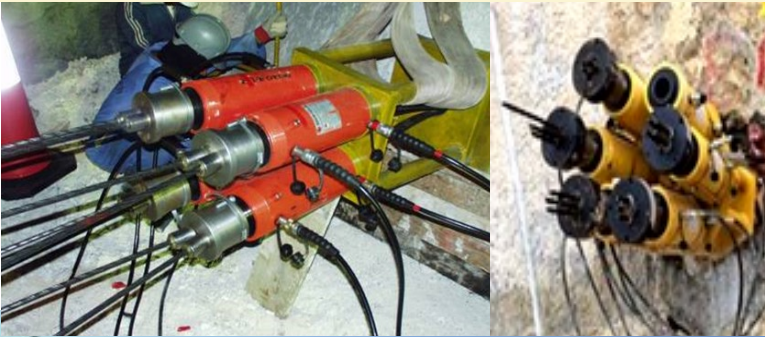


SINGLE BORE MULTIPLE ANCHOR SYSTEMS (SBMAS)



Volume 5, Book 2, April 2019



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Quarterly e-Newsletter from
Deep Foundations Institute of India
www.dfi-india.org

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SINGLE BORE MULTIPLE ANCHOR SYSTEMS (SBMAS)

The Cover Picture

***Antonio Marinucci, PhD MBA PE M. ASCE, V2C Strategists LLC and SBMA Ltd.,
Devon Mothersille, BEng (Hons) PhD CEEng FICE LETAPAEWE,
Single Bore Multiple Anchor Ltd. and Geo-serve Global Ltd.***

ABSTRACT: Single bore multiple anchors (SBMAs) are ground anchors that incorporate multiple individual unit tendons of varying lengths, which are installed within a single borehole. Decades of research and practical applications have demonstrated that this configuration facilitates greater efficiency of load transfer to the surrounding ground. Unlike conventional ground anchors, especially in heterogeneous and variable ground conditions, the design of SBMAs can be optimized because the bond length of an individual unit anchor can be designed individually, thereby utilizing and maximizing the inherent strength of the ground.

Historically, SBMAs have been used for both permanent and temporary earth support systems, and, where project circumstances dictated, SBMAs have been installed with removable tendons, which permitted the complete removal of the prestressing steel strand (at the end of the anchor's design service life). The installation of SBMAs is congruent with that of traditional ground anchors, and the testing protocol is similar regardless of anchor type. However, unlike conventional ground anchors, the stressing of SBMAs can require a different set up, whereby separate hydraulic jacks are hydraulically synchronized to stress each individual tendon simultaneously so that each unit anchor receives the same load. This paper will provide a general overview of the design, installation, and testing of permanent, temporary, and removable SBMAs along with the applicability for their use and the benefits afforded from using this type of anchoring system. The paper will also present and discuss applications in different ground conditions and test results via mini case histories where SBMAs have been implemented worldwide. The use of specially developed tablet-based software that allows real-time analysis and data management of the anchor testing process will also be presented with reference to SBMAs. Finally, it will be shown that, depending on the ground conditions and project requirements, it is possible that SBMAs can double the capacity of conventional anchors, thereby generating substantial savings in program time and cost.



Contd. In Page 6

As engineers, we are going to be in a position to change the world - not just study it.

Henry Petroski

EXPERIENCE OF DFII 8TH ANNUAL CONFERENCE OF *Mrs. Mary Ellen - Technical Director, DFI*

Nothing great was ever achieved without enthusiasm. - Ralph Waldo Emerson.



Enthusiasm was abundant at the DFI-India 2018: 8th Conference on Deep Foundation Technologies for Infrastructure Development in India November 15-17, 2018 at Indian Institute of Technology (IIT), Gandhinagar, Gujarat. After eight years of working together with the DFI of India (DFII) team to produce annual conferences in India, I had the distinct pleasure of experiencing first-hand the most recent version of this conference series. The event also provided the long-overdue opportunity to meet in-person representatives from India with whom I have corresponded via email and conference call for many years.

