

# MASTERLINK

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*JPW Structural Contracting and JPW Erectors, Syracuse, N.Y., faced harsh winter conditions during the construction of Destiny-Regal Theater in Syracuse, a Class II--\$500,000 to \$1 million project.*



# President's Letter

**B** Bishop Lifting Products, Inc.  
www.Lifting.com  
**John Hellums**

125 McCarty Drive  
Houston, TX 77029

## Howdy again ACRP Members,

Wow, it's been 4 months since we gathered in Nashville, TN for the General Assembly, time really flies when you are having fun, doesn't it? I would like to say thank you once again to each and every one who attended and challenge you to attend and bring a new member with you to the 2015 General Assembly in Kansas City, MO next May.

### What's going on in the Association?

Your Board of Directors are working hard to keep up with changes in our industry (several updates from the Regulations Committee are included in this issue) and updating our By-Laws to better reflect the different types of membership potential. The Board meets at least 3 times a year to accomplish these tasks; our new logo is one example. I ask you, our members, to let us know your thoughts on how to recruit members; as our goal is to grow our membership into a world class organization.

As you can see, this is the largest Masterlink in quite some time; and that is because of the content submitted by you the membership. Articles can be sent to and are welcomed by the ACRP office for use in future publications.

Your General Assembly Committee is putting together a fantastic meeting in Kansas City! Not only will there be 18-holes of golf, you can sign up for the "not-as-easy-as-it-looks" disc golf and clay shooting at the Geiger shooting range. This will take place on Tuesday before we get to work on Wednesday learning from the information packed speakers and their presentations.

Have you always wanted to see one of the world's largest wire rope manufacturers? ACRP attendees will take an inside look at the WireCo WorldGroup facility. John Groce, PE will also be presenting, Wire Rope Installation on Mobile Cranes during the meeting.

### Crane Operator Certification!

Starting November 10, 2014 Crane Operator Certification is mandatory for OSHA 1926.1400 requirements. Don't put off thinking OSHA will extend the date. Be pro-active and get your certification early. Some of our member companies offer certification, check the website for their contact information.

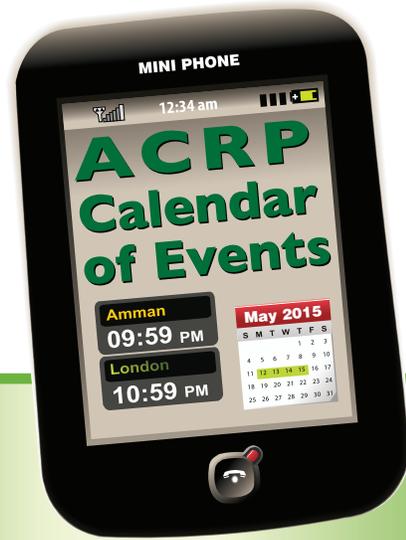
### Mark your calendar:

ACRP 2015 General Assembly - Kansas City, MO  
May 12 - 15, 2015

The Westin at Crown Center  
One Pershing Rd.  
Kansas City, MO 64108  
(888) 627-8538 Special Rate \$139++ for Single or Double  
[www.starwoodhotels.com/westin](http://www.starwoodhotels.com/westin)

Sincerely,

John Hellums, Bishop Lifting Products  
ACRP President



## 2014

**September 21 - 25 ASME B30 Committee Meeting**  
Tropicana – A DoubleTree by Hilton Las Vegas, Nevada

**October 15 - 17 WSTDA Fall Meeting** Intercontinental  
at the Plaza  
Kansas City, Missouri

**October 26 - 29 AWRP General Meeting & P.I.E.**  
Hyatt Regency at the Arch  
St. Louis, Missouri

## 2015

**January 21 - 22 AWRP Technical Committee Meeting**  
Scottsdale Plaza Resort  
Scottsdale, AZ

**January 23 - 24 AWRP Board of Directors Meeting**  
Scottsdale Plaza Resort  
Scottsdale, AZ

**January 25 - 30 ASME B30 Committee Meeting**  
Hilton St. Petersburg  
Bayfront Hotel  
St. Petersburg, Florida.

**April 12 - 15 AWRP General Meeting**  
Hyatt Regency  
Indian Wells, CA

**May 5 - 7 WSTDA Spring Meeting**  
Marriott Pinnacle Downtown  
Vancouver, British Columbia

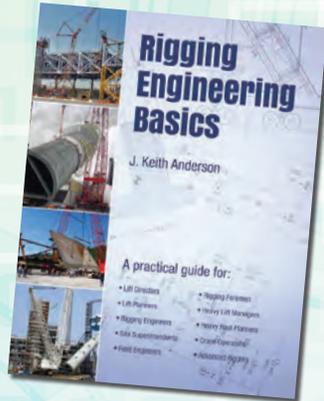
**May 12 - 15 ACRP General Assembly**  
Westin Crown Center  
Kansas City, Missouri

# Heavy Transport and Rigging Engineering Texts Now Available



## Rigging Engineering Basics – A must read for all involved in rigging and lift planning activities

J. Keith Anderson, Chief Rigging Engineer, offers his contribution to the rigging and hoisting industry with a dynamic, educational title: *Rigging Engineering Basics*. A comprehensive text for rigging engineers, lift planners, advanced riggers, field engineers, site supervisors, and the like, *Rigging Engineering Basics* is a must-have reference guide for all personnel involved in rigging and lift planning activities.



*Rigging Engineering Basics* is intended to inform key employees planning rigging operations and point them in the direction of best practices, bring to light pitfalls and how to avoid them and offer instruction of certain basic rigging engineering tasks. Lifting operations are universal to all industries including, oil and gas, construction, power generation, pulp and paper, manufacturing and many more. As well as being universal, lifting is also one of the most hazardous activities routinely encountered on a job site, making *Rigging Engineering Basics* a must read for all in the rigging and hoisting world.

Initial impressions of the book have spawned ideas and projects in the rigging and lifting arena. One result in particular is a comprehensive new program from Industrial Training International (iti.com), titled Fundamentals of Rigging Engineering. In addition to serving as the inspiration of the program, Mr. Anderson's text will be used as a reference tool to students who go through the program and Mr. Anderson himself is signed on as an instructor of two program modules.



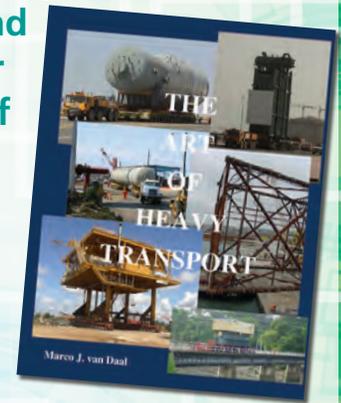
Mr. Anderson possesses over 35 years of experience in the heavy lifting industry, with international experience and industry leaders, Kramo Montage, Van Seumern UK (now Mammoet UK), Sarens and since 2000 Bechtel. In addition to

his world class experience, Mr. Anderson volunteers his time as a member of the American Society of Mechanical Engineers (ASME) P30 Lift Planning Standard Committee.

*Rigging Engineering Basics* is available through the ITI Bookstore. Learn more at <http://store.iti.com/> or call 1-888-567-8472.

## The Art of Heavy Transport – A reference guide and engineering base for the safe execution of all heavy transports

Marco J. van Daal, owner and founder of The Works International, proudly offers an updated 2nd edition of his best-selling heavy transport guidebook. A reference guide and engineering base for all



heavy transports executed by hydraulic platform transporters, *The Art of Heavy Transport* offers information, guidance, best practices and engineering principles backed by color images and case studies from actual executed transports.

*The Art of Heavy Transport* is a must-read for heavy transport engineers, field personnel, site or operations managers, rigging engineers, cargo owners, consultants or anyone else involved in a heavy move. Every section within the book's 11 chapters addresses a single topic in a sequential, logical order that strategically builds foundational knowledge of all phases of a heavy transport. Highlighted topics include: Hydraulic stability calculations, structural stability calculations, axle groups and suspension, dunnage and lashing, external forces, curve impact, center of gravity and much more.

Since its initial release in 2010, *The Art of Heavy Transport* has been sold in over 50 countries and has further established Mr. van Daal as an international thought leader in the heavy transport industry. This status is reinforced by the continuous demand for Mr. van Daal's Seminar Series, both open enrollment public events around the world and in-house sessions on site at various companies' request. Additionally, Mr. van Daal is set to be featured as a speaker at a number of ITI Workshop events in 2014. ITI Workshops

*Continued on page 31*

# CIC A HIGHER LEVEL of Certification

## 5 Reasons for Hiring Certified Workers

March 1, 2014 (Atlanta, Ga.) — Safety Managers working in Construction must oversee comprehensive risk management programs dealing with a wide variety of standards and regulations. The job requires knowing something about a lot of topics. Crane Institute Certification (CIC), Villa Rica, Ga., has produced “5 Reasons for Hiring Certified Workers,” to assist health, safety, and risk managers with one important aspect of their job—worker qualification.

Multiple studies show that construction projects using qualified personnel are completed on time, on budget and with fewer accidents, more often than projects where under trained employees are working. In addition, according to a 2012 McGraw-Hill Construction SmartMarket Report called “Construction Industry Workforce Shortages: Role of Certification, Training and Green Jobs in Filling the Gaps,” 71% of construction professionals surveyed find that having certified employees increases the competitiveness of their firm and its ability to win contracts.

The overall deficit among skilled labor and historic lows among unionized labor in the private sector, which has traditionally promoted training and qualification, only serves to put an even greater importance on certification of craft workers. Likewise, “Proactive EHS managers must use every tool at their disposal to protect life, property, the public and the environment,” said Larry Curtis, Executive Director of Institute for Safety and Health Management (ISHM), Yuma, Ariz.

Any accredited, third-party certifier of workers, regardless of affiliation, offers employers verifiable credentials attesting to a worker’s knowledge, skills and abilities. It’s difficult for an individual to obtain accredited certification without first having been properly trained. Experience also contributes to successful achievement of certification, but is not by itself an indicator of knowledge, skills and abilities.

CIC and ISHM recently announced that the organizations have entered into a joint marketing agreement. Both organizations share a common goal of improving the safety and health of workers and thereby reducing accidents. “Just as an EHS certification indicates a high level of professionalism, a certified crane operator or rigger indicates a highly qualified professional. ISHM strongly supports the CIC programs offering certification to professionals in the lifting industry,” said Curtis.



