Paul McGinley Goodrum, PhD, PE, NAC

Curriculum Vitae

Department of Construction Management
Colorado State University
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PROFESSIONAL PREPARATION

Institution	Field	Degree
University of Texas at Austin Austin, TX	Civil Engineering – Construction Engineering & Project Management	Ph.D., May 2001
University of Texas at Austin Austin, TX	Civil Engineering – Construction Engineering & Project Management	MSE, September 1994
University of Washington Seattle, WA	Civil Engineering (Construction Concentration)	BSCE, June 1993

PROFESSIONAL EXPERIENCE

Professor of Construction Management Colorado State University	July 2020 to Present
Affiliate Professor in Civil Engineering Colorado State University	July 2020 to Present
Adjoint Professor in Civil, Environmental, and Architectural Engineering University of Colorado Boulder	July 2020 to Present
Department Head of Construction Management (see specific accomplishments starting on page 33) Colorado State University	July 2020 to Jun 2025 (full-term)
Construction Engineering Masters Programme Fellow Laing O'Rourke Centre for Construction Engineering and Technology University of Cambridge	January 2014 to 2020
Nicholas R. Petry Professor of Construction Engineering and Management University of Colorado Boulder	August 2012 to June 2020
Professor of Civil, Environmental, and Architectural Engineering University of Colorado Boulder	August 2012 to June 2020
Terrell-McDowell Chair of Construction Engineering and Management University of Kentucky	January 2012 to August 2012
Professor of Civil Engineering University of Kentucky	July 2011 to August 2012

Associate Professor of Civil Engineering University of Kentucky	Jul 2006 to June 2011
Assistant Professor of Civil Engineering University of Kentucky	Jul 2001 to June 2006
Research & Teaching Assistant University of Texas at Austin	Jan 1998 to June 2001
Design Civil Engineer (EIT) DDS Engineering	May 1996 to Dec 1997
Project Engineer & Project Safety Engineer W.L. Hailey and Company, Inc.	Sep 1994 to May 1996
Research Assistant University of Texas at Austin	Aug 1993 to Sep 1994

PROFESSIONAL CONSULTING

1. Assessment of FHWA Highway Project Cost Estimation Tools. Engineering & Software Consultants, Inc. Federal Contract: DTFH61-17-D-00005. From February 2019 to May 2021.
2. Leveraging Augmented Reality for Highway Construction. WSP USA, Inc. Federal Contract: DTFH6117C00027 From October 2017 to April 2020.
3. Improving Craft Performance through Digital Engineering Deliverables. Bentley Systems. Private Contract. From August 2015 to May 2016.

PROFESSIONAL REGISTRATION

Professional Engineer (Civil Engineering) License, No. 20220, State of Kentucky, 1998

AWARDS AND HONORS

1. CSU Department of Civil and Environmental Engineering – Outstanding Academic Partner Award, 2025
2. CSU College of Health and Human Sciences, Research Day Award for Distinction in Research – Applied Science Category (presented by Doctoral Candidate Rahul Chaudhari, 2024 and 2025).
3. American Society of Civil Engineering Outstanding Paper Award for the Journal of Construction Engineering and Management, 2022
4. Induction into the National Academy of Construction for, "Significant contributions in research on construction productivity, craft availability, and workforce strategies that changed government regulations and benefited the industry and the nation." 2020.
5. Editor's Choice Article - The Effects of Information Format and Spatial Cognition on Individual Wayfinding Performance.", MDPI Publishers - Journal of Buildings. 2020
6. ACE Construction Education Challenge Award – Associated General Contractors. Developing the Next Generation of Construction Professionals. Lead nomination for the Construction Engineering and Management Program at the University of Colorado Boulder. 2018.
7. Outstanding Faculty Achievement – Department of Civil, Environmental, and Architectural Engineering, University of Colorado Boulder. 2017
8. Transportation Research Board Blue Ribbon Committee Award – Award given to AFH-10 Standing Committee on Construction Management, Chair. 2017
9. Construction Engineering and Management Fellow, Cambridge University, Cambridge, England, 2016-2023
10. Outstanding Researcher Award, Construction Industry Institute, 2014
11. Distinguished Professor Award, Construction Industry Institute, 2014
12. Outstanding Faculty Award in Civil Engineering, University of Kentucky, 2012.

13. Outstanding Researcher Award, Construction Industry Institute, 2008.
14. Outstanding Faculty Award in Civil Engineering, University of Kentucky, 2006.
15. Chi Epsilon Civil Engineering Honor Society Excellence in Teaching Award for the Cumberland District, 2005.
16. Faculty Initiate into Omicron Delta Kappa National Leadership Society, University of Kentucky, 2003.
17. Outstanding Faculty Award in Civil Engineering, University of Kentucky, 2003.
18. Chi Epsilon Civil Engineering Honor Society Excellence in Teaching Award for the Cumberland District, 2003.

RESEARCH

AREAS OF RESEARCH THEMES

- **Productivity**
- **Workforce Development**
- **Visualization**

RESEARCH CONTRACTS AND GRANTS

Below is the amount of Funding Receive (not adjusted for inflation)

Number of Grants	Funding as PI	Funding as Co-PI	Total Funding
45	$4,563,584	$3,390,418	$7,954,002

Funded grants are described below grouped in the themes of **Construction Productivity**, **Workforce Development**, and **Visualization**.

Funded – Construction Productivity

1. Investigating Project Bundling Practices for Roadway Construction Projects. Colorado Department of Transportation. PI with Shan (Oklahoma State University as co-PI) $125,000. From January 2020 to December 2022

2. Enhancements to the Estimating Contract Time System. PI. FHWA Pooled Fund Study though the Colorado Department of Transportation. $11,208. From January 2020 to July 2021.

3. How to Double the Downstream and Chemicals Sector Productivity. Construction Industry Institute. PI with Hallowell, Leaf, and Caldas (UT-Austin) as co-PI. $110.000. From April 2017 to September 2018.

4. Guidebook for Post-Award Contract Administration for Highway Projects Delivered Using Alternative Contracting Methods, *NCHRP Project 08-104*, co-PI with Molenaar as PI, $500,000. From June 2016 to September 2018.

5. Community Outreach Best Practices Guide for Accelerated Construction Projects. PI with Dr. Keith Molenaar as co-PI. FHWA Pooled Fund Study though the Colorado Department of Transportation. $87,669. From August 2013 to February 2015.

6. Construction Productivity: Extension of the Prototype Master Code of Accounts to Electrical, Mechanical, and Steel Construction Systems. PI. National Institute of Standards and Technology, $40,000. From January 2013 to April 2014.

7. Effective Project Scoping Practices to Improve On-Time and On-Budget Delivery of Highway

Projects. Co-PI with Dr. Stu Anderson (Texas A&M) PI, and Dr. Timothy Taylor (UKy) as co-PI, National Cooperative Highway Research Program (NCHRP), $250,000. From August 2012 to August 2014

8. Construction Productivity: Development of a Prototype Master Code of Accounts related to Electrical and Mechanical Systems. PI, National Institute of Standards and Technology, Office of Applied Economics, $29,981. From January 2012 to October 2012.
9. Tools for Applying Constructability Concepts to Project Development (FRT 190). co-PI (Stamadias PI). Kentucky Transportation Center. $150.000. From August 2011 to June 2013.
10. Contractor Evaluations in the Contractor Selection Process (SPR 12-438). co-PI (Taylor PI). Kentucky Transportation Center, $120,000. From July 2011 to June 2013.
11. Construction Productivity: A Path Forward for the development of Reliable Metrics for Selected Sectors and Tasks, PI, National Institute of Standards and Technology, Office of Applied Economics, $49,473. From November 2010 to November 2011.
12. Updating the Kentucky Contract Time Determination System (KY-CTDS), co-PI with Taylor as PI, Kentucky Transportation Center, $130,000. From July 2010 to June 2012.
13. Change Orders and Lessons Learned (SPR 09-384), PI with Taylor as co-PI, Kentucky Transportation Center, $100,000. From July 2008 to June 2010.
14. Craft Productivity Research Program, PI, with Dr. Carl Haas (University of Waterloo (UW)) as co-PI and Dr. Carlos Caldas (University of Texas at Austin) as co-PI, Construction Industry Institute, $907,833. From September 2007 to December 2013
15. Kentucky Design-Build Initiative: Case Study, PI with Don Hartman (KTC) as co-PI, $146,250. Community Transportation Innovation Academy. From October 2006 to September 2011.
16. Leveraging Technology to Improve Construction Productivity, co-PI with Dr. Carl Haas (University of Waterloo (UW)) as PI and Dr. Carlos Caldas (University of Texas at Austin) as co-PI, Construction Industry Institute, $199,747. From September 2006 to December 2009.
17. QC/QA: Evaluation of Effectiveness, Co-PI with Dr. Kamyar Mahboub as PI. Kentucky Transportation Cabinet, $120,000. From July 2006 to June 2008.
18. Kentucky CSS Project Information Resource Archive, co-PI with Don Hartman as PI, Community Transportation Innovation Academy, $30,671. From May to November 2005.
19. Analysis of the Direct and Indirect Costs of Utility and Right-of-Way Conflicts on Construction Roadway Projects, PI with Dr. Hancher as co-PI, Kentucky Transportation Cabinet, $130,000. From July 2004 to June 2006.
20. Workforce View of Construction Productivity, PI with Dr. Maloney as co-PI, Construction Industry Institute, $162,000. From January 2004 to December 2006.
21. Rapid Innovation Construction/Reconstruction Methods, PI, Kentucky Transportation Cabinet, $100,000. From July 2003 to June 2005.
22. The Use of Smart Chip Technology in the Electrical Contracting Industry, PI, National Electrical Contractor's Association. $75,000. From January 2003 to 2004.
23. Effectiveness of Safety Incentive Programs in Construction, PI, American Society of Safety Engineers, $10,000. From May 2002 to June 2004.
24. Constructability Issues on Kentucky Transportation Projects, co-PI with Dr. Hancher as PI,

Kentucky Transportation Cabinet, $120,000. From July 2001 to July 2003.

Funded – Workforce Development

25. Guidance for Training and Certification of Construction Inspectors for Transportation Infrastructure. Co-PI with Harper (Colorado State University) as PI. $450,000. NCHRP Project 23-05. From June 1, 2020 to May 31, 2022.
26. Modeling the Composition of the 2030 Workforce. Construction Industry Institute – RT370. co-PI with Taylor (Univ. of Kentucky) as PI. $200,000. From September 2019 to August 2021.
27. Assessment of FHWA Highway Project Cost Estimation Tools. PI. Federal Highway Administration. Contract Number: DTFH61-17-D-00005. $191,536. From February 2019 to May 2021.
28. Effective Construction Project Staffing Strategies for Transportation Agencies, *NCHRP Project 20-107,* co-PI, $500,000. From June. 2016 – September 2018.
29. Improving the U.S. Construction Workforce Development System. PI with Taylor (UK) as co-PI. Construction Industry Institute. $240,000. From September 2015 to September 2018
30. Estimating Construction Production Rates (PI). Colorado Department of Transportation. $128,625. From August 2015 to August 2019.
31. Analyses and Reporting of the National Craft Assessment and Certification Program (NCACP) and Mapping of the Construction Workforce Body of Knowledge. PI. National Center for Construction Education and Research. $30,000. December 2014 to May 2016.
32. Is There a Demographic Craft Labor Cliff that will Affect Project Performance. PI with Dr. Timothy Taylor (UKy) as co-PI. Construction Industry Institute. $222,274. Sept 2013 to August 2015.
33. Evaluation of Highway Agency Approaches to Consultant Oversight for Construction Engineering and Inspection Services. PI with Dr. Keith Molenaar as co-PI. FHWA Pooled Fund Study though the Colorado Department of Transportation. $57,536. Aug 2013 to Aug 2014.
34. Continued Support on the Contractors' Workforce Development Assessment. PI, National Center for Construction Education and Research. $12,400. From January 2012 to August 2012.
35. Construction Training for the Current and Next Generation of Technicians, PI. Community Transportation Innovation Academy. $31,324. From July 2010 to To June 2011.
36. Research Support on the Contractors Workforce Development Assessment Survey. PI. National Center for Construction Education and Research. $19,000. From January 2010 to December 2010.
37. National Craft Assessment and Certification Program Analyses Project. PI. National Center for Construction Education and Research. $17,290. From January 2008 to December 2009.
38. Construction Industry Craft Training, PI with Dr. Carl Haas (University of Waterloo (UW)) as co-PI, Construction Industry Institute, $172,801. From September 2005 to December 2007
39. Health and Safety Training Needs in Construction, PI with Drs. Maloney, Duffy and Berger as co-PI, Center to Protect Workers' Rights, $20,000. From January 2004 to March 2005.