Traveling with international lecturers from the U.S., DFII staff and leaders and representatives from IIT Gandhinagar greeted us warmly and hosted us graciously throughout the conference. Conference Chair, Prof. Amit Prashant, and Organizing Secretaries, Dr. Ajanta Sachan from the university and Mr. Ravikiran Vaidya from Geodynamics, cordially received us at the university's new and modern facilities, and introduced us to their students and colleagues, making us feel very welcome.

Mr. Anirudhan I V, DFII Vice Chair and Mr. G V Prasad, DFII Director of Operations, led the DFII staff in their efficient conference management, including registration, conference materials, audio-visual needs, and speaker organization. DFII staff members, Mohamed Athif, Chandra Sekhar, and T.S. Mahendran, handled simultaneous demands with efficiency - a testament to their professionalism and conscientious planning.

The technical program combined presentations from owners, professors, contractors, engineers, and material and equipment suppliers. The presentations merged practical content with academic topics to produce a useful and applicable program for all attendees. The group panel discussion led by G V Prasad, highlighted the activities of DFII to promote the need for effective site characterization processes and geotechnical laboratory procedures, bring new technologies to India, and address the need for skilled labor in the Indian foundation industry. The discussion was lively, and as with most engaging events, the enthusiasm exceeded the time allotted for the conversation and spilled over into the evening's culture event. More time for group discussion will be planned into future conferences.

I was particularly honored to be invited to participate in the opening ribbon-cutting for the exhibit area with Dr. K S Rama Krishna, DFII's esteemed Chairman. The charm and ceremony of the occasion opened the activities with great enthusiasm that persisted throughout the conference.

Deep Foundations Institute of India is regularly conducting workshops, symposiums and conferences in association with other organizations with similar interests

Ms. Lucky Nagarajan (Geotechnical Engineer and Business Development at Skyline Steel LLC and DFI Support Committee Member) and I presented the DFI Women in Deep Foundations (WiDF) Committee's initiative to enhance professional development opportunities for women in the deep foundation's industry. The WiDF comprises women and men who mentor and expand professional networks of women in ways that foster their confidence and growth. The goal of this presentation was to gauge interest in developing a similar initiative in India. Ms. Anjana Kadakia, who works in Thornton Tomasetti's office in New York City and manages their Mumbai office launched the proposal for the initiative by presenting a lecture on her experiences and challenges as an Indian woman in the Indian and international engineering industry. Attendees, both men, and women, expressed strong support for women and a keen interest in developing this group in India that would work in parallel and collaboration with the group in the United States. A critical part of these initiatives is the participation of men...the WiDF Committees is a committee FOR women, not a committee OF women, and we need all voices in the conversation to affect real and lasting change. The cultural event was the pinnacle of the conference, including dancing and music from many Indian states. The pageantry of the show with its skilled dancers in colorful costumes and enchanting music showcased the rich and varied culture of India and was enjoyed by locals and visitors alike.



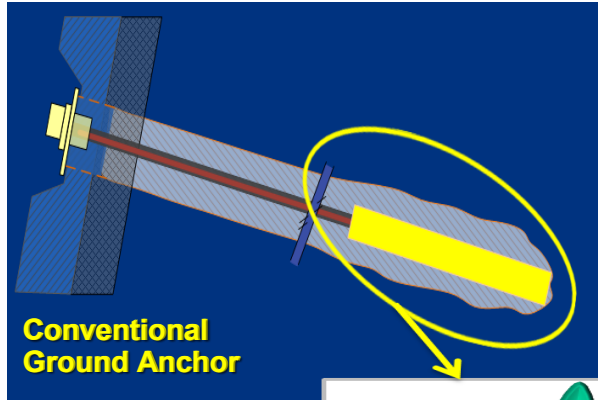
Congratulations, again, to the many DFI members and attendees who participated in this eighth conference in the series. Thank you, all, for your hospitality and enthusiasm. I look forward with excitement to helping to build on this success during DFI's ninth conference in Hyderabad, Telangana, India on November 14-16, 2019.

DFI members have access to 110,000 technical documents pertaining to deep foundations, mining and minerals at www.onemine.org. DFI has contributed almost 2000 documents to this online library. Non-members can download documents at a cost of \$25 per document.