Certifications from both organizations are designed to recognize the knowledge, skills and abilities of the professionals for which their respective certifications are provided. While CIC’s certifications are designed for in-the-field workers, management buy-in is crucial to the overall adoption of certification. ISHM’s certifications target safety managers who have a broad range of duties. CIC and ISHM’s certifications complement each other.

### The following traits identify qualified people, who tend to:

**1. Apply knowledge, skill and ability to their work.** Knowledge, Skills, and Abilities (KSAs) are earned by applying lessons learned on the job, through training, and when preparing for certifications that validate the level of comprehension and capability of the individual. There is no single step or process that covers all the KSAs necessary for qualification of personnel in the crane and rigging industry.

Due to several years of debate with OSHA over accredited certification, a mentality surfaced that certification would replace common sense and the general duty responsibility of employers. At this time, the OSHA effective date requiring crane operators to be certified is still in place for November 2014. Likewise, 1926.1417 (Operation) (a) "The employer must comply with all manufacture procedures applicable to the operational functions of the equipment, including use of attachments" remains a requirement for employers.

"That one clause alone tells us that we must qualify operators. Combine the requirement for accredited certification and employer qualification and you have a safer job site," said Jeff Dudley, Crane Trainer and Inspector for the Walsh Group's Archer Western, Irving, Texas.

Mike Randall, Tyler, Texas-based CB&I HSE Manager, said, "We start with operators who have an accredited certification. Then, before putting an operator to work, we qualify the operator on the equipment he will operate. In a controlled setting, we make sure the operator can control the load and run the equipment well. It's that simple and quick. We prevent problems before they happen, efficiently."

Operators must be able to demonstrate their KSAs to prove worthiness for the job. Employers are accountable to require proof of KSAs and document.

## **2. Plan to complete work on time; on budget; and safely.**

The next step for managers is to clarify objectives in terms of time, budget and safety expectations. These are key factors in bidding for projects and pre-determined expectations should be communicated to the crew. Too often work is assigned by task only. Yet, qualified people are capable of performing according to the company's purpose. The result is

payoff for themselves and the company. Don't handicap them by leaving them out of the loop.

## **3. Refuse to cheat or skimp on safety.**

The values and work ethic of qualified people often includes high expectations for themselves and others to follow the rules. Consider how many deaths and injuries could be prevented if people refused to do the wrong thing. Nothing derails a job or personnel like an accident, while safe job sites develop a pattern for doing work that stimulates pride, respect and a desire to do things right. Cheating on safety is bad business. No exceptions.

## **4. Value safety of self, others, equipment, and job site.**

While the qualified worker does value safety, consider what message is sent if the only reward this employee gets is a paycheck. Clear expectations (with measurable, identifiable achievements) hold employers accountable to setting reasonable objectives and let employees know, "I can do this. It's worth working to accomplish." To encourage an attitude of qualification, companies must provide training, proper equipment, and recognition for a job well done. Likewise, there must be consequences for employees who do not embrace safety values.

## **5 Ensure work and safety objectives are met, consistently.**

Qualified people don't take a vacation on safety. To support this type of employee, the organization must have a track record of verifiable achievements, both corporately and individually. Safety priorities can't go by the wayside when time and budget is tight. In fact, prepare for famine to protect non-negotiable values. Knowing what will not be cut gives confidence and determination to employees to weather the difficult times. As those pass, refer back to rewards and accountability.

### **Sources**

- *University of Calgary, May 2009, Improving Construction Productivity on Alberta Oil and Gas Capital Projects*
- *Fisher & Phillips, Dec. 3, 2013, State of the Unions by Matthew Korn*
- *McGraw-Hill Construction, 2012, Construction Industry Workforce Shortages: Role of Certification, Training, and Green Jobs in Filling the Gaps*

### **About Crane Institute Certification**

*Crane Institute Certification (CIC), Villa Rica, Ga., is an independent certifying organization providing OSHA recognized, NCCA accredited certifications for mobile crane operators according to type and capacity, as*

*well as rigger and signalperson certifications. CIC is committed to serving construction, utility and power generation, underground construction, manufacturing, and heavy industry by providing efficient and relevant certifications to meet or exceed OSHA requirements and industry best practices.*

*With CIC you can complete one Practical Exam for up to five certifications. Among the certification programs that CIC has recently released are for operators of Multi-Purpose Equipment, including Digger Derricks, Articulating Boom Cranes, and Service/Mechanics Trucks. Exam questions and tasks are relevant to real-*

*world work sites. Exams are available in English and Spanish. [www.cicert.com](http://www.cicert.com)*

### **About Institute for Safety and Health Management**

*The Institute for Safety and Health Management (ISHM), Yuma, Ariz., is the credentialing organization founded by the National Safety Management Society (NSMS), to promote the advancement of safety management through the application of management principles and the integration of safety into all levels and activities of management.*

*It offers three credentialing programs. Certified Safety and Health Manager, Associated Safety and Health Manager, and Certified Safety Management Practitioner. [www.ishm.org](http://www.ishm.org)*

## Tips for Safe Outrigger Pad or Mat Set Up

**July 3, 2014 (Guthrie Center, Iowa)**

Common sense is a key component to properly using outrigger pads and following a few basic principles will improve the quality of your crane set up. Operators should always use outrigger pads or crane mats every time the outriggers are deployed.

The first step is to assess your ground conditions. Ultimately the ground is supporting everything. It must be taken into consideration in every application. Look for impediments, depressions, voids, trenches, excavations, slopes or signs of poor ground conditions that can lead to an unsafe situation. If found, correct the situation to a compacted and level surface or do not set up.

During operations, if the operator observes excessive deflection occurring due to ground displacement, then the ground is not suitable

to provide the load bearing capacity needed to support the load. Excessive deflection limits proper load distribution, and can cause damage to some types of outrigger pads or crane mats over time.

There are several options for reducing ground displacement and outrigger pad and mat deflection.

a smaller pad on top of a larger underlying pad, cribbing, or dunnage. Always use materials of known strength that are designed as support for heavy equipment.

- Compact the soil using appropriate soil compaction equipment such as a roller, plate soil compactor, rammer or similar equipment. Another option is to blade the soil to remove insufficiently compacted surface layers and expose sufficiently compacted ground. Adding rock, gravel or cement like materials to the soil will increase the ground bearing capacity. Wet soil should be allowed to dry before setting up. If necessary, drain the area or add rock or gravel.

Proper placement of the outrigger float onto the pad or mat is critical for achieving effective load support and distribution. The float should be placed squarely in the center of the pad or mat. In addition, outrigger pads or mats should never be placed where they span voids or depressions in the ground.



*This HVAC delivery is a good example of an operator using outrigger pads every time the outriggers are deployed. In this case, outrigger pads have been used even when the ground conditions are assumed to be excellent.*

- Always verify that the outrigger pads have enough surface area to spread the outrigger load over the area required to be equal to or lesser than the ground bearing capacity.
- Add additional supporting materials that are more rigid and create a larger area. If you choose to stack outrigger pads, always stack



*FiberMax crane mats feature a foot placement target to assist operators with squarely placing the float in the center of the mat.*

### Inspection and Maintenance

When setting up the crane, check the crane floats to make sure they are smooth and free from debris in order to evenly spread the load and achieve solid contact with the outrigger pad or crane mat. Always inspect your outrigger pads and crane mats for material integrity prior to use. If they

# Synthetic Web Slings

Patrick Cotnoir, Trainer, ITI



A question that has been asked of me many times over the last 20 years is; “Do I have to wait until I see the red fiber yarn to take my sling out of service?”

Well the quick answer to that is NO. The red tracer is merely an aid as to let you know that some scrubbing (abrasion) or cutting has occurred! We never want to get into that mind set of having to wait to see red yarns before we take our slings out of service.

The WSTDA-WB-1 (Web Sling and Tie Down Association) is the standard for the manufacturing of nylon and polyester web slings, and it only gives a passing mention of red tracer yarn as a possible indicator of wear or cutting. The red yarn is merely something the manufacturers of the material insert to try and help us have indicators as to the amount of abuse the sling may have seen.

In North America, the general practice is to refer to the ASME Standard (American Society of Mechanical Engineers) B30.9 Slings rejection criteria when looking for the most comprehensive and up-to-date information, as developed by a full industry consensus body. The ASME B30.9-5.9.4 states the following:

A synthetic webbing sling shall be removed from service if any of the following conditions are present:

- (a) missing or illegible sling identification
- (b) acid or caustic burns
- (c) melting or charring of any part of the sling
- (d) holes, tears, cuts, or snags
- (e) broken or worn stitching in load bearing splices

- (f) excessive abrasive wear
- (g) knots in any part of the sling
- (h) discoloration and brittle or stiff areas on any part of the sling, which may mean chemical or ultraviolet/sunlight damage
- (i) fittings that are pitted, corroded, cracked, bent, twisted, gouged, or broken
- (j) for hooks, removal criteria as stated in ASME B30.10
- (k) for rigging hardware, removal criteria as stated in ASME B30.26
- (l) other conditions, including visible damage, that cause doubt as to the continued use of the sling

Notice letter (d) Holes, tears, cuts, or snags... there is no mention anywhere of the red tracer yarn.

In certain parts of Canada, the tolerance is a little more unique, and yet they still quote the ASME B30.9 standard. They allow for a certain length of edge cut and percentage of abrasion to be displayed on the sling before taking it out of service. They also allow a certain percentage of the WARP and WEFT (sets of yarns in the material to give the material its strength) threads to have damage. ITI has performed hundreds of tests involving flat web sling tears, cuts and snags over the last 25+ years. A simple edge cut to a 2” double ply sling, produces an average loss of strength of 25% vs. a new sling. I truly respect the potential damage from cutting or abrading load bearing yarns in a web sling, and am always ready to enforce letter (l) above, “when in doubt... throw it out”!

The real underlying issue for these slings is the lack of protection they get. ITI has officially investigated nearly

100 rigging accidents over the last 20 years and our findings showed that 87% of the incidents involved synthetic slings. The majority of the cases are not because a sling did not have the capacity for the job, but because it was not sufficiently protected from either cutting or friction damage. Cutting and friction are the primary causes for web sling failures. The p.s.i. experienced by the sling at the sling-to-load bearing points of a choker or basket hitch can be extreme, often severing wear material like rubber pads or fire hose used as a “softener”. If the sling slides along the load surface while tensioned it can fail quickly due to the heat generated against the sling webbing ... like a hot knife through butter. There are many great options out there for sling protection, and the cost is negligible considering some of the outcomes. I conducted an accident investigation this year where \$300 worth of proper sling protection would have saved an employee’s life. (See the listing below for a variety of sling protection options available for the marketplace.)