Funded – Visualization

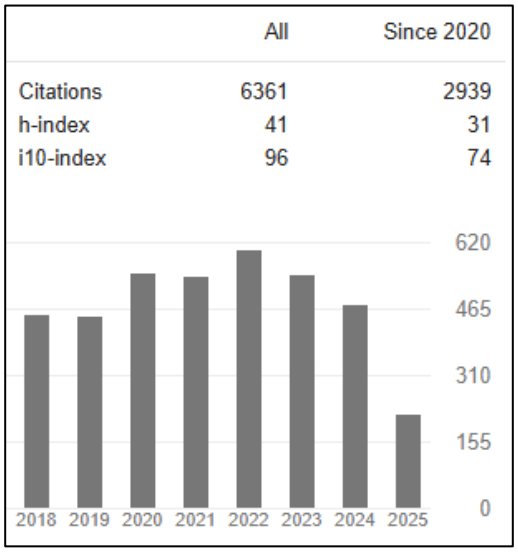
40. Applications of RFID and Wireless Technologies in Highway Construction and Asset Management. Co-PI with Gabriel Dadi (University of Kentucky) as PI. National Cooperative

Highway Research Program. $370,000. From June 2020 to March 2023.

41. Improving Construction Work Performance through Human-Centered Augmented Reality. National Science Foundation, Future of Work – Human Technology Frontier Program. $1,137,869. PI with Hallowell, Yeh, and Jones as co-PI. From September 2019 to November 2024.
42. Innovative Delivery Methods of Information to the Crafts. PI. Construction Industry Institute. $110,249. From May 2014 to August 2015.
43. Guide for Civil Integrated Management (CIM) in Departments of Transportation. co-PI with Dr. William J. O'Brien (UT-Austin) as PI. National Cooperative Highway Research Program. $250,000. From June 2014 to April 2016.
44. Lessons Learned: Proof of Concept and Implementation, PI, Kentucky Transportation Cabinet, $28,266. From August 2003 to June 2004.
45. Lessons Learned on Kentucky Transportation Projects, PI, Kentucky Transportation Cabinet, $60,000. From July 2002 to June 2003.

REFERRED JOURNAL PUBLICATIONS

Referred Journal Publications are described below grouped in the themes of **Construction Productivity**, **Workforce Development**, and **Visualization**.



Published – Construction Productivity

1. Jin, H. and Goodrum, P. (2024). Prioritization of Personal Protective Equipment Plans for Construction Plans on an Integrated Analytic Network Process and Fuzzy VIKOR Method. MDPI Applied Sciences. https://doi.org/10.3390/app14219904.
2. Shrestha, S., Shan, Y., and Goodrum, P. (2024). Identification of Best Practices in Project Bundling for State DOTs Using Semistructured Interviews. ASCE Journal of Construction Engineering and Management. 150(7). https://doi.org/10.1061/JCEMD4.COENG-13954.
3. Albalawi, R., Goodrum, P., and Albattah, M. (2024). Evolution of Multiskilled Craft Professionals and Their Level of Certification in the U.S. Industrial Construction Sector. ASCE Journal of Management in Engineering. 40(1). https://doi.org/10.1061/JMENEA.MEENG-5583.
4. Nevett, G., Goodrum, P., and Littlejohn, R. (2023). Understanding Productivity in the Transportation Construction Industry. *National Academies Transportation Research Record*. https://doi.org/10.1177/03611981221108157
5. Ramadan, B., Nassereddine, H., Taylor, T., and Goodrum, P. (2023). Impact of Technology Use on Workforce Performance and Information Access in the Construction Industry. *Frontiers in Built Environment* 9, 33.
6. Nevett, G., Goodrum, P., and Littlejohn, R. (2021). Understanding the Effect of Bid Quantities, Project Characteristics, and Project Locations on the Duration of Road Transportation

Construction Projects. *National Academies Transportation Research Record*. https://doi.org/10.1177/0361198120953142.

7. Jin, H. and Goodrum, P. (2021). Optimal Fall Protection System Selection Using a Fuzzy Multi-Criteria Decision-Making Approach for Construction Sites. *Applied Sciences* 11 (11), 5296.
8. Kermanshachi, S., Safapour, E., Anderson, S., Goodrum, P. and Taylor, T., (2020). Establishment of Effective Project Scoping Process for Highway and Bridge Construction Projects. Practice Periodical on Structural Design and Construction. DOI: 10.1061/(ASCE)SC.1943-5576.0000427
9. Jin, H., Nahangi, M., Goodrum, P., and Yuan, Y. (2019). Multiobjective Optimization for Scaffolding Space Planning in Industrial Piping Construction Using Model-Based Simulation Programming. *ASCE Journal of Computing in Civil Engineering*, 34(1), 06019001.
10. Safa, M., Reinsma, S., Haas, C., Goodrum, P., & Caldas, C. (2018). A Decision-Making Method for Choosing Concrete Forming Systems. *International Journal of Construction Management*, *18*(1), 53-64.
11. Minooei, F., Sobin, N., Goodrum, P. and Molenaar, K. (2018). Managing Public Communication Strategies in Accelerated Highway Construction Projects. *National Academies Transportation Research Record*, 0361198118759943.
12. Bonham, D. R., Goodrum, P. , Littlejohn, R., and Albattah, M. (2017). Application of Data Mining Techniques to Quantify the Relative Influence of Design and Installation Characteristics on Labor Productivity. *ASCE Journal of Construction Engineering and Management*, *143*(8), 04017052.
13. Kermanshachi, S., Anderson, S. D., Goodrum, P., and Taylor, T. (2017). Project Scoping Process (PSP) Model Development to Achieve On-Time and On-Budget Delivery of Highway Projects. *National Academies Transportation Research Record.* (No. 17-06062).
14. Karimi, H., Taylor, T., Goodrum, P., and Srinivasan, C. (2016). Quantitative Analysis of the Impact of Craft Worker Availability on Construction Project Safety Performance. *Emerald Journal of Construction Innovations*. 16.3 (2016).
15. Zhai, D., Shan, Y., Sturgill, R., Taylor, T., Goodrum, P. (2016). Estimating Highway Construction Time Using Parametric Modelling. *National Academies Transportation Research Record*. 2573(2016). pp. 1-9.
16. Nasir, H., Haas, C., Caldas, C., and Goodrum, P. (2016). An Integrated Productivity-Practices Implementation Index for Planning the Execution of Infrastructure Projects. ASCE *Journal of Infrastructure Systems.* Vol 22(2). 1076-0342 ISSN.
17. Shan, Y., Zhai, D., Goodrum, P., Haas, C., and Caldas, C. (2016). Statistical Analysis of the Effectiveness of Management Programs in Improving Construction Labor Productivity on Large Industrial Projects. *ASCE Journal of Management in Engineering*. 04015018.
18. Torres, V., Uddin, M., Goodrum, P., and Molenaar, K. (2015). Mapping of State Transportation Agencies' Practices to Consultant Oversight for Construction Engineering and Inspection Services. *National Academies Transportation Research Record*. Vol. 2504. DOI: 10:3141/2504-04.
19. Caldas, C. H., Kim, J. Y., Haas, C. Goodrum, P., and Zhang, D. (2015). Method to Assess the Level of Implementation of Productivity Practices on Industrial Projects. *ASCE Journal of Construction Engineering and Management*, 141(1).

20. Nasir, H., Ahmed, H., Haas, C., and Goodrum, P. (2014). An Analysis of Construction Productivity Differences between Canada and the United States. *Routledge Construction Management and Economics*. 32(6). pp. 595-607.
21. Dadi, G., Goodrum, P., and Bonham, D. (2014). A Prototype Master Code of Accounting Structure to Facilitate Accurate Measures of Construction Labor Productivity across Multiple Projects. *Scientific Research* Theoretical Economics Letters. 2014(4). pp. 49-59.
22. Shan, Y., Kim, J., Goodrum, P., Caldas, C., and Haas, C. (2014). Impact of Steel Quick Connection System on Steel Erection Labor Productivity: Case Studies and Simulation Based Analyses. *Canadian Journal of Civil Engineering*, *41*(12), 1036-1045.
23. Liu, J., Shahi, A., Haas, C., Goodrum, P., and Caldas, C. (2014). Validation Methodologies and their Impact in Construction Productivity Research. *ASCE Journal of Construction Engineering and Management*, *140*(10).
24. Stamatiadis, N., Goodrum, P., Shocklee, E., and Wang, C. (2013). A Quantitative Analysis of a State Transportation Agency's Experience with Constructability Reviews. *ASCE Journal of Construction Engineering and Management*. http://dx.doi.org/10.1061/(ASCE)CO.1943-7862.0000787.
25. Nasir, H., Haas, C., Ahmed, H., and Goodrum, P. (2013). An Analysis of Construction Productivity Differences among a Group of Advanced Economies. *Routledge Construction Management and Economics*. http://dx.doi.org/10.1080/01446193.2013.848995.
26. Thomas, A., Davis, B., Dadi, G., and Goodrum, P. (2013). A Case Study of the Impact of 100 ksi Steel Reinforcement on Concrete Productivity in Buildings. *ASCE Journal of Construction Engineering and Management*. 04013025.
27. Taylor, T., Uddin, M., Goodrum, P., and Shan, Y. (2012). Change Orders and Lessons Learned: Knowledge from Statistical Analyses of Engineering Change Orders on Kentucky Highway Projects. *ASCE Journal of Construction Engineering and Management*. 138(12). pp. 1360-1369.
28. Zhang, D., Haas, C., Goodrum, P., Caldas, C., and Granger, R. (2012). Construction Small-Projects Rework Reduction for Capital Facilities. *ASCE Journal of Construction Engineering and Management.* 138(12). pp. 1377-1385.
29. Dai, J. and Goodrum, P. (2012). Generational Differences on Craft Workers' Perceptions of the Factors Affecting their Labour Productivity. *Canadian Journal of Civil Engineering*. 39(9). pp. 1027-1042.
30. Uddin, M., Mahboub, K., and Goodrum, P. (2012). A Solution to Non-Normality in Quality Assurance Acceptance Quality Characteristics Data. *National Academies Transportation Research Record*. 2012(2268). pp. 50-58.
31. Dyer, B., Goodrum, P. Viele, K. (2012). Construction Industry Productivity: Examining the Effects of Omitted Variable Bias in the Census Construction Price Index Models. *ASCE Journal of Construction Engineering and Managemen*t. 138(4). pp. 558-566.
32. Gouett, C., Haas, C., Goodrum, P., and Caldas, C. (2011). Activity Analysis for Direct-work Rate Improvement in Construction. *ASCE Journal of Construction Engineering and Management*. 137(12). pp. 1117-1124.
33. Uddin, M., Goodrum, P., and Mahboub, K. (2011). Severity of Non-Normality in Pavement Quality Assurance Acceptance Quality Characteristics Data and the Adverse Effects on Acceptance and Pay. National Academies Transportation Research Record. No. 2228. pp. 70-77.