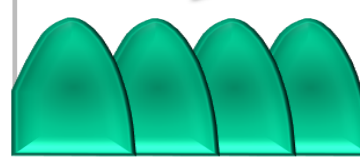
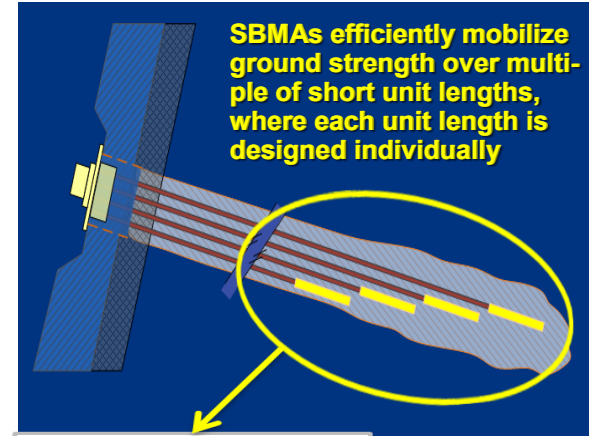
Load Distribution - along Fixed Length

THE COVER STORY

contd. From pg. 3



Anchors with 100% efficiency mobilize peak grout-to-ground bond stress over entire length



SBMAs - In Support of Excavations

**Kuntsevo Plaza Development
(Moscow, Russia)**



**SBMA into loess silt at Natchez, Mississippi,
test loads of 890kN (200 kips)**

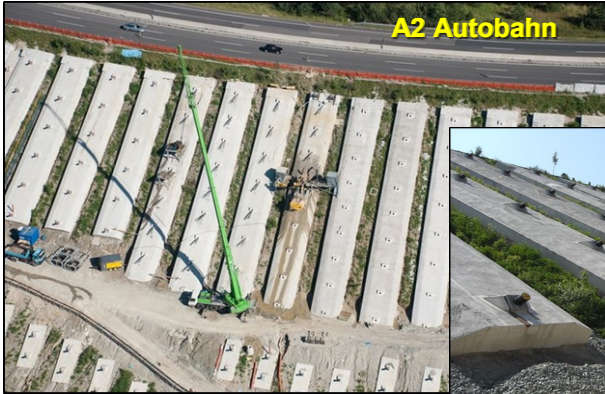


**Into dense sand / gravel in Queens-
town, New Zealand, working load of
500 kN (113 kips)**



Cover story in each issue of the newsletter showcases a technology that is not very popular in India, but has tremendous potential for India's infrastructure development. Readers may contribute to the cover story.

SBMAs - In Slope Stabilization



SBMAs - Closing Remarks

SBMAs

- Effective alternative to conventional anchors where high loads need to be mobilized in weak ground

Working Loads

- 200 to 3,800 KN successfully implemented - various ground conditions

Removable SBMAs

- Thousands successfully installed and removed (worldwide)
- Simple & cost effective method
- High quality workmanship & experience **—————→** successful execution

Cloud based Software

- Proven very effective for data analysis and management

WHAT MAKES DFII TICK

*Mr. G Venkata Prasad
- Director of Operations, DFI of India*

After landing at Delhi Airport in the wee hours of a wintry morning on 28th January 2019, the three of us, each hailing from three different directions -- myself (G. Venkata Prasad) from Hyderabad, my colleague Mohamed Athif (DFII) from Chennai and Mr. Santhosh Bhoir (of ITDCEM) from Mumbai -- joined together and drove to the NTPC Office in Noida. This was the first lap of our four-day journey.

Presentation to NTPC

The purpose was to meet the NTPC engineering team, apprise them of DFII activities and seek their participation in the same. The meeting scheduled for 2 p.m. had been organized with the help of NTPC official Mr. Jitendra Kumar. It had taken almost six months to identify the right contacts in NTPC and seek their appointment; but it was worth waiting for, since building a long-term relationship with an Indian *navarathna* organization like NTPC would serve mutual interests. However, we could not meet Mr. Jitendra Kumar. He was away on an urgent site visit; but he had put us on to the engineers concerned. Happy that we had an audience of 20 engineering team members from various disciplines, including four geotechnical and eight foundation engineers, we made our presentation, comprising an overview of the Indian construction industry, the pitfalls hampering timely completion of major infrastructure projects and the serious impediment of lack of skilled workmen faced by the Indian industry as a whole.

