

ACT

The magazine for the crane, lifting and transport industry

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A KHL Group Publication

Hoss hauling

These
projects
are not for
the faint
of heart

INTERVIEW

Patrick Stafford
Stafford Crane Group

RIGGING MATTERS

Ground stabilization

TECHNOLOGY REPORT

Wire rope



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Newsy times

It's been a really newsy time in our industry, which is a good thing for us editor types. Every morning it seems I open my email to discover a new merger or acquisition, significant personnel change and new crane and equipment launches. It's good news that there is so much news to cover.

A headline that caught my eye last month was that a crane company based in Arizona purchased a Portugal-based tower crane manufacturer. Now that doesn't happen every day, which is why I wanted to interview Patrick Stafford. While we didn't get to meet in person, our Teams call was enough for me to realize that this man is a shrewd entrepreneur with a heart of gold. Stafford discusses how he transitioned from being a helicopter test pilot to the crane industry. It's an interesting read.

Supply chain issues are affecting the crane industry in a number of ways, most notably higher new and used crane prices. Commercial Credit Group's Greg Johnson parses it all in our Industry Focus Finance, discussing effects of the global supply chain disruptions and their impact on crane availability and prices, equipment values and increased transportation costs.

The commercial real estate market is also dealing with uncertainties caused by the pandemic. Work-at-home initiatives have created a glut of office space. Fortunately, the fall in office space demand hasn't weakened the tower crane market. High-rise residential projects, entertainment developments and other construction have kept tower cranes in the air and working. I talked to several tower crane rental companies about the market and their expectations. Things are more optimistic than you may think.

This issue is chock full of news and views. Topics include wire rope replacement, specialized transportation and ground stabilization. Our Legendary article focuses on a true industry icon, Mike Parnell.

And finally, I have some exciting news to share. KHL and the SC&RA are partnering on a new project, a coffee table book, commemorating the 75th anniversary of the SC&RA. I'll tell you more about it later, but it's going to be "legendary."

Also, we are now surveying for our TRANSPORT50 top list and the 2022 Sourcebook. Be on the lookout for these survey forms.

In the meantime, it's time for you to reach out. Let us know what's going on with you, your company, your machines, your jobs and your people.

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ACT 100

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Link-Belt RTs

Your Safety Director's Best Ally

PULSE 2.0

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- Free swing modes
- Simple interface with large touchscreen
- Wi-Fi enabled to update and service remotely

V-CALC

- Calculate outrigger positioning
- Real-time 360° charts
- Live preview mode
- Incorporated swing arrest

FLAT DECK

- Anti-skid paint on allowable walking surfaces
- No trip points
- Large walking area

SMARTFLY

- Guided, sequential, fail-safe fly erection
- Control fly assist and boom hoist cylinder from the ground
- One person operation
- Minimal ladder climbs
- Swing around at 0°
- Pivot-point & boom head speed screws

SITE VISION

- Heated back-up, winch and right-side cameras with night vision
- LED working lights
- Outrigger lights
- 20 degree tilting cab

MOVE ABILITY

- No helper crane needed to install counterweight
- Transport weight of 95,000 lbs

EASY ACCESS

- 6 Points of Access
- Large grab handles
- Deep, sturdy steps and ladders
- Working platform with guardrails

We work hard to make your job easy.



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Link-Belt Cranes

Link-Belt

C R A N E S

Lexington, Kentucky, USA | www.linkbelt.com



To avoid potential power outages, Omega Morgan crews transported a huge transformer quickly and safely. See our Project Digest Specialized Transportation on page 35.



ISSN 1555-1830



Circulation is audited by BPA Worldwide

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American Cranes & Transport is published 12 times a year by KHL Group Americas LLC, 3726 East Ember Glow Way, Phoenix, AZ 85050. This issue is mailed on September 3, 2021. SUBSCRIPTIONS: Annual subscription rate is \$345. Free subscriptions are given on a controlled circulation basis to readers who fully complete a Reader Subscription Form and qualify under our terms of control. The publisher reserves the right to refuse subscription to non-qualified readers.



Official domestic magazine of the SC&RA



Produced in cooperation with the NCCCO



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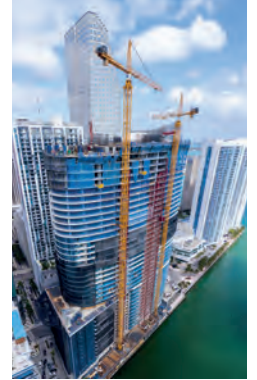
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■ Trail King Industries announced the addition of Wyoming-based Frost Machines and Illinois-based US Equipment Sales & Rentals to its dealer network.

■ The National Safety Council (NSC) and Industrial Training International (ITI) are working together to bring their hazard awareness virtual reality experience and certification to the construction industry. Applicants who successfully complete the exam with a passing score will be awarded the Hazard Awareness Certification, which is a five-year credential.



■ Ritchie Bros. will acquire SmartEquip for \$175 million. SmartEquip provides an online portal for rental companies and other fleet owners to procure parts from 600 OEMs in Europe, North America and Asia.

Terex unveils TRT 35 RT

Terex Cranes unveiled the new TRT 35 rough terrain crane at GIS in October in Piacenza, Italy. The new model will expand the Terex TRT rough terrain offering, following the launch of the TRT 80 and the TRT 90 earlier this year.

"The addition of the TRT 35 will enhance an already significant product range offered by Terex Rough Terrain Cranes, meeting both market and customers' needs for a flexible yet durable off-road crane," said Guillaume Bertrand, RT sales manager,

The U.S. version of the TRT 35 is available to order starting in early 2022.

Terex Cranes." As well as the intuitive TEOS control system, the TRT cranes have compact dimensions, proportional telescopic boom, full power and come equipped for T-Link telematics platform allowing geo localization and remote diagnostics."

The TRT 35 is a 39-ton RT with a synchronized,

four-section boom. With a machine width of only 8.2 feet (2.5 meters), the crane can be easily maneuvered, even on congested jobsites with narrow or confined areas. Maneuverability is enhanced with four steering options.

The TRT 35 is equipped with a Cummins 4-cylinder engine. The TRT 35 is compatible with Cummins QSB4.5 Stage IIIA - Tier 3, Cummins QSB4.5 Stage 5 - Tier 4F to meet the different regional needs.



Attendees were treated to product demonstrations and networking events.



CraneFest 2021

Link-Belt Cranes held its CraneFest 2021 the last week of September amid spectacular weather and a variety of crane launches, product demonstrations and networking events. Link-Belt hosted close to 700 dealer personnel and customers at four different sessions spread out over five days. For many attendees, it was the first time to see four new cranes the company has launched over the past five months, including the 85IRT rough terrain crane, the 120IHT truck crane, the TCC-550 telescopic crawler crane and the 65IHT truck crane.

New 44-ton Tadano all-terrain

The AC 2.040-1 is a new 44-ton capacity all-terrain crane from Tadano. Preliminary information indicates a main boom of 115.5 feet and a maximum system length of 145 feet.

It is the first new crane jointly developed by Tadano and Demag engineers since the acquisition of the latter by the former. Sister publication *International Cranes & Specialized Transport* had a preview during a customer event at the Zweibrücken plant in Germany in early October. An official launch will be held in December and deliveries will start in 2022.

