



The Pile Driving Contractors Association

Driven Deep Foundations LRFD Design and Construction Workshop

Tuesday, September 17, 2013 Charlotte, NC

The PDCA sponsors this one-day course with the goal to improve and enhance driven pile design and construction by communicating and demonstrating the correct and appropriate application of AASHTO LRFD specifications for driven pile applications.

Who Should Attend: Public and private structural, geotechnical and generalist civil engineers, general contractors, driven pile contractors and foundation material suppliers.

Why Attend:

*CONTRACTORS: Learn how to make driven piles more competitive. Learn what a contractor should know about design to be successful. Improve your competitive edge.

*CONSULTANTS: Develop an "edge" with your clients on public and private deep foundation projects. Learn how this design platform can be applied to non-highway projects in other industries.

*PUBLIC OWNERS AND ENGINEERS: Learn how to apply LRFD correctly to your local practice. Be able to dispel the misunderstandings and misinterpretations surrounding its benefits, ease of use and limitations.

*STRUCTURAL, CONSTRUCTION and CIVIL DESIGN SPECIALISTS: Improve the quality of your driven pile foundation services by applying best practices on both routine and complex projects

*TRANSPORTATION AGENCY ENGINEERS AND TECHNICAL SPECIALISTS: Learn how to translate your historical experience and knowledge with driven piles to an LRFD format. Integrate the best practices presented by LRFD without increasing project risks and at the same time reduce project costs.

Presented by: Jerry A. DiMaggio, P.E., D.GE. Mr. DiMaggio is a principal at Jerry A. DiMaggio Consulting, LLC, a small specialized consulting firm serving the civil engineering and construction industry related to design, construction, monitoring and disputes resolution of structural foundations, earth retaining structures, ground improvement techniques and earthworks. Mr. DiMaggio has also served on a number of projects related to Load Resistance Factor Design (LRFD), risk management assessment/ mitigation plans, value engineering, innovative contracting and accelerated construction. Benefits:

- Learn the benefits of improved communications between geotechnical, structural and construction specialists resulting from adoption of LRFD.
- Understand the similarities and differences between traditional allowable stress design (ASD) and load and resistance factor (LRFD) design platforms.
- Understand LRFD guidance related to subsurface investigation programs, selection of appropriate soil and rock property tests and the selection of
 project design properties for soil and rock materials;
- Understand/Learn how to apply LRFD guidance for strength, service and extreme event conditions for structural and geotechnical limit states of driven piles
- Understand/Lear how to apply LRFD guidance based on the AASHTO specification to driven pile foundation selection, design and construction and inspection.
- Learn how to effectively apply LRFD as a design platform to provide a competitive edge over ASD designs.

Hotel Information: Workshop attendees are responsible for making their own hotel reservations. Reservations may be made via phone, by calling <u>704-527-</u> <u>9650</u>. To receive the discounted room rate, be sure to identify yourself as part of the Pile Driving Contractors Association. You may also make reservations online by clicking <u>HERE</u> and using group code PDC. The Charlotte Crowne Plaza Executive Park

The Charlotte Crowne Plaza Executive Park 5700 Westpark Drive, Charlotte, NC 28217 Room Rate: \$119.00 King room.



The Pile Driving Contractors Association 1857 Wells Road, Suite 6, Orange Park, FL 32073 Phone: 888-311-PDCA (7322) Facsimile: 904-215-2977 www.piledrivers.org

Cooperating Sponsors







Pile Driving Contractors Association Driven Pile Foundation LRFD Design and Construction Workshop **LRFD Background**

8:00 AM - 8:30AM - COURSE REGISTRATION OPENS 8:30 AM - 5:00 PM - DRIVEN DEEP FOUNDATION LRFD DESIGN AND CONSTRUCTION COURSE

BACKGROUND:

The application of the Load Resistance Factor Design (LRFD) design platform has gained a growing acceptance in all civil engineering and heavy construction industries. It is now required for use by designers using Federal funding. The transition to LRFD has challenging, particularly to the deep foundations community due to misunderstandings and misapplication. LRFD provides huge potential benefits to the driven pile design and construction communities.