We also made a presentation on our parent organisation, the US-based Deep Foundations Institute (DFI) and its activities at the global level as well as in India. The NTPC team was very keen to know about the *CFA test pile project* being implemented by DFII with the support of DFI and several leading Indian organizations. They were highly impressed by it and DFII's other initiatives. They were eager to witness the CFA test pile demonstration and adopt the technology in their projects. We sought their support in terms of becoming a corporate member in DFI and joining hands with us to participate in a greater number of DFII initiatives. Thereafter we proceeded to NPCIL's Hisar site in Haryana, 230 km. from Delhi. Following overnight rest, we reached NPCIL site, Gorakhpur in the morning hours of 29th January 2019. At this site, spread over 1300 acres, NPCIL is executing a 4x700 MW greenfield nuclear power project.



The executive committee members of DFI of India represent all the stakeholders in the foundation research, design and construction. The members will express their views about the role of DFI and other similar organizations in the development and transfer of modern technology for infrastructure development of India

NPCIL visit objective

In 2010 a team headed by Dr. K S Ramakrishna (KSR) from L&T Construction took the initiative to carry out a CFA Pile installation at one of L&T's power project sites in Haryana where a major bored cast-in-situ piling work was under progress. Mr. Sanjoy Chakrabarthy, Managing Director of Soilmec India readily agreed to associate with L&T Team by providing a CFA piling rig and an expert operator from one of their sister companies abroad. The trial was successfully carried out by installing six numbers of 600mm dia. and 18m long CFA piles. Taking courage from this experience DFI of India took the initiative to carry out a similar technology demonstration trial in the presence of all stake holders with a view to bring this technology to benefit projects in India. During DFI-India 2015 Conference at IISc Bengaluru, a presentation was made on CFA pile technology and Mr. Arvind Shrivastava, Chief Engineer and Head of Design (Civil), NPCIL made encouraging remarks on CFA pile and advised the Indian deep foundation industry to embrace this potentially beneficial technology. He was kind to offer all required support and encouragement to get this technology to India.

To meet this goal, DFII team planned execution of CFA test piles to demonstrate its success in the Indian context. A construction manual was also planned for use of this technology in other projects as well across the country. DFI of India made a project proposal and DFI, USA kindly consented to grant USD 30,000 for a CFA pile technology demonstration project in India to meet a part of this project cost. NPCIL acceded to DFII's request to execute the trial test piles at their Haryana project site. Thus our visit to Hisar as mentioned earlier was to review the arrangements needed for executing this project successfully.

Background to the CFA venture

Besides responding proactively to Mr. Shrivastava's proposal, Dr. KSR also wrote to team DFI in December 2016 providing details of the CFA test pile project estimated to cost US\$ 70,000. He sought a grant of US\$ 30,000 from DFI Project Committee Fund, with the commitment of mobilizing balance funds from local industries by way of donations and in-kind contributions. DFI responded spontaneously, approving Dr. KSR's proposal as well as request for grant.

A sequel to these developments was the formation of the **DFII CFA Pile Committee**. It was formed to oversee the CFA pile implementation program-design-construction document, to raise finances for the project as well as to successfully install and test the trial piles as also develop a CFA design manual for countrywide implementation at infrastructure projects.

DFI CFA Pile Committee

Technical committees are the backbone of DFI. They offer services to the deep foundations industry in terms of technological advancements and good work practices – a tradition continuing over the last four decades. At present there are 25 committees operating in the US.

WHAT MAKES DFII TICK

To further the above said goal, the DFI Project Committee Fund was created in 2011 to provide funding of Technical Committee projects that advance the state of practice and understanding of deep foundations and provide a usable end product. DFII has made a beginning in this direction by setting up its **CFA Pile Committee** and commencing work with CFA pile technology. Veterans from the Indian deep foundations industry are on the board of this Committee: namely, Dr. K S Rama Krishna, Mr. I V Anirudhan, G Venkata Prasad, Mr. A Shrivastava (NPCIL), Prof. S Gandhi (NIT, Surat), Mr. Hari Krishna (Keller India), Dr. K Pitchumani (AECOM), Dr. B S Sarma (L&T), Mr. Ravikiran Vaidya (Geodynamics), Mr. Sanjoy Chakraborty (Soilmec), Mr. Jagpal Singh Lotay (Bauer) and Dr. Jaykumar Shukla (Geodynamics). The designated coordinator of this project is Dr. Sunil S Basarkar (Afcons).