So, is the red tracer yarn a value? To some maybe, and to others not at all. These Slings that we are speaking of are somewhat considered consumable items. The cost for a 2” x 10’ double ply Type 3 nylon sling is roughly in the price range of \$20.00 dollars. However, the cost for not protecting them can run into the millions.

So let’s protect our slings, thereby protecting the lives of those who work near them.



Figure 1 – Interfron Wire Rope Protector



Figure 2 – Meshguard Protector



Figure 3 – Linton Corner Protector



**June 30, 2014 (Winston-Salem, N.C.)** Steel Erectors Association of America (SEAA) announces the winners of its annual Project of the Year competition. Winners are selected by an independent panel of judges. Four companies were recognized in 2013.

“Since the contest’s inception more than 10 years ago, SEAA has recognized complex and unique steel erection projects throughout the world. Past projects demonstrated successful completion while overcoming unusual conditions, tight time constraints, or other challenges. The 2013 winners reflect the importance of safety while sticking to the job’s schedule,” said Tom Underhill, Executive Director.

### **LPR Construction Co., Loveland, Colo., for Denver Union Station Train Canopy. (Class I—Under \$500,000)**

The visual centerpiece of Denver’s transit center project in Lower Downtown’s residential and nightlife district is the canopy of Train Hall. The sculptural canopy is supported by a skeleton of steel tubes, a curving structure that is 70’ tall at each end and 22’ tall in the center. Its length is nearly 1-1/2 football fields long.

LPR Construction worked within a 10-month long erection process that had to be precisely orchestrated as the project involved extremely tight site constraints, and concurrent construction of the RTD bus station within the footprint of the Train Hall below grade. The canopy is held up by 32 arched cantilevered steel trusses of various lengths and 11 arched steel trusses that span 176 feet and are raised about 18 feet above the pedestrian level. The trusses are held together by thousands of pinned, bolted and welded joints and are supported by A-frame “kickstand” column pairs that cantilever out of the ground and carry the loads down to the pile foundations.

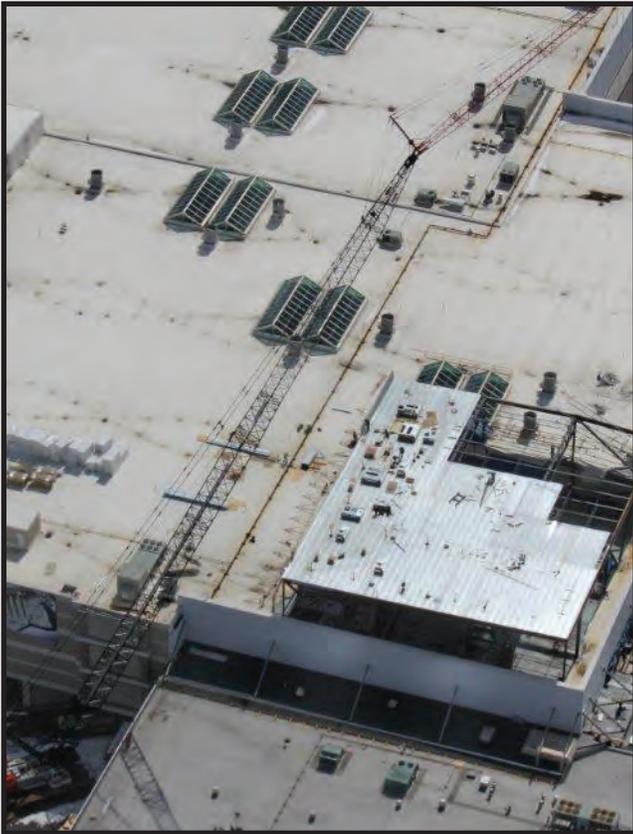
To erect the interior-most trusses, LPR Construction utilized a single shoring post and guy cables to



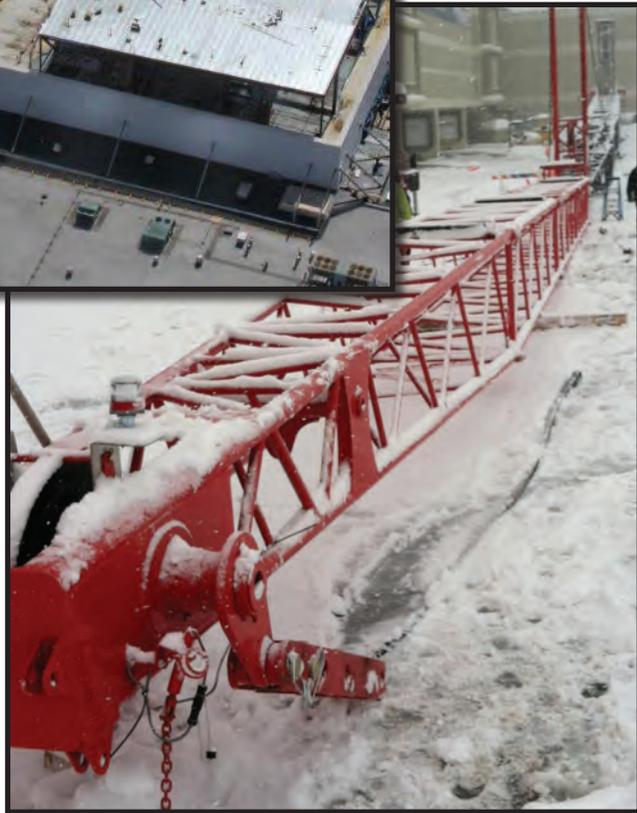
*LPR Construction Co., Loveland, Colo., was named the winner of the Class I (Under \$500,000) Project of the Year category for the Denver Union Station Train Canopy.*

stabilize and erect the first truss in two halves. The remaining nine trusses were erected in a single full length piece. Each subsequent full span truss was tied back to the preceding truss with permanent bracing prior to release of the crane and the two were stabilized as a pair. By combining this well-thought out strategy with careful execution, LPR was able to control direction and flow of erection by utilizing permanent bracing and eliminating the need for additional temporary bracing.

**JPW Structural Contracting and JPW Erectors, Syracuse, N.Y., for the Destiny-Regal Theater in Syracuse. (Class II—\$500,000 to \$1 million)**



*JPW Structural Contracting and JPW Erectors, Syracuse, N.Y., faced harsh winter conditions during the construction of Destiny-Regal Theater in Syracuse, a Class II--\$500,000 to \$1 million project.*



Regal Entertainment Group wanted to add IMAX and RPX theaters to the company's 17-screen complex in time for the premier of Superman: Man of Steel. Remaining on schedule was a priority in order to meet with the release of the movie. The challenge was to complete work while the mall remained fully operational during the harsh, winter months. All steel was erected in the blind. Many pieces weighed 11,000 pounds and the crane was lifting at close to maximum capacity at its 300-foot radius.

JPW worked closely with mall management and security to coordinate traffic (22 million people annually visit the sixth largest mall in the U.S.) where a 300-ton Link-Belt crawler crane with 400 ft. boom was assembled, operated, and disassembled.

The project consisted of removing 16,500 sq. ft. of roof, raising it 50 feet, and adding two additional floors. In addition to the challenge of working in close proximity to the public, severe cold weather threatened to hinder production. Wind chill was such that, at times, workers were limited to one-hour shifts to avoid frost bite. Snow and ice formed on flanges, in webs of beams, and on decks making an already dangerous job even more so, requiring the areas to be cleaned before work could begin.

**J.P. Cullen, Janesville, Wis., for the Deep Space Auditorium in Verona, Wis. (Class III—Over \$1 million)**

Deep Space is an 11,400 seat auditorium for Epic Systems Inc., a medical software company in Verona, Wis. The auditorium was built for the company's Annual User Group Meeting, monthly staff meetings, and events on the 811 acre campus. The 830,000 sq. ft. auditorium contains more than 17,000 tons of structural steel.

Epic wanted the auditorium to look invisible, as if it were a cave carved into a hill. Deep Space stands five stories tall, but from the southeast it appears to be below ground. From the west, a glass curtain wall with stone façade resembles a natural cave. Deep Space also features a 6-acre rolling green roof allowing people to walk on top of the building. The roof is a free span design measuring 110 ft. wide at the front and more than 650 ft. along the back radius with trusses spanning up to 280 feet.

JP Cullen's team developed an unconventional solution for constructing the roof. Steel erection began with assembly of the auditorium's long-span roof on the ground of the 80-foot deep "hole" in which Deep Space was constructed. That was followed by erection of the surrounding 5-story structure. The 9 million pound roof system was lifted vertically with strand jacks from the ground to its permanent location. Constructing the roof on the ground provided safer access to the work.



*For the first time in the history of the Project of the Year award, an Honorable Mention winner was named. Peterson Beckner's team posed for a group photo at the completion of the Energy Center construction on the ExxonMobil Campus, a Class III project.*

It also allowed mechanical, electrical, plumbing, and fire protection trades to install all their systems within the roof, as well as steel for catwalks and audio-visual supports, prior to erection of the roof itself.

Scheduling proved to be one of the biggest challenges of the project, given its complexity and the owner's timeframe. Integrated project delivery was used to supply the steel to the site in the quickest possible manner. At peak production, more than 1,000 trade workers were on site. Ultimately, detailed planning and coordination proved successful as the project was delivered in time for the Annual User Group Meeting, an event that brings thousands of Epic's clients from around the world to Verona, Wis. The Greater Madison Convention & Visitors Bureau estimates the economic impact of User Group Meeting at \$6.5 million, second only to the World Dairy Expo.

**Honorable Mention: Peterson Beckner Industries (PBI), Houston, Texas, for the ExxonMobil Campus Project – Energy Center in Spring, Texas. (Class III—Over \$1 million)**

The Energy Center is the gateway to ExxonMobil's new office building campus that will house approximately 10,000 employees. The entire project consists of approximately 20 buildings, including low-rise offices, parking garages, a wellness center and child development center. The Energy Center is the architectural gem of the complex.

The Energy Center consists of 180'x180'x50' tall steel framed, glass-enclosed structure perched on 60 ft. cantilevered sections of two opposing

210'x90'x100' tall structures. Framing included heavy built-up box members up to 4.5" thick.

