CIVIL, CONSTRUCTION & ENVIRONMENTAL ENGINEERING

NEWSLETTER

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MESSAGE FROM THE CHAIR

What an exciting time for UNM Civil, Construction and Environmental Engineering (CCEE) as we near the finish line for raising $2M in our first phase of the 12 in 12 fundraising campaign (Raising $12M in 12 years for CCEE). This first phase will establish The Dana Wood Endowed Chair in Emerging Construction and Materials Technology, build the first 3D concrete printing laboratory in the Rocky Mountain Region and establish our state-of-the-art computer lab as the first active learning space for CCEE students. Thanks to department partners and friends who have supported our dream. We now need to raise the final $100K. I ask all of you to contribute generously so this project can be realized by Summer 2019. Our annual summer study abroad program took CCEE students to Germany and The Netherlands to study infrastructure resilience. Our female students participated in a life-changing experience at the Society of Women Engineers Conference. We are very excited by the growth in our research expenditures exceeding $6.0M annually, the national recognition of our faculty and students' innovative research, and the significant contribution CCEE makes to the economic development of New Mexico and Albuquerque.

Mahmoud Taha, Distinguished Professor and Chair
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Rendering of the new state-of-the art computer lab

UNM CCEE STUDENTS STUDY ABROAD PROGRAM IN EUROPE

Twenty-one students from CCEE traveled to Germany and Holland for the study abroad program: Resilience of European Infrastructure. The program included two courses. Resiliency and Reconstruction of Transportation Systems, led by Mr. Michael Gonzalez, was offered in Berlin and Munich. Students studied history of infrastructure construction techniques in Europe with an emphasis on resiliency of transportation systems associated with Germany's reunification, population growth, and urban development. Dr. Mark Stone led the second phase, Life below sea level: How the Dutch have learned to live with water, which explored the Dutch relationship with water resources engineering and flood control innovations through canals and windmills, sea walls and storm barriers, and flood resilience through coastal and river restoration.

FUNDRAISING CAMPAIGN

The Department of Civil, Construction and Environmental Engineering is launching a major fundraising campaign to upgrade its facilities and shape its roadmap toward 2030. We need your leadership gift for UNM CCEE. For details, please contact:

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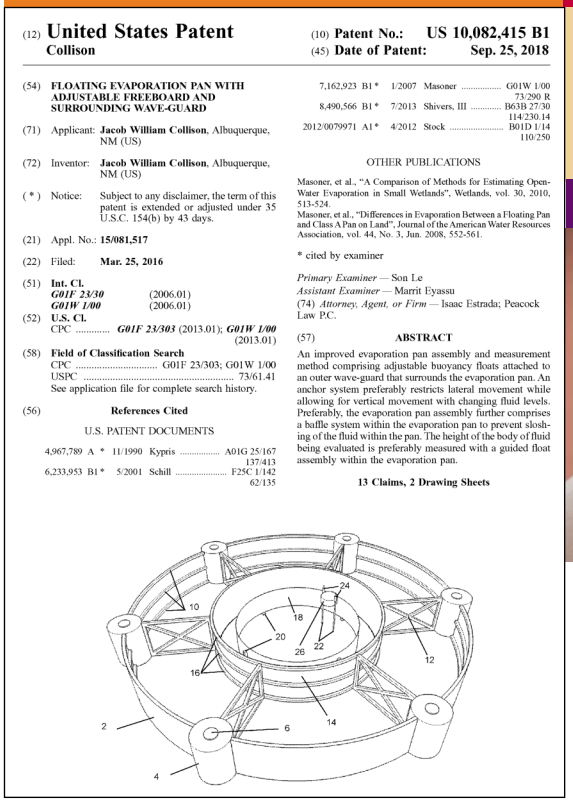
DEPARTMENT HAS A NEW NAME

In May, UNM Department of Civil Engineering officially became The Department of Civil, Construction and Environmental Engineering (CCEE). The faculty voted to change the name to reflect the breadth and diversity of the academic opportunities that are available to both undergraduate and graduate students. Our new name also indicates the broad areas of research conducted by department faculty.

UNM CLASS AT SANDIA TRAMWAY

Studying structural steel can be tedious and sometimes intimidating but not in UNM's CCEE. Undergraduate and graduate students enrolled in Structural Design in Metals, CE424/524, visited the Sandia Peak Tramway (http://www.sandiapeak.com/) in what has become a traditional field trip for our department. Dr. Fernando Moreu and his students now use the tramway structure for structural dynamics (spring semester), structural design (fall semester) and the summer transportation institute. The results of these field trips include a higher appreciation of structures, maintenance operations and structural dynamics. Students have also benefited by meeting Mr. George Boyden, who has been the tramway operations manager since 1966. He provided a private tour of the machine room, explained the construction of the towers using helicopters, and helped with the installation of a wireless sensor in the tower.

PHD STUDENT ISSUED PATENT



(12) **United States Patent**
Collison

(10) **Patent No.: US 10,082,415 B1**
(45) **Date of Patent: Sep. 25, 2018**

(54) **FLOATING EVAPORATION PAN WITH ADJUSTABLE FREEBOARD AND SURROUNDING WAVE-GUARD**

(71) Applicant: **Jacob William Collison**, Albuquerque, NM (US)

(72) Inventor: **Jacob William Collison**, Albuquerque, NM (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 43 days.