The AASHTO LRFD specification/code has been selected as the key reference for this program due to its completeness and broad acceptance on a national and international basis for both public and private work.

A quick examination of LRFD as compared to the traditional allowable stress design (ASD) platform suggests that LRFD is simply a different way of presenting factors of safety and is only for designers. Such a view barely begins to adequately communicate the benefits of LRFD for the driven pile community (designers, contractors and materials suppliers). Many of these benefits are indirect and in some cases are the first time traditional concepts have been completely presented in a logical and sequential fashion within a national specification.

The following are a few examples which illustrate this statement:

- Within LRFD the deep foundation selection process is more completely defined. THE FACT: In routine practice driven piles are routinely dismissed as a project alternate because of vague, incomplete and poorly defined project criteria.
- AASHTO LRFD Section 10.4, for first time requires a logical and rational approach to subsurface explorations, soil and rock testing and geo-material parameters determination. THE FACT: This topic is often overlooked by practitioners. Section 10.4 provides an enormous benefit by guiding the development of more efficient design and construction details, minimizing "unbuildable" driven pile designs reducing contract disputes.
- The structural resistance of driven piles can be greatly increased by LRFD without compromising safety. THE FACT: Better defined structural design loads for driven piles make them more cost-effective and competitive.
- Proven methods for lateral and vertical deformations are supported. THE FACT: The traditional thought that deep foundations don't deform is FALSE.
- The benefits of additional and more accurate field determination of geotechnical resistance and integrity verification can be quantified to the benefit of the owner and the contractor.
- Design tools such as drivability and wave equation analysis for geotechnical resistance estimation are now correctly and appropriately communicated. THE FACT: These excellent well proven tools are often misapplied in practice.
- LRFD results in a significant improvement in communication between the construction, structural, geotechnical communities. THE FACT: The communication silos between these communities have long been the source of many project disputes.
- Environmental considerations of driven piles, such as noise and vibrations, are now assessed on a project basis and in a rationale manner. THE FACT: Driven piles are often not considered because of incorrect general misconceptions regarding environmental impacts
- A growing number of private project designers and contractors have recognized the advantages of AASHTO's LRFD guidance and have become progressively more interested to apply these same principles to projects which are governed by other codes and specifications.

Need for the Workshop:

LRFD is the future of foundation design. LRFD is used for all structural design above grade. It is taught exclusively at all major university engineering programs. There is no need to change design platforms for foundation design. The use of a consistent design platform provides for the use of consistent methods and terminology, minimizing misunderstandings and improving communication between engineering and construction disciplines.

Pile Driving Contractors Association Driven Pile Foundation LRFD Design and Construction Workshop September 17, 2013, Charlotte, NC REGISTRATION Complete & Return to: PDCA, 1857 Wells Road, Suite 6, Orange Park, FL 32073; or fax to 904-215-2977; or scan & email to jessica@piledrivers.org. Please type or print clearly. Please fill in all relevant information - PDCA will not process incomplete Regis tration Forms. If necessary photo copy this form or download additional forms from the PDCA website, www.piledrivers.org. REFLINDS - 50% PRIOR TO ALIGUIST 30, 2013, NO REFLINDS AFTER ALIGUIST 30, 2013		
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Meets All North Carolina CPC Requirements for Professional Development Hours

SECTION .1700 – CONTINUING PROFESSIONAL COMPETENCY

- *1) To be approved for PDHs, a continuing education program shall meet the following criteria:*
 - *a)* Course contains a purpose and objective, and results in the maintenance, improvement, or expansion of skills and knowledge relevant to a licensee's field of practice [21-56.1702(6)]
 - *b)* The course or activity offered will enhance the licensee's ability to provide engineering services in a professional and competent manner and better protect the health, safety and welfare of the public.
 - *c)* The instructors or presenters of the course or activity are qualified to teach the subject.
 - *d)* Course brochures, publications or announcements state the general content of the course and the specific knowledge or skill to be taught or addressed, as well as the credit to be earned in Professional Development Hours.
 - e) Attendees are provided written documentation attesting to that person's attendance, as well as the name of the course, the date and location, the instructor's name, and the number of Professional Development Hours.