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Charles J.R. Coccia, Ph. D., PE

Project Manager • Geotechnical and Civil Engineering

Phone: +1 (386) 837-4119
Email: cj@basecampaec.com

Professional Profile

Dr. Coccia specializes in geotechnical engineering, unsaturated soil mechanics, geotechnical site and structure movement investigations, experimental soil testing, field instrumentation, and the constitutive modeling of soil properties and behavior. He has experience examining the performance of foundations on expansive, collapsible, and consolidating soils, grading and drainage issues, hydro-mechanical response of mechanically stabilized earth (MSE) embankments, MSE walls, has performed investigations into slope stability failures, has evaluated the performance of structures constructed upon landfill sites developed using deep dynamic compaction (DDC) and the performance of the drainage systems of sports fields constructed using artificial turf systems, and is proficient in the development of advanced geotechnical testing equipment. He has also evaluated the thermo-mechanical response of municipal solid waste (MSW) landfills and been involved in the installation, instrumentation, and evaluation of drilled shaft geothermal foundations. He has performed analysis for projects in more than 6 states assisting project owners, law firms, utility companies, insurance companies, builders, and project subcontractors.

Prior to joining Exponent, Dr. Coccia earned a Ph.D. in civil engineering at the University of Colorado Boulder (CU Boulder) where he primarily focused on the evaluation of the influence of temperature, water, and mechanical loading on the primary and secondary consolidation behavior of saturated and unsaturated soils. In addition to his research work at CU Boulder, Dr. Coccia participated in the Discovery Learning Apprenticeship Program, providing mentorship to an undergraduate student interested in pursuing graduate work in geotechnical engineering, and has served as an instructor for undergraduate soil mechanics laboratory courses. Following his graduate research work at CU Boulder, Dr. Coccia also participated as a visiting graduate student at the University of California - San Diego (UCSD).

Academic Credentials & Professional Honors

Ph.D., Civil Engineering, University of Colorado, Boulder, 2015

M.S., Civil Engineering, University of Colorado, Boulder, 2011

B.S., Civil Engineering (summa cum laude), University of Colorado, Boulder, 2010

Eckel Award, University of Colorado Boulder, 2010

Outstanding Graduate for Research, University of Colorado Boulder, 2010

Licenses and Certifications

Licensed Professional Civil Engineer, California, #88675

Licensed Professional Engineer, Colorado, #54515

Licensed Professional Civil Engineer, Michigan, #6201070400

Licensed Professional Civil Engineer, New Mexico, #26387

Licensed Professional Engineer, North Dakota, #29226

Prior Experience

Soils Laboratory Technician, Shannon & Wilson Inc., 2011-2016

Professional Affiliations

American Society of Civil Engineers

Geo-Institute

Colorado Association of Geotechnical Engineers

Publications

Mun W, Coccia CJR, McCartney JS. Application of hysteretic trends in the preconsolidation stress of unsaturated soils. Geotechnical and Geological Engineering 2017, 1-15.

Coccia CJR, McCartney JS. Thermal volume change of poorly draining soils I: Critical assessment of volume change mechanisms. Computers and Geotechnics 2016; 80: 26-40.

Coccia CJR, McCartney JS. Thermal volume change of poorly draining soils II: Model development and experimental validation. Computers and Geotechnics 2016; 80: 16-25.

Coccia CJR, McCartney JS. High-pressure thermal triaxial cell for evaluation of the impact of temperature on soil volume change mechanisms. ASTM Geotechnical Testing Journal 2016; 39: 217-234.

Laloui L, Olgun CG, Sutman M, Coccia CJR, McCartney JS, Abuel-Naga HM. State of practice: issues involved with thermo-active geotechnical systems: characterization of thermo-mechanical soil behavior and soil-structure interface behavior. The Journal of the Deep Foundations Institute 2014; 8: 108-120.

Olgun CG, McCartney JS, Loveridge FA, Bowers GA, Coccia CJR, Bouazza A, Soga K, Spitler JD, Nicholson D, Sutman M. State of Practice: Building codes, green certification and implementation issues, market challenges. The Journal of the Deep Foundations Institute 2014; 8: 84-92.

Coccia CJR, McCartney JS. Geotechnical instructional centrifuge modeling of stress distribution." 8th International Conference on Physical Modelling in Geotechnics. Unsaturated Soils: Research and Applications 2014; Perth, Australia: 427-432.