At the preview the manufacturer said the new two

axle all-terrain combines the best know-how from Demag and Tadano teams and shows what the company called the "joint DNA" of the new all-terrain crane family. This will include the same cabins, the same control system (IC-1 Plus) and other technologies, including the Surround View system and the IC-1 remote telematics system.

Tadano's new 44-ton capacity AC 2.040-1 has a 115.5-foot boom.





Transcope Services acquired

US Service Group (USSG) has acquired Transcope Services of Randolph, NJ. Started in 1964, Transcope is a fully licensed ICC carrier specializing in transportation, warehousing, rigging and logistics services, primarily to manufacturers and installers of elevator, escalator and moving walkways.

Mark Elfant, Transcope's president, will remain with the company providing strategic guidance.

Led by founder Steve Laganas, USSG was formed to build a national rigging and machinery moving business. Able Rigging Contractors of Deer Park, NY is also a USSG company. Although not part of USSG, Laganas also owns Able Equipment Rental based in Deer Park, NY.

"US Service Group was formed to allow us to seek out business opportunities on a national basis," said Laganas. "Acquiring Transcope strengthens USSG's presence in the Northeast and expands our services into an attractive sector of rigging services. Expansion into new regions and lines of business is a key component of USSG's growth strategy. We're very excited to add a company with Transcope's history and reputation to our group."



Link-Belt rolls out new 85-ton RT185

Link-Belt Cranes recently unveiled the 85|RT rough terrain crane.

A six-speed transmission on the 85|RT is powered by a Cummins Tier 4F QSB 6.7



270 hp (201 kW) diesel engine. Matching main and auxiliary winches have 18,603 pounds of maximum line pull and a maximum winch speed of 485 fpm. The 85|RT includes a new drive train and counterweight removal systems.

The 85|RT comes with a full power, five-section formed boom that extends 38 to 142 feet. An available two-piece SmartFly (35 to 58 feet) provides greater flexibility and range, and manually offsets at 0, 15, 30 and 45 degrees.

The crane also offers a 9.5-foot offset fly that reeves up to

The RT185 telematics system gives real time data to better forecast maintenance and service needs.

4-parts of line and is capable of 25-tonlifts. Link-Belt's V-CALC (Variable Confined Area Lifting Capacities) system features virtually infinite outrigger configurations with real-time 360-degree charts.

"General contractors and fleet owners will appreciate the competitive chart and value this crane delivers, not to mention it transports under 105,000 pounds with full counterweight and under 86,000 pounds with no counterweight," said Brian Elkins, rough terrain crane product manager. "This 85-ton (85|RT) was the next logical choice and really an easy decision for introduction following the 120|RT and 100|RT design."

Reliable Crane expands with Champion acquisition

Reliable Crane Service has acquired Champion Crane Rental, based in Pacoima, CA. Reliable has facilities in Corona, CA and Las Vegas, NV. Champion Crane Rental brings a diverse customer base in the Los Angeles area, including the film industry and theme parks. Since 2010, Reliable has pursued safe and quality performance within a diverse array of industries, including mobile crane rental, tower cranes, machinery moving, project management, power, wind and modular building, according to CEO and Founder Darrell Shaw.

With more than a decade of successful operation under its belt, Shaw said, "Reliable is now getting into the acquisition game – looking to do between 10 to 12 acquisitions over the next 5 to 10 years."



Completed in September, the Champion acquisition gives Reliable a larger footprint and distinctly different market.

Reliable purchased Bigge Crane and Rigging's 23 tower crane units in Southern California in November 2020. The purchase of Champion represents what Shaw described as the first steps in a multi-step process.

"We're looking to expand, and plan on doing more over the course of the next few

years," he said. "Acquiring Champion Crane was a strategic move for us, as it gave us a foothold on the north side of Los Angeles – with our primary hub on the south side in Corona. The Champion purchase allows us another route into Southern California, and let's everyone know we're serious about that market."

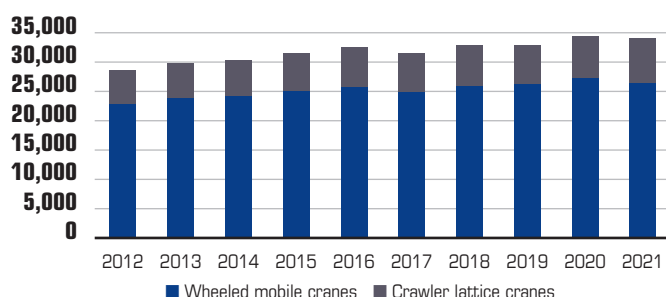


■ Maher Terminals, based at the port of New York and New Jersey, has ordered three new Liebherr ship to shore megamax container cranes. With a span of 100 feet, a back reach of 75 feet, an outreach of 228 feet and a lift height over rail of 175 feet, the megamax cranes are designed to handle the world's largest container vessels.

■ Tadano is holding the "Crane Slewing Operation Optimization Challenge," an algorithm competition using an automated crane simulator for operators. Participants in this competition will develop an automation algorithm in the simulator that is provided by Tadano and will compete for overall rankings determined primarily by crane movement accuracy and speed.



■ The Crosby Group has launched the Crosby Straightpoint ChainSafe, a new measuring device to protect and secure cargo during transport. The new 4.4-ton capacity device measures the load on lashing, load securement, tie-downs and chain sling legs.



Mammoet sets girders on bridge job

Mammoet was contracted to assist in two phases of work to set 12 steel rail bridge girders located directly under Interstate 70 in Colorado. Each girder measured approximately 70 feet long and would be set on bearing pads over an existing dirt pit. Mammoet's team used a unique cantilever setup on top of SPMTs. Two 98-foot spans of Mammoet transport frame beams were lashed to the back of an SPMT trailer and then 60,000-pounds of counterweight was stacked over the lashing arrangement.

This would act against the uplift created by the cantilever when holding the load, as the girders themselves weighed about 40,000 pounds each. The 98-foot span of the transport frame beams provided the 40 feet of reach necessary to position each girder over its bearing pads.

Once on site, a crane was used to set each girder from the roadway onto the SPMT trailer configuration. The cantilever trailer then drove into position so that the girder's center of gravity was underneath the air hoist (hook). Another 3-ton chain



hoist was used to secure a small fraction of the girder weight near the front end of the trailer to prevent unwanted movement during driving and lowering. The girder was then lifted and driven further forward about 121 feet until it was over its set position, then lowered down approximately 6 feet. Once in position, it was secured and unhooked from the cantilever.

OHR and ICST release mobile crane fleet report

A new study by Off-Highway Research in partnership with *International Cranes and Specialized Transport* (ICST) magazine sheds new light on the development, size and composition of the world's largest mobile crane fleets.

Based on a multi-year analysis of ICST's IC50 list of the world's largest crane-owning companies, the report looks at how crane numbers and lifting capacities have changed. The IC50 is based on the load moment of each

company's fleet in tonne-meters. Companies listed in the rankings have an IC Index from 42,600 tonne meters at the bottom to more than 3.5 million. Fleet sizes vary from around 50 cranes for the smallest companies to 3,365 for the largest fleet. In 2021, seven IC50 companies had a fleet of 1,000 cranes or more.

The average load moment per crane for IC50 companies was 888 tonne meters in 2021. This equates to a 296 metric ton capacity wheeled crane or a 178 metric ton capacity crawler. Companies in the IC50 can be split into those focusing on the heavy lift applications, which generally have fewer heavier cranes, or those more in the mass market, which have larger fleets of relatively lighter machines.

