0000215, 05014006.

Refereed Journal Publications (to be submitted)

Pestana, A.C., Gambatese J., (to be submitted) "Multi-Criteria Risk Mapping of On-Site Processes Using Lean Tools", *J. Constr. Eng. Manage.*

Pestana, A.C., Gambatese J., (to be submitted) "Risk Mapping in Construction Administration Processes using Lean Tools", *J. Constr. Eng. Manage.*

Pestana, C. et al. (to be submitted). "Bimodal safety risk distribution in construction."

Pestana, C. et al. (to be submitted). “Effects of reduced exposure on safety risk in construction.”

Peer-Reviewed Archival Conference Publications

Pestana, A.C., and Gambatese, J. “Lean Practices and Safety Performance.” Construction Research Congress, ASCE, Puerto Rico, 2016.

Barbosa, A., Gambatese, J., Das, A., and **Pestana, A.C.** (2014). “Mapped Workflow for Safety and Reliability Assessments of Use and Re-use of Formwork.” Proceedings of the 2014 Construction Research Congress, ASCE, Atlanta, GA, May 19-21, 2014, pp. 1821-1830.

Pestana, A.C. and Alves, T.C.L. (2012). “Mapping the Submittal Process in a Design-Bid-Build Project.” Construction Research Congress 2012, ASCE, Purdue University, May 21-23 2012, pp. 80-89.

Pestana, A.C. and Alves, T.C.L. (2011). “Study of the Submittal Process Using Lean Production Principles.” Proceedings of the CIB International Conference Management and Innovation for a Sustainable Built Environment - MISBE2011, Wamelink, H. et al. Editors. Amsterdam, The Netherlands, 6/20/11-6/23/11.

Pestana, A.C., Guadalajara, N., De La Poza, E., and Barbosa, A. R. (2010). “The Location Factor in San Diego’s Single-family Housing Market.” The Construction, Building and Real Estate Research Conference of the Royal Institution of Chartered Surveyors - RICS, COBRA 2010. Paris, France.

Other Publications

Gambatese, J.A., and **Pestana, C.**, (2014). “Connection between Lean Design/Construction and Construction Worker Safety.” Research Report. The Center for Construction Research and Training (CPWR), Silver Spring, MD.

AWARDS

- **San Diego State University Library Most Accessed Thesis List**
Thesis: “*Application of Lean Concepts to Office Related Activities in Construction.*” Rank in the top 100 most downloaded titles of any thesis or dissertation written by a San Diego State University graduate student.
- **CMAA - Scholarship** awarded by Construction Management Association of America, San Diego Chapter, 2010
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AFFILIATIONS

- American Society of Civil Engineers – ASCE
- Professional Engineer (Portugal), License # 38265