Developments as on date

Following initiation of this Committee, stage wise developments as detailed below have taken place:

1. In October 2018, NPCIL provided its assent to conduct the test pile project at their Gorakhpur site in Haryana.
2. Soil investigation was completed in November 2018.
3. Design and construction documents have since been developed comprising CFA test pile design, concreting design, installation and testing methodologies, QA/QC & safety plans including installation and testing program by six members of the Committee taking responsibility of developing each chapter.
4. DFI team comprising Mr. Gianfranco (DFI Trustee), Ms. Theresa (Executive Director), Ms. Mary Ellen (Technical Director), Mr. Satyajit Vaidya, Mr. Morgan Ne Smith, Chair, DFI ACP Committee provided support to the Indian team in terms of sharing CFA pile documents as practiced in the US, reviewing and commenting on design and construction documents developed by the Indian team and also in getting global expertise for executing the project
5. A CFA pile brochure was created and circulated to major organizations in India to apprise them of the CFA pile initiative and to seek their financial support for implementation of the project.
6. Even as DFII efforts in document development were on, support started pouring in from Indian organizations in varying instalments.
7. Considering that ITDCEM bagged the first major excavation/soil stabilization order for the first phase of the NPCIL project, we approached them, seeking their support in terms of sparing their resources at site for the CFA pile project. Dr. Basarkar and myself made a visit to their office in March 2018 to present the DFI initiatives and also its CFA pile project to Mr Manish Kumar, Executive Vice President, ITDCEM.

Many publications of DFI are available from OneMine.org, a web-based document library containing over 1,00,000 articles, technical papers and books from organizations all over the world. DFI Members can access OneMine at no additional cost, while non-members can purchase and download documents for \$25 per download.

Contd.

8. After couple of meetings, ITDCEM team readily agreed to spare earth work equipment, cranes, site infrastructure facilities, materials, staff and workmen for executing the CFA pile installation and testing. As in-kind contribution, this amounted to Rs 17L.
9. At the same time, we made presentations to the senior management team of NPCIL including Mr Shrivastava. They highly appreciated our various initiatives and our CFA pile demonstration project for the benefit of the Indian construction industry, committing their best possible support within their ambit.
10. Under the leadership of L&T CRTCL, Head, Dr. B S Sarma sent his team in December 2018 to Gorakhpur to check the availability of suitable materials and batching plant facilities for development of the design mix.
11. In December 2018, Soilmecc offered to provide CFA kit (including fixing) and installation of the piles by getting an expert operator from Italy.
12. Bauer conducted a technical review of documents and committed itself to provide onsite engineering and supervisory support to the project.
13. Once this major breakthrough was achieved, we started scouting for piling rig. After identifying possible sources, we organized a full day meeting with representatives of Keller, ITD CEM, Afcons, Soilmecc with prospective piling rig hirers at Mumbai on 12th January 2019.
14. The positive outcome of this meeting was that Jindal Infra, a major contractor has offered its piling rig for the CFA pile project.
15. We continued our efforts to mobilize the funds and based on these developments IRB Infra has committed first Rs. 4 L, Keller India -- Rs. 5 L, Manjeera Construction from Hyderabad – Rs. 1 L, SKCL, a real estate developer from Chennai – Rs. 1 L and Advanced Construction Technologies – Rs. 1 L, Dr. K. S. Rama Krishna – Rs. 1 L, and Smart Structures from Radise Group – Rs. 0.6L
16. In February 2019, the piling rig provided by Jindal Infra on rental basis was moved to Soilmecc Factory for making the machine fit for CFA pile project and for fixing CFA kit and it took two months to complete this.
17. Mobilization of piling rig costed us dearly for only 8 piles, with the result overall estimated cost shoot up and faced the herculean task of mobilizing this huge sum for successfully conducting the pile installation and testing. Unfortunately, the DFI grant of Rs. 20L could not be availed of, due to want of FCRA approval. We approached many organizations for bridging the gap of funding requirement.
18. Seeing the progress of our efforts, TATA Projects, & Saritha Infra and Geostructures made a financial contribution of Rs. 10L and L&T Rs 10 L.
19. SCHWING Stetter has agreed to provide a concrete pump including operator. Ultratech will be supplying cement. TATA Steel will be supplying reinforcement steel. BASF will contribute chemicals for supply of admixture. Asahi Wire Ropes would supply wire ropes.