34. Young, D., Haas, C., Goodrum, P. and Caldas, C. (2011). Improving Construction Supply Network Visibility via Automated Materials Tracking and Locating Technology. *ASCE Journal of Construction Engineering and Management*. 137(11). pp. 976-984.

35. Goodrum, P., Haas, C., Caldas, C., Zhai, D., Yeiser, J., and Homm, D. (2011). The Development and Validation of a Model to Predict a Technology's Impact on Construction Productivity. *ASCE Journal of Construction Engineering and Management*. 137(9). pp. 678-688

36. Dai, J. and Goodrum, P. (2011). A Comparison of the Factors Affecting Construction Productivity between Spanish and English-Speaking Craft Workers. *ASCE Journal of Construction Engineering and Management*. 137(9). pp. 689-697.

37. Shan, Y., Goodrum, P. Zhai, D., Haas, C., and Caldas, C. (2011). Management Practices to Improve Construction Productivity on US Industrial Projects. *Routledge Journal of Construction Management and Economic*. 29(3). pp. 305-316.

38. Uddin, M., Mahboub, K., and Goodrum, P. (2011). Effects of Non-Normal Distribution on QC/QA Pay Factors. *ASCE Journal of Construction Engineering and Management*. 137(2). pp. 108-119.

39. Zhai, D., Goodrum, P., Haas, C., and Caldas, C. (2009). Relationship between the Automation and Integration of Construction Information Systems and Productivity. *ASCE Journal of Construction Engineering and Management*. 135(8). pp 746-753.

40. Grau, D., Caldas, C., Goodrum, P., and Haas, C. (2009). Assessing the Impacts of Materials Tracking Technologies on Construction Craft Productivity. *Elsevier Journal of Automation in Construction*. (18)2009. Pp. 903-911.

41. Dai, J., Goodrum, P., Maloney, W., and Srinivasan, C. (2009). Latent Structures of the Factors Affecting Construction Labor Productivity. *ASCE Journal of Construction Engineering and Management*. 135(5). pp. 397-406.

42. Goodrum, P., Zhai, D. and Yasin, M. (2009). The Relationship between Changes in Material Technology and Construction Productivity. *ASCE Journal of Construction Engineering and Management*. 135(4). pp. 278-287.

43. Goodrum, P., Wang, Y., Fenouil, P., (2009). A Decision-making System for Accelerating Roadway Construction. *Emerald Journal of Engineering, Construction, and Architectural Management*. 16(2). pp. 116-135.

44. Zhai, D., Goodrum, P., Haas, C., and Caldas, C. (2009). Relationship between the Automation and Integration of Construction Information Systems and Productivity. *ASCE Journal of Construction Engineering and Management*, 135(8). pp 746-753.

45. Dai, J., Goodrum, P., and Maloney, W. (2008). Construction Craft Workers' Perceptions of the Factors Affecting Their Productivity. *ASCE Journal of Construction Engineering and Management*. 134(3). pp. 217-226.

46. Goodrum, P., Smith, A., and Kari, F. (2008). Analysis of Utility Conflicts on Construction Roadway Projects and Best Practices in their Avoidance. *ASCE Journal of Urban Planning and Development*. 134(2). Pp. 63-70.

47. Dai, J., Goodrum, P., and Maloney, W. (2007). Analysis of the Craftsmen's and Foremen's Perception of the Factors Affecting their Construction Labor Productivity. *E & F.N. Spon Journal of Construction Management and Economics*. 25(11). pp. 1137-1150.

48. Goodrum, P., McLaren, M., and Durfee, A., (2006). The Application of Active Radio Frequency Identification Technology for Tool Tracking on Construction Job Sites. *Elsevier Automation in Construction*. 15(3). pp. 292-302

49. Gangwar, M. and Goodrum, P. (2005). The Effect of Time on Safety Incentive Programs in Construction. *E & F.N. Spon Journal of Construction Management and Economics*. 131(9). pp. 1021-1028.

50. Goodrum, P., Yasin, M., and Hancher, D. (2004). A Statewide Lessons Learned System for Kentucky Transportation Cabinet. *National Academies Transportation Research Record*. No. 1900. pp 132-139.

51. Goodrum, P., and Gangwar, M. (2004). The Relationship Between Changes in Equipment Technology and Wages in the U.S. Construction Industry. *E & F.N. Spon Journal of Construction Management and Economics*. 22(3).

52. Goodrum, P. and Gangwar, M. (2004). The Effectiveness of Safety Incentives in Construction. *ASSE Journal of Professional Safety*. July 2004. pp. 24-34.

53. Goodrum, P., and Haas, C. (2004). The Long-Term Impact of Equipment Technology on Labor Productivity in the U.S. Construction Industry at the Activity Level. *ASCE Journal of Construction Engineering and Management*. 131(1). pp. 124-133.

54. Hancher, D., Goodrum, P., Pigman, J., Hartman, D., and Mettille, J. (2003). Context Sensitive Construction In Kentucky. *National Academies Transportation Research Record.* No. 1861. pp. 122-131.

55. Goodrum, P., and Haas, C. (2002) Partial Factor Productivity and Equipment Technology Change at the Activity Level in the U.S. Construction Industry. *ASCE Journal of Construction Engineering and Management*. 128(6). pp. 463-472.

56. Goodrum, P., Haas, C., and Glover, R. (2002) The Divergence in Aggregate and Activity Estimates of U.S. Construction Productivity. *E & F.N. Spon Journal of Construction Management and Economics*. 20(5). pp. 415-423.

57. Allmon, E., Haas, C., Borcherding, J., Goodrum, P. (2000) U.S. Construction Labor Productivity Trends, 1970-1998. *ASCE Journal of Construction Engineering and Management*. 126(2). pp. 97-104.

Published – Workforce Development

58. Albalawi, R., Goodrum, P., and Albattah, M. (2024). Evolution of Multiskilled Craft Professionals and Their Level of Certification in the US Industrial Construction Sector. ASCE Journal of Management in Engineering. 40(1). https://doi.org/10.1061/JMENEA.MEENG-5583

59. Shrestha, S., Shan, Y., and Goodrum, P. (2022). Mapping of State Agencies Practices and Perceptions about Project Bundling. *National Academies Transportation Research Record*. https://doi.org/10.1177/ 03611981221080129

60. Al-Haddad, S., Li, Y., Goodrum, P., Taylor, T., and Littlejohn, R. (2022). U.S. Transportation Agencies Trends of Using Construction Engineering and Inspection Consultants and In-House Staff. *National Academies Transportation Research Record*. 03611981211041605

61. Minooei, F., Goodrum, P., and Taylor, R. (2020). Young Talents Motivations to Pursue Craft Careers in Construction. *ASCE Journal of Construction Engineering and Management*. https://doi.org/10.1061/(ASCE)CO.1943-7862.0001867.

62. Li, Y, Al-Haddad, S., Taylor, T., and Goodrum, P. (2019). The Impact of Utilizing Construction Engineering and Inspection Consultants on Highway Construction Project Cost and Schedule Performance. *National Academies Transportation Research Record*. 0361198119854086.

63. Albattah, M.A., Goodrum, P., Littlejohn, R., and Taylor, T. (2019). A Comparative Analysis of the Utilization of Multiskilling among US Hispanic and non-Hispanic Construction Craft Workers. *Taylor and Francis International Journal of Construction Management*, 1-11.

64. Albattah, M. A., Goodrum, P., and Taylor, T. (2019). New Metric of Workforce Availability among Construction Occupations and Regions. *Practice Periodical on Structural Design and Construction*, *24*(2), 04019003.

65. Karimi, H., Taylor, T., Dadi, G. Goodrum, P., and Srinivasan, C. (2018). Impact of Skilled Labor Availability on Construction Project Cost Performance. *ASCE Journal of Construction Engineering and Management*, *144*(7), 04018057.

66. Karimi, H., Taylor, T., and Goodrum, P. (2017). Analysis of the Impact of Craft Labor Availability on North American Construction Project Productivity and Schedule Performance. *ASCE Journal of Construction Engineering and Management*. 35(6). pp. 368-380.

67. Albattah, M., Shan, Y., Goodrum. P., and Taylor, T. (2017). The Relation between Periods of Economic Expansion and Craft Workers' Satisfaction and Job Preferences. *Canadian Journal of Civil Engineering*, 2017, 44(1): 29-36, 10.1139/cjce-2016-0358

68. Wang, Y., Goodrum, P., Haas, C., Glover, R., and Vazari, S. (2010). The Benefits and Cost of Craft Training. *Routledge Spon Journal of Construction Management and Economics*. Vol. 28(12). pp. 1269-1285.

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25. Mahboub, K., Goodrum, P., Glasgow, A., Enlow, J., Hendrix, N., and Uddin, M. (2008). QC/QA Evaluation of Effectiveness in Kentucky. Research Report KTC-08-19/SPR347-07-IF. Kentucky Transportation Center, Lexington, Kentucky.
26. Goodrum, P., Wang, Y., Haas, C., and Glover, R. (2007). Construction Industry Craft Training in the United States and Canada. Research Report 231-11. Construction Industry Institute. Austin, Texas.
27. Goodrum, P., McLaren, M., and Durfee, A. (2007). The Use of Smart Chip Technology in the Electrical Contracting Industry. ELECTRI International – The Foundation for Electrical Construction, Inc. Bethesda, MD.
28. Goodrum, P., Dai, J., and Maloney, W. (2006). The Work Force View of Construction Productivity. Research Report 215-2. Construction Industry Institute. Austin, Texas.
29. Goodrum, P. Kari, F., Smith, A., Slaughter, B., Jones, C., (2006). An Analysis of the Direct and Indirect Costs of Utility and Right-of-Way Conflicts on Construction Roadway Projects. (Research Report KTC-06-14/SPR-05-04-1F). Kentucky Transportation Center, Lexington, Kentucky, 2006.
30. Goodrum, P., Wang, Y., Jones, C., Fenouil, P., and Hancer, D. (2005). Innovative Rapid Construction/Reconstruction Methods. (Research Report KTC-05-14/SPR-283-04-1F). Kentucky Transportation Center, Lexington, Kentucky, 2005.
31. Goodrum, P., Dai, J., Wood, C., and King, M. (2004). The Use of the Concrete Maturity Method In the Construction of Industrial Facilities: A Case Study. FIATECH. The University of Texas at Austin, Austin, Texas, 2004

32. Goodrum, P., Yasin, M., and Hancher, D. (2003). Lessons Learned System for Kentucky Transportation Projects. (Research Report KTC-03-25/SPR-262-03-1F). Kentucky Transportation Center, Lexington, Kentucky, 2003.
33. Hancher, D., Thozhal, J., Goodrum, P. (2003). Constructability Issues on KyTC Projects. (Research Report KTC-03-17/SPR-236-02-1F). Kentucky Transportation Center, Lexington, Kentucky, 2003.
34. Goodrum, P., Haas, C., and Kim, C. (2003). Breakthrough Strategy Committee Process and Charter. Report to the Construction Industry Institute. The University of Texas at Austin, Austin, Texas.
35. Goodrum, P. (2001). Impact of Equipment Technology on Productivity in the US Construction Industry. PhD Dissertation (Advisor: Dr. Carl Haas). Department of Civil Engineering. The University of Texas at Austin.
36. Haas, C.T., Borcherding, J.D., Allmon, E., Goodrum, P. (1999) U.S. Construction Labor Productivity Trends, 1970-1998. Alfred P. Sloan Center for Construction Industry Studies, Report No. 7, The University of Texas at Austin. 1999.
37. Haas, C., Burleson, R., Goodrum, P. (1995), A Multimedia Design Aid for Project Hazard Identification and Remediation Part I: Functional Capabilities and Design of the "Design for Safety Toolbox" Prototype (Source Doc. 107), The Construction Industry Institute, Austin, Texas, 1995.
38. Goodum, P. (1993). Functional Specifications and Design of the Multimedia Design for Safety Toolbox. MS Thesis (Advisor: Dr. Carl Haas). Department of Civil Engineering. The University of Texas at Austin

DISCUSSIONS

1. Goodrum, P., and Haas, C. (2001) "Closure to Discussion of U.S. Construction Labor Productivity Trends, 1970-1998." ASCE Journal of Construction Engineering and Management. 127(5). pp. 427-429.