Central to Peterson Beckner being selected for the project was the development of a project specific safety plan that provided safe access for employees of PBI as well as ExxonMobil and General Contractor, Gilbane/Harvey. PBI's safety plan featured a scaffolding system that enabled safe access to specific connection points and transport between work points. The entire system was engineered and the steel fabricator attached hundreds of clips for scaffolds, individual retractable reel safety devices, and horizontal life lines.

According to Craig Peterson, Project Manager, "Probably the most daunting task was to properly position the heavy node weldments, which in many cases had six members framing into them. If the columns weren't kept close to perfectly plumb, and all bearing surfaces properly seated, the geometry of the framing of the heavy braced lines above would result in major problems down the line," he said. Careful attention to placement of mill to bear members and proper welding procedures resulted in final location of Cube trusses, including expected deflections, within 1" of theoretical in all directions.

**About Steel Erectors Association of America**

Founded in 1972, SEAA is the only national trade association representing the interests of steel erectors, fabricators, contractors, and related service providers. The association promotes safety, education and training programs for steel erector trades, including its Ironworker Craft Training curriculum. The association works in partnership with other steel construction, design, and steel product organizations to protect the interests of those who construct steel structures. Learn more at [www.seaa.net](http://www.seaa.net).



Dear ACRP Members,

Two articles (*Following Safety and Regulatory Trends* page 12 and *Risk and Roles* page 26) appearing in the July and August 2014 editions of Crane & Rigging Hot Line focus on the growing emphasis in defining roles and responsibilities for crane operations, and the current trends in regulatory development. The importance of these subjects will grow as roles and responsibilities for lifting operations continue to expand and be defined, and regulations and standards evolve.”

Also included is a recent OSHA interpretation of 1926.1401 (page 29). While the interpretation deals with whether a labor-management joint apprenticeship training program that is a “qualified evaluator (third party)” can provide training regarding “qualified rigger” status, the importance of the interpretation is OSHA’s emphasis on what a qualified rigger is. This focus may foreshadow a trend in OSHA’s compliance activities with respect to crane accidents involving improper rigging by unqualified personnel. As indicated in the attached article “Risk and Roles,” further elaboration on the rigger’s role and responsibilities in ASME B30.5 and other subsections of B30 is anticipated. Currently, ASME B30.22 (Articulating Boom Cranes) sets forth the rigger’s responsibilities in Section 22-3.1.3.3.2.

#### **22-3.1.3.3.2 Rigger’s Responsibilities.**

The rigger’s responsibilities shall include the following:

- (a) determine or know the weight and estimate the center of gravity of the load to be lifted
- (b) select and inspect rigging gear such as slings, shackles, safety hoist rings, lifting beams, etc., before use
- (c) ensure that the working load limit of the rigging gear selected is sufficient for the load to be lifted
- (d) properly attach and secure the load to the crane hook using the appropriately selected rigging gear
- (e) ensure sufficient protection for load, slings, and other rigging equipment that could be cut or damaged during load handling activities
- (f) ensure that the load is properly rigged and balanced before it is lifted more than a few inches (several centimeters)
- (g) know and provide correct signals to the crane operator.

David A. Johnson  
Partner  
SmithAmundsen LLC



Both articles, *Following Safety and Regulatory Trends* and *Risk and Roles*, are printed with permission from

# Following Safety and Regulatory Trends

As one gauge of industry performance, compliance is no walk in the park



**W**hile crane operator certification continues to have significance for the industry, it is not the only regulatory issue impacting crane and rigging operations. Updates to ASME standards, evolving safety trends, and other regulations intersect with crane and rigging operations. Unfortunately, there is no single road map to guide safety managers. This overview of crane and rigging industry standards and regulatory issues hits the highlights to give trainers, safety managers, and field supervisors ideas of what issues they may need to research more deeply.

## Crane operator certification

The only part of OSHA's 2010 Cranes & Derricks rule considered for delayed compliance is the requirement that operators be certified. The rest is in force. Concerns over whether certification is the same as qualification and the type-and-capacity

issue have caused speed bumps on the road to compliance. The latest development was an informal hearing OSHA held in May to seek solutions to these issues. As of this writing, a formal determination had not yet been made regarding OSHA's proposed delay.

Among the new ideas presented was to extend the compliance date by no more than one year, calling for OSHA to utilize fast-track procedures to make minimal changes to the rule. This would extend the employer's responsibility for training and qualifying operators for as long as the regulation is in effect.

Brian Hope, corporate safety manager of Caldwell Tanks, Louisville, Ky., agrees with this proposal. "Furthermore, this takes care of the type-and-capacity issue by placing responsibility for qualifying operators rightfully on the employer, regardless of methods used by various certification organizations," he says.

To view the comments from the hearing, go to [www.regulations.gov](http://www.regulations.gov) and search

by "Transcript May 19, 2014 Informal Public Hearing Crane Operator Certification, Employer Duty." Choose Supporting & Related Material under Document Type.

## Other amendments

In June, the federal Office of Information and Regulatory Affairs set a target date of July 2014 to make amendments to other areas of the regulation. Here are the most significant proposed amendments:

- Broaden the exclusion for forklifts carrying loads under the forks from "winch or hook" to with a "winch and boom;"
- Clarify an exclusion for work activities by articulating cranes;
- Clarify the use of demarcated boundaries for work near power lines;
- Correct error permitting body belts to be used as a personal fall arrest system rather than a personal fall restraint system; and
- Resolve an issue of "NRTL-approved" safety equipment (e.g., proximity alarms and insulating devices) that is required by the final standard, but is not yet

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available. Note that OSHA issued a temporary enforcement policy for proximity alarms and insulating links that was effective April 30, 2014.

In addition, there are two new letters of interpretation dealing with riggers; both were published earlier this year. One has to do with labor-management joint apprenticeship training meeting the requirements for qualified rigger as long as the employer retains responsibility for ensuring that the rigger is qualified for the specific lift. The other asks if qualified riggers are required

when the load weighs less than 2,000 lbs. OSHA affirmed they are required, and that the under 2,000-lb. exception “applies only when working with hoisting equipment, as specified in 29 CFR 1926.1441, having a 2,000-lb. capacity or less.”

**ASME standards**

ASME standards undergo regular cycles of review and republication. The B30 volumes are most directly related to cranes and rigging. According to Jeff Hammons, vice president risk management, AmQuip Crane

Rental, Trevoise, Pa., the sections in the 2011 volume of B30.5 - Mobile and Locomotive Cranes that identify responsibilities for the crane owner, user, lift director, etc., for lift planning, crane setup, and power-line operations make it perhaps the most important standard for crane and rigging operations. However, the construction industry knows the least about these responsibilities (read more about crane and rigging roles and responsibilities in *Crane & Rigging Hot Line*, July 2014).

These roles and responsibilities are being incorporated into other B30 volumes when and where appropriate. For example, B30.3 - Tower Cranes, issued in 2013, contains more detail on site planning by a qualified person, especially as it relates to known hazards. Those types of hazards include restricted air space, obstructions within the working radii, and excavations that occur near an erected tower crane. There are also distinct definitions for a *qualified* and *designated* person when dismantling tower cranes. “A designated person has greater responsibility,” says Peter Juhren, corporate service manager for Morrow Equipment Co., Salem, Ore.

“Other important changes to B30.3 deal with wind velocity, which is the largest detriment to tower-crane operations,” continues Juhren. Tower cranes must now be erected according to ASCE 7, the American Society of Civil Engineers’ standard for wind loadings on structures, which is more similar to stricter European EN standards. Among the practical changes: Lower freestanding heights in wind-prone areas, and a heavier base required to achieve erection heights similar to the previous standard that used DIN wind-loading charts.

Other highlights include:

- Requirements for proper shipping methods and procedures;
- Rigging requirements that refer to other applicable ASME standards;
- Requirements for erecting tower cranes to the plumb tolerances set by the manufacturer;
- Major inspections now set at 60-month intervals; and
- New hand signals for luffing-boom tower cranes.

In addition to B30.5, look for B30.1 - Jacks, Industrial Rollers, Air Casters and Hydraulic Gantries, and B30.9 - Slings to be

## Top Citations and the Cranes and Derricks Compliance Directive

Promises from OSHA for a Cranes and Derricks Compliance Directive have come and gone multiple times since the rule was issued in 2010. In June, an OSHA spokesperson reported that the document was in final stages of internal clearance and was expected to be released within a few months.

The purpose of the directive is to provide OSHA compliance officers instruction when conducting inspections. “Overall, the directive addresses citation policy and inspection guidance for virtually every provision in the cranes and derricks standard,” says an OSHA spokesperson. The document is important to crane owners and users because it provides direction in understanding how the regulation will be interpreted by compliance officers and aids them in avoiding citation.

“The Cranes and Derricks Compliance Directive is as monumental as the 2010 rule itself,” says Jeff Hammons, vice president risk management for AmQuip Crane Rental, Trevoise, Pa. Hammons explains that it does not usually take OSHA this long, but acknowledges that it is understandable considering that it had been 40 years since the previous crane standard was released, and crane users have had many questions and concerns about the regulation.

Asked whether the proposed delay of crane operator certification requirements will impact when the directive is released, OSHA officials report, “crane operator certification requirements are being revisited through a supplementary rulemaking. We anticipate issuing the cranes and derricks directive before that rulemaking will be completed.”

In November 2012, Jim Maddux of the Directorate of Construction office reported at a meeting of the Advisory Committee on Construction Safety and Health that a full draft of the cranes and derricks directive was being circulated to regional administrators and other directorates. In the meantime, Maddux offers insight into the most-frequently cited portions of the rule, and the areas he believes are most critical for compliance.

- **Failure to perform annual inspections.** “Annual inspections are really, really, critical. There are several different types of inspections that are required—shift, monthly, and annual. The annual inspection is the one that really takes a good hard look at the gear to make sure it’s operating properly and there isn’t wear and tear that can cause a safety concern,” says Maddux.
- **Signal person not qualified and failure to document signal person’s qualifications.**
- **Materials not rigged by a qualified rigger.**
- **Failure to determine the proper working distance from power lines.**
- **Missing operator manuals, load charts, and manufacturer-supplied labels.**



republished this year. Last year's release of B30.20 - Below-the-Hook Lifting Devices included numerous revisions throughout the document, according to Jonathan Parnell, project manager for Industrial Training International, Woodland, Wash. Several important changes have to do with inspection. "Frequent inspections now require operating control markings on lifting magnets as an inspection item, and periodic inspections now require identification of missing or illegible product safety labels," says Parnell. There is also a prohibition against riding a grapple or its load, he notes.