DFI members can post their professional achievements, corporate achievements, awards, other news related to geotechnical profession here. Please send the details 15 days before every quarter, April, July, October and December

WHAT MAKES DFII TICK

20. Smart Structure from US based Radise Group has come forward to do the instrumentation for two piles including mobilizing their expert from US as in-kind contribution.
21. Even as this article goes for publication, we have received in-kind contribution commitments to the tune of Rs 31L, as well as commitments for Rs 35 L by way of direct financial donations. We are hopeful of filling the further gap of Rs 10 L by April with the aid of forward-thinking organizations and this would help us meet the project cost successfully.
22. Achievement as on date is dedicated to both DFI and DFII teams who have directly worked on this project and also to the entire industry.

Various Interactions with Industry Stakeholders

1. Myself, Mr. Mohamed Athif and Mr. Santosh Bhoir, DGM and Project Coordinator, ITD CEM had a sitting with the project manager of ITD CEM and his team on 29th and 30th January 2019 to discuss the finer points of the program and ensure that all necessary arrangements are put in place for the smooth execution of the project.
2. Making use of this trip, we made presentations to NPCIL's project management officials, Mr. S Kumar Gupta, Mr. Ashish Sharma and other officials and they were happy to know that CFA pile technology initiative is being implemented in India for the first time and that too in their project site.
3. On our return, we made presentations on DFII initiatives to Power Grid Corporation of India Executive Director (Engineering & FQA) Mr. R N Singh; Chief General Manager (Engineering – TL) Mr. Anish Anand and other officials. The presentations were well received by all of them. We aim to build a separate DFII committee to address all foundation and geotechnical issues related power transmission lines.
4. Earlier, presentations had been made to BHEL engineering team, AECOM engineering team at Delhi in October 2018 and to HCC project management team in July 2018 at Mumbai
5. Beyond this, we have had regular meetings among DFII CFA Committee members and also with DFI US team on CFA pile initiative to review developments/manuals, progress review and in garnering more support from industry. We are sure these efforts will bear desirable results in short and long terms
DFII will invite representatives from major organizations to witness the CFA test pile installation and testing events so that they can come, witness and confidently embrace these technologies for deployment in their projects speedily.

Way Forward

DFII team is gearing up to execute the CFA test pile project in May 2019, which will be followed up by pile testing and preparation of design manual/guidelines for CFA pile implementation technology across India in all infrastructure projects. Foreign experts from Soilmec, Bauer and Smart Structures are scheduled to be available during the pile installation to provide necessary guidance for smooth execution of the project.

Value Addition to Indian Construction Industry

1. Piling comprises around 45% of total foundation scope at the global level and also in the Indian context. Based on statistics compiled by industry experts, CFA pile share comprises 23% of piling scope at the global level. We are yet to make a beginning.
2. It is estimated that around 2000 hydraulic piling rigs are deployed in India and this is expected to go up to 4000 over the next ten years. Granted that around 40% piling jobs are done through other means, the current value of piling jobs executed in India is Rs. 12000Cr. which is expected to more than double in the coming decade. Taking into account our ability to execute 20% of the jobs at that point of time with CFA pile technology, and assuming that it will provide a minimum of 20% productivity enhancement, this will contribute nearly Rs. 500Cr. value addition, on an year-on-year basis. More significantly, the contribution will be in terms of time saving to large infrastructure projects, while executing foundations that have the added advantage of quality and safety.

More Initiatives from DFII

1. We are happy to share with readers that DFII is at present working on a few more interesting initiatives that will benefit the Indian construction industry in the long run. We will cover these initiatives in the coming issues of this newsletter.
2. I have pleasure in sharing these developments with all well-wishers of DFII to make them to understand the kind of sustained efforts that go into each initiative before success is seen. **Obviously, this is what makes DFII tick!!!**

DFII Mission

Through the above initiatives, DFII team is endeavouring to achieve the **mission** of bringing together multi-disciplined individuals and organizations to find a common ground, create a **shared vision and a consensus voice** for **continual advancement in the Indian Deep Foundations Industry**.