MEDIA MENTION

1. "Rebuilding Homes Lost to the Marshall Fire will Take Time." By Tatiana Flowers. The Colorado Sun. January 13, 2022.
2. "Experts Weigh in on Bilingual Best Practices for Jobsites." By Jim Parsons. Engineering News Record. February 14, 2018
3. "Big Increase in Gulf Coast Projects Equals Big Demand for Skilled Workers." By Ryan Wilder. The Cornerstone. National Center for Construction Education and Research.pp. 16-20. Spring 2013.
4. "CII Research shows potential for safety, productivity gains." By Scott Judy and Janice Tuchman, Engineering New Record. August 8, 2013.
2. "Contractors Confront the Growing Costs of Rework." By Paula Moore, Engineering News Record. November 28, 2012.
3. "When Does it Pay to Use Innovative Concrete Products?" by Tudor Van Hampton, Engineering News Record. July 26, 2011.
4. "Rethinking Wrench Time" by Bruce Buckley, Engineering News Record (Cover Story), McGraw-Hill, June 6, 2011.

5. "The Prize Predicament" by Bruce Buckley, Engineering News Record, McGraw-Hill, August 16, 2010.
6. "CII Reveals Productivity Gains for Mechanical Trades" by Scott Blair, Engineering News Record, McGraw-Hill, August 12, 2009.
7. "Test Projects Show Great Potential for Tracking Technology" by Tom Sawyer, *Engineering News Record*, McGraw-Hill, August 27, 2008.
8. "CII Study Shows Craft Training Can Generate Big Cost Impact" by Debra Rubin, *Engineering News Record*, McGraw-Hill, August 20, 2007.
9. "Productivity Benchmarking Effort Produces Results" by Janice Tuchman, *Engineering News Record*, McGraw-Hill, August 7, 2006.
10. "Hispanics Need Support of Friends and Neighbors" by Michael Longinow, *Lexington Herald Leader*, February 6, 2005.
11. "Researchers are Getting Serious about Electronic Tracking Tags" by Tom Sawyer, *Engineering News Record*, McGraw-Hill, December 13, 2004.
12. "Measuring Productivity: An Industry Challenge" by Harvey M. Bernsteirn, *Civil Engineering*, ASCE December 2003.

ORAL PRESENTATIONS (* indicates principal speaker)

1. Goodrum, P. (2021). "The Use of Augmented Reality in Construction." (**Invited Speaker**). 2021 Construction Safety Research Alliance Summit. Boulder, Colorado.
2. Taylor, T. and Goodrum, P. (2021). "Modeling the 2030 Composition of the Construction Workforce." (**Invited Speaker**). 2021 Central Gulf-Coast Industry Alliance Best Practice Forum. Virtual.
3. Taylor, T., Sutherland, W., Groves, D. and Goodrum, P. (2021). "Modeling the 2030 Composition of the Construction Workforce." (**Invited Speaker**). Plenary Session. CII Annual Conference. Orlando, FL. August 2021.
4. Goodrum, P*, Jones, M., Hallowell, M, Yeh, T. (2020). "Improving Construction Work Performance through Human-Centered Augmented Reality". Annual PI/co-PI Meeting of the NSF FW-HTF Conference. December 2020.
5. Goodrum, P*and Taylor, T.* (2020). "Restoring the Dignity of Labor: Transforming the US Workforce Development System into a World Leader." (**Invited Speaker**). Specialty Crane and Riggers Annual Conference (Virtual). September 2020.
6. Goodrum, P*, Taylor, T.*, and Whyte, D. (2019). "Restoring the Dignity of Labor: Transforming the US Workforce Development System into a World Leader." (**Invited Speaker**). Breakout Session. AFSA Annual Conference. San Diego, CA. September 2019.
7. Goodrum, P*and Hopkins, S. (2019). "Pathfinder: Doubling Construction Productivity." (**Invited Speaker**). Plenary Session. CII Annual Conference. San Diego, CA. August 2019.
8. Goodrum, P*, Greene, S., Grove, D., Clayton, E., and Worley, L. (2019). "Restoring the Dignity of Labor: Transforming the US Workforce Development System into a World Leader." (**Invited Speaker**). Breakout Session. AGC Annual Conference. Denver, CO. April 2019.
9. Goodrum, P*, Taylor, T., and Clayton. E. (2019). "Restoring the Dignity of Labor: Transforming the US Workforce Development System into a World Leader." (**Invited Speaker**). Breakout Session. SEGIA Workshop. Mobile, AL. March 2019.

10. Goodrum, P*, Greene, S., Grove, D., Clayton, E., and Worley, L. (2019). "Restoring the Dignity of Labor: Transforming the US Workforce Development System into a World Leader." (**Invited Speaker**). Plenary Session. CURT Annual Conference. Orlando, FL. February 2019.
11. Goodrum, P*, Greene, S., Grove, D., Clayton, E., and Worley, L. (2018). "Restoring the Dignity of Labor: Transforming the US Workforce Development System into a World Leader." (**Invited Speaker**). Plenary Session. CII Annual Conference. Indianapolis, IN. July 28, 2018.
12. Goodrum, P*, Grove, D., and Clayton, E. (2018). "Restoring the Dignity of Labor: Transforming the US Workforce Development System into a World Leader." (**Invited Speaker**). Plenary Session. CURT Workforce Summit. Chicago, IL. September 24, 2018.
13. Goodrum, P. (2018). "Restoring the Dignity of Labor: Transforming the US Workforce Development System into a World Leader." (**Invited Speaker**). Construction Professionals Executive Group. Denver, CO. October 5, 2018.
14. Goodrum, P.*, Albattah, M., and Taylor, T. (2017). "The Comparative Experience in Multiskilling Among U.S. Hispanic and Non-Hispanic Construction Craft Workers." CSCE Construction Speciality Conference. Vancouver, BC. June 3, 2017.
15. Goodrum, P*, Taylor, T.*, Albattah, M. (2017). "The U.S. Craft Labor Shortage and Its Effects on Project Performance." ASCE Construction Institute, Anaheim, CA. March 3, 2017.
16. Goodrum*, P., Taylor, T. Albattah, M., and Karimi, H. (2015). "Is There a Demographic Labor Cliff that Will Influence Project Performance." (**Invited Speaker).** Construction Users Roundtable Summitt on Challenging Workforce Needs in Today's Construction Market. Bonita Springs, FL. September 16, 2015.
17. Goodrum*, P. (2015). "Return on Investment in Construction Craft Training." (**Invited Speaker**). Construction Users Roundtable Summitt on Challenging Workforce Needs in Today's Construction Market. Bonita Springs, FL. September 16, 2015.
18. Goodrum*, P., O'Bren, W., Sankaran,B., O'Brien, W., Khwaja, N., and Leite, F. (2015). "Gude for Civil Integrated Management (CIM) in Departments of Transportation." (**Invited Speaker**). AASHTO Subcommitee on Construction Summer Meeting. Littlerock, AR. August 11, 2015.
19. Goodrum*, P., Fish, J., McNeil, D., and Bryant, C. (2015). "Innovative Craft Information Systems to Improve Project Performance." (**Invited Speaker**). Implementation Session. CII Annual Conference, Boston, MA. August 2, 2015.
20. Taylor*, T., Goodrum, P., Albattah, M., and Karimi, H. (2015). "Is There a Demographic Labor Cliff that Will Influence Project Performance." (**Invited Speaker**). Implementation Session. CII Annual Conference, Boston, MA. August 2, 2015.
21. Goodrum*, P. Albattah, M., and Taylor, T. (2015). "The Influence of Demographics on Construction Workforce Shortages in the U.S. and Canada." International Construction Specialty Conference (ICSC), Vancouver, June 8-10, 2015.
22. Goodrum*, P. (2015). "Removing the Blinders: Innovative Craft Information Systems to Improve Project Performance." (**Invited Speaker**). NCCER Safety Committee. TIC Inc., Centennial, CO. April 14, 2015.
23. Goodrum*, P. (2015). "Demographic Exploration of the Craft Shortages in the US and Canada." (Invited Speaker). (**Invited Speaker**). NCCER Workforce Development Committee. TIC Inc., Centennial, CO. April 15, 2015.
24. Gooodrum*, P. (2015). "Is there a Demorgraphic Workforce Shortage that will Impact Project Performance." (**Inivited Speaker**). Pearsons Publishers Board of Advisors. Boston, MA. May

19, 2015.

25. Goodrum*, P. (2015). "Craft Workforce Shortages in the United States." (**Invited Speaker**). University of Colorado Alumni Association. MWH Global Inc., Broomfield, CO. January 4, 2015.
26. Goodrum*, P., Stamatiadis, N., Shocklee, E., and Wong, C. (2014). "Quantitative Analysis of State Transportation Agency's Experience with Constructability Reviews." Session 779: Early Contractor Involvement on Infrastructure Projects. National Academies Transportation Research Board Annual Conference (**Invited Speaker**). Washington, DC. January 10, 2014.
27. Goodrum, P. and Bowman, D. "Challenges and Opportunities for Improving Construction Productivity." 2014. Bentley Year in Infrastructure Conference. (**Invited Speaker**). London, England. November 5, 2014.
28. Goodrum, P.*, Toon, S., Christian, D., and Whyte, D. "Construction Productivity Research Program". (2013). European Construction Institute. (**Invited Speaker**). London, England. June 13, 2013.
29. Goodrum, P.*, Toon, S., Gustafson, D., and Whyte, D. "Craft Productivity Research Program – Phase IV" (2012). Construction Industry Institute Annual Conference. (**Invited Speaker**). Baltimore, MD. July 28, 2012
30. Goodrum, P. "The Construction Workforce Development Assessment Process". Construction Users Roundtable Annual Conference. (**Invited Speaker**). Chandler, AZ. November 9, 2011
31. Goodrum, P. "Return-on-Investment of Construction Craft Training." Associated General Contractor Training and Education Conference. (Invited Speaker). Kansas City, Mo. October 3rd, 2011
32. Goodrum, P. "Construction Productivity Research Program." NIST/ASTM/CII Productivity Workshop. (**Invited Speaker**). Houston, TX. April 28th, 2011.
33. Goodrum, P. "The Science and Challenge of Measuring and Improving Construction Productivity." McGraw-Hill Engineering News Record/Construction Users Roundtable Construction Business Forum: The Road to Recovery. (**Invited Speaker**). Washington, DC. June 15, 2010.
34. Goodrum, P. "Construction Productivity: Advances and Opportunities for Improvement." National Institute of Standards and Technology Workshop: Measurement Science Needs for Advancing Infrastructure Delivery. (**Invited Speaker**). Gaithersburg, MD. May 19, 2010.
35. Goodrum, P. "Construction Craft Productivity Program." Central Gulf Coast Industry Alliance Fall Conference. (**Invited Speaker**). Mobile, AL. September 24, 2009.
36. Granger, R*., Goodrum, P., Hopkins, S., Adamson, W., and Stofega, M. "Craft Productivity Research Program – Phase I." (2009). Construction Industry Institute Annual Conference. (**Invited Speaker**). Reno, NV. July 28, 2009.
37. Goodrum, P. "Craft Productivity Research and Perspectives." National Institute of Standards and Technology. (**Invited Speaker**). Gaithersburg, MD. May 2009.
38. Goodrum, P*. and Zhai, D. "A Review of the National Craft Assessment and Certification Analyses." Board of Directors Meeting of the National Center for Construction Education and Research. (**Invited Speaker**). Dallas, TX. April 8, 2009.

