

CURRICULUM VITAE

DAVID DUERR, P.E.

Years Experience

President, 2DM Associates, Inc., since 1986
With other firms, 12 years

Education

Bachelor of Architectural Engineering
Pratt Institute, New York, 1975

Master of Science in Civil Engineering
University of Houston, 1985

Professional Registration

Alabama	California	Michigan	Ohio	Texas
Alaska	Florida	Minnesota	Oklahoma	Virginia
Arizona	Illinois	Mississippi	Pennsylvania	Washington
Arkansas	Louisiana	Missouri	South Carolina	

Professional Affiliations

American Council of Engineering Companies	Society of Automotive Engineers
American Society of Civil Engineers	Specialized Carriers & Rigging
American Society of Mechanical Engineers	Association

Biographical Listings

Marquis *Who's Who in America* (since 1997)
Marquis *Who's Who in Science and Engineering* (since 1996-97)
Marquis *Who's Who in the World* (since 1996)
Marquis *Who's Who in the South and Southwest* (since 1995-96)
Marquis *Who's Who in Finance and Industry* (1998-1999, 2000-01)

Committee Service

ASME BTH Standards Committee, Design of Below-the-Hook Lifting Devices (vice chair)
ASME B30 Safety Standards Committee (alternate)
ASME B30.1 Subcommittee – Jacks, Industrial Rollers, Air Casters, and Hydraulic Gantries
ASME B30.20 Subcommittee – Below-the-Hook Lifting Devices
SC&RA Telescopic Hydraulic Gantry Task Force (1994 – 1996 and 2004)
Recipient – 2012 ASME Safety Codes and Standards Medal

Experience Summary

Over forty-one years experience in design engineering and heavy construction. Extensive background in the conceptual development and design of specialized lifting, rigging, and hauling equipment and in crane and rigging operations and applications. Design and/or analysis experience on cranes and derricks, hydraulic gantry systems, below-the-hook lifting devices, hauling equipment, concrete and steel bridges, and marine structures. Strong knowledge of the naval architectural requirements for the transportation of heavy-lift cargo. Job site experience on nuclear, fossil and hydroelectric power plants, refineries, shipping facilities, manufacturing plants, and offshore platforms. Service as an expert witness in the investigation of lifting, rigging, and specialized transportation accidents. Authored or coauthored forty-six papers, articles and books on structural engineering, heavy lifting and heavy hauling methods. Regular lecturer at construction industry conferences.

Areas of Specialization – David Duerr, P.E.

Lifting Equipment Design and Analysis

Extensive experience in the design of specialized lifting equipment, including derricks; tower systems utilizing either reeved load falls or strand jacks; overhead cranes using drums and reeving, strand jacks, or chain hoists; lifting systems integrated into existing building structures; and lifting appurtenances including lifting beams, spreader bars, and other below-the-hook lifting devices. Particular expertise in the design and analysis of telescopic hydraulic gantries. Conversant with the applicable design standards for the general construction industry and for nuclear construction, maintenance, and decommissioning.

Lift Planning and Engineering

Planning and review of lifting operations using cranes, derricks, and other conventional lifting equipment. Calculation of support reactions for truck and crawler cranes and design of special supports; analysis of guy derrick and gin pole/gallows frame guy system loads and foundation and deadman design; and inspection and analysis of existing lifting and rigging equipment for capacity verification and/or upgrade. Design of header beams, track beams, and supports for lifts using telescopic hydraulic gantry systems. Design and analysis of below-the-hook rigging systems.

Barge Transportation

Complete engineering of barge shipments of heavy and specialized cargo, including development of stowage plans; hydrostatic, dynamic, and intact and damaged stability analyses of the laden barge; design of sea-fastenings; structural analysis of the barge under the effects of loading and unloading the cargo and sea-fastening reactions; and loading and unloading plans for grounded, partially grounded, and floating barges. Design and analysis of mobile crane and hydraulic gantry system installations on barges. Strong knowledge of the requirements for barge transportation of irradiated cargo (ANSI N14.24-1985).

Accident Investigation

Investigation of accidents and failures involving cranes, rigging, and specialized lifting and transportation equipment. Special expertise in hydraulic gantry systems, mobile crane support, and below-the-hook lifting devices. Analysis of structural and mechanical capacities of equipment. Review of lifting and rigging field operations. Expert witness services for litigation support for contractors, insurance companies, and attorneys.

Publications List – David Duerr, P.E.

Books

Telescopic Hydraulic Gantry Systems, 2013.

Mobile Crane Support Handbook, 2015.

Professional Journals

“Pin Clearance Effect on Pinned Connection Strength” (with G. Pincus), *Journal of Structural Engineering*, Vol. 112, No. 7, American Society of Civil Engineers, New York, 1986.