"The first three chapters of B30.21 - Lever Hoists, issued in May 2014, have been revised in their entirety," says Parnell, and cover, respectively, hoist construction and installation, inspection and testing, and how lever-hoist operators will be trained. In addition, Chapter 4 is new, covering maintenance and maintenance training. "Numerous definitions, such as pawl, load, and rated load, have been revised to align with industry nomenclature," he says.

A brand new addition to ASME is P30.1 (Planning for Load Handling Activities). Released earlier this year, it is important for anyone moving loads vertically or horizontally (for details on the P30.1 volume, see *Crane & Rigging Hot Line*, July 2014).

## Hot topics and issues

Outside of specific regulatory action, there are a number of issues that crane and rigging experts are keeping their eye on. The relatively new Canadian Hoisting & Rigging Safety Council is working to harmonize crane regulations across Canada. One of its initiatives is the development of an online database that would aggregate crane operator certification and licensing requirements for all Canadian provinces and territories. The Canadian Council of Directors of Apprenticeship, which regulates the Interprovincial Red Seal credentialing program, identified trades it viewed as a high priority. "Three of the trades were mobile-crane operator, hydraulic mobile-crane operator, and tower-crane operator," says Fraser Cocks, chairman of the executive committee.

"The multi-jurisdictional viewer will help operators determine where they could work with the credentials they have, and what additional requirements they might need if they want to work on a specific project," continues Cocks. It will also include requirements



**New York City's efforts to limit the age of cranes operating in the city is on hold. Research shows a correlation between proper maintenance and longer crane life.**

in the United States and Ireland. A third component is an index, by make and model, of cranes that are currently sold in North America. The organization hopes to launch the database within the next 12 months. Two other issues have to do with crane age limits and wind effects on crane loads.

It was reported at the SC&RA 2014 annual convention that New York City's efforts to limit the age of cranes operating in the city seems to be on hold—for now. In the meantime, independent research shows this type of restriction is unfounded. Jim Wiethorn, P.E., chairman and principal engineer for Haag Engineering's Crane Group reported during the SC&RA meeting that there is no correlation between age of crane and accidents. "Maintenance is the issue, not age," he says. "In fact, a much smaller percentage of accidents occur with cranes that are more than 25 years old than less. There is, however, a correlation between proper maintenance and longer crane life." Haag recently released a study based on more than 700 crane accidents from 1983 to 2013 offering 560,000 different combinations of data.

During the SC&RA meeting, it was also reported that a Construction Safety Association of Ontario study demonstrated similar results. According to Beth O'Quinn, SC&RA vice president, manufacturer groups, including the Association of Equipment Manufacturers and the European Materials Handling Federation (FEM), which met at a March 2014 meeting of the International Crane Stakeholders Assembly, generally agree. In late 2013, FEM released a paper that purports many other factors—condition of crane operation, transport,

erections, lack of maintenance, imperfect welds—affect the lifetime of a tower crane. With proper inspection, many of these factors can be repaired allowing for "good and safe conditions for a long time."

The other issue on the industry radar has to do with wind effects on crane operations, a topic presented by FEM at the stakeholders assembly. That research is related to ground pressure from wind acting on loads. In addition, two presenters during the May 2014 General Assembly Meeting of ACRP explored the subject.

Ron Kohner of Landmark Engineering explained that with the increase in wind-farm construction, there is more attention on this issue today. His theoretical presentation on how wind effects on a crane change as the load weight and elevation change, and as the shape of the object changes, was enhanced by a demonstration of a wind tunnel machine built by Ted Blanton, Sr., president of North American Crane Bureau. Blanton's focus was on how the size, shape, and material of load influences its reaction to wind. He also showed the difference in reactions caused by gusting wind versus steady wind.

According to Kohner, the yet-to-be-released B30.5 volume will briefly address considerations for operating cranes in wind; however, he says the best source for information continues to be the crane manufacturers. He reminds contractors working in windy conditions that this is an issue encompassing more than just the operator's control. "It takes engineering planning, not just a rule of thumb" to fully consider the effect wind has on specific loads and equipment, Kohner believes. ■



# 2014 GENERAL MEETING

The Inn at Opryland, Nashville Tennessee



  
\*Welcome to the  
ACRP 2014  
General Assembly









# ACRP Golf Tournament 2014



**June 30, 2014 (Winston-Salem, N.C.)** Steel Erectors Association of America announces that S&R Enterprises LLC and Cooper Steel have been approved as NCCER Training Units and Authorized Assessment Sites to begin participating in the association's Ironworker Craft Training program, reports the Steel Erectors Association of America. The initiative is intended to expand the availability of ironworker training across the United States.

"You just can't go wrong investing in training," said Duff Zimmerman, Vice President and COO of Cooper Steel, Shelbyville, Tenn.

"The goal of this program is to train and retain a good pool of crafts people and managers," said Mark Yerke, Vice President of Construction, S&R Enterprises, Harrisburg, Pa.

A steel and precast contractor, S&R Enterprises works across the United States and in the Caribbean. Four employees of the company are now certified instructors, performance evaluators, and assessment site coordinators.

Accredited ironworker certification distinguishes that individual as a true craft professional. "These are portfolio-quality credentials that demonstrate to a general contractor the training and skills of your workforce," said Yerke. S&R anticipates that their training center will allow the company and the industry to grow.

S&R's training facilities in Harrisburg and in Florida will be used to train its 100+ employees. The centers will also be open to provide assessments for other SEAA member companies. In addition to classroom, internet-based, and hands-on instruction, S&R is developing a plan to create a localized training tower, capable of providing practical craft and safety training related to bolting, welding, and fall protection, for example.

Cooper Steel, Shelbyville, Tenn., a national-scale fabricator and erector, sees the program as a way to hone the skills of its 25 ironworkers, who range in experience from 6 months to 20 years. "We've had a strong safety program for a long time, but not anything specific for ironworker skills development," said Zimmerman. "We believe this will improve the quality of our workforce, reduce the time to become a skilled ironworker, and it shows our employees that we have a vested interest in them."

As an open-shop employer, the credential is important for another reason. "This is the first time an open shop can demonstrate a credential that is recognized throughout the industry," said Zimmerman.

The Ironworker Craft Training Curriculum for Level 1, Level 2, and Level 3 Ironworkers was developed by NCCER in partnership with SEAA. As an accrediting body, NCCER establishes benchmarks for quality training and assessments. SEAA testing centers will be audited for quality control. Performance verification assessment measures skill obtained during training.

## Three Named to SEAA Board of Directors

**June 30, 2014 (Winston-Salem, N.C.)** The Board of Directors for the Steel Erectors Association of America has named three new individuals to newly vacated positions, reported Steve Burkholder, President.

Dave Brown, District Sales Manager, United Rentals, Charlotte, N.C., was elected as a new member on the Board of Directors for the term 2014-2016. Brown was approved at the March Board of Directors meeting.

Jim Simonson, Executive Vice President and COO, Steel Service, Jackson, Miss., fills an open seat that ends in 2014. He will step into a seat to be vacated by Jim Larson upon his retirement at the end of the year. That term expires in 2016. Simonson has worked as a project manager and in executive leadership positions in the steel industry since the 1970s. In his current position he has P&L responsibility for the fabrication division and direct oversight of project management.

Robert Echols, Vice President, GA West & Company, Chunchula, Ala., replaces retiring member Richard Tucker,

whose term ends in 2016. Echols has 30 years of experience in steel erection, including operating his own company. He possesses diverse skills, including responsibility for managing projects for ThyssenKrupp Steel, the largest of which amounted to 67,000 tons of steel.

Other board members re-confirmed for new terms were Jim Larson, Bob Beckner, Charlie Johnson, Jack Metcalfe, and Ed Valencia. Jim Larson will remain a board member until his retirement later in 2014. "SEAA welcomes the expertise of these professionals to the Board of Directors and looks forward to utilizing their unique skill sets for the advancement of the association," said Burkholder.

### About Steel Erectors Association of America

*Founded in 1972, SEAA is the only national trade association representing the interests of steel erectors, fabricators, contractors, and related service providers. The association promotes safety, education and training programs for steel erector trades, including its Ironworker Craft Training curriculum. The association works in partnership with other steel construction, design, and steel product organizations to protect the interests of those who construct steel structures. Learn more at [www.seaa.net](http://www.seaa.net).*



# Association of Crane & Rigging Professionals

## Membership Application Form

Company Name: \_\_\_\_\_ Website: \_\_\_\_\_

Primary Member Name: \_\_\_\_\_ Title: \_\_\_\_\_

Additional Member Name(s): \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City: \_\_\_\_\_ State / Province: \_\_\_\_\_

Zip or Postal Code: \_\_\_\_\_ Email Address: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

### Membership Category (Select One):

- Professional Member:*  an individual or entity that provides crane, rigging or lift equipment training, consulting, engineering, inspection or related services for hire as its primary revenue source.
- Corporate Member:*  an individual or entity that provides crane, rigging or lift equipment training, consulting, engineering, inspection or related services; not for hire; for fellow employees of a single employer, as an in-house service.
- Associate Member:*  an individual that does not qualify as a professional or corporate member, but has an interest in the crane, rigging and lift equipment industries and the work of the ACRP group.

### Annual Membership Dues

\$495.00 – primary member per calendar year

\$165.00 – each additional member from the same organization

Payment Method (all funds are USD):  Check (payable to “ACRP”) Check # \_\_\_\_\_

Visa  Mastercard  American Express

Credit Card #: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

Name on Card / Signature: \_\_\_\_\_ Date: \_\_\_\_\_

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# How to Kill your training and your business



Yannick Morin, P. Eng., President of KRAMING

Once a year, I undergo a routine checkup with my doctor who never fails to remind me that I should shed several pounds. Well, I love to quote a famous saying from the Crane & Rigging industry: bigger is better. I usually miss the target by a substantial increment. This year should be somewhat different. My doctor retired last year and I was then presumed stuck with a new one, early thirties, well-educated and she is so pretty. This one really insists on focusing on my weight.