39. Goodrum, P.* and Haas, C.* "Craft Training in the Industrial Construction Sector: Lessons Learned and Potential Strategies for the Highway Construction Sector." 2009 Transportation Research Board Conference Washington, DC. January 11-15, 2009.
40. Goodrum, P. "Technical Change and its Impact on Construction Productivity." National Research Council Workshop on Advancing the Competitiveness and Productivity of the U.S. Construction Industry. (**Invited Speaker**) Washington, DC. November 2008.
41. Goodrum, P. "The Workforce View of Construction Productivity." The Center to Protect Workers' Rights on Construction Productivity. (**Invited Speaker**). Silver Spring, MD. November 2008.
42. Goodrum, P.* and Zhai, D. "Analyses of the National Craft Assessment and Certification Program". (2008). National Center for Construction Education and Research Workforce Development Conference. (**Invited Speaker**). Corpus Christ, TX. October 2, 2008.
43. Dixit, S.*, Goodrum, P., Caldas, C., Haas, C., Kendra, S., and Davis, S. "Leveraging Technology to Improve Construction Productivity." (2008). Construction Industry Institute Annual Conference. (**Invited Speaker**). Keystone, CO. August 6, 2008
44. Carter, R. *, Goodrum, P., Frame, J., and Whyte, D. "Construction Craft Training: Generating Big Cost Savings for Owners." (2007). Construction Users Roundtable National Conference. (**Invited Speaker**). Naples, FL. November 7, 2007.
45. James, T.*, Haas, C., Goodrum, P*, Tomlinson, R., and Whyte, D. * "Implementation: Construction Craft Training." (2007). Construction Industry Institute Annual Conference. . (**Invited Speaker**) Orlando, FL. August 1, 2007.
46. Crew, W., and Goodrum, P.* (2007). "Work Force View of Construction Productivity." Canadian Construction Sector Council National Owners' Forum. (**Invited Speaker**) Ottawa, Canada. June 28, 2007.
47. Goodrum, P.*, Edmonds, D., Stover, A., Young, J., and Fannin, R. (2006). "Things that Help and Things that Hinder Construction Productivity." Construction Users Roundtable National Conference. (**Invited Speaker**). Tucson, AZ. November 14, 2006.
48. Goodrum, P.* (2006). "The Use of Active RFID for Tool Tracking in Construction." National Research Council's Transportation Research Board's Research Opportunitites in Radio Frequency Identification (RFID) Transportation Applications Conference. (**Invited Speaker**). Washington, DC. October 17-18, 2006.
49. Sulsar, R.*, Goodrum, P., Edmonds, B., Stover, A., and Young, J. (2006). "Implementation: Work Force View of Construction Productivity." Construction Industry Institute Annual Conference. (**Invited Speaker**). San Diego, CA. July 27, 2006.
50. Goodrum, P.* (2006). "Research Overview of Work Force View of Construction Productivity." The Construction Users Roundtable Workshop: Improving Construction Labor Productivity (**Invited Speaker**). St. Louis, MO. June 14, 2006.
51. Goodrum, P.* (2005). "Industry Measures of Construction Productivity." Productivity Forum Sponsored by the Associated General Contractors and Building Futures Council. (**Invited Speaker**). Las Vegas, NV. March 16, 2005.
52. Goodrum, P.* (2005). "Safety Incentives in Construction." 2005 American Industrial Hygiene Conference and Exposition. (**Invited Speaker**). Anaheim, CA. May 21, 2005.

53. Goodrum, P.* and Wang, Y. (2005). "The Use of Conceptual Road User Costs for a Rapid Roadway Construction Decision Making System." 2005 Construction Management Committee, 2005 Annual Transportation Research Board, Washington, DC. January 11, 2005.
54. Goodrum, P.* and Yasin, M. (2004). "A Statewide Lessons Learned System for the Kentucky Transportation Cabinet." 2004 KYTC Annual Partnering Meeting. (**Invited Speaker**). Louisville, KY. August 15, 2004.
55. Goodrum , P.* and Gangwar, M. (2004). "The Effectiveness of Safety Incentive Programs in Construction." 2004 American Society of Safety Engineers Annual Conference. (**Invited Speaker**). Las Vegas, NV. June 9, 2004.
56. Goodrum, P.* (2004). "Occupational Injuries, Illnesses, and Fatalities: Differences Among Hispanic and non-Hispanic Construction Workers." 2004 ASCE Specialty Conference: Management and Leadership Issues in Construction Hilton Head, South Carolina. March 25-26, 2004.
57. Hancher, D. and Goodrum, P.* (2004). "Constructability Issues on Kentucky Transportation Cabinet Projects." 2004 Transportation Research Board Conference Washington, DC. January 12-15, 2004.
58. Goodrum, P.*, Yasin, M., and Hancher, D. (2004). "A Statewide Lessons Learned System for the Kentucky Transportation Cabinet." 2004 Transportation Research Board Conference, Washington, DC. January 12-15, 2004.
59. Goodrum, P.*, Hancher, D., and Yasin, M. (2003). "A Review of Constructability Practices and Issues in Highway Construction." 2003 ASCE Construction Congress. Honolulu, Hawaii. March 19-21, 2003.
60. Goodrum, P.* (2003). "Changes in Worker Satisfaction in the U.S. Construction Industry." 2003 ASCE Construction Congress Proceeding. Honolulu, Hawaii. March 19-21, 2003.
61. Goodrum, P.* (2002). "A Micro Level Analysis Of The Relationship Between Changes In Equipment Technology And Wages In The U.S. Construction Industry." International Symposium on Automation and Robotics in Construction Conference (ISARC). Washington, D.C. September 24, 2002.
62. Goodrum, P.* (2002). "Environmental Commitments and Issues Relating to Context Sensitive Construction." (**Invited Speaker**). Kentucky Transportation Cabinet Resident Engineer's Meeting, March 7, 2002.
63. Goodrum, P.* (2001). "Design for Construction Safety". American Society of Safety Engineers Central Texas Chapter Meeting. (**Invited Speaker)**. Austin, Texas, March 19, 2001
64. Goodrum, P.* (2000). "Case Studies of U.S. Construction Labor Productivity Trends, 1970-1998". ASCE Construction Congress VI. Orlando, Fl., February 21, 2000.
65. Goodrum, P.* (2000). "Variables Affecting Innovation Performance in the U.S. Construction Industry". ASCE Congress VI. Orlando, Fl., February 21, 2000.

POSTER PRESENTATIONS (* indicates principal speaker)

1. Stamatiadis, N., Sturgill, R., and Goodrum, P. (2015). "Quantification of the Benefits from Constructability Reviews". Poster Session 237: Construction Management Recent Advances. National Academies Transportation Research Board Annual Conference (Invited Speaker). Washington, DC. January 10, 2014.

2. Torres, V., Uddin, M., Goodrum, P., and Molenaar, K. (2015). "Mapping of State Transportation Agencies' Practices to Consultant Oversight for Construction Engineering and Inspection Services." Poster Session 237: Construction Management Recent Advances. National Academies Transportation Research Board Annual Conference (Invited Speaker). Washington, DC. January 10, 2015.
3. Shan, Y., and Goodrum, P. (2013). "An Approach to Model the Global Impacts of Forecasted Warming Trends on Construction Productivity Utilizing Integrated Information Models." 2013 CII Annual Conference
4. Shan, Y. and Goodrum, P. (2010). "Worker Satisfaction and Work-life Related Characteristics in the U.S. Construction Industry." 2010 CII Annual Conference.
5. Young, D*., Haas, C., Goodrum, P. and Caldas, C. "Improving Construction Supply Network Visibility via Automated Materials Tracking and Locating Technology." 2009 CII Annual Conference – Received Best Poster Award
6. Wang, Y*., Goodrum, P. (2006), "A Rapid Construction Methods Decision Making System for Roadway Projects". Transportation Research Board Annual Conference. Washington, D.C., January 23, 2006.

TEACHING

COURSES TAUGHT – UNIVERSITY OF KENTUCKY

CE 303 – Introduction to Construction Engineering

Course Description: A study of the planning, administration, management, and cost of construction projects and an introduction to the methodology utilized in executing specified designs. Emphasis is placed on organization of construction firms, development of construction documents, theory of estimating and quantity take-off, contractual and management systems, scheduling, project administration and inspection of construction operations.

CE 403 – Construction Methodology

Course Description: A study of the methodology used in heavy construction and building construction with an emphasis on equipment selection, productivity, concrete formwork design, and building systems. The importance of cost, safety, and quality is stressed.

CE 602 – Construction Project Management

Course Description: Management of construction projects: pre-project planning; ; construction labor relations; productivity management. The course will emphasize construction productivity improvement by group field studies. In-depth study of the way overtime, changes, weather, and staffing levels influence productivity. Industrial engineering techniques are applied to the construction environment to improve the use of equipment, human, and material resources.

CE 699-005 – Discrete Event and Building Information Modeling for Construction

Course Description: The course focuses on advanced information systems used to control and predict project performance (cost and schedule) in construction. Discrete Simulation Modeling is used take both a stochastic and probabilistic approach of predicting project performance of repetitive systems in construction. Building Information Modeling is examined as a systems approach of integrating design and construction for the benefit of developing construction work packages, 4D simulations, and clash detection.

COURSES TAUGHT – UNIVERSITY OF COLORADO BOULDER

CVEN 3246 – Introduction to Construction

Course Description: This course provides an overview of the architecture, engineering, and construction industry (A/E/C) and focuses on construction engineering and management fundamentals. Students will be introduced to the professional competencies required to effectively deliver capital projects including estimating, scheduling, contracts, planning, project controls, safety, productivity, and engineering economics. Special attention will be paid to ethics, emerging technologies, and sustainability as applied to construction engineering and management practices. Students will develop the core competencies that serve as the foundation for subsequent coursework.

CVEN 3256 – Construction Equipment and Methods

Course Description: Integrated study of construction equipment, methods, and economics. Topics include equipment productivity, equipment selection, and construction engineering design within economic constraints. Examples include earthmoving, concrete formwork, and temporary construction.