There is a clear trend that

almost all IC50 companies are moving to heavier lift cranes. The total IC Index, which has doubled over the last decade, compared to only a 19 percent rise in the total number of cranes owned. The trend is also illustrated by the average lifting capacity of the largest crane in each fleet, which has risen from 800 metric tons 20 years ago to more than 1,200 metric tons in 2021.



■ WrightPlan has launched its Field Solutions software that brings the office to the field with its intelligent mobile app. The app allows employees to log timesheets, view job details, upload attachments and access and fill out critical documentation.

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Since the beginning of 2020, cranes with high-tensile fibre rope have been used successfully: A big step on the way to the construction site of the future. Find out more and facilitate lifting on your construction sites.

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- Early and safe indication of discarding state



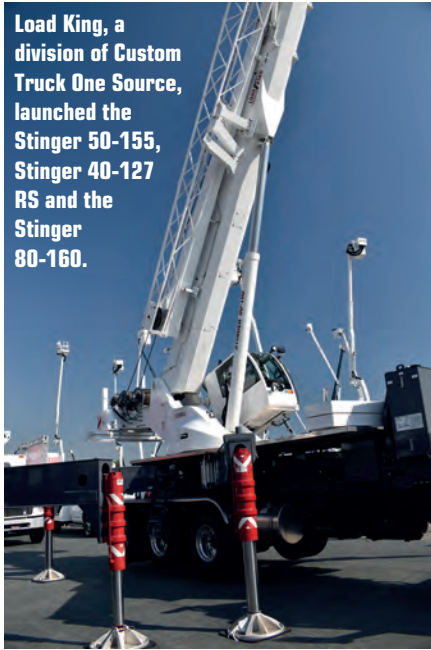
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Together again



Load King, a division of Custom Truck One Source, launched the Stinger 50-155, Stinger 40-127 RS and the Stinger 80-160.



Kelly and Kerry Koberg manned the DICA booth where the company's array of crane mats and pads and its new branding campaign, Orange Means Go, were on display.



Michael Weast, Michael Moore and Brando Zamora at the the booth for remote control producer Autec Americas.

One of the first major tradeshows in the construction industry, The Utility Expo (formerly known as ICUEE) was well attended with more than 16,500 showing up in Louisville the last week in September. The 2021 show was the largest in the show's history with more than 900 exhibitors spread out over more than 1.4 million square feet of space at the Kentucky Exposition Center.

"Given the extraordinary circumstances around in-person events, we were excited to be able to produce The Utility Expo and bring a diverse lineup of thousands of products," said John Rozum, show director for The Utility Expo.

With 85 percent of the show located outdoors, The Utility Expo organizers were confident in the Covid-19 pandemic



At the Trail King stand, Mark Peterson showed off the company's top utility industry trailers.



The CM Labs booth was busy with attendees interested in simulator training. On the CM Labs booth were Gary James, Julien R-Lanciault and Ray Rice.



Bigfoot's Jeff Steiner was on hand to greet customers and show off his company's broad line of outrigger pads and mats.

Despite nervousness about the Covid-19 pandemic, The Utility Expo was a successful event.



safety measures that were employed during the show.

"Safety has been a key focus of The Utility Expo for decades," Rozum continued. "And that focus on safety goes into the creation, planning and execution of the show itself."

Attendees, from presidents and CEOs of major utility companies to fleet and asset purchasing managers, viewed specialized exhibits and product unveilings, participated in hands-on test drives and demonstrations, learned about



Among the largest exhibitors at The Utility Expo, Altec launched two new boom trucks, the Altec AC40E-152S and AC45E-127S. With 40-tons capacity, the AC40E-152S has a 152-foot telescopic boom. The AC45E-127S can lift up to 45-tons and has a 127-foot telescopic boom.



the latest innovations in the industry and ultimately made purchasing decisions.

The new show name and layout was also a success. Innovative product launches, demonstrations and fabulous weather also helped contribute to a great event.

The Utility Expo will return to Louisville and the Kentucky Exposition Center September 26-28, 2023. It is the largest event for utility professionals



Talbert's team, including David Henderson, Derek Losh and Bob Lutterfring converse with Larry Coogle of Coogle Truck and Trailer, a Talbert dealer.

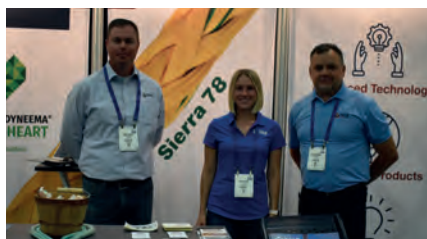


With a new line of boom trucks on show were QMC Cranes' Jim Winney, Brent Petring, Craig Schumacher and Caitlin Shanley.



Elliott Equipment debuted a number of new utility focused products including the E190 E-Line. Pictured are Elliott Equipment's Jamie Hudson, Dave Cheleen and Jim Glazer.

and construction contractors seeking comprehensive insights into the latest industry technologies, innovations and trends. The biennial trade show is known for equipment test drives and interactive product demonstrations. It is owned and produced by the Association of Equipment Manufacturers (AEM).



The Yale Cordage booth was anchored by Sam Cooper, Olivia Dean and Russ Bowman.

The Line Wise powerline tool was exhibited on a Manitex boom truck.



Ryan Storz, Hector Sanchez and Reed Miller were all smiles at the HBC-USA stand at the Kentucky Exposition Center in Louisville, KY.



The Scott Powerline team was in full force.



Deep South's Josh Bowen and Michael Pernici discussed with clients the utility and power work the company performs.



Manitowoc's Ion Warner and Amy Crouse at the Manitowoc booth, where National boom trucks and a Grove telescopic crawler were on show.



Discussing the attributes of the new Grove GNC110 telecrawler were Manitowoc's Harrison Hipple and JJ Grace, and Walter Payton's Cody Long and Mike Noonan.



© Tadano Ltd. 2021

NEW GTC-1600

LONGER. STRONGER. SMARTER.

Tadano's new GTC-1600 Teleboom Crawler crane features a 6-section 200.1 ft boom designed for flexibility – with higher, longer capabilities for lift work, while also enabling out-of-level and pick-and-carry work. The main boom is complemented by a 33.8 ft / 59.1 ft bi-fold jib with offsets up to 40°. The GTC-1600 out-of-level operation is enhanced by market-leading capacities on up to 4° slopes and automatic load chart switching.

Equipped with OPTI-WIDTH™, this 160 USt capacity machine is capable of limitless combinations – symmetrical and asymmetrical track width setups with no requirement for pinning of the track frames in fixed positions. The GTC-1600 has the reach, strength and versatility to be the valuable solution on heavy civil projects, alternative energy jobs, marine, oil and gas projects, powerline work and steel erection.

Max Capacity	Main Boom	Boom Extension	Max Lifting Height	Max Radius
160 USt at 8 ft	42.8 ft - 200.1 ft	11.8 ft / 33.8 ft / 59.1 ft / 105 ft	302 ft	220 ft

The rebound in stock markets since the low last spring has been remarkable. Is it too good to be true?

ACT's Heavy Equipment Index (HEI) tracks the performance of eight of America's most significant, publicly-traded construction equipment manufacturers – Astec Industries, Caterpillar, CNH Industrial, Deere & Company, Joy Global, Manitowoc and Terex.

Are share prices too high?