One page is allotted for the Corporate Members of DFI of India to showcase its capability in the field. Please contact DFI of India at dfiindiaoffice@gmail.com for including your company profile. This is more than an advertisement since it carries your mission statement.

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UPCOMING DFI EVENTS



HPW-DFI Helical Piles-Tiebacks-Anchors Tradeshow and Educational Seminar

June 4, 2019 - June 5 2019, Hamilton County Fairgrounds, Cincinnati, Ohio

Helical Pile World (HPW) and Deep Foundations Institute (DFI) are teaming up to showcase the helical pile and tieback industry's dedication to producing high-quality, safe, reliable and cost-effective foundation solutions for a variety of foundation and utility application challenges. The event will include a structured technical education program, indoor and outdoor equipment exhibition, and live installation demonstrations that highlight the products, resources and expertise used to design, install, and test helical pile and anchor elements for structural support and earth retention applications.

Event	Date	Venue
DFI WiDF Metro NYC Networking Event	April 30, 2019	New York City
Impact Testing for Site Characterization Workshop	May 1, 2019	Seattle, WA
Super Pile '19	May 1-3, 2019	Seattle, WA
HPW-DFI Helical Piles-Tiebacks-Anchors Tradeshow and Educational Seminar	June 4-5, 2019	Cincinnati, Ohio

UPCOMING DFI OF INDIA EVENTS



DFI-India 2019: November 14-16, 2019

9th Conference on Deep Foundation Technologies for Infrastructure Development in India

www.dfi.org/india2019

National Academy of Construction (NAC), Hyderabad, Telangana, India

DFI of India, in collaboration with the National Academy of Construction (NAC), and the Indian Geotechnical Society (IGS) Hyderabad Chapter, is hosting DFI-India 2019: 9th Conference on Deep Foundations Technologies for Infrastructure Development in India, November 15-16 at NAC, Hyderabad, Telangana, India. Presentations will highlight the latest and appropriate geo-technologies, contract and project management procedures, work methods, latest equipment and tools, and the skill development programs needed in India. This conference will be preceded by a technical workshop on a relevant foundation theme on November 14, 2019.

DFI WiDF Metro NYC Networking Event

*April 30, 2019, Langan Headquarters,
New York City*

The Women in Deep Foundations (WiDF) Committee of the Deep Foundations Institute (DFI) is hosting the April NYC event featuring Jamie Lee, a leadership coach dedicated to helping ambitious people unlock value through strategic conversation. Lee has worked with thousand of professionals as a workshop leader on mutual-win negotiation strategies, self-advocacy, and transformativ leadership. She has worked with leading institutions such as Institute of Nuclear Power Operators, Global Network of Women Peacebuilders, Association of Corporate Counsels, JPMorgan Chase, and more.

WHAT CAN DFI DO FOR YOU?

Overview

DFI is an international association of contractors, engineers, suppliers, academics and owners in the deep foundations industry. For more than 30 years, we have brought together professionals for networking, education, communication and collaboration. As a member, you help create a consensus voice and a common vision for continual advancement in the planning, design and construction of deep foundations and excavations.

Find Common Ground. Become a Member of DFI

- Network with thousands of members and industry professionals worldwide
- Get involved locally through DFI's active presence in Europe, India and the Middle East
- Strengthen your knowledge base and obtain practical information at seminars, short courses, workshops and conferences
- Collaborate with colleagues by joining one of 15 active Technical Committees, Regional Chapters or a DFI group
- Gain visibility with a corporate member listing on the DFI website, which has 20,000 views each month
- Connect and communicate with industry peers through social media such as DFI's LinkedIn Groups
- Access OneMine.org and download up to 100,000 articles, technical papers & books from DFI & organizations all over the world - at no cost

Attention!

Be Benefitted

- Renew/Join DFI
Membership at
[http://www.dfi.org/
membership.asp](http://www.dfi.org/membership.asp)

This e-newsletter of DFI of India is available at <http://dfi.org/enews.asp?india>

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