CVEN 5285 – Design of Construction Operations

Course Description: Design of construction operation: pre-project planning; construction labor relations; productivity management. The course will emphasize construction productivity improvement by group field studies and discrete event simulation modeling. In-depth study of the way overtime, changes, weather, and staffing levels influence productivity. Industrial engineering techniques are applied to the construction environment to improve the use of equipment and human and material resources.

CVEN 5386 – Building Information Modeling for Construction

Course Description: The course focuses on advanced information systems used to control and predict project performance (cost and schedule) in construction. Building Information Modeling is examined as a systems approach of integrating design and construction for the benefit of developing construction work packages, 4D simulations, clash detection, and status visualization of material availability and system installation.

COURSE EVALUATIONS

University of Kentucky (UK)					
Term	**Course**	**Enrollment**	**Credit Hours**	**Overall Quality of Teaching (4.0 Scale)**	**Overall Quality of Course (4.0 Scale)**
Fall 2001	CE 303 (3 hrs)	61	183	3.6	3.4
Spring 2002	CE 303 (3 hrs)	33	99	3.6	3.3
Spring 2002	CE 403 (3hrs)	27	81	3.8	3.7
Fall 2002	CE 303 (3hrs)	70	210	3.7	3.5
Spring 2003	CE 403 (3hrs)	29	87	3.8	3.7
Spring 2003	CE 602 (3hrs)	13	39	3.5	3.5
Fall 2003	CE 303 (3hrs)	89	267	3.8	3.6
Spring 2004	CE 403 (3hrs)	16	48	3.9	3.7
Spring 2004	CE 602 (3hrs)	24	72	3.8	3.7
Fall 2004	CE 303-001 (4hrs)	28	112	3.7	3.6
Fall 2004	CE 303-002 (4hrs)	24	96	3.8	3.6

Spring 2005	CE 403 (3hrs)	50	150	3.7	3.5
Spring 2005	CE 602 (3hrs)	12	36	4.0	3.8
Fall 2005	CE 303-001 (4hrs)	27	108	3.6	3.6
Fall 2005	CE 303-002 (4hrs)	30	120	3.4	3.3
Spring 2006	CE 403 (3hrs)	43	129	3.8	3.7
Spring 2006	CE 602 (3hrs)	8	24	3.9	3.9
Fall 2006	CE 303-001(4hrs)	29	116	3.6	3.4
Fall 2006	CE-303-002(4hrs)	29	116	3.7	3.4
Spring 2007	CE 403 (3 hrs)	46	138	3.8	3.6
Spring 2007	CE 602 (3 hrs)	10	30	4.0	4.0
Fall 2007	CE 303 – 001 (4hrs)	38	152	3.7	3.5
Spring 2008	CE 403 (3 hrs)	35	105	3.8	3.6
University of Kentucky (UK) Continued					
Term	**Course**	**Enrollment**	**Credit Hours**	**Overall Quality of Teaching (4.0 Scale)**	**Overall Quality of Course (4.0 Scale)**
Spring 2008	CE 602 (3 hrs)	13	39	3.8	3.8
Fall 2008	CE 303 – 001 (4hrs)	38	152	3.8	3.5
Spring 2009	CE 403 (3 hrs)	38	114	3.7	3.6
Spring 2009	CE 602 (3 hrs)	6	18	3.8	3.5
Fall 2009	CE 303 – 001 (4hrs)	44	176	3.8	3.6
Spring 2010	CE 403 (3 hrs)	20	60	3.7	3.8
Spring 2010	CE 602 (3 hrs)	11	33	3.9	3.9
Fall 2010	Sabbatical Leave				
Spring 2011	CE 403 (3 hrs)	41	123	3.6	3.6
Spring 2011	CE 699 (BIM) 3 hrs	9	27	3.6	3.9
Fall 2011	CE 303-001 (4hrs)	30	120	3.8	3.6
Fall 2011	CE 303-002 (4hrs)	22	88	4.0	3.6
Spring 2012	CE 403 (3 hrs)	45	135	3.7	3.6
Spring 2012	CE 602 (3 hrs)	12	36	3.8	3.9
University of Colorado Boulder (CU)					
Term	**Course**	**Enrollment**	**Credit Hours**	**Instructor Rating (6.0 Scale)**	**Course Rating (6.0 Scale)**
Fall 2012	CVEN 5286 (3 hrs)	15	45	5.9	5.7
Spring 2013	CVEN 5836 (3 hrs)	14	42	5.8	5.7
Fall 2013	CVEN 5286 (3hrs)	11	33	5.6	5.2
Spring 2014	CVEN 3256 (3 hrs)	23	69	5.7	5.5
Spring 2014	CVEN 5836 (3 hrs)	13	39	5.7	5.5
Fall 2014	CVEN 3256 (3 hrs)	53	159	5.6	5.2
Fall 2014	CVEN 5286 (3 hrs)	17	51	5.9	5.6
Spring 2015	CVEN 5836 (3 hrs)	16	48	6.0	5.6
Fall 2015	CVEN 3256 (3 hrs)	54	162	5.7	5.3
Fall 2015	CVEN 5286 (3 hrs)	15	45	5.8	5.4
Spring 2016	CVEN 5836 (3 hrs)	17	51	5.8	5.5
Fall 2016	CVEN 5286 (3 hrs)	15	45	5.5	5.7
Spring 2017	CVEN 3256 (3 hrs)	52	156	5.4	5.2
Spring 2017	CVEN 5836 (3 hrs)	17	51	5.4	5.1
Fall 2017	CVEN 5286 (3 hrs)	9	27	4.9	4.4
Spring 2018	CVEN 3256 (3 hrs)	59	177	5.4	5.0

Spring 2018	CVEN 5836 (3 hrs)	17	51	5.6	5.3
Fall 2018	CVEN 3246 (3 hrs)	70	210	5.6	5.2
Fall 2018	CVEN 5286 (3 hrs)	17	51	5.8	5.3
Spring 2019	Sabbatical Leave				
Fall 2019	CVEN 3256 (3 hrs)	40	120	4.9	5.7
Spring 2020	CVEN 5286 (3 hrs)	11	33	4.5/5/0	5.0/5.0
Colorado State University (CSU)					
Fall 2022	CON 561	8	24	N/A	N/a
Summary		*Total: 1,644*	*Total: 5,207*	*UK Average : 3.75/4.0* *CU Average: 5.6/6.0*	*UK Average: 3.6/4.0* *CU Average: 5.3/6.0*

SPECIAL EDUCATION ACTIVITIES

1. Lecturer for FE Review for Engineeing Economics, Fall 2015-2019
2. Civil Engineering Co-op Faculty Debrief. University of Kentucky. 2005-2012.
3. Participant (two-day) at the Civil Engineering Information Table for the University of Kentucky, College of Engineering Career Day, October 13-14, 2006.
4. Lecturer of FE Review Seminar for Engineering Economics, Fall 2001 to Spring 2010.
5. Participant in 2002 ASCE Excellence in Civil Engineering Education (ExCEEd) Teaching Workshop, West Point, NY.
6. Instructor for Context Sensitive Solutions Workshop, Kentucky Transportation Cabinet, Fall 2001 through Fall 2002.

PH.D. SUPERVISION COMPLETED

1. Rakan Albalawi – 2023 – Dissertation Topic: Comprehensive Analysis of the Multiskilling Strategy Among Craft Professionals in the Construction Industry
2. Mathhew Sears – 2020 – Dissertation Topic: Advanced Eye Tracking Analysis for Investigating Construction Craft Professional Interactions with 2D Drawings.
3. Guillermo Nevett – 2019 – Dissertation Topic: Estimating Project Time Requirements for Highway Construction.
4. Sara Al-Haddad – 2019 – Dissertation Topic: State Transportation Agencies: A Quantitative Study on the Use of Construction Engineering and Inspection Consultants and their Impact on Project Performance
5. Farzad Minooei – 2018 – Dissertation Topic: Towards a Deeper Understanding of the U.S. Workforce Development System.
6. Omar Alruwaythi – 2017 – Dissertation Topic: The Utilization of Building Information Modeling and physical 3D printers for Transferring Engineering Information to Construction Workforce.
7. Mohammed AlBattah – 2016 –Dissertation Topic: A Critical Analysis of the Structural Changes Related to Craft Demographics Influencing Craft Supply and Demand in the United States across Multiple Dimensions.
8. Dave Bonham – 2015 – Dissertation Topic: Development of a Master Code of Accounts for Mechanical Construction.
9. Gabe Dadi – 2013– Dissertation Topic: Applying Cognitive Principles in the Delivery of Engineering Information by Different Mediums.
10. Yongwei Shan –2013- Dissertation Topic: Modeling the Impact of Weather on Construction Productivity Using Building Information Modeling
11. Moin Uddin – 2011. Co-Supervisor with Dr. Kamyar Mahboub (UK) - Dissertation Topic: Robust Statistical Methods for QC/QA Data Analyses in Transportation Projects .
12. Bryan Dyer – 2010. Dissertation Title: Construction Industry Productivity: Examining the Effects of Omitted Variable Bias in the Census Construction Price Index Models.

13. Dong Zhai – 2010. Dissertation Topic: The Relationship Between Automation and Integration Technologies and Construction Producitivity.
14. Yinggang Wang – 2008. Dissertation Title: A Quantitative Analysis of Training Outcomes and Strategies in Construction.
15. Jiukun Dai – 2006. Dissertation Title: Latent Factors Influencing Construction Craft Productivity.
16. Mohammed F. Yasin – 2005. Dissertation Title: A Taxonomy and Analysis of the Relationship Between Changes in Material Technology and Construction Productivity.

PH.D. STUDENTS IN PROGRESS

1. Rahul Chaudhari – Supervisor – Dissertation Topic: The Influence of the Format and Origin of Design on Craft Performance. Anticipated Final Defense in Spring 2025

PH.D. COMMITTEES COMPLETED

1. Member Doctoral Committee, Maria Calahorra-Jimenez, PhD Student in Civil Engineerintg (University of Colorado). 2020
2. Member Doctoral Committee, Arthur Antone, PhD Student in Civil Engineering (Univ. of Colorado). 2017
3. Member Doctoral Committee, Mohammad Raoufi, PhD Student in Construction Engineering and Management (University of Alberta). 2017
4. Member Doctoral Committee, Erin Arneson, PhD Student in Construction Engineering and Management (CU Boulder). 2017
5. Member Doctoral Committee, Aaron Opdyke, PhD Student in Civil Engineering (Univ. of Colorado). 2017
6. Member Doctoral Committee, Bharathwaj Sankaran, PhD Student in Civil Engineering (The University of Texas at Austin). 2016
7. Member Doctoral Committee, Eric Antillion, PhD Student in Civil Engineering (Univ. of Colorado). 2016
8. Member Doctoral Committee, Harrison Mesa, PhD Student in Civil Engineering (Univ. of Colorado). 2016
9. Member Doctoral Committee, Mohsen Shahan, PhD Student in Civil Engineering at Georgia Institute of Technology. 2012
10. Member Doctoral Committee, Eric Marks, PhD Student in Civil Engineering at Georgia Institute of Technology, Spring to Fall 2012
11. Member Doctoral Committee, Alex Albert, PhD Student in Civil Engineering. 2012
12. Member Doctoral Committee, Elizabeth Kraft, PhD Student in Civil Engineering. 2012 duated)
13. Member Doctoral Committee, Kyle Perry, PhD Student in Mining Engineering (Univ. of Kentucky). 2010.
14. Member Doctoral Committee, Yuhong Wang. PhD Student in Civil Engineering (Univ. of Kentucky). 2003.