“Deformation Behavior of Pinned Connections with Large Pin Clearance” (with G. Pincus), *Journal of Structural Engineering*, Vol. 114, No. 12, American Society of Civil Engineers, New York, NY, 1988.

“Variation of Lift Load Distribution Due to Sling Length Tolerance,” *Engineering Journal*, Vol. 26, No. 3, American Institute of Steel Construction, Inc., Chicago, 1989.

“Lift of Shippingport Reactor Pressure Vessel,” *Journal of Construction Engineering and Management*, Vol. 116, No. 1, American Society of Civil Engineers, New York, 1990.

“Transportation of Shippingport Reactor Pressure Vessel,” *Journal of Construction Engineering and Management*, Vol. 117, No. 3, American Society of Civil Engineers, New York, 1991.

“Beam Web Strength under Pairs of Concentrated Compression Loads,” *Practice Periodical on Structural Design and Construction*, Vol. 8, No. 1, American Society of Civil Engineers, Reston, VA, 2003.

“Pinned Connection Strength and Behavior,” *Journal of Structural Engineering*, Vol. 132, No. 2, American Society of Civil Engineers, Reston, VA, 2006.

“New Standard for Design of Below-the-Hook Lifting Devices,” *Practice Periodical on Structural Design and Construction*, Vol. 12, No. 3, American Society of Civil Engineers, Reston, VA, 2007.

“Design Category and Service Class Selection for Below-the-Hook Lifting Devices,” *Practice Periodical on Structural Design and Construction*, Vol. 13, No. 2, American Society of Civil Engineers, Reston, VA, 2008.

“Design Factors for Fabricated Steel Below-the-Hook Lifting Devices,” *Practice Periodical on Structural Design and Construction*, Vol. 13, No. 2, American Society of Civil Engineers, Reston, VA, 2008.

“ASME BTH-1 Pinned Connection Design Provisions,” *Practice Periodical on Structural Design and Construction*, Vol. 13, No. 2, American Society of Civil Engineers, Reston, VA, 2008.

“Design of Stiffened Plate Lifting Beams,” *Practice Periodical on Structural Design and Construction*, Vol. 13, No. 2, American Society of Civil Engineers, Reston, VA, 2008.

“Lateral-Torsional Buckling of Suspended I-Shape Lifting Beams,” *Practice Periodical on Structural Design and Construction*, Vol. 21, No. 1, published online June 2015, American Society of Civil Engineers, Reston, VA, 2015.

University Publications

“Experimental Investigation of Pin Plates” (with G. Pincus), Report No. UHCE 85-3, University of Houston, 1985.

Publications List – David Duerr, P.E. (con't.)

University Publications (con't.)

“Experimental and Finite Element Studies of Pin Plate Behavior,” Master of Science Thesis, University of Houston, 1985.

Conference Papers

“Overland Transportation of Heavy-Lift Cargo,” *SAE Technical Paper Series*, presented at the International Off-Highway Meeting & Exposition, Milwaukee, WI, Society of Automotive Engineers, Inc., Warrendale, PA, 1982.

“Moving Loads On and Off Barges,” presented at the Crane & Rigging Workshop, Lexington, KY, Specialized Carriers & Rigging Association, Centreville, VA, 1993.

“Design of Vertical Hydraulic Telescopic Lifting Booms,” *SAE Technical Paper Series*, presented at the International Off-Highway & Powerplant Congress & Exposition, Milwaukee, WI, Society of Automotive Engineers, Inc., Warrendale, PA, 1994.

“Rigging With Gantries,” presented at the Crane & Rigging Workshop, Fort Worth, TX, Specialized Carriers & Rigging Association, Centreville, VA, 1994.

“Considerations for Multi-Crane Lifts,” presented at the Crane & Rigging Workshop, San Francisco, CA, Specialized Carriers & Rigging Association, Centreville, VA, 1995.

“Transportation of Spent Nuclear Fuel,” presented at the 1997 Spring Meeting, Houston, TX, American Institute of Chemical Engineers, New York, NY, 1997.

“Engineering Principles for Rigging Design,” presented at the Crane & Rigging Workshop, Myrtle Beach, SC, Specialized Carriers & Rigging Association, Centreville, VA, 1997.

“Lifting and Rigging on Barges,” presented at the Crane & Rigging Workshop, Milwaukee, WI, Specialized Carriers & Rigging Association, Centreville, VA, 1998.

“Status Report – ASME BTH Standards Committee,” presented at the Crane & Rigging Workshop, Pittsburgh, PA, Specialized Carriers & Rigging Association, Centreville, VA, 2000.

“Mobile Cranes on Barges,” presented at the Crane & Rigging Workshop, Denver, CO, Specialized Carriers & Rigging Association, Centreville, VA, 2002.

