



MARY ELLEN BRUCE LARGE, PE., D.GE., DIRECTOR OF TECHNICAL ACTIVITIES

Technical Activities Update

DFI Technical Committees and Working Groups – Always Something New Happening

DFI's 18 technical committees and 3 working groups held their annual committee meetings in October at the DFI 42nd Annual Conference on Deep Foundations in New Orleans. A new industry-wide Working Group on Working Platforms also held its first meeting, and DFI hosted an exploratory meeting for a potential new group on Project Information Management Systems. Hundreds of DFI committee and

working group members gathered to discuss the many and varied projects aimed at furthering the advancement and understanding of deep foundations. Successes were praised and new challenges proposed to meet the needs of the industry. Please review the summary lists below of ongoing and completed committee projects, and join a committee or working group to become more involved.



Augered Cast-in-Place Pile Committee

Chair: Morgan NeSmith, P.E.

Berkel and Company Contractors
morgan@berkelandcompany.com

Trustee Liaison: Matthew Meyer, P.E.

Langan Engineering and Environmental Services, mmeyer@langan.com

- Organized an ACIP and drilled displacement (DD) pile seminar in April 2017 in Pittsburgh, Pa.
- Conducted a research project in conjunction with Florida DOT and Dr. Grey Mullins from the University of South Florida regarding the installation, monitoring and performance of ACIP piles for inclusion in Florida DOT specifications. Fieldwork is complete and the report is being finalized.
- Reviewed and commented on ACIP pile specifications for NAVFAC and Florida DOT (ongoing).
- Developing proposed specification for ACIP piles to submit to AASHTO.
- Conducting a research project in conjunction with Drs. Antonio Marinucci and Anne Lemnitzer at UC Irvine regarding the lateral forces generated during DD pile installation (i.e., effects of installation on existing foundations, tunnels, retaining walls, utilities, etc.).

- Developing a joint study regarding state of practice of ACIP piles in North America, Europe and Australia/New Zealand, to be presented at DFI-EFFC International Conference in Rome, June 2018.



Codes and Standards Committee

Chair: Daniel Stevenson, P.E., Berkel and Company Contractors

d Stevenson@berkelandcompany.com

Trustee Liaison: Lori Simpson, P.E., G.E.

Langan Treadwell Rollo, lsimpson@langan.com

- Continued efforts to rewrite Chapter 18 on *Foundations of the International Building Code* (2018 version) through the GeoCoalition Code Council (including active members from ASCE, Geo-Institute, GBA, ADSC, and strong involvement by PDCA on Chapter 18.10).
- Submitted revisions January 2016. Several committee members attended the public code hearings in April 2016 to speak in favor of the changes.
- Resubmitted some of the changes that were not approved through the public comment process. Dale Biggers, representative from PDCA, and Dan Stevenson, chair of the committee,

attended the Public Comment hearings in October 2016 to speak in favor of the resubmittals.

- Reviewed requirements in some jurisdictions that require structural engineers to design earth retaining systems. The committee supported the Oak Brook Accords, between the ASCE Geo-Institute and the Structural Engineering Institute, which indicated agreement that design of geo-structures may involve structural, geotechnical and/or civil engineers and should not be subject to designated thresholds contemplated for S.E. licensure.



Deep Foundations for Landslides and Slope Stabilization Committee

Chair: Chris Ramsey, P.E., Amec Foster Wheeler Environmental & Infrastructure
chris.ramsey@amecfw.com

Trustee Liaison: Erik Loehr, Ph.D., P.E., University of Missouri, Columbia
eloehr@missouri.edu

- Hosted the two-day SSI: Stabilize, Support and Improve seminar in conjunction with six other DFI technical committees in Washington, D.C., in August. The next SSI seminar is being planned for 2020.

- Conducting a study to compare limit equilibrium and advanced numerical methods for slopes reinforced with stabilizing piles.
- Preparing a literature study and modeling to compare strain wedge and GROUP procedures to define simplified analytical steps for A-Wall systems.
- Presenting two webinars in 2018 — topics, speakers and dates to be announced soon.



Drilled Shaft Committee

Chair: Paul Axtell, P.E., D. GE, Dan Brown and Associates, paxtell@dba.world
Trustee Liaison: James Johnson, Condon Johnson and Associates
 jjohnson@condon-johnson.com

- Continued an organized outreach effort for deep foundations at the International Bridge Conference in Washington, D.C., in June, including a dedicated exhibit hall area for foundations.
- Collaborating on a cofunded study with EFFC to develop a guide to improve tremie concreting and testing practices for deep foundations (drilled shafts and diaphragm/slurry walls). The first edition of EFFC-DFI *Best Practice Guide to Tremie Concrete for Deep Foundations* (2016) is available for free download from www.dfi.org. The second edition, including recommendations for future practice, is scheduled for release in 2018.
- Collaborating on a cofunded study with the DFI Seismic and Lateral Loads Committee, through the DFI Committee Project Fund, and ADSC to evaluate the shear demand in drilled shaft rock sockets. Construction and testing are ongoing with preliminary results expected to be available in early 2018.