POST-DOCTORAL SUPERVISION

1. Rakan Albalawi – (2024). The Use of Eyetracking Data to Assess Craft Performance.
2. Guillermo Nevett – (2020-2022). Assessment of FHWA Highway Project Cost Estimation Tools.
3. Dong Zhai – 2011. Construction Training for the Current and Next Generation of Technicians

M.S. SUPERVISION COMPLETED

1. Mussie Gebremedhin. MS Thesis (University of Colorado Boulder): Influence on Interactive Augmented Reality Systems on Human Behavior. Fall 2020
2. Ahmad Alquraini. MS Report (University of Colorado Boulder): 31rototype of Augmented Reality System to Provide Sequential Assembly Instructions. Summer 2020.

3. Krishan Gajjar. MS Thesis – MS Student in Construction Engineering (University of Cambridge). Topic: Material Management Systems in the Construction Industry – Why are they not being Used? 2019
4. Jassa Chawla. MS Thesis – MS Student in Construction Engineering (University of Cambridge). Topic: Correlations between Safety and Productivity Performance based on Company Characteristics. 2019.
5. Meagan Knights. MS Thesis – MS Student in Construction Engineering (University of Cambridge). Material Management Systems in the Construction Industry. Topic: The TCPI; a valuable tool for Portfolio Managers or just another metric? 2018.
6. Justine Mazinc. MS Report -MS Student (Colorado) in Civil Engineering. Topic: User Interaction with 3D Printed Models During Assembly Tasks. 2018.
7. Bradley Scott Able. MS Report– MS Student (Colorado) in Civil Engineering. Topic: Use of 3D Printing Technology for Large Scale Construction. 2018.
8. Robert Gillespie, MS Thesis – MS Student in Construction Engineering (University of Cambridge). Material Management Systems in the Construction Industry. Topic: Cost Creep in Major Infrastructure Projects: The Factors Preventing a Design-toCost Philosophy from Penetrating the AEC Sector. 2017.
9. Ben Corlett, MS Thesis – MS Student in Construction Engineering (University of Cambridge). Topic: Understanding how 3D vs 2D Design Information Influences Skilled Operatives' Productivity through a Series of UK-based Field Trials. 2017.
10. James Redman, MS Report – Supervisor MS Report – MS Student in Construction Engineering (University of Cambridge). Topic: What are the principal blockers to the implementation of Building Information Modelling by delivery staff on UK Infrastructure projects? A Case Study. 2017.
11. Jeff Miller, MS Thesis. MS Student (Colorado) in Civil Engineering. Topic: Innovative Information Systems for Craft Deliverables. Graduation Date: Fall 2015.
12. Thomas Mullens, MS Thesis. – MS Student in Construction Engineering (University of Cambridge) – Thomas Mullens, Cambridge University. Topic: Understanding Workforce Motivational Factors to Incentivise Improved Productivity for Pre-Cast Concrete Construction. 2014.
13. Jack Sweany, MS Thesis. MS Student (Colorado) in Civil Engineering. Topic: Cognitive Analyses of the Effects of Information Delivery Through Different Mediums. 2014.
14. Valerie Torres, MS Thesis. MS Student (Colorado) in Civil Engineering. Topic: Effective Oversight of Outsourced Construction Engineering and Inspection Services on Transportation Projects. 2014
15. Pierre Bannoun,MS Thesis. MS Student (Colorado) in Civil Engineering. Topic: Characteristics of Overcrowding Situation on Construction Jobsites. 2014
16. Omar Alruywathi, MS Report. MS Student (Colorado) in Civil Engineering. Topic: Utilization of Four Dimensional Animations for Productivity Analyses. 2013.
17. Emily Shocklee, MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Analysis of Constructability Reviews within the Kentucky Transportation Cabinet. 2012.
18. Kevin Hout, MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Contract Time Estimate of Small Highway Construction Projects in Kentucky. 2012.
19. Zachary Miller, MS Report. MS Student (Kentucky) in Civil Engineering. MS Report Topic: Analysis of Building Characteristics and Energy Consumption in New Residential Construction. 2012
20. Ashley Suazo, MS Report. MS Student (Kentucky) in Civil Engineering. Topic: CWDA: Contractors Workforce Development Assessment. 2012.
21. Mark Smith, MS Report. MS Student (Kentucky) in Civil Engineering. Topic: The Impact of ACI 100KSI Steel Reinforcement Standard on Craft Productivity. 2010.

22. Alex McCoy.MS Report. MS Student (Kentucky) I n Civil Engineering. Topic: Data Analyses of Change Order Data on Kentucky Roadway Projects. 2009.
23. Chandra Foley.MS Report. MS Student (Kentucky) in Civil Engineering. Topic: The Impact of Mechanical Innovations on the CII Model Plant. 2009.
24. Kishore Acharya. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Method for Facilities Assessment in University Settings. 2009
25. Brad Faulkenberg. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Transportation Design Build Projects in Kentucky: A Case Study. 2009
26. William Hinkle. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Best Practice Productivity Implementation Index: Conceptual Design. 2009
27. Yongwei Shan. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Best Practice Productivity Implementation Index: Conceptual Design. 2008.
28. Daniel Homm. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Validation and Implementation of Predictive Tool for Estimating Technology's Impact on Construction Productivity. 2008.
29. Daniel Cruz. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Women in Engineering: Retention Loss or Gain?. 2008
30. Andy Glasgow. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Contractor Experiences of Quality Control/Quality Assurance Highway Construction Projects. 2008.
31. Tim Jones. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Variations in Corporate Motivations towards Sustainability in the US. 2008.
32. Nicholas Hendricks. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Statistical Analysis of Kentucky QC/QA Data. 2008
33. Jordan Yeiser. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Prototype of a Predictive Tool for Estimating a Technology's Impact on Construction Productivity. 2007.
34. Eric Marks. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Technology/Innovation Implementation in Small Businesses. 2007.
35. Jason Enlow. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: QC/QA in Kentucky. 2007
36. Fady Kari. MS.Report. MS Student (Kentucky) in Civil Engineering. Topic: Analysis of Best Practices to Avoid Utility Conflicts on Construction Roadway Projects. 2006
37. Chris Jones. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Improvements to Avoid Utility Conflicts of Construction Roadway Projects. 2006.
38. Daniel Rogers. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Analysis of Craft Workers Suggestions to Improve Construction Productivity. 2005
39. Terrance Sterret. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Lean Construction with an Emphasis on Value Stream Mapping. 2005.
40. Tiantian Sun. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Content Analyses: A Comparison of Owner and Engineering/Construction Firms Business Objectives in the U.S. Construction Industrial Sector. 2005.
41. Adam Smith. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Right-of-Way Issues and Costs on Highway Construction Projects. 2005.
42. Ben Slaughter. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Utility Issues and Costs on Highway Construction Projects. 2005.
43. Jason Murphy. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Diffusion Adoption of New Technology in the Construction Industry. 2005
44. Naga Suram. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Non-Value Added Activities in Construction: A Lean Perspective. 2005.
45. Eswra Burra. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: The Factors Affecting Productivity. 2005.

46. Philippe Fenouil. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: A Survey of Innovative Rapid Construction Methods of Transportation Projects. 2004.
47. Yinggang Wang. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: A Decision Support System for Innovative Rapid Construction Methods of Transportation Projects. 2004.
48. Colwyn Sayers. MS Report. MS Student (Kentucky) in Civil Engineering.: Analysis of Focus Group Data Regarding Craft Worker Perceptions of the Factors Affecting their Productivity. 2004.
49. Matt McLaren. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: Prototypes and Implementation of RFID for Small Tool Tracking in Electrical Construction. 2004.
50. Manish Gangwar. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: The Impact of Safety Incentives in Construction. 2004.
51. Adam Durfee. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: The Use of Smart Chip Technology in the Electrical Contracting Industry. 2003.
52. Mike Schneider. MS Report. MS Student (Kentucky) in Civil Engineering. Topic: The Use of Smart Chip Technology in Commercial Construction. 2003.
53. Mohammed F. Yasin. MS Report. MS Student (Kentucky) in Civil Engineering.: Constructability Issues on KyTC Projects. 2002.

ADMINISTRATION AND SERVICE

ADMINISTRATION

1. **Department Head** – Construction Management, Colorado State University, 2020 – Present.

   Overview

   The Department of Construction Management at Colorado State University is one of the largest construction management programs in the country. The mission of the department is to advance the knowledge and practice of construction management for the betterment of society through teaching, research, and service to local, national, and global communities. As Department Head, my leadership and administrative responsibilities include the overall teaching, research, and outreach missions of the Department, including fiscal resources, personnel, infrastructure, program accreditation, fundraising and development, and stakeholder relations. I also represent the Department's interests on campus (e.g. campus infrastructure planning, design, and construction) and with key external stakeholders, including alumni, donors, and industry partners. As Department Head, I manage 800 students (both undergraduate and graduate), 21 faculty, 6 staff, 4 degree programs (1 accredited, 2 undergraduate and 2 graduate) with a departmental budget over $2.5 million, annually.

   Accreditation, Curricula, and Student Placement

   - 96% student placement rate prior to graduation (2nd highest placement rate among all majors at Colorado State University). $76,200 average starting salary for construction management undergraduate students (8th highest average starting salary among majors at Colorado State University).
   - Renewed the BS in Construction Management accreditation status for the maximum seven-year period, with no weaknesses or deficiencies, from the American Council for Construction Education in 2023.
   - Lead the authoring, development, and approval (including approval by the Colorado Council of Higher Education) of the BS in Construction Engineering program in 2024, involving the Department of Construction Management in the College of Health and

Human Sciences and the Department of Civil and Environmental Engineering in the Walter Scott, Jr. College of Engineering.

- Co-authored the Preliminary Proposal (approved by Provost Executive Council) and the Comprehensive Proposal for a new Plan C (coursework only) Master in Construction Management in 2025.
- Oversaw the relaunch of the CM Certificate program at Colorado State University's SPUR campus, which is a non-credit certificate program for working professionals. In 2024-2025, 39 students from industry completed the program, which meets weekly from September to March.

Workplace Environment, Culture, and Recruitment

- Recruited, hired, and retained 4 new tenure-track Assistant Professors and 5 continuing contract faculty at the rank of Instructor.
- Developed the department financing model to support $80,000 out-of-cycle raises to support annual faculty and staff raises outside of university annual salary increases.
- Re-organized department's self-governance structure to include departmental executive committee to included elected representation from tenured/tenure-track faculty, continuing contract faculty, and staff.
- Developed the Departmental Faculty and Staff Awards structure to broaden accolades for faculty and staff achievement.
- Developed new processes to select and award Department chairs and fellows based on equity and transparency.
- Developed shared governance model to select Department Graduate and Undergraduate Coordinator position based on Departmental nominations and vote.
- Developed and funded a new staff position on Student Recruitment and Outreach. As a result, the Department experienced a 41% increase in first-year student enrollment from Fall 2023 to Fall 2024.
- Developed the Department's Committee on Diversity, Equity, and Inclusion (DEI). Associated activities included a department/industry workshop on DEI at the Fall 2023 and Spring 2024 Professional Advisory and Development Board meetings. Every department meeting now begins with a culture moment designed to include multiple faculty members sharing their practices to make classrooms more inclusive.
- Oversaw maintenance of 35,000 square feet of the Department's offices, classroom, and laboratories across three buildings. Invested over $1,555,000 from 2020 to 2024 to improve pedagogical infrastructure in the Department, including:
    - Renovation of the Kiewit Computer Lab in Preconstruction Hall, including new wall treatments, flooring, lighting, technology podium, technology projection systems, and furniture.
    - Air conditioning installed for first time in Guggenheim 221 and 227 classrooms
    - Air conditioning installed for first time in the Industrial Sciences Labs
    - Renovation of the Colorado Asphalt Paving Association Lab, including new wall treatments, flooring, lighting, floor treatments, furniture, and classroom technology
    - Renovation of the TIC Classroom, including new wall treatments, classroom technology, and furniture

- Renovation of the JE Dunn Classroom, including new wall treatment and furniture
- Replacement of computer workstations in Mortenson VDC Classroom
- Expansion of new administrative offices in Guggenheim to support Department's Outreach and Recruitment Coordinator, including new offices, wall treatment, and furniture
- Renovation of existing faculty offices in the Industrial Sciences Labs, including wall treatment, floor finishes, environmental controls, and furniture.
- Renovation of the Saunders Lecture Hall in Preconstruction Hall, including new wall treatments, acoustical treatments, flooring, accessible podium, and student seating.