Because I weigh 125kg and I am 1.80m tall (Why in metric? Make sure to read point no. 2 below), last week I signed up for the 11th time (I stopped counting) at the gym. My trainer, a young energetic lady handed me the famous paper of shame: namely, a flyer with five reasons you need to lose weight. Trust me, the training has been terrible as usual but what a great topic for the *MASTERLINK* Magazine.

## No-1 - Focusing On People

Getting one client is easy enough, getting several is more difficult. However, getting repeat business from the client base is where success really lies. This is suggesting that to be at the top, a collection of pertinent attributes are required. One of them is, do not brag about a great deal you might have made previously. Rather, aim for the next one. Worse is a trainer going over the training material, paying low attention to attendees, not sharing past experiences nor getting their needs satisfied.

Sometimes, it happens that a training session breaks up into two subset groups as if by nature of things, which for our purpose we may choose to call the HARE group and the TURTLE group. You may realize some of the HARE group have previously been trained or are just great at it. We then come to the Pareto Principle, also known as the 80/20 rule. 20% of your attendees will go beyond what you were expecting. For the 80%, 60% of those will be on target but sadly, 20% are likely to fail the training. The HARE group could become the cause for the overall training to fail, being too quick providing all the answers whether they are right or wrong. Further, they have no methodologies, no paper trail, nor any work structure. Their egos are so huge, expressing the insatiable need to be leaders of the pack, regardless of whether they are right or wrong.

Prior to a training session, you must get well acquainted with the background of all the attendees. Are they crane operators, riggers or field operators? If it turns out they are Professional Engineers, will you be able to train them or only survive without being torn apart and eaten alive?

The beauty about training is that you realize soon enough that there are a lot of rough diamonds to be polished in

the TURTLE group. They attend the training, eager to learn, ask questions and of course get answers. They have needs, specific to their own reality to be fulfilled. As trainer, you are the Captain of that ship. You cannot afford to leave anyone behind. Should you cut corners, letting members of one of those groups down, make sure you read the conclusion of the article before filing away this *MASTERLINK* edition on your shelf.

## No-2 – Putting In The Time

Another significant killer attitude is responding to a question given by “because” or even worse “I don’t know”, without committing to follow up with the required answer within a reasonable timeframe, agreed to by both trainer and attendees. Flowing from experience and wisdom, you realize soon enough there are two types of trainers: Those who are passionate and those with respect to a retirement plan. A good trainer knows how to generate the proper challenges giving rise to the right answers whenever questions are raised, turning the whole session into a pleasant experience.

Surely, you are well aware; that in this fast moving world there is a keyword we must cope with on a daily basis. That word is Globalization. What does it mean for a trainer specialized in Crane & Rigging? Recall the introduction to this article? What is 125kg and 1.80m in the Imperial/US System? Are you comfortable going back and forth between the metric and imperial systems? Do you know how many pounds are in 18 newtons? Are your answers supported by various authoritative references and jurisdictions? As a specialized trainer in Crane & Rigging, you have to master the required algebra, geometry, and trigonometry hands down.

In North America, the three going languages are English, French and Spanish. French is basically concentrated along the St-Lawrence Valley. Spanish, inclusive of Mexico is scattered in the southern part of the USA. Trainers speaking one or both of the other languages may have the edge addressing the market.

It happened before, where I coached clients’ trainers, whom had been hard pressed by attendees they had previously trained. It turned out they were literally demolished by such attendees saying the trainer didn’t know his business given such attendees had the right information proven by experience in the field. The conclusion is that you should be ready to face such situations by being truly prepared with the needed information. You, as trainer, are expected to know the

whole thing and share the information. That might even imply the changing technology whenever it applies. You must be committed to stay on top of your trade. A great idea is to review the standards of the series B30 & P30 of ASME and different OSHA regulations, in order to be really up on the subject matter.

### **No-3 – Not Branding Yourself**

Have you ever been on a golf course wearing white sneakers and jeans? If so, hopefully not with clients! Can you recall meeting a sales rep dressed with pointy polished brown shoes, trying to avoid mud puddles on the worksite? How about one that ripped his suit going through a roof hatch?

One must dress according to circumstances and also make others feel comfortable around you. Branding is making a statement: it is a significant component of success stories. Half my closet is filled with orange colored shirts, the color best representing our company. The other half is in blue. Whenever I, or my trainers go out training, I don't want attendees to think that we wear the same shirt every day. During a training session or attending a convention, mishaps can happen, like spilling something, on your shirt. Seeing the same person the next day with yesterday's stain would shed a lot of negative imagery on the branding of the company. Remember the concept that perception is reality.

### **No-4 – Not Selling Yourself**

Selling yourself or selling your company is the core of this business. If you don't sell yourself you don't train people. If you don't train anyone, find yourself another day job. Clients are investing a lot of money in training. They're not buying your training they are buying your solutions. If you don't have solutions for them, go out looking for another job as fast as you can. (Review points 1, 2, & 3.) Basically, selling shouldn't be regarded as pointing a negative finger at others, because if so, you've got another three fingers pointing towards you. Assuming you've got the expertise of the trade, then selling has to be understood to be the bread and butter of your business.

### **No-5 – Not Following Through With Your Ideas**

Whenever attendees ask questions, don't answer without first doing some thinking. Try to assess what gave rise to the questions being asked in the first place. There might be good opportunities right there. If an attendee keeps coming back with questions regarding regulations during training, maybe you didn't explain correctly, while all he wants is to confirm what he has in mind. It may be that your lack of knowledge regarding regulations needs some improvement or it could be the client needs your expertise to overcome weaknesses in lifting operations. For example, if one of your attendees is the actual Health & Safety Officer, maybe he won't be very concerned about what you are teaching at that particular moment. You need to detect the issues involved, that he's concerned with and address his needs. If you are up to the task, you'll



be able to sell other trainings along the line of "HOW TO DO A...", Job Hazard Analysis (JHA), Job Safety Analysis (JSA), or an Area Hazard Analysis (AHA), and so on.

Before heading in that direction, make sure that your employer agrees, to be covered by your insurance company and be in compliance with other regulations and statute laws, regulating the status and responsibilities of Professional Engineers and the like. The line can be very thin in some cases. You might have gone farther than you should. If you have any concern regarding regulations and statute laws, please contact your lawyer.

### **Concluding**

Sound knowledge of the trade, means knowing there are four sub-categories involved, namely: Operators; Human Resources; Technical Professionals; and Management.

Regarding operators, it is conceivable they might know the operation of Load Handling Equipment (LHE) and rigging more than you do, but they don't have the authority to approve purchase orders (P/O). Also, be aware that they could be called upon for provide some feedback.

Human resources on the other hand, have a budget appropriation allocated to training to manage. They focus on providing solutions to sometimes nagging issues to be addressed. In this respect, you must represent the answer and therefore be the exact provider to resolve their problems. Never assume HR doesn't know much about Crane & Rigging. That assumption can be seriously wrong, because they may be quite able to assess the difference between what you may have to offer versus the competition. Further, HR may have the power to authorize a P/O or pre-authorize it.

Technical Professionals, like professional engineers, architects, or technicians are to say the least an impressive category. You don't want to mess around with that category. Should you feel up to the challenge, I recommend you tie down your hard hat with DUCT

*Continued on page 30*

# Working Together at the General Assembly



## The new Board of Directors



(from left to right): Todd Stites, Rick Knoche, Michael Barrett, Ted Blanton, Sr., Jeff Roach, Mike Smith

# 9 Questions You Must Ask When Selecting a Crane & Rigging Training Provider

Posted by Zack Parnell, VP/COO, ITI



For an organizational manager overseeing a Training, Safety, or Plant & Equipment Department, contracting a company to conduct training for your people using crane and rigging equipment can be a difficult task. Crane and rigging training skills are just that - skills, tactile skills. The tasks you are asking your personnel who conduct lifting activities to do are vital to your production, maintenance, and bottom line. So, what questions should you ask to determine which vendor to join arms with?

## 1. How much does training really cost my company?

This is not a trick question. Nor should the answer be - “The fees paid to the training company.” These fees typically represent only about 7-10% of the actual cost of the training. The bulk of the cost (nearly 84%) typically lies in Lost Production and Lost Wages (check out What is the True Cost of Training?).

So by asking this question, you will learn the opportunity cost of lost production and the wages paid during the “training time” for each person you employ. This number should prove to you that education should always be classified as an investment in your personnel’s future. It also might deter you from strictly selecting the “low bid” when you fully understand your true cost of training.



## 2. Regarding the current initiative, is my organization more concerned about building the skills and competency of our people, or “checking off the training box” (compliance)?

Compliance-based training is a reality. Organizations must comply with the law and in some instances the law calls for a certification, qualification, and/or training - even when the personnel to be trained are fully-competent. On the other hand, skills-building training has a different objective and can achieve that objective, or not.

Like all services, education companies should not be considered as equals - apples to apples. Would you learn more by taking Philosophy 101 from Aristotle or a retired car mechanic? I’m sure that’s debatable to some, but the point is,

once you know if your organization’s objective is to build skills or comply with the law, then you will have much better direction in how to evaluate training providers and the amount of money you are willing to invest in the education.

## 3. Do I need local, national, continental, or worldwide support from the vendor?

Are you making a purchase solely for a local plant or the whole division, company nationwide or worldwide? Do you see this training initiative growing in the future throughout your organization geographically? The point is, you need to know if the vendor can support your organization where you need it, or where you will need it in the future. You can learn this by finding the answers to these questions:

- How many instructors are employed by the company?
- What are the geographical locations of the instructors?
- Where are the training centers located?
- Is the curriculum in my required languages and numbering systems?
- Does the company have e-learning curriculum?
- Understanding if the company can support both your current and future requirements is very important.

## 4. Are the instructors and subject matter experts full-time employees or independent contractors?

Would you rather get on a cross-country flight with a veteran pilot who flies every day or a retired pilot who flies once a month? Contract labor is not inherently bad when it comes to education, however, there is a quality difference between instructors who are sharpened each week in instruction and “full-time industry players” versus those who teach just once in a while.

## 5. How is the training formatted?

- Are the classroom sessions anchored with a PowerPoint presentation or an interactive approach? In other words, will my personnel experience be “death by PowerPoint” or be engaged with interactive curriculum?
- Are there practical hands-on learning sessions? If so, what portion of the course is hands-on and practical?
- How many days is the course?
- Is written and practical assessment of employees conducted?