Stewart M, Coccia CJR, McCartney JS. Issues in the implementation of sustainable heat exchange technologies in reinforced, unsaturated soil structures. ASCE GeoCongress 2014; Atlanta, USA: 4066-4075.

McCartney JS, Coccia CJR, Alsherif NA, Stewart MA, Baser T, Traore T, Goode III JC. Unsaturated soil mechanics in geothermal energy applications. Unsaturated Soils: Research and Applications 2014; Perth, Australia: 835-842.

Stewart MA, McCartney JS, Coccia CJR. Physical modeling of the thermo-hydro-mechanical response of a soil-geosynthetic system. 10th Annual International Conference on Geosynthetics 2014; Berlin, Germany: 1-4.

Coccia CJR, Gupta R, Morris J, McCartney JS. Municipal solid waste landfills as geothermal heat sources. Journal of Renewable & Sustainable Energy Reviews 2013; 19: 463-474.

Coccia CJR, Casady A, McCartney JS. Physical modeling of the mechanical improvement of unsaturated silt through heating. 1st Pan-American Conference on Unsaturated Soils 2013; Cartagena de Indias, Colombia: 141-146.

Coccia CJR, McCartney JS. Impact of heat exchange on the thermo-hydro-mechanical response of reinforced embankments. ASCE GeoCongress 2013; San Diego, USA: 343-352.

Coccia CJR, McCartney JS. A thermo-hydro-mechanical true triaxial cell for evaluation of the impact of anisotropy on thermally-induced volume changes in soils. ASTM Geotechnical Testing Journal 2012; 35: 227-237.

Walter H, Coccia CJR, Ko HY, McCartney JS. Tunnels with deformable lining. International conference on physical modeling in geotechnical engineering 2010; Zurich, Switzerland: 2329-2338.

Presentations

Coccia CJR. Soil & Rock Sampling and Testing: Crash course on investigation options, sampling techniques, laboratory testing, and how these activities may assist in building movement investigations. Video Webinar, 2020 CDLA CLE Event, December 3, 2020.

Coccia CJR. Differential movement in soils: Types of movement, how to measure it, what it means. Oral Presentation, 2019 CDLA CLE Event, Kimpton Hotel Born, Denver, USA, November 21, 2019.

Coccia CJR. Where's the water? Techniques in Evaluating Sources of Water & its impact on foundations, slopes, and retaining walls. Oral Presentation, 2018 CDLA CLE Event, Union Station Denver, Denver, USA, November 1, 2018.

Coccia CJR, Wren JRW. Landslides: Cause & differentiation from common earth settlement. Oral Presentation, 2017 CDLA CLE Event, Magnolia Hotel Denver, Denver, USA, November 30, 2017.

Coccia CJR, McCartney JS. High pressure triaxial cell for thermal volume change measurements of unsaturated soils. Oral Presentation, Unsaturated Soils: Research & Applications, Sheraton on the Park Hotel, Sydney, Australia, July 2014.

Coccia CJR, McCartney JS. Impact of heat exchange on the thermo-hydro-mechanical response of reinforced embankments. Oral Presentation, ASCE GeoCongress 2013, Town and Country Resort and Conference Center, San Diego, USA, March 2013.

Coccia CJR, Gupta R, Morris J, McCartney JS. Issues in the use of municipal waste landfills as geothermal heat sources. Oral Presentation, NSF U.S.-Japan Geoenvironmental International Session, University of Kyoto, Osaka, Japan, October 2011.

Coccia CJ, Rosenberg JE, McCartney JS. Soil structure interaction in geothermal foundations. Poster Presentation, NSF CMMI Conference, Cobb Galleria Convention Centre, Atlanta, USA, January 2011.

Coccia CJ, Rosenberg JE, McCartney JS. Soil structure interaction in geothermal foundations. Poster Presentation, GeoTrends Conference, Sheraton Denver West Hotel, Lakewood, USA, November 2010.

Peer Reviews

ASCE Journal of Geotechnical and Geoenvironmental Engineering

Canadian Geotechnical Journal

Computers and Geotechnics

Engineering Geology

Géotechnique Letters

Geotechnical Testing Journal

Waste Management