- Conducted a productive committee meeting at SuperPile '17 in San Diego, with more than 30 individuals in attendance. Multiple potential committee projects were discussed.



Driven Pile Committee

Chair: Ben Vance, P.E., STRATA
 bvance@stratageotech.com
Trustee Liaison: David Borger, P.E.
 Skyline Steel, dborger@skylinesteel.com

- Exploring possibility of presenting educational opportunities in driven pile design.
- Investigating ways to utilize the structural capacity of steel piles more efficiently in the design process.



Ground Improvement Committee

Chair: Tanner Blackburn, Ph.D., P.E.
 Hayward Baker
 jtblackburn@haywardbaker.com
Trustee Liaison: Martin G. Taube, P.E., P.G.
 Menard USA, mtaube@menardusa.com

- Supported the SSI seminar in Washington, D.C.
- Reviewing *Unified Facilities Guide Specifications for Densified Aggregate Piers* for NAVFAC.
- Maintaining a ground improvement presentation and speaker information database. Abstract submission portal is available on committee web page.



Helical Piles and Tiebacks Committee

Chair: Gary Seider, P.E., Hubbell Power Systems/Chance, glseider@hubbell.com
Trustee Liaison: Howard Perko, Ph.D., P.E.
 Magnum Piering
 hperko@magnumpiering.com

- Developing standard specifications for helical soil nails.
- Developing a committee-endorsed engineering instruction/training program for helical designers.
- Organizing annual topical seminars.
- Developing a helical pile design guide.
- Conducting *Helical Seismic Research Study* including literature review, laboratory and model testing and full-scale field testing (Researcher: Prof. Amy Cerato, University of Oklahoma).
- Working on two draft ASTM Standards – one for helical pile testing and another for installation/testing.
- Working with ICC-ES staff and Helical Ad Hoc Committee on revisions to *Helical Pile Acceptance Criteria AC358*.
- Conducting *Helical Seismic Liquefaction Research Study* including scale mode shake table testing (Researcher: Prof. Ramin Motamed, University of Nevada – Reno).
- Reviewing NAVFAC *Helical Pile Specification*.
- Planning a DFI and Helical Pile World Educational Tradeshow on helical piles, tiebacks and anchors in Cincinnati, Ohio. Date to be determined.



Manufacturers, Suppliers and Service Providers (MSSP) Committee

Chair: Mark Bryant, EIT, MacLean Power Systems, mbryant@macleanpower.com

Trustee Liaison: Matthew Janes, P.Eng. MBA, Isherwood Associates matthew@isherwood.to

- Developed “expo” sessions for commercial presentations at the DFI 42nd Annual Conference.
- Developing quarterly technical showcase emails highlighting MSSP members and services.



Marine Foundations Committee

Chair: Rick Ellman, P.E., Mueser Rutledge Consulting Engineers, rellman@mrce.com

Trustee Liaison: Alan Roach Berkel and Company Contractors aroach@berkelapg.com

- Held two specialty seminars with COPRI’s NY Metropolitan Section in 2017.
- Organized joint specialty seminar with DFI’s Seismic and Lateral Loads Committee in North Charleston, S.C., in May.
- Awarded the 2017 Ben C. Gerwick Award to Bob Bittner of Bittner-Shen Consulting Engineers and DFI past president at SuperPile ’17.
- Exploring DFI-funded research opportunities.

Micropile Committee – Joint with ADSC

Co-Chairs: Steve Davidow, P.E., S.E., Quanta Subsurface, sdavidow@quanta subsurface.com and Terry Holman, Ph.D., P.E., Geosyntec tholman@geosyntec.com

Trustee Liaison: John Wolosick, P.E. D.GE, Hayward Baker, jrwolosick@haywardbaker.com

- Updated the *Micropile Guide Specification*.
- Assisting with IFCEE Conference Micropile Session, March 5-10, 2018, in Orlando, Fla.
- Continuing to work on IBC code revisions.
- Developing revised grout testing methodology.
- Developing a *Micropile Inspection Guide*.



International Society for Micropiles

Chair: Dan MacLean, P.Eng., Keller Canada dmaclean@kellercanada.com

- Held a very successful International Workshop on Micropiles (IWM) in Vancouver from March 29 to April 1, 2017, with more than 150 attendees.
- Planning is underway for the next IWM with target of 2019 in Australia.
- Working on membership recruitment and retention strategies for 2017 and 2018.