## 6. What is my training strategy and required “mix”?

This is important to know as there are many ways to receive training to best fit your organization’s size, locations, availability and other factors. A well-rounded training provider will be able to support you with training:

- At your facility(s), on your equipment, and addressing your specific lifting challenges.

*Continued on page 30*



# RISK and ROLES

The potential risk involved in a crane lift is mitigated when each person involved knows his role and responsibilities.

Photo courtesy of North American Crane Bureau.

## Clearly-defined lift team duties are driven by a safety-conscious crane industry

**A**t the May ACRP General Assembly in Nashville, emphasis was placed on the roles and responsibilities of each person involved in planning a lift. A clear plan, coupled with clearly defined individual expectations, mitigates potential risk involved in the lift. It also means no one person is left to make a decision and shoulder the blame if something goes wrong.

“Once upon a time, there was a tendency for everyone to point to the operator as the person responsible for everything involved in the lift. In 2007, the ASME B30.5 for the first time ever included a section on roles and responsibilities of individuals working around a crane,” explains Joel Oliva, NCCCO manager for program development and administration. “When you talk about risk mitigation, [think about] a loop. Every person involved—the operator, signalperson, rigger, equipment inspector, lift director, any individual who plays a role in ensuring safe operation of equipment—knows what they’re doing, and that knowledge and skill needs to be verified.”

In fact, as the list of people who have a hand in making a successful lift grows, so does that circle. Mike Parnell of Industrial Training

International, Woodland, Wash., says the ultimate goal is to delegate the responsibilities along with the authority to a broader based load handling team. In the last five to eight years, roles and responsibilities have been and continue to be created, defined, and refined, says Parnell, ITI president, chair of Crane Institute Certification’s Lift Director committee, and ASME’s P30 committee.

“As we continue to define load-handling roles in the various ASME equipment-related volumes, we’ll see the workforce adapt to the language and methods of operation. Having already established the initial five (lift director, site supervisor, crane owner, crane user, and crane operator) we’ll likely be adding better role descriptions for signal persons, riggers, and even maintenance and repair personnel. If you read some of Don Dickie’s books and Howard Shapiro’s ‘Cranes & Derricks,’ you can find their recommendations for our industry to be more prescriptive in defining roles and responsibilities, which ASME and others have embraced to the fullest,” says Parnell.

He said as updated B30 volumes roll out, the industry will have a clearer picture of what the expectations are for the crew

members in these roles. Based on qualities such as their level of training, experience, competence, skills, and knowledge, all will have better-defined roles or task expectations. “In certain machine types such as articulating cranes, a person will likely wear more than one hat,” he says. “By better defining the roles and responsibilities, we are helping employers identify those in their organization who can competently serve or those who might be easily trained to perform designated tasks,” adds Parnell.

They’ve also solidified somewhat. Ted Blanton Sr. of North American Crane Bureau (NACB), Lake Mary, Fla., attributes the new emphasis on rules and responsibilities to OSHA and the Cranes & Derricks rule. He says the 1926 rule rewrote roles and responsibilities. “Some responsibilities under OSHA were not there before,” says Blanton, NACB president and CEO. He adds that the B30.5 volume “is a voluntary standard in the 2007 version, but OSHA’s not voluntary anymore. OSHA required someone to be in charge, and because of the new requirements, people are falling back on responsibilities. Because of litigation, it almost becomes mandatory.”



Photo courtesy of North American Crane Bureau.

**A scorecard approach to the load-handling activity considerations takes the stress off of the lift director, as he follows a pre-prescribed plan of action.**

**Scoring points**

Blanton says one of the best lift-planning resources available today is the new ASME P30 volume, “Planning for Load Handling Activities.” The 20-page document hit the streets in March. “One of the new tools available to crane owners now is the P30.1 standard,” says Blanton, who served on the P30 committee. “It’s a good tool to use as well as OSHA’s 1926.”

The volume breaks down the roles of every person involved in the lift, defines his or her responsibilities, clearly distinguishes between standard and critical lifts, and includes an example of a lift plan that anyone involved in lift planning can follow. From a risk management perspective, the P30.1 volume takes the weight off a specific member by helping everyone involved in planning the lift follow a prescribed format.

“Through that document we’re saying the organization should determine where its comfort level for risk is as a group,” rather than leaving it up to a single person in the lifting circle, explains Parnell. “A management team which may have nothing to do with crane and rigging work will take input from crane and rigging people as to what’s doable or not.” As part of this team, accountants will be called on to determine what equipment can be bought and rented; the insurance folks will determine the level of insurability for the activity. Between them, says Parnell, the hope is there’ll be a pre-analyzed risk level for different lifts.

Armed with that information, the management team will create a “selection menu,” which indicates “lifts in these categories will

be okay to regard as standard. Other categories will be regarded as critical—and they can be soft- or hard-critical—but will be in that family,” he continues. Those categories will be influenced by eight consideration points in P30.1, such as potential risk hazard, proximity to hazards, capacity, work near load-handling equipment, or rigging. Those considerations will drive the management team to create a scorecard, assigning points based on comfort level for risk. “By the time they get through assigning points, the management team will look at the scorecard and say, ‘anytime we add up to five or more, we write a critical lift plan,’” envisions Parnell.

**P30.1 Load Handling Activity Considerations**

**ASME volume P30.1, Section 2.1** states that at a minimum, the load-handling category should be determined based on a review of the following considerations:

- a. Potential Hazards to Person**
- b. Hazards in Proximity to the Work Area**
- c. Complexity of Load-Handling Activity**
- d. Adverse Impact from Environmental Conditions**
- e. Load-Handling Equipment and Rigging Capacity and/or Performance**
- f. Adverse Commercial Impact**
- g. Site Requirements Unique to the Load-Handling Activity**
- h. Repetitive Lifts**

The scorecard concept was floated to a large company a couple of years ago and a round-robin discussion followed. Company representatives concluded anyone can analyze a lift using a scorecard and should end up at the same place, and there should be no question about whether it falls into standard and critical categories, Parnell continues. “This method can and does work. From a risk-management standpoint, if the organization will structure it right, it will invite the lawyers, insurance guys, and accountants into initial discussions and have them participate in the measuring process,” he says. The result is a prescribed scorecard that all others involved in the lift can follow and, in turn, mitigate any potential risk.

**Driving the bus**

The lift director is one of the roles now defined by some B30 volumes. Oliva says in the early to mid-2000s, the industry was already discussing the need to train and certify supervisors, but back then the term “Lift Director” was not as prevalent in the vernacular of the crane industry. “There was ‘crane operator’ and ‘supervisor/foreman,’” says Oliva. But in 2007 when B30.5 included the roles and responsibilities of five individuals working around cranes, one of the five was the lift director. “Now this person has a title,” says Oliva. “It appears in OSHA’s Cranes and Derricks rule three times. Although there is no specific definition or requirement in the OSHA rule of what a lift director needs, it’s recognized indirectly as a role.”

According to Crane Institute Certification (CIC), the title of “Lift Director” is listed in ASME B30.3 – Tower Cranes; B30.29 – Self-Erecting Tower Cranes; B30.5 – Mobile and Locomotive Cranes; and B30.23 – Personnel Lifting Systems. “In addition, Lift Director is heavily integrated into P30.1,” says Parnell. “A number of the documents do an exceptional job of describing the roles and responsibilities associated with a lift director.”

Construction users in power generation, oil and gas, mining, heavy haul and transport, and other environments where critical lifts are a common occurrence are increasingly requesting qualified lift directors, according to CIC. As a result, CIC launched a Lift Director Certification program in February. Coinciding with a recent alliance between CIC and the Institute for Safety and Health Management (ISHM), the program “is distinctive from CIC’s other programs in that lift directors are traditionally management or

supervisory-level personnel. Many of these individuals may also have broader safety and health responsibilities, additionally making them a candidate for ISHM's certifications," says Debbie Dickinson, CIC executive director, when announcing the launch.

The impetus behind the certification program is safety. "Safety of the industry is at the heart of all CIC certifications," she says. "In addition to placing the load(s), lift directors are tasked with correctly calculating personnel, equipment, budgets, timing, skill levels, and the mechanics of the actual lift(s)."

Response to the program, about three months old at press time, has been good, says Dickinson. "The launch is in Phase One, but CIC is pleased with the initial response," she says. "We are proud to collaborate with ISHM as their members earn their lift director certifications."

Last fall, NCCCO launched a lift director certification program of its own. "The program was driven by the industry experts represented on the NCCCO Commission, who said this was an important next step for NCCCO," says Oliva. "We had completed the operator and signal person/rigger certification programs, and we'd also launched a crane inspector certification program. A program for lift directors would further help to 'close the loop on crane safety' it was thought," he adds.

The NCCCO Lift Director program has had a modest start, and Oliva attributes that to the fact that it's a newer concept for certification. "From our perspective, the industry is working so hard to comply with operator certification and rigger/signalperson qualification pieces of the OSHA crane rule that the lift director certification program will take a little time to take root."

But there is a lot of promise for the program, Oliva believes, especially from conversations NCCCO has had with the



The lift director's role and responsibilities are in the spotlight, as both NCCCO and CIC have created Lift Director Certification programs.

petrochemical industry and other safety-driven industry sectors. "Once you get into a conversation, it's startling how many people don't know what a lift director is or that the role exists in B30.5. A lot of times an employer will just assign a guy who's a good supervisor but doesn't necessarily have technical expertise, so he may not be the best person for the job. Certification will be one of ways to ensure an individual has the requisite knowledge and skill to do the job safely," he says.

Certification is way of elevating one's stature among the lifting community as it demonstrates they have passed an exam process administered by a third party. Certification also helps employers validate a lift director's knowledge level about overseeing lifting operations so that they can be done safely, believes William "Hank" Dutton, of Travelers. Chair of NCCCO's Lift Director certification committee, and a 2013 *Crane & Rigging Hot Line* Top Trainer (See article page 94), Dutton says every time a load

is lifted into the air, a lift director is on the jobsite, whether he's labeled as such or not. "Somebody had to deem the load acceptable to go into the air," he says.

In the P30.1 volume, the lift director is "responsible for verifying the category of the load handling activity and reviewing and implementing the lift plan," says Dutton, who believes a certified lift director can make better decisions on the jobsite to alleviate potential risk. "In trying to reduce risk, having an educated lift director on site can help to mitigate those problems that can occur during a lifting process that may not be seen by someone who's not educated," he says.