“Lifting with Hydraulic Gantries,” presented at the Crane & Hoist Conference & Exhibition, Rosemont, IL, Zweig White Information Services, LLC, Chicago, IL, 2004.

“Planning of Multi-Crane Lifts,” presented at the Crane & Hoist Conference & Exhibition, Houston, TX, Milo Media, LLC, Barrington, IL, 2006.

“Below-the-Hook Lifting Device Standards,” presented at the Crane & Rigging Conference, Houston, TX, Maximum Capacity Media, LLC, Fort Dodge, IA, 2010.

“Effective Bearing Length of Crane Mats,” presented at the Crane & Rigging Conference, Houston, TX, Maximum Capacity Media, LLC, Fort Dodge, IA, 2010.

Publications List – David Duerr, P.E. (con't.)

Lectures (without papers)

“Experimental and Finite Element Studies of Pin Plate Behavior,” given at the Cullen College of Engineering, University of Houston, February 18, 1986.

“Shippingport Atomic Power Station – Removal and Burial of the Reactor Pressure Vessel,” given at the Cullen College of Engineering, University of Houston, October 17, 1989.

“Effective Below-the-Hook Rigging,” given at the Crane & Rigging Workshop, Pittsburgh, PA, Specialized Carriers & Rigging Association, Centreville, VA, September 21, 1991.

“Hydraulic Gantries in Industrial Construction,” given at the Cullen College of Engineering, University of Houston, January 31, 1996.

“Bridge Analysis – Practices and Procedures – Special Approach for Superloads,” given at the Oversize/Overweight Transportation Symposium, Mobile, AL, Specialized Carriers & Rigging Association, Centreville, VA, March 6, 1997.

“Gantry Safety,” given at the 1999 Rigging Workshop, Millwright Apprenticeship School, Cleveland, OH, March 6, 1999.

“Barge-Mounted Mobile Crane Operations,” given at the short course Managing Crane and Rigging Operations to Improve Safety and Eliminate Accidents, University of Wisconsin-Madison, February 12, 2002; January 29, 2003.

“Mobile Cranes on Barges,” given at the Construction Safety Conference & Exposition, Construction Safety Council, Rosemont, IL, February 11, 2003; CHC Lifting Conference, Las Vegas, NV, Milo Media, LLC, Barrington, IL, December 3, 2008.

“Where Are We Going, and How Do We Get There?,” given at the Crane & Hoist Conference & Exhibition, Rosemont, IL, Mercor Media, Inc., Streamwood, IL, October 20, 2004.

“Considerations for Multi-Crane Lifts,” given at the Crane & Hoist Conference & Exhibition, Rosemont, IL, Mercor Media, Inc. Streamwood, IL, October 20, 2004.

“Lifting with Hydraulic Gantries,” given at the Crane & Hoist Conference & Exhibition, Rosemont, IL, Mercor Media, Inc. Streamwood, IL, October 21, 2004, Crane & Hoist Conference & Exhibition, Houston, TX, Milo Media, LLC, Barrington, IL, October 4, 2006; Crane & Hoist Conference & Exhibition, Las Vegas, NV, Milo Media, LLC, Barrington, IL, December 4, 2007.

“Lifting Using Barge-Mounted Mobile Cranes,” given at Crane Safety 2005, Amsterdam, NL, Wilmington Publishing, June 20, 2005.

“Safe Use of Hydraulic Gantries,” given at Crane Safety 2005, Amsterdam, NL, Wilmington Publishing, June 21, 2005.

“Lifting with Gantries,” given at the Crane & Rigging Workshop, Houston, TX, Specialized Carriers & Rigging Association, Centreville, VA, November 11, 2005.

“Engineering Principles for Lifting and Rigging,” given at the Crane & Hoist Conference & Exhibition, Houston, TX, Milo Media, LLC, Barrington, IL, October 6, 2006.

Publications List – David Duerr, P.E. (con't.)

Lectures (without papers) (con't.)

“Supporting the Mobile Crane: Loads, Mats, and Soil,” given at the Crane & Hoist Conference & Exhibition, Las Vegas, NV, Milo Media, LLC, Barrington, IL, December 4, 2007; Crane & Rigging Workshop, Toronto, Specialized Carriers & Rigging Association, Centreville, VA, September 18, 2008.

“Preparing for Tandem Picks,” given at the Crane & Rigging Workshop, Toronto, Specialized Carriers & Rigging Association, Centreville, VA, September 20, 2008.

“Understanding and Using ASME B30.20 and BTH-1,” given at the CHC Lifting Conference, Las Vegas, Nevada, Milo Media, LLC, Barrington, IL, December 3, 2008.

“Alternative Lifting Methods: Not Just Cranes Anymore,” given at the Crane & Rigging Workshop, Milwaukee, WI, Specialized Carriers & Rigging Association, Centreville, VA, September 18, 2009.