Seismic and Lateral Loads Committee

Chair: Kwabena Ofori-Awuah, P.E., ENV SP, KCI Technologies kwabena.ofori-awuah@kci.com

Trustee Liaison: Anne Lemnitzer, Ph.D., P.E., University of California Irvine alemnitz@uci.edu

- Developing *Design Guidelines for Bridge Pile Foundations Subjected to Liquefaction-Induced Lateral Spreading – Ground Motions* (Researcher: Prof. Arash Khosravifar, University of Portland) through the DFI Committee Project Fund.
- Researching the *Minimum Required Length for Geotechnical Lateral Stability of Rock-Socketed Pile Shafts*. The goal of project is to develop practical solutions to resolve the issue of “un-zipping” of p-y springs in strong rock.
- Developing a white paper on practical aspects of pile head fixity.
- Developing a white paper on p-y curves.
- Rolling out workshops for *Seismic and Lateral Loads Design Guide* (2018).
- Begin to revise the *Seismic and Lateral Loads Design Guide*.



Slurry Wall Committee

Chair: Giovanni Bonita, Ph.D., P.E., P.G. GEI Consultants, gbonita@geiconsultants.com

Trustee Liaison: Stefano Valagussa TREVIICOS Corporation svalagussa@treviicos.com

- Participated in the organization of SSI seminar in Washington, D.C.

- Finalizing the *Guide to Selection of Cutoff Methods*.
- Initiating development of a PowerPoint presentation on slurry wall construction.
- Finalizing consensus guidelines for design and detailing of reinforced concrete diaphragm walls used as permanent basement walls in regions of high seismicity, including practical and economical design recommendations and proposals for influencing relevant building code provisions.
- Interest in connecting technical committee members with technical members from tunneling societies (NATC, RETC).
- Discussing specification for slurries for deep foundations.



Soil Mixing Committee

Chair: David Miller, P.E., Consultant
amiller527@aol.com

Trustee Liaison: Martin G. Taube, P.E., P.G. Menard, mtaube@menardusa.com

- Conducting laboratory study of strength and deformation properties of soil-cement mixtures, and appropriate laboratory procedures (Researcher: Prof. George Filz, Virginia Tech) funded through DFI Committee Project Fund.
- Collaborating with Rutgers University to present a one-day seminar in April 2018 that focuses on soil mixing design and case histories.
- Preparing a white paper on QC/QA issues for deep mixing.
- Gauging the industry for market size by surveying industry members and cement associates.



Subsurface Characterization for Deep Foundations Committee

Chair: Victor Donald, P.E., Terracon
vrdonald@terracon.com

Trustee Liaison: Conrad Felice, Ph.D. P.E. ILF Consultants
conrad.felice@cwfelicellc.com

- Planning activities to raise the level of awareness of the need for and economic benefits of accurate and effective subsurface characterization information.
- Promoting active liaisons with AASHTO, ACI, ASTM, FHWA, GeoProfessional Business Association (formerly ASFE), Geo-Institute, TRB and USACE.
- Developing liaison with the DFI of India task force on geotechnical investigation.



Sustainability Committee

Chair: Carlos Englert, Ph.D., P.E. Terracon, carlos.englert@terracon.com

Trustee Liaison: Gianfranco Di Cicco, GD Consulting, gdcons2015@gmail.com

- Restructuring and focusing on gathering information on the status of sustainability legislation and regulatory initiatives.
- Continuing to be available to collaborate with all the other technical committees to find common ground in applying maximum safety and quality while ensuring durability and, as a direct consequence, sustainability for all deep foundation technologies.

- Assisting other committees, as requested, on incorporating sustainable practices when preparing specifications, guidance documents and organizing workshops.



Testing and Evaluation Committee

Chair: Gerald Verbeek, Allnamics Pile Testing Experts BV
verbeek@allnamics-usa.com

Trustee Liaison: Erik Loehr, Ph.D., P.E. University of Missouri, Columbia
eloehr@missouri.edu

- Conducting monthly meetings.
- Preparing a series of videos on foundation testing methods and data analysis for nonpractitioners. Work started on second video, which will cover high strain dynamic testing.
- Preparing an overview of suggested use of instrumentation for various applications, and developing a DFI seminar.
- Initiated the ITS Money (Increased Testing Saves Money) program.
- Reviewing terminology associated with non-destructive integrity testing.
- Initiated a review of proper calibration methods for SPT equipment to ensure more representative N-values.
- Ongoing liaison with ASTM, ACI, AASHTO, CGS, TRB, Geo-Institute and PDCA.