(21) Appl. No.: **15/081,517**

(22) Filed: **Mar. 25, 2016**

(51) **Int. Cl.**
G01F 23/30 (2006.01)
G01W 1/00 (2006.01)

(52) **U.S. Cl.**
CPC ***G01F 23/303*** (2013.01); ***G01W 1/00*** (2013.01)

(58) **Field of Classification Search**
CPC G01F 23/303; G01W 1/00
USPC 73/61.41
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

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6,233,953 B1 * 5/2001 Schill F25C 1/142 62/135
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2012/0079971 A1 * 4/2012 Stock B01D 1/14 110/250

OTHER PUBLICATIONS

Masoner, et al., "A Comparison of Methods for Estimating Open-Water Evaporation in Small Wetlands", Wetlands, vol. 30, 2010, 513-524.
Masoner, et al., "Differences in Evaporation Between a Floating Pan and Class A Pan on Land", Journal of the American Water Resources Association, vol. 44, No. 3, Jun. 2008, 552-561.

* cited by examiner

Primary Examiner — Son Le
Assistant Examiner — Marrit Eyassu
(74) *Attorney, Agent, or Firm* — Isaac Estrada; Peacock Law P.C.

(57) **ABSTRACT**

An improved evaporation pan assembly and measurement method comprising adjustable buoyancy floats attached to an outer wave-guard that surrounds the evaporation pan. An anchor system preferably restricts lateral movement while allowing for vertical movement with changing fluid levels. Preferably, the evaporation pan assembly further comprises a baffle system within the evaporation pan to prevent sloshing of the fluid within the pan. The height of the body of fluid being evaluated is preferably measured with a guided float assembly within the evaporation pan.

13 Claims, 2 Drawing Sheets

Jake Collison, a PhD candidate in civil engineering, received a U.S. Patent (10,082,415) for his Collison Floating Evaporation Pan (CFEP) project. The CFEP is a new method for measuring evaporation from lakes. Jake was awarded a $512,000 4-year study grant from the U.S. Bureau of Reclamation to test his CFEPs on Lake Powell, Elephant Butte, Caballo Lake, and Cochiti Lake. The goal of the project is to increase the efficiency of water management by more accurately measuring and accounting for evaporative losses from lakes.

STUDENTS ATTEND SOCIETY OF WOMEN ENGINEERS CONFERENCE

Five students from the CCEE Department attended the Society of Women Engineers (SWE) National Conference in Minneapolis, MN. Participants attended workshops on professional skills such as negotiating salaries, pursuing careers in engineering policy, and handling workplace harassment. Panels were hosted by United Airlines and NASA and a keynote session featured Lockheed Martin CEO, Marillyn Hewson. The conference hosted career fairs with over 500 companies and graduate schools represented. The conference was an unforgettable and inspiring experience.

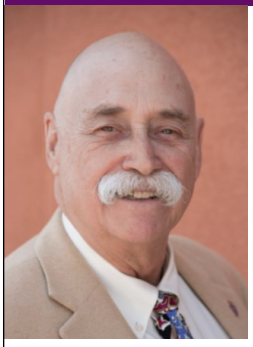
ICPIC 2018 ORGANIZED BY UNM CCEE

CCEE organized the latest International Congress on Polymers in Concrete (ICPIC 2018) at the Willard Intercontinental Hotel in Washington, D.C. ICPIC 2018 was co-organized with George Mason University and sponsored by ASCE, ACI, RILEM and ICPIC International and 12 industrial sponsors. The conference was very successful with 153 attendees from 29 countries. The conference held educational sessions at George Mason followed by 90 technical presentations at the Willard. ICPIC 2018 was chaired by Dr. Mahmoud Taha. Conference details can be found at http://icpic2018.unm.edu/.

DEPARTMENT EVENTS AND STUDENT NEWS

56th Paving & Transportation Conference
January 9–10, 2019
Albuquerque Marriott Pyramid North
5151 San Francisco Rd. NE
Albuquerque, NM

DEPARTMENT WELCOMES NEW FACULTY



CCEE welcomed a new faculty member in fall 2018, Mr. Ken Cooper, as senior lecturer in construction management. His teaching interests include engineering economics, cost estimating, project scheduling, route surveying, and temporary traffic controls. He recently served as an ABET Applied and Natural Sciences Accreditation Commission (ANSAC) program evaluator for a geomatics program in Oregon.

Serafin Garcia Fernandez
Ph.D. Candidate

Serafin Garcia Fernandez, from Motril, Spain, is a PhD student on Dr. John Stormont's research team. He obtained his bachelor's degree at the University of Granada, Spain. He originally came to UNM for a semester as an exchange student and has been here ever since. He is investigating the use of nonlinear acoustic methods for the detection and monitoring of CO_2 brine leakage pathways in wellbore systems in collaboration with Los Alamos National Labs. He is also investigating two-phase flow in wellbore micro annuli in collaboration with Sandia National Labs.

Patience Raby, B.S. Candidate

Patience Raby, part of Dr. Taha's research team, is in her third year working toward her B.S. in Civil Engineering, She is in the Shared Credit program researching composites in piezoelectric energy harvesting systems. She has been on the ASCE UNM Chapter's Concrete Canoe team for the past two years and is currently a co-captain for the 2018–2019 Concrete Canoe. She is a Daniels Fund Scholar and interned at Sandia National Laboratories in water resources this past summer.

CCEE Facts at a Glance

Number of Faculty	19
Number of Undergrads	249
Number of Grad Students	104
Number of Adjuncts	9

Annual Research Expenditures
FY 2017–2018
$6.0 Million

Departmental Scholarships
$72,000 Awarded to Undergraduate and Graduate Students