In a departure from ACT's normal coverage, this month we look at stock market growth in the 16 years since the ACT Heavy Equipment Index (HEI) was established. The chart shows daily changes in the markets since the start of 2005, when all four indicators were set at a benchmark of 100.

The most striking feature is how much better the tech-heavy NASDAQ has performed in that time, and particularly in the last seven to eight years. A \$1 investment made in this market at the start of 2005 would now be worth just under \$7, whereas in any of the other indicators it would be about half that.

The Nasdaq's growth has been particularly steep during the last 18 months of the Covid pandemic, where tech companies have come to the forefront and prospered in a world that has been

forced online in the face of lockdowns.

But it is not the only index which has seen spectacular growth. From the sudden low in March last year when the pandemic took hold, to the high point just over a year later, most stock market indicators more or less doubled in value.

Historic highs

And this is the key point. The highs which were reached this year, and to some extent which endure, look *very* high in historical terms. Both the Dow and the S&P were at historic high tide markets just before the pandemic struck, but are now more than 30 percent above that following the rally of the last 18 months.

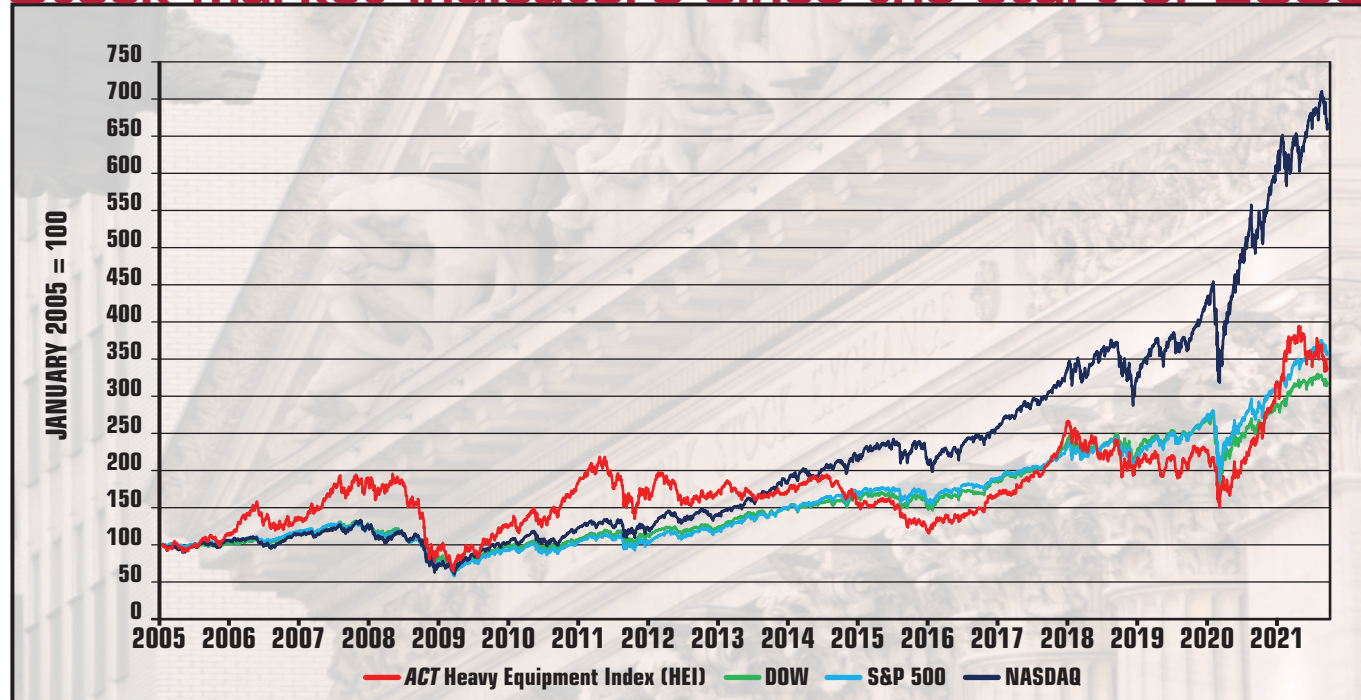
Share prices started to fall in September. This may signal a correction, or it may just be a normal seasonal pattern. It is usually a tough month for

the markets, caught between rallies in the summer and the run-up to the end of the year. However, there is some sentiment building that shares have become significantly over-bought and that a hard landing is looming.

On the one hand, prices have been driven upwards by the anticipation of strong earnings as the world emerges from the pandemic and companies benefit from stimulus. The question is whether such high valuations are justified when viewed in the historic context.

A final point is on the ACT HEI itself. This is made up of cyclical construction equipment manufacturer stocks. It tends to rise sharply in upturns, but fall more steeply in downturns. However, the chart illustrates that over the long term these stocks perform more or less in line with traditional indicators like the Dow and S&P 500. ■

Stock market indicators since the start of 2005



The care

Patrick Stafford is a man of principle and his word. **D. Ann Shiffler** reports.

In his gentle Irish accent, Patrick Stafford speaks with candor and from the heart. He has grown to love the crane business, believing that quality products and excellent customer service is the key to business success – which is why Stafford Crane Group recently bought a crane manufacturing company.

Stafford started his career in 1991 in the “aviation world.” He worked in helicopter technology and became a licensed commercial helicopter pilot. As helicopters came off the production line, someone had to fly them for the first time. Stafford became a crew chief/commercial pilot for test flights.

“It was very exciting to get into a new aircraft, which had just come off the production line, and had never been in the air before,” he said. “It’s actually comparable to erecting a tower crane into the air. It’s all about quality control.”

Integrity and fairness

In 1994, Patrick’s brother Derek started a tower crane company in Ireland. In 2005, the brothers reunited with the goal of getting Patrick involved in the tower crane industry. He returned to Ireland to help his brother run the business and learn about the industry. He took that knowledge and came back the U.S., starting Stafford Crane Group with one crane. Today the combined companies, Stafford Crane Group, have a fleet of 77 cranes worldwide.

“Phoenix was the ideal location for me to specialize in growing the market,” he said. “The time was right to start a company with the person at the top caring about the customer.”

The larger tower crane companies weren’t that interested in the middle-size markets that Stafford knew were up for grabs. Growth has been constant, and the company quickly expanded into Colorado and California.

“We love to go for the smaller markets,” he said. “The other guys want to be in the big markets. We also wanted to go into Mexico. We have a location in Tijuana. We

will have five tower cranes up in Mexico by the end of the year.”

The company is expanding into smaller cities in Texas and throughout the Gulf Coast, Florida and even the Carolinas. Stafford attributes the growth and success of the company to its roots as a family business.

“There’s a care factor with a family business,” he said. “The service we give is unmatched in the industry. There’s isn’t a project in the country that our cranes are on that the contractor doesn’t have our telephone numbers directly.”

While no one wants to hear their phone ring late at night about a crane that needs a part, they take the call.

“The good news is that we get the call, and we respond,” he said. “It’s important that our customers know that we care about them. By dealing with the top people, that’s when you achieve the customer satisfaction.”

It’s also about integrity and fairness, Stafford explained.

“I want to make life easier for our customers,” he said. “The more we can do for each other the better. We want the end-user to know we are the good guys. You have to treat people right. You have

to always be fair. If you contact me, my brothers, my son and the people who work for us, you will find that we truly care about the customer. Personal service is very important to us.”