DFI Europe Monitoring and Instrumentation Committee

Chair: Rob Van Dorp Allnamics
vandorp@allnamics.eu



- Sharing information between North American and European committees.



Tiebacks and Soil Nailing Committee

Chair: Ed Laczynski, P.E., Wagman Heavy Civil, erlaczynski@wagman.com

Trustee Liaison: Tom Richards, P.E., D.GE Nicholson Construction trichards@nicholsonconstruction.com

- Reviewing outcomes of SSI seminar and the second software discussion and webinar.
- Reviewing AASHTO soil nail specification.
- Preparing a document on tiedback soldier pile walls in LRFD.
- Establishing a joint committee with ADSC's Anchored Earth Retention committee.
- Discussing corrosion effects on tieback structures.



Women in Deep Foundations Committee

Chair: Helen Robinson, P.E., Schnabel Engineering, hrobinson@schnabel-eng.com

Trustee Liaison: Michael Wysocky, Ph.D., P.E., Thatcher Engineering Corporation, mwysockey@thatcherfoundations.com

Advisor: Mary Ellen Bruce Large, P.E., D.GE, DFI Director of Technical Activities, melarge@dfi.org

- Organized networking event at SuperPile '17 conference in June.

- Organized networking baseball game outing at Nationals Stadium in conjunction with SSI seminar in August 2017.
- Organized third annual networking reception at DFI 42nd Annual Conference in New Orleans.
- Awarded professional development grants funded by the DFI Educational Trust and committee fundraising efforts to sponsor five women to attend the DFI Annual Conference.
- Organized dinner meeting with ASCE Pittsburgh Section on gender communication.
- Selling beaded lanyards as a fundraiser for the Women in Deep Foundations fund.
- Outreaching to other industry groups and working to increase attendance of women at industry events.
- Highlighting achievements of women in *Deep Foundations* magazine, the DFI website and *PileBuck* magazine.
- Holding conference calls on the third Thursday of month at 11:00 a.m. Eastern time.
- Organizing multi-society women's professional development workshop at IFCEE conference in Orlando in March 2018.



Electric Power Systems Foundations Working Group

Co-Chairs: Peter Kandaris, P.E., DGA Consulting, pkandaris@digioiagray.com and Steve Davidow, P.E., S.E., Quanta Subsurface sdavidow@quantasubsurface.com

Trustee Liaison: Frank Haehnig, Zueblin Spezialtiefbau, frank.haehnig@zueblin.de



- Presented draft standard-of-practice white paper for discussion at the working group meeting at the DFI Annual Conference in October.
- Presented a technical paper summarizing work to date on state-of-the-practice electric system foundation design at the DFI Annual Conference.



Energy Foundations Working Group

Co-Chairs: Tony Amis GI Energy, tony.amis@gienergy.net and Guney Olgun Virginia Tech, olgun@vt.edu



Trustee Liaison: Gerry Houlahan, P.E. Moffatt & Nichol ghoulahan@moffattnichol.com

- Discussing ways to raise the profile of energy foundations in the U.S.
- Encouraging other DFI committees to consider energy foundations projects and dissemination of design and construction information.
- Compiling case histories on the use of energy foundations for infrastructure projects.
- Considering a 1- to 1½-day seminar on energy foundations design, construction and case histories.
- Supporting the implementation of the Ground Source Heat Pump Association's guidance document on design and construction of piles used as geothermal heat transfer elements.



Seepage Control Working Group

Chair: Michael Kynett, P.E., MBK Engineers, kynett@mbkengineers.com
Trustee Liaison: David Paul, P.E., U.S. Army Corps of Engineers
David.B.Paul@usace.army.mil

- Prepared and reviewing a draft summary report on the USACE Sacramento District cutoff wall workshop (November 2016).
- Preparing for review of second draft of USACE *Engineering Manual on Seepage Control Cutoffs for Dams and Levees* (winter 2017-2018).

- Participating in ICOLD Bulletin 51 update.
- Exploring opportunities on the subject of long-term performance and aging of cutoff walls.



Industry-Wide Working Platforms Working Group

Co-Chairs: Paul Gildea, P.E., Langan Engineering and Environmental Services
pgildea@langan.com and Terence P. Holman, Ph.D., P.E.
Turner Construction Company
tholman@tcco.com

- Conducted survey of practice on design and construction of working platforms.
- Held inaugural meeting of working group at DFI Annual Conference.
- Reviewing international documents related to working platform guidance and regulations.
- Preparing Working Platform Workshop at DFI-EFFC International Conference in Rome, June 2018.

Stay Informed

Visit the Technical Committee pages on the DFI website to stay up to date on the latest information and news. Go to www.dfi.org, select 'Groups' and then 'Technical Committees.'

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