“Telescopic Hydraulic Gantries – Regulations and Standards,” given at the Industrial Crane & Hoist Conference, Houston, TX, Maximum Capacity Media, LLC, Fort Dodge, IA, July 20, 2011.

“Developing Lift Plans That Work,” given at the Crane & Rigging Workshop, Philadelphia, PA, Specialized Carriers & Rigging Association, Centreville, VA, September 22, 2011.

“Crane Stabilization,” webinar conducted August 13, 2013, Specialized Carriers & Rigging Association, Centreville, VA.

“Gantry Systems – Past, Present, and Future,” given at the Crane & Rigging Workshop, Orlando, FL, Specialized Carriers & Rigging Association, Centreville, VA, September 18, 2013.

“Lift Planning and Engineering for Gantries in Heavy Industrial Applications,” given at the CRC/ICHC Conference, Houston, TX, Maximum Capacity Media, LLC, Fort Dodge, IA, December 4, 2014.

“Load Spreading,” given at the Advanced Rigging & Lifting Workshop, Houston, TX, Industrial Training International, Inc. Woodland, WA, April 23, 2015.

“Below-the-Hook Lifting Devices,” given at the Advanced Rigging & Lifting Workshop, Houston, TX, Industrial Training International, Inc. Woodland, WA, April 24, 2015.

Periodical Articles

“Williams-Bragg Joint Venture Removes Reactor Vessel From First U.S. Nuclear Power Plant,” *Lifting & Transportation International*, Vol. 38, No. 8, Specialized Carriers & Rigging Association, Centreville, VA, 1991.

“Heavy Lifting Using Hydraulic Gantries,” *Lifting & Transportation International*, Vol. 41, No. 6, Specialized Carriers & Rigging Association, Centreville, VA, 1994.

“Lift Engineering for Hydraulic Gantries,” *Lifting & Transportation International*, Vol. 41, No. 7, Specialized Carriers & Rigging Association, Centreville, VA, 1994.

“Renaissance Rigging,” *Lift Equipment*, April-May, 1995, Group III Communications, Independence, MO.

“Multi-Crane Lifts – 10 Planning Pointers,” *Lifting & Transportation International*, Vol. 42, No. 7, Specialized Carriers & Rigging Association, Centreville, VA, 1995.

Publications List – David Duerr, P.E. (con't.)

Periodical Articles (con't.)

“Multiple Crane Lifts,” *International Cranes*, Vol. 4, No. 8, KHL International Ltd., Wadhurst, East Sussex, England, 1996.

“Railroad Grade Crossing Safety,” *Lifting & Transportation International*, Vol. 43, No. 6, Specialized Carriers & Rigging Association, Centreville, VA, 1996.

“Licensed Professional Engineer – Just What Does It Mean?” (with H.I. Shapiro), *Lifting & Transportation International*, Vol. 44, No. 8, Specialized Carriers & Rigging Association, Centreville, VA, 1997.

“Rigging Considerations for Barge Loading and Unloading,” *Lifting & Transportation International*, Vol. 45, No. 7, Specialized Carriers & Rigging Association, Centreville, VA, 1998.

“A Brief History of Lifting Gantries,” *Cranes Today*, Issue 312, Wilmington Publishing Ltd., Wilmington, Dartford, England, November, 2000.

“Barge-Mounted Mobiles,” *Cranes Today*, Issue 333, Wilmington Publishing Ltd., Wilmington, Dartford, England, September, 2002.

“Lifting Solutions,” *American Cranes & Transport*, Vol. 1, No. 5, KHL Group Americas LLC, Phoenix, AZ, 2005.

“Designing a Floating Crane Installation,” *Cranes Today*, Issue 374, Wilmington Publishing Ltd., Wilmington, Dartford, England, February, 2006.

“Stable and Steady,” *American Cranes & Transport*, Vol. 9, No. 9, KHL Group Americas LLC, Phoenix, AZ, 2013.

“Handbook Offers a Comprehensive Guide to Crane Support Design,” *Crane & Rigging Hot Line*, Vol. 18, No. 9, Heartland Communications Group, Inc., Fort Dodge, IA, 2015.

Video Lectures

“Alternative Load Handling Equipment – Telescopic Hydraulic Gantry Systems,” *Fundamentals of Rigging Engineering* program, Industrial Training International, Inc. Woodland, WA, recorded in 2015.

“Cranes & Derricks – Crane Configurations – Load Spreading,” *Fundamentals of Rigging Engineering* program, Industrial Training International, Inc. Woodland, WA, recorded in 2015.

“Rigging, Equipment & Applications – Below-the-Hook Lifting Devices,” *Fundamentals of Rigging Engineering* program, Industrial Training International, Inc. Woodland, WA, recorded in 2015.