Down to business

Stafford believes the company’s growth depends on customer service and customer satisfaction, which is why they now have a fleet of mobile cranes. They used to hire third-party crane companies to erect their tower cranes. But often, the third-party company showed up late or wasn’t prepared. Or the mobile crane needed wasn’t available.

“It’s crazy that a mobile crane is not available to erect a tower crane on a billion dollar project,” he said. “That irritated me, so I said, ‘let’s take it out of their hands.’ We bought a \$3 million mobile crane so that we didn’t have to rely on a third party.”

Today Stafford has a mobile crane fleet that works in tandem with the tower crane fleet to offer a turnkey package of tower crane erection and operation.

Similarly, the company has a fleet of tower cranes that represent many different brands. But Stafford hasn’t been satisfied. A couple of months ago Stafford acquired Soima, a Portuguese tower crane manufacturing company. Over the next three years, the plan is to replace Stafford’s entire fleet with Soima cranes.

I had never met Patrick Stafford, but after our interview on a Teams call, it seems like I’ve known him for years. He is a very interesting person, very personable and very smart. As well, you can tell he cares deeply about his family, the Stafford Crane Group team and their customers.

WHAT LED TO THE ACQUISITION OF SOIMA?

Since we’ve been in business, we have never found a tower crane manufacturer that we felt could satisfy our needs in America. Customer service is

“ I’m a very optimistic person. It all comes back to my philosophy as a human being. Travel, have fun, be kind. And if you say you are going to do something, do it. Your word means everything.”

PATRICK STAFFORD
President, Stafford Crane Group

factor

very important to us, and we need a good product and good product support. After continually being disappointed with these products and not getting adequate parts and engineering support, I realized the way to overcome this is to be a part of it.

Soima, which was founded in 1977, was the solution. The company is family owned and they have a great work ethic. They are very modest people, and they give a good, hard day's work. They have the same values we have. They have a good reputation in their market. It's a good match.

To me, the biggest problem as a rental company was the manufacturers don't understand the end use of the crane. The good news for us is we will be able to put

a superior product into the end-user's hands. These cranes are simple with a quick assembly and erection.

We will know the product and what it costs to produce. We believe with the efficiencies of these cranes; our customers will save money. Being able to control the cost of manufacturing and being able to design the cranes to be end-user friendly is where we are going with purchasing Soima.

DO YOU ALREADY HAVE THESE CRANES WORKING IN THE U.S.?

There are numerous Soima cranes here in North America. Now, as the owners of Soima, we are actually receiving our first unit. We have two more arriving in December and two are going onto jobs in Mexico.

We will

bring 15 to 20 of the new cranes into our fleet every year, to grow our fleet and replace the older fleet.

HOW DO YOU ENVISION INTEGRATING THE SOIMA OPERATION INTO THE STAFFORD OPERATION?

It will be called Stafford Soima. We are not looking to sell tower cranes to the big American rental companies. Instead, we are looking to bring our own fleet of cranes in, and construction companies who want to buy them, they can. They can buy one, two or 30 cranes. These are the customers we are going after. And we will create better relationships because we are a smaller company.

We will never be followers. We had to go against the grain. We are a rental company that manufactures its own cranes. I hope to be very successful with this mode. Sometimes you have to take a calculated risk and we are doing this. My brother Derek is in Europe, and he will live there and run the organization. He is more of a technical guy who is perfect for this role.

We may be part of a trend. In Europe, Wolff and Liebherr have their own rental fleets. Potain is starting their own tower crane rental fleet in Europe. Our cranes will be 10 to 15 percent cheaper. When we get rolling it's going to be hard to compete with us.

From a broader perspective, tower cranes are a very international product.

Most tower cranes in the market today are built to European standards and the measurements are metric. Our eventual goal is to manufacture some of our line in North America, to alleviate supply and demand problems. We [envision] a tower crane manufactured in Mexico that would satisfy all the requirements and [create] an alternative supply chain.

Patrick Stafford



HOW DO YOU CHARACTERIZE THE MARKET FOR TOWER CRANES IN THE U.S.?

In the rental division for tower cranes, we never see it not growing. In the Southern U.S., where we are located, there's beautiful weather and people are moving here. I see huge growth in the cities people want to live. Tower cranes also can replace other cranes. They are one of the few things that can replace a mobile crane. More contractors are starting to see the benefit of tower cranes.

WHAT LED TO THE DEVELOPMENT OF STAFFORD TOWER CRANE SCHOOL?

Our crane school gives us the opportunity to stay ahead of the competition. In this modern world, being safe is so very important. Having our own training facility puts us above other organizations.

Erecting a tower crane requires having the right training. When we started the crane school, we decided we are not just going to train operators. We are going to train the erectors and riggers – all the people who climb up the crane.

A lot of accidents are caused by human error and a lack of experience. When you get a new tower crane in your fleet, you typically go to a training course given by the manufacturer. They teach you the book work and then provide very little hands-on experience on the crane itself. They don't necessarily put you in the position of erecting, climbing and operating the crane.

It is extremely difficult to train your

people on the job. We need them well trained before they get to the job. Training is also good for experienced workers.

It complements their knowledge. Our school training environment is not super stressful, like it would be on the job. While you do learn on the job, it's not the best place for training. Jobsites are too hurried. Getting a tower crane in the air can often be too rushed. For our customer, time is money. The contractor needs to get the crane off the street and in the air working.

Tower crane operators and riggers are top notch people. They are very elite, much like a pilot. It's a good comparison. You are in the air and there are big risks.

IS THERE A CRANE OPERATOR SHORTAGE IN THE MARKETS YOUR COMPANY SERVES? HOW DO YOU ADDRESS FILLING YOUR STAFFING NEEDS?

I wouldn't say there is a shortage of crane operators. There is a shortage of really good crane operators. It's easy to become a crane operator. What we see, is the level of expertise is not there, especially with a lot of young people coming in and hopping around looking for more money. Finding good operators who are experienced is a problem. But again, having our own

crane training school helps a lot. We don't see a shortage of erection crews and technicians. The problem is finding good people who are willing to learn and work hard. We look for dedicated people who care about what they are doing.

That's why we try to bring everything in house and work together. But the only way we are going to attract these people is increasing their pay and having a training program in place. We will go above and beyond. When you pay someone 30 to 40 percent more, they can feel proud of what they do.

WHAT IS YOUR BUSINESS PHILOSOPHY?

In business, you have to have many philosophies. The one that sticks out the most is kindness. Kindness is a great thing, and we need it to make a happy world. It's the same with caring. You have to care about your customers and care about your people. It doesn't sound much like a business philosophy, but more of a life philosophy. Treat people like you want to be treated.

In my life as an entrepreneur, I know that you can't be afraid to fail. The more you try, the more you fail and the better you become. That's how you learn. I love to go and try something new. Go out and make changes and be the leader. You have to get better every day. If you aren't changing you are being left behind. I'm a very optimistic person. It all comes back to my philosophy as a human being. Travel, have fun, be kind. And if you say you are going to do something, do it. Your word means everything.

“ We will never be followers. We had to go against the grain. We are a rental company that manufactures its own cranes. ”



Patrick Stafford (center) with his son Patrick Stafford (left) and brother Derek Stafford (right).

WHAT DO YOU DO WHEN YOU ARE NOT WORKING?

I love what I do and to me, my business is almost like my game in life. Having a successful business gives me the opportunity to travel around the world.