Fundraising and Development

- Lead the development and university approval of a BS in Construction Engineering program in collaboration with CSU Civil Engineering resulting in $6.6M industry gift (https://engr.source.colostate.edu/kiewit-corp-leads-6-6-million-investment-to-create-new-csu-construction-engineering-program/). The new Construction Engineering program will be housed in a new building on campus, which was also part of a major campus gift (https://engr.source.colostate.edu/csu-to-build-cutting-edge-engineering-and-ai-facility-thanks-to-historic-student-investment-and-transformative-gifts/).
- Secured a $1M gift from the Beavers Foundation to support a new Professor of Practice for Construction Management.
- Secured $300,000 gift from Kiewit Corporation to support Preconstruction 201 computer lab renovation
- Secured $475,000 gift from the Colorado Asphalt Paving Association to support asphalt lab renovation
- Secured $75,000 gift from TIC to support Classroom 227 renovation in Guggenheim
- Secured $45,000 gift from JE Dunn to support Classroom 221 renovation in Guggenheim

Partnership Building and Collaboration

- Worked with 300 plus members of the Department's Professional Development and Industry Advisory Board and its Executive Council. Specific initiatives included:
  - Developed new annual research grant program for construction management faculty ($25,000/yr)
  - Developed and organized bi-annual graduating student celebration event to celebrate their accomplishments and welcome to the Department's alumni group.
  - Formation and funding of department outreach and student recruitment coordinator position.
  - Approved increases of industry advisory board membership fees, which result in $200K annual financial support to department operations and initiatives
  - Organized and launched new subcommittees on Curriculum, Student Recruitment and Outreach, and Industry Solutions and Applied Research to increase industry engagement.
- Oversaw the CM Cares Program which involves student lead home renovations for families with special needs children in Northern Colorado.
- Developed Memorandum of Understanding with the Department of Systems Engineering to support a joint CM-Systems Engineering graduate program (PhD).

- Worked with the Interior Architecture to develop initial blueprint for a new BS in Architecture at Colorado State University. The program is still in the development stage.

SOCIETY MEMBERSHIP

1. American Society of Civil Engineers
2. Construction Research Council

PROFESSIONAL SOCIETY COMMITTEES

1. National Academy of Construction, Membership Committee, January 1, 2025 – Present
2. American Society of Professional Estimators, Industry Director, ASPE Board of Directors, June 11, 2025 - Present
3. National Academies Transportation Research Board, National Cooperative Highway Research Program Panel Member (Appointed) on 3D Models for Inspection (23-10). August 1, 2020 - Present
4. Member (appointed). Committee on Quantifying Loss of Productivity. ASCE Construction Institute, 2012-2015.
5. National Academies Transportation Research Board, Construction Management Committee (AFH-10)
    a. Member, 2005 -2021
    b. Committee Research Coordinator, 2012 – 2015
    c. **Chair**, 2015 - 2021
6. Transportation Research Board, Information Technology in Construction Subcommittee, **Co-Chair**, 2010 - 2013
7. Construction Industry Institute, Breakthrough Strategy Committee, 1999 – 2016
8. Construction Industry Institute, Academic Committee (elected Secretary 2005 to 2008, appointed **Co-Chair** 2011-2012, and **Chair** 2012-2013), 2005-2016
9. Construction Economics Research Network (CERN), Core Member, 2005-2012

REVIEWER

1. National Science Foundation. FW-HTF Review Panel. May 2023
2. National Science Foundation. FW-HTF Review Panel. May 2022
3. National Science Foundation. FW-HTF Review Panel. May 2021
4. ACCE Accreditation Board – Reviewer of Construction Management Program (Pacific Northwest). November 2020.
5. National Science Foundation. FW-HTF Review Panel. March 2020
6. National Science Foundation. FW-HTF Review Panel. April 2020
7. Technical Committee, 2018 ASCE Construction Congress. Labor and Personnel Section. New Orleans
8. Technical Committee Member. Ninth International Structural Engineering and Construction Conference. Valencia, Spain. July 24-29, 2017.
9. Technical Committee. 2017 International Workshop on Computing in Civil Engineering. Seattle, Washington. June 25-27, 2017.
10. Practice Periodical of Structural Design and Construction, American Society of Civil Engineering
    -Editor of Special Issue dedicated to the Construction Engineering Conference in Seattle, Washington in April 2014
    -**Specialty Editor**, 2014 - 2016
11. Journal of Construction Engineering and Management, American Society of Civil Engineering
    - **Journal Specialty Editor for Labor and Personnel Issues**, 2007 – 2016
    - Best Paper Selection Committee, 2009-2012.

- **Co-Editor** of Special Issue dedicated to the Construction Engineering Conference at Virginia Tech University, 2010.

12. National Academies National Cooperative Highway Research Program Synthesis Panel – Fall 2011.
13. National Sciences and Engineering Research Council (NSERC) of Canada – Discovery Grant Reviewer – Winter 2008, Winter 2012, and Winter 2013
14. Journal of Management in Engineering, American Society of Civil Engineering
15. Canadian Journal of Civil Engineering, National Research Council Canada
16. National Science Foundation Review Panel (Spring 2002 and Summer 2006)
17. Journal of Computing in Civil Engineering, American Society of Civil Engineering
18. Journal of Automation in Construction, Elsevier Press.
19. Journal of Construction Management and Economics, E & F.N. Spon

UNIVERSITY COMMITTEES

1. Pennock Outstanding Service Award Selection Committee, 2021
2. CSU Courageous Strategic Planning Group on Sustainability, 2021

COLLEGE COMMITTEES

1. Graduate Education Council, College of Engineering and Applied Science, University of Colorado Boulder, 2019-2020
2. First-Level Review Committee (Tenure and Promotion), College of Engineering and Applied Science, University of Colorado Boulder, 2018 - 2020
3. Outstanding Dissertation Award Committee for the College of Engineering and Applied Science, University of Colorado Boulder, 2019

DEPARTMENT COMMITTEES

1. **Chair**, Department Graduate Committee on Program and Students, Department of Civil, Engineering, and Architectural Engineering, University of Colorado at Boulder, 2019-Present
2. **Chair,** Department Awards Committee, Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder 2017-2018.
3. Operations Committee, Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder 2017-2018 (**Chair** 2018).
4. **Chair**, Faculty Search Committee in Construction Engineering and Management, Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder, 2015-2016
5. Primary Unit Evaluation Committee (Promotion and Tenure of Dr. Matthew Hallowell), Department of Civil, Environmental, and Architectural Engineering, 2014-2015
6. Primary Unit Evaluation Committee (Promotion and Tenure of Dr. Amy Javernick-Will), Department of Civil, Environmental, and Architectural Engineering, 2015-2016
7. **Chair** for Joint Evaluation Review Committee (JEC) for the Construction Engineering andn Management Program, Department of Civil, Environmental, and Architectural Engineering, 2014 and 2017
8. Curriculum Committee, Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder, 2014 – 2015
9. Graduate Committee, Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder, 2012 – 2013
10. Executive Committee, Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder, 2012 – 2016.

11. Faculty Search Committee in Architectural Engineering, Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder, 2012-2013.
12. Construction Faculty Liason to Architectural Engineering Graduate Program, Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder, 2012-2013.
13. Personnel Committee, Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder, 2012 - 2018
14. Secretary to the Construction Engineering and Management Industry Advisory Board and Executive Committee, Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder, 2012-2020
15. Secretary and Treasurer to the Construction Executive Committee, Department of Civil Engineering, University of Kentucky, 2008-2012
16. Sturgill Graduate Education Award Committee, Graduate School, University of Kentucky, 2011.
17. Department Chair Renewal Committee, Department of Civil Engineering, University of Kentucky, 2009
18. Department Student Appeals Committee, Department of Civil Engineering, University of Kentucky, 2004-2012
19. Departmental Chair Search Committee, Department of Civil Engineering, University of Kentucky, 2005
20. Research Committee, Department of Civil Engineering, University of Kentucky, 2004-2005
21. Education Committee, Department of Civil Engineering, University of Kentucky 2003- 2004, 2011-Present
22. Service Committee, Department of Civil Engineering, University of Kentucky 2001-2012

K-12 OUTREACH ACTIVITIES

1. Baseball Coach – Summer 3rd grade, 4th grade, and 4th grade teams (recreation and intermediate), Fort Collins Baseball Club. Summer 2018, 2019, and 2020.
2. Roger's Scholars- Summer Experience for Exceptional High School Students, Lecturer for Civil Engineering. Somerset, Ky. July 2006.
3. Content Consultant to ABDO Publishing, Edina, Minnesota for a children's book series titled Mighty Machines. July 2008. Credit for consulting on the series provided on individual book covers by the publisher. Individual book titles include:
    a. Mighty Machines: Dump Trucks
    b. Mighty Machines: Cranes
    c. Mighty Machines: Bull Dozers
    d. Mighty Machines: Tractors
    e. Mighty Machines: Fire Trucks
    f. Mighty Machines: Garbage Trucks
4. Organized Construction Engineering Display, 2005 and 2008 E-Day, College of Engineering, University of Kentucky

OTHER SERVICE ACTIVITIES

1. Faculty Advisor, Chi Epsilon, Department of Civil, Environmental, and Architectural Engineering, University of Colorado at Boulder 2016-2020
2. Section Manager for the Construction Management Group within the Kentucky Transportation Center – Fall 2009 to Summer 2012.
3. Assistant organizer for workshop at 2010 TRB Annual Meeting: Using Information Technologies to Support Better Construction Management IV.
4. Session Organizer on Workforce Issues in the Highway Construction Industry at 2009 TRB Annual Meeting.

5. Assistant organizer for workshop at 2008 TRB Annual Meeting: Using Information Technologies to Support Better Construction Management IV.
6. Technical Committee Member for the 2007 ASCE Construction Congress.
7. Assistant organizer for workshop at 2007 TRB Annual Meeting: Using Information Technologies to Support Better Construction Management III.
8. Assistant organizer for workshop at 2006 TRB Annual Meeting: Using Information Technologies to Support Better Construction Management II.
9. Session Moderator for the 2005 Construction Research Congress. San Diego, CA. March, 2005.
10. Assistant organizer for workshop at 2005 TRB Annual Meeting: Project Management Tools for Construction Management: A Review of Current Approaches.
11. Faculty Advisor for Associated General Contractors Student Chapter, University of Kentucky, 2004 – 2009