Blanton says without a designated lift director, many times companies are just shooting from the hip. "That's not to say they're not qualified, but I wouldn't call them a lift director. Not having a designated lift director on the jobsite opens the potential to have a crane accident because nobody there is responsible" for the lift, he adds.

Parnell believes if organizations will use the P30.1 document and the scorecard method, the lift director will act upon the prescribed plan created by many more people before him. "He's simply the wheelman," says Parnell, "so, if there is a real potential for a wreck by knocking out an ammonia line that could result in the need to evacuate 30,000 people, what to do is on the scorecard."

The idea, says Parnell, is to not put undue stress on the lift director. "He's supposed to have a skill set and competency, but he's not really charged with the ultimate responsibility of identifying the fine line between a standard and a critical lift," he adds. ■

### Plan Categories

#### Standard Lift Plan

According to P30.1, a standard lift plan is a proposed load-handling activity plan in which considerations have been evaluated, and it has been determined that the load-handling activity can be accomplished through standard procedures, and that the load-handling activity personnel can execute using common methods, materials, and equipment.

#### Critical Lift Plan

According to P30.1, a standard lift plan is a proposed load-handling activity plan in which considerations have been evaluated, and it has been determined that the load-handling activity exceeds standard lift plan criteria and requires additional planning, procedures, or methods to mitigate the greater risk.

## Regulations Committee

# Occupational Safety and Health Administration (OSHA) Question and Answer on 1926.1401

A question regarding the determination of whether an employee may be considered a “qualified rigger” under 29 CFR 1926 Subpart CC (Cranes and Derricks in Construction) was asked.

We have paraphrased your question as follows:

**Question:** Can a labor-management joint apprenticeship training program that is a «qualified evaluator (third party)» for purposes of ensuring that signal persons meet qualification requirements also provide training regarding «qualified rigger» status?

**Answer:** Yes, but the employer is responsible for ensuring that any employee who rigs materials is a qualified rigger. The employer may consider determinations made by a third party, such as completion of a joint labor management apprenticeship training program, in assessing whether an employee is in fact a «qualified rigger.» While such programs generally provide high-quality classroom and hands-on instruction, the employer must ensure that an employee assigned to rig a load is a qualified rigger with respect to that specific lift.

29 CFR 1926.1401 defines a “qualified rigger” as:

[A] rigger who meets the criteria for a qualified person.

29 CFR 1926.1401 defines a “qualified person” as:

[A] person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, successfully demonstrated the ability to solve/ resolve problems relating to the subject matter, the work, or the project.

The level of experience, knowledge, and skill needed to perform a rigging job safely depends on the type of rigging and worksite conditions. The employer must ensure that the rigger has the ability to recognize and resolve any issues relating to the specific rigging work to be performed.

The cranes standard does not require or refer to third party evaluators with respect to qualified riggers. The standard’s provisions regarding riggers differ in this respect from those regarding signal persons, to which your letter refers, under which documentation from a “qualified evaluator (third party)” is an alternative means of compliance. As noted, the employer may consider determinations made by a third party such as a joint apprenticeship program, but it retains responsibility for ensuring that any employee assigned to rig a load is qualified.

This interpretation is consistent with OSHA’s discussion of qualified riggers in a letter to William K. Irwin, Jr., dated January 9, 2012, available here:

[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=INTERPRETATIONS&p\\_id=28268](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=28268).

Thank you for your interest in occupational safety and health. We hope you find this information helpful. OSHA’s requirements are set by statute, standards, and regulations. Our letters of interpretation do not create new or additional requirements but rather explain these requirements and how they apply to particular circumstances. This letter constitutes OSHA’s interpretation of the requirements discussed. From time to time, letters are affected when the Agency updates a standard, a legal decision impacts a standard, or changes in technology affect the interpretation. To assure that you are using the correct information and guidance, please consult OSHA’s website at <http://www.osha.gov>. If you have further questions, please feel free to contact the Directorate of Construction at (202) 693-2020.



## How to Kill your training and your business

Continued from page 23

TAPE good and solid. Unless, you're sharp, to the point and make informative knowledge contributions, they'll tend to bleed you dry. They may take you to a dark zone, a place you were not even aware existed, such as the Archimedes Theorem, the Thales Theorem, or even more terrifying, the MOHR's Circle. Basically, your status as trainer must commend respect on the basis of your knowledge, experience, and ability to communicate effectively. If you feel you need to know more about those theorems, check GOOGLE and/or WIKIPEDIA. As a last but not trivial item, keep in mind they have the authority to approve work-orders and PO's.

Regarding managers, it's easy to appreciate they carry the absolute power to issue work-orders and PO's. Everything possible must be done to insure the training meets their requirements or this will be the last time you see them. They have every right to expect quality training and delivery. You are an experienced

professional bent on returning value for money and managers are entitled to receive just that.

In the 1970s & 80s, a good trainer/leader virtually always had the right answers. Conversely, in the 2010s a great trainer/leader raises the right questions. By asking questions, training becomes an interactive workshop and this is the trend nowadays, yielding much better results. From a business perspective, through a process of questions and interactive discussion, you are likely to uncover there are many gaps to be addressed and this is where you come in as the required expert and consultant.

Using this article as background planning for the next training session could represent a useful tool as reference. Avoiding unnecessary pitfalls is key to maintain credibility. Unless you truly commit yourself to be at the top of your field of expertise, someone else will and you won't even see it coming.

## 9 Questions You Must Ask When Selecting a Crane & Rigging Training Provider

Continued from page 25

- At off-site, fully-outfitted training centers that are designed for excellent instruction, both practical and hands-on (mobile cranes, overhead cranes, horizontal rigging systems, and equipment).
- Via on-demand eLearning.
- Via live, instructor-led webcasts.
- When you determine how you need support, you can then evaluate vendors based on your criterion.

### 7. What experience does the instructor have?

Instructor-led education is as much about the instructor as it is about the curriculum and instructional design. An instructor with 30 years' experience as a boilermaker, teaching your personnel horizontal rigging systems and load drifting, would definitely be of more benefit than a 10-year health and safety officer. Request instructor resumes/experience information.

### 8. What educational support staff does the provider offer?

Finding the answers to the following questions will help you determine if the provider you are evaluating is a solid, long-term partner, or not:

- Do I have a dedicated Account Executive to work with who can answer my questions and assist me in selecting the most cost-effective and beneficial training for my personnel?

- How does your team maintain my personnel's education records?
- Does your team have knowledge of the current regulations and standards that affect my organization?
- Are your curriculum and student materials based on the current regulations and standards?
- Who is the technical director at your company?
- Who oversees your curriculum, instructors and instructional design?

### 9. In the past, which organizations have selected the training provider?

- Have other organizations in my industry selected this company as a training provider?
- Which industries have utilized this company?
- Which prestigious organizations, with solid safety and training records, have gone through this buying process and selected this vendor?

These questions will assist you in the selection process when it may appear at first glance that all vendors are the same. By finding the solutions, you'll quickly find that the vendors' discrepancies far outweigh their similarities.

## Heavy Transport and Rigging Engineering Texts Now Available

*Continued from page 3*

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Mr. van Daal started his heavy lift and transport career in 1993 with Mammoet Transport BV in the Netherlands. He later went to spend time with Italian heavy transport organization Fagioli PSC. Over his 20+ years in the industry, Mr. van Daal has executed heavy transport and lift projects in over 50 countries and on every continent. Mr. van Daal created The Works International with two main objectives in mind. First, to offer heavy transport and lift training that covers every aspect associated with the execution of any heavy lift project; and second, to share and spread knowledge to heavy transport and lift service providers, clients, insurance companies, manufacturers, site supervisors and operational personnel.

*The Art of Heavy Transport* is available through the ITI Bookstore. Learn more at [http://store.iti.com/info/About\\_Us](http://store.iti.com/info/About_Us) or call 1-888-567-8472.

## Tips for Safe Outrigger Pad or Mat Set Up

*Continued from page 6*

are compromised for any reason or you are unsure, call the manufacturer of the pad or mat for more information. If you are using additional cribbing, dunnage or other supporting materials in conjunction with manufactured outrigger pads or crane mats, always inspect those materials for cracking, warping, rotting or other signs of possible failure. If the additional materials show signs of compromised integrity, do not use them.

Always refer to manufacturer guidelines for proper use, safe operating temperature ranges, and other particulars. Thermoplastic-constructed SafetyTech® outrigger pads from DICA, for example, should be flipped over every other set up to distribute any potential surface wear and maximize shape recovery. However side alternation is not intended with FiberMax products, which are constructed of fiber reinforced polymers.



*Loaded and ready for transport, this photo shows the contrast between non-engineered wood pads (bottom) and engineered products like Safety Tech® outrigger pads. Wood is susceptible to cracking, warping, rotting and breaking. Always inspect pads and mats for damage before using.*

### Handling and stowing

When stowing outrigger pads or mats on the crane prior to transit, always secure them properly. To handle outrigger pads, use your legs, not your back. Round DICA Safety Tech® pads can be rolled into position. Do so by positioning one person on each side of the pad to provide stabilizing force from opposing sides. Carefully roll the pad in unison to the intended location. To safely place pads that are standing on edge into position, two methods may be used.

**Dropping:** Verify all personnel not involved in lowering the outrigger pad are a safe distance away from where the pad will be placed. Have the personnel involved in the lowering stand on the side away from where it will be located. Once the area where the pad will be positioned is clear, allow the pad to fall away and drop into place.

**Lowering:** Verify all personnel not involved in lowering the outrigger pad are a safe distance away from where the pad will be placed. In unison, slowly lower the pad until the pad lies flat.

Ultimately, no set of training guidelines can cover all possible scenarios for proper outrigger pad or mat use. When in doubt slow down, think it through, and use common sense.

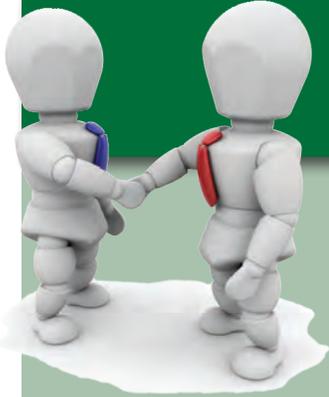
#### About DICA Outrigger Pads

DICA, Guthrie Center, Iowa, has been specializing in building a better outrigger pad since 1988. By creating engineered solutions for improving equipment stability and ergonomic safety, DICA has led the way in product innovation that outperforms wood and steel alternatives.

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