But personally, family is number one for me. My kids are in middle school and high school and my oldest son Patrick works with us in the business. I love to watch my kids playing sports.

I also love traveling. I did hike to the base camp at Mount Everest. When a friend told me he was going to do that, I wanted to do it too. I told him, “You are not going without me.”

But truly for me, life is so simple and beautiful and it's easy to be happy. I enjoy hanging with the family.



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SUPPORT BASICS:

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A good, strong foundation
for a crane is everything.

David Duerr reports.

A mobile crane, whether on crawlers or outriggers, must be provided with firm and level support in order to perform safely. Not only must the crane be set up level, but it must remain level within the tolerances specified by the manufacturer during all operations. Let's take a look at some of the key issues that must be addressed when planning a mobile crane installation.

Accurate data

We need the answers to two questions to begin the design of a mobile crane installation. These are:

- What loads are imposed on the ground by the crane?
- How strong is the ground?

Answering the first question is often easy. Most of the major crane manufacturers now have available computer applications that a lift planner can use to calculate the outrigger loads or crawler track bearing pressures for a given lift. Some of these applications, such as Manitowoc's Ground Bearing Pressure Estimator, must be installed on the user's computer. Others, such as Link-Belt's Ground Bearing Information program, are web-based. Key to the successful use of these applications is assuring that all information entered into the input fields is accurate. We all immediately think of load and radius, but many other input values are often required. These include boom type and

length, extension mode for telescopic hydraulic booms, the presence of boom tip extensions or jibs, counterweight size, crawler pad size and outrigger extension position. Carelessness in defining the crane and the lift parameters here can result in inaccurate results.

A second point to remember is that the support loads that occur during the lift may not be the maximum loads. In some cases, the greatest loads under the crane occur when swinging with no load on the hook or at some point during the assembly or disassembly of the crane. These conditions also must be checked.

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A small group of mat producers and users formed an organization called the North American Matting Association (NAMA). The first goal of NAMA is the writing of a standard that will address various aspects of mat construction.



THE AUTHOR

David Duerr, P.E. (ret.), president of 2DM Associates, entered the rigging industry in 1974 in the employ of Hoffman International and has since worked for VSL Corporation, Williams Crane & Rigging and McDermott International. He founded 2DM Associates in 1986. Duerr is the author of *Telescopic Hydraulic Gantry Systems*, a comprehensive guide to lift planning and engineering for hydraulic gantry systems.

Soil conditions in many locales are such that all except the smallest cranes will require some type of load spreading materials to reduce the pressures imposed by the crane to values low enough that the crane can be safely supported. In most cases, crane mats are needed.



At present, there are no established government standards that assure that crane mats are constructed with timbers of a particular quality or species.

Critical calculations

Some crawler cranes have track pads that are tapered up on either side and end tumblers that are an inch or so higher than the track rollers. Consequently, the ground bearing calculations for these cranes distinguish between a soft surface, where the tracks will bear on their full width and from tumbler to tumbler, and a hard surface, where the tracks will bear only on the flat center surface of the pads and only along the length of the rollers. And make no mistake about this. Crane mats present a hard surface to the crawler tracks. So, if the crane is to be set up on mats, the track bearing pressures must be determined based on the hard surface track dimensions.

The second question is that of ground bearing capacity. How strong is the ground? This can be a very difficult question to answer because of the many factors involved. The loads from a mobile crane, particularly from the higher capacity models that are common today, can be hundreds of thousands of pounds per outrigger or per crawler track. These loads applied at the ground surface create significant pressure in the soil many, perhaps dozens, of feet down. This means that the apparent strength due to a hard surface layer can be diminished by a soft layer a few feet below the surface. Further, underground structures, such as pipes, culverts, buried tanks and the like, can be



the weak link in the determination of the allowable ground bearing pressure.

There are other site features that affect ground capacity that are easily observed and that must be evaluated. The bearing capacity near a slope may be less than that elsewhere on the site. A large load too close to a slope can cause an abrupt failure of the soil. Retaining walls near the crane setup location also must be evaluated. Vertical loads on the ground surface create horizontal pressures against such a retaining wall that can cause overturning of the wall and its foundation or a structural failure. And if the retaining wall is new construction, one must ask how well the backfilled soil adjacent to the wall has been compacted.

Corners can't be cut

When planning major lifts in a safety-critical location, such as in a refinery, it is common practice to have a geotechnical engineer take soil borings and prepare a detailed report that shows the ground bearing capacity at the surface. This bearing capacity will be based on subsurface soil conditions but may not consider buried pipes and the like. The facility owner (or general contractor for new construction) should be asked to provide information about buried pipes, utilities, etc. For smaller jobs, however, this is often not practical. Here, the ground bearing capacity must often be assumed based on past experience at the site or by simply working with a very low allowable bearing pressure. However, when making assumptions about ground bearing capacity, never lose sight of the fact that without adequate support of the crane, nothing else matters. This is not the place to cut corners.

Should you use crane mats? The short answer to this question is “yes, you

should.” Soil conditions in many locales are such that all except the smallest cranes will require some type of load spreading materials to reduce the pressures imposed by the crane to values low enough that the crane can be safely supported. This means that crane mats are needed most of the time.

Crane mats serve two purposes. First, they must spread the load from the crane over a large enough area that the bearing pressure imposed on the ground by the crane is less than the allowable ground bearing pressure. This need is intuitively obvious to most people; we don't want to exceed the strength of the ground. Second, the mats must provide support to the crane that is stiff enough that the crane will not go out of level as the loads from the crane change during lifting operations. In order to assure that these two purposes will be met, we must know both the strength and the stiffness of the mats. *Strength* refers to the ability of the mat to carry the imposed load without a failure, such as cracking of the timbers. *Stiffness* refers to the ability of the mat to carry the imposed load without bending or deforming excessively.

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“ In some cases, the greatest loads under the crane occur when swinging with no load on the hook or at some point during the assembly or disassembly of the crane. ”

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A crane mat will not necessarily spread the load over its full length. For example, if a 20-foot long timber mat is centered under an outrigger or a crawler track, the load from the outrigger or track will not create an even pressure between the mat and the ground below along the entire length of the mat. Rather, the pressure under the mat to the soil will be concentrated in the middle (right under the outrigger or track) and will taper off to either end. The true distribution of this changing pressure is based on the bending stiffness of the mat and the compressive stiffness of the soil. Although it is possible to perform a theoretically “exact” analysis of the mat and soil to determine this pressure distribution, the information needed to do so most often isn’t available. A more practical approach is to assume an even pressure distribution under an effective length of the mat.

Evaluating the strength, stiffness and load spreading ability (the effective length) of a crane mat requires preparing engineering calculations. A practical method of performing these calculations, called the Balanced Mat Analysis Method, is detailed in Chapter 4 of the author’s



Without adequate stabilization support (strength and stiffness), a mobile crane cannot operate safely.

book *Mobile Crane Support Handbook*.

The most common types of crane mats are made from rough-sawn hardwood timbers. At present, there are no established standards that assure that crane mats are constructed with timbers of a particular quality or species. This is in the process of changing. In 2019, a small group of mat producers and users formed an organization called the North American Matting Association (NAMA). The first goal of NAMA is the writing

of a standard that will address various aspects of mat construction including timber quality, species and tie rod size and placement. It is expected that the NAMA standard will establish requirements for mats made with higher quality timbers than are commonly used today, which will allow the use of higher allowable stresses for mat design. Completion of this standard is still a few years away. Information about NAMA can be found at www.nama-assoc.org.

There is also a variety of synthetic pads for small to medium outrigger-supported cranes. Ads for these products regularly appear in this magazine. Because of the proprietary nature of these pads, the best information on their use is that obtained from the manufacturers.

When it comes to the support of a mobile crane, the bottom line is simple. Without adequate support (strength and stiffness), a mobile crane cannot operate safely. Those responsible for the planning and performance of the crane work, regardless of the complexity of the lifts, must go through the steps necessary to assure that the crane’s support meets the demands of the job. ■



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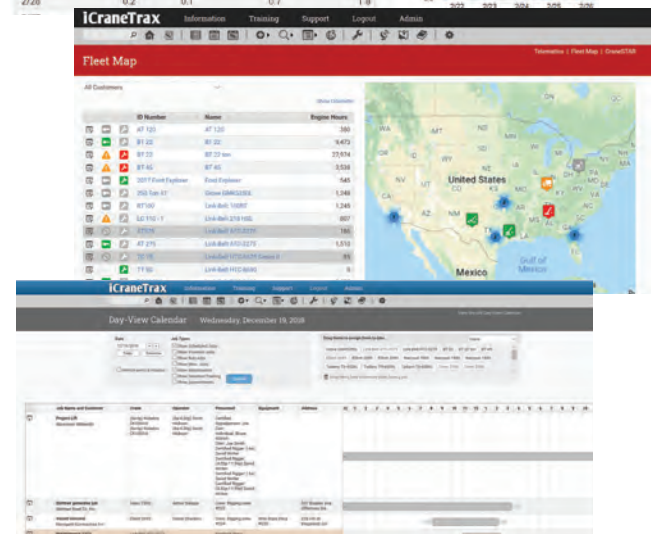
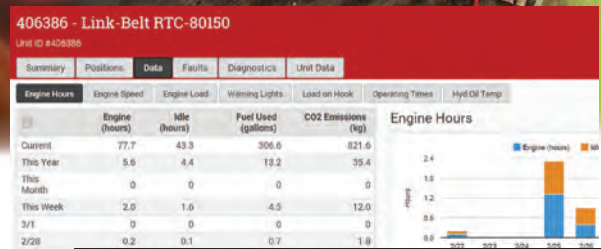


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Replacing wire rope on a crane is a comprehensive process that involves many factors. **Matt Florjancic** reports.

While it may be time-consuming, wire rope replacement prioritizes safety for your workers, minimizes downtime on a jobsite and maximizes the lifespan of the crane.

Rope replacement

Buying new crane ropes is a detailed and thorough process. While it may be time-consuming, wire rope replacement prioritizes safety for your workers, minimizes downtime on a jobsite, maximizes the lifespan of the crane and avoids the costly and time-consuming process of getting correct rope onsite and respooling your crane.

Sometimes, it can seem like the wire rope buying process is overly complicated. This is done on purpose to avoid as many issues as possible when the new rope is installed. The reason for that is so buyers avoid putting the wrong types of ropes on cranes and unnecessarily increasing the risk of injuries to workers or damage to loads being lifted. The processes are to make sure to prevent that added risk and put the correct rope on the correct machine, per Original Equipment Manufacturer (OEM) specifications.

When making the initial contact regarding wire rope replacement,

For some small cranes, new wire rope installation could take as little as 45 minutes. For larger cranes, installing new wire rope could be a several-hour process.

be prepared to answer the following questions:

- Is your crane down?
- Is this a routine replacement or is this an emergency?
- What type of crane is the rope going on?
- What model crane is the rope going on?
- What diameter and length is the replacement rope?
- Is there an end fitting?
- Which winch is it that's being replaced?

Wire rope specialists ask these questions to understand your circumstances and what your needs are. With this information, they are better prepared to get the absolute correct rope.

Crane rope on drum

Most of the time, the customer should have access to their crane's operations manual that will show what rope diameter and length is specified. The customer may have to measure or come up with his own calculations on length. The crane manufacturer is going to make a specific drum for that specific type of wire rope.

The rope has to be specific to the lagging of the drum for that machine, which is why there are multiple variations for each size of wire rope because each kind is specific to the type of crane, and it shouldn't be substituted. Mazzella will only install the rope that is the correct brand



and tolerance on a particular crane.

Ordering the correct crane rope will prevent crane rope damage. The wrong rope could cause damage to the equipment, and at worst, boom failure. On the less severe side, you will have bad performance or it might not work at all. You could have twist and/or spooling issues. That could lead to the crane failing altogether, which creates downtime as you wait for the correct wire rope to be ordered/delivered and installed.

Many crane owners are working for somebody else when they're doing jobs, so if the rope doesn't work, they're paying for work that is not getting done and falling behind schedule.

On the more severe side, you could total your crane and/or irreparably damage the load being lifted if you use the wrong wire



THE AUTHOR

Matt Florjancic is a content specialist for Mazzella and writes for Mazzella's Lifting & Rigging Learning Center. Previously,

he spent 17 years in sports media in Cleveland, providing award-winning coverage of major events including the Super Bowl, World Series, NBA Finals and UFC events.

rope. In the worst-case scenario, using the incorrect rope could result in severe injury and/or the loss of life.

Sometimes, customers assume that there's a one-size-fits-all replacement, that if it's a non-rotating rope, it should work on every application. There's a lot of misinformation on what will work and what won't work. With our experience and access to all brands of wire rope, Mazzella guarantees we can get you the right rope for your cranes. If Mazzella isn't comfortable with the project, we won't supply the wire rope.

Ordering the wrong rope

If the wrong wire rope is ordered and delivered, it could be hours or days before the correct rope is on location. Especially with a lot of the larger cranes, manufacturers are shipping model-specific ropes all over the country, and depending on location and money, that could cause delays on your jobsite.

With our large inventory of rope, Mazzella can have a new spool of wire on a truck and out for delivery in a matter of hours. Avoid the pitfalls of ordering the wrong crane rope and you'll have a new spool of wire rope on its way. Once the order process is done, what can your company do to prepare for delivery and installation?

As much as Mazzella can be prepared on our end, the customer needs to be ready for installation so the process can go as

smoothly and safely as possible.

You have to make sure the technicians have the requisite space to perform their duties. The easier it is for the installers to get on-site, get to work and finish their responsibilities, the faster your company can get back up and running.

It is a good idea to give management the proper notice of when the installer will be on-site, have the necessary technicians on-site to help the installer with the rope replacement and make sure the installer/technicians have a clear working space.

There's a lot of downtime associated with making a mistake in the preparation process, so the more prepared you can be for the install, the better. You don't want a situation where your crane is inactive because of an oversight or completely avoidable situation.

Also, Mazzella recommends you measure your sheaves with a sheave gauge. A sheave

gauge will help you measure the wear of the root, the amount of wear on the groove wall and the diameter of the wire rope.

Installing new wire rope

After ordering the correct rope and having the requisite space and approval for installation, how long will it take to remove and replace the old rope when the technician, assistants and supplies arrive onsite? For some small cranes, the timeframe could be as little as 45 minutes, but for larger cranes, removing the old rope and installing the new one could be a several-hour process.

The installation process is very specific to:

- the application
- the location
- what's being installed
- what winch it's being installed on

There's a lot of factors that go into a successful crane rope installation. The

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If a brand-new wire rope on a crane is not broken in properly before lifting a large load, it potentially could damage the rope and render useless the equipment that was just installed on the crane.



Synthetic rope question/answer

ACT spoke with WireCo WorldGroup's Christian Schorr-Golsong about the demand and applications for synthetic rope.

HAS SYNTHETIC ROPE GAINED MARKET TRACTION?

The official presentation of synthetic rope was at ConExpo in 2014. The driving force has been the availability of synthetic fibers with a strength the same or even higher than steel, along with specific product developments to enhance the product performance to cope with the tough requirements with cranes. Standards have been defined and many crane manufacturers

stepped into projects to learn if the synthetic ropes are able to replace steel wire ropes. WireCo did this too by developing a special synthetic crane rope named Lankolift S, a patented 12-braid construction with a special core and coating. The feedback so far has been mixed. There is no question that the synthetic rope is much more comfortable to handle, there is no regreasing needed and the fiber ropes allow a higher number of bending cycles. The significantly lower weight (just an 1/8 of steel) reduces the total weight of a crane with advantages in transportation and road regulation limits. On the other hand, there are points which still need further development. Due to the very special fiber material needed for such ropes, the cost is still significantly higher

per rope. This will be balanced out by higher service life, reduced maintenance and non-monetary advantages like the easier and safer handling.

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most important thing is the quicker your supplier responds to your order and gets a rope on location, the quicker that rope gets installed properly, saving time and money. Downtime is the key, and it could cost companies tens of thousands of dollars per day if their crane(s) are inoperable.

Testing after installation

Once a new crane rope is installed, a break-in period or tension period is recommended to make sure everything is performing correctly, and help you avoid shock-loading the newly installed wire rope. The break-in period is recommended because installation and spooling equipment are not going to put adequate tension on the rope. A break-in period consists of putting a low percentage of the working load limit weight on the rope for several lift cycles, and running the blocks up to the boom length (working height) and back down. For the most specific guidelines on the breaking-in process for your new wire rope, refer to the manufacturer's recommendations.

If a brand-new wire rope on a crane is not broken in properly before lifting a large load, it potentially could damage the

The quicker your supplier responds to your order and gets a rope on location, the quicker that rope gets installed properly.

rope and render useless the equipment that was just installed on your machine.

When Mazzella fulfills a crane ropes order, it is not just about the sale and the bottom line. While we're in the business of selling crane ropes, we're also in the business of building relationships and trust. We are committed to making sure you get the correct products for the right applications.

Crane rope issues don't just happen 9-to-5 during the normal work week. They happen Friday nights, holidays, weekends and early mornings. They're always on the clock, and it is just about being honest with the customer and letting them know, they type of rope that is required. That honesty and trust is of utmost importance for the safety of your workers and the proper maintenance of your cranes.

Mazzella has one of the largest crane ropes inventories in the United States. The company provides wire rope assemblies and manufactures bridge cables, crane cables, steel mill cables and thousands of



OEM assemblies in sizes from 1/4 to 3-inch diameter and 9 to 52 millimeter diameter, domestic and non-domestic and in stock and ready for same or next-day shipment.

Mazzella Companies can also manufacture assemblies with standard or custom end fittings. Special testing and tolerance requirements are also available when necessary.

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Greg Johnson discusses the current market for crane financing.

Squeeze play

The current economic landscape looks markedly different than in recent years, and this is affecting business-to-business companies as well as consumers. Supply shortages in many markets are resulting in inventory backlogs and increased prices. From houses that sell the day they hit the market, to increased demand for technology due to work-from-home initiatives, to increased pricing for used heavy equipment due to lack of inventory of new equipment, the last quarter of the year will pose many challenges.

The supply chain squeeze is affecting most industries, including the crane sector. Worldwide disruptions have influenced crane production, delivery and availability. It has also affected how we approach equipment financing. Because cranes are large and expensive, there has been a pronounced impact on how we evaluate and finance cranes and support equipment. The effects of global supply chain disruptions are due to the general imbalance in supply and demand (think Economics 101) and are being felt in many ways in the crane industry:

- Decreased availability of inventory
- Increased pricing of new and used equipment
- Imbalance in the price differentials between new and used equipment
- Volatility in equipment values
- Increased transportation costs

Asset value plays a big role when evaluating equipment for financing – whether it's a new or used purchase or refinancing existing equipment. The finance company wants to ensure there is ample equity in the equipment and that it will hold its value over time. Today's values vary compared to historical values and depend on machine class or the industry they serve. There are differences if the machine is being used in the wind energy sector or if it is going to a job in the petrochemical or infrastructure segments.

Price volatility

In many cases, used crane values are holding up well compared to new machine values due to increased costs and delivery delays. There can be a wait list on a new machine for a particular function or due to parts shortages. The rise in the cost of materials and components and delays in getting them has increased the cost of a new unit while market instability has elevated the prices of older machines.

The finance company needs to be in a good collateral position when financing equipment, and the current price volatility adds complexity to the valuation process. In some cases, the price of a used crane may exceed its historically appraised value. This is similar to housing price increases exceeding appraisal values. When this

happens, the finance company (or mortgage company, in the case of housing) is reluctant to finance the transaction. This can sometimes be mitigated when structuring the transaction, but the finance company needs to have a good understanding of historical values and be flexible with loan structures.

Due to the large size and weight of cranes and their support equipment, specifically larger all-terrain and crawler cranes that can require, on average, 20 additional truck loads to move the crane, the cost of transport is extremely high. And currently, with the increased cost of transportation due to increased trucking demands and rising freight rates, transport costs could be doubled. We have financed several larger cranes recently with moving costs of more than \$200,000.

The cost of transport can be rolled in with the purchase amount when financing. But this cost cannot be considered equity, and has the potential to diminish the equity ratio of the loan. However, there are ways to offset this. Transactions can be structured to limit collateral exposure via down payment, additional collateral or an accelerated payback. Additional collateral can include transportation and trailers designed to handle different kinds of boom, counterweight and accessories that accompany the crane.

It's important to use a lender with crane industry experience, that has knowledge of the equipment and that has the ability to make good lending decisions to help customers acquire the cranes they need to grow their businesses, even in uncertain market situations. ■

THE AUTHOR



Greg Johnson is assistant vice president of Commercial Credit Group, which provides heavy equipment and accounts receivable financing to the construction, manufacturing, transportation and waste industries.

Despite economic and pandemic challenges, **D. Ann Shiffler** reports the tower crane market is holding up.

Rising

More people work remotely than ever before. Urban high rise buildings that used to overflow with office workers are largely vacant, with employees opting to work at home or chose a hybrid work schedule that allows them home and office days. Has the pandemic stopped or delayed the construction of commercial real estate space?

According to most news reports and commercial real estate research, the commercial real estate sector is in a state of flux, but that hasn't stopped high rise residential, hotels and medical construction. As well, the industrial real estate market is very strong with new development occurring throughout North America.

Morrow Equipment, based in Salem, OR, is the largest tower crane-owning company in the nation, and it rents tower cranes from coast to coast. President and COO Peter Juhren is constantly assessing the various urban markets, and he described the market as active, and up and down.

"It's active but it's a roller coaster," he said. "Many tower crane companies are competing for the same projects, and this is to the benefit of the contractors."

Other challenges must be considered too, Juhren said.

"Depressed rates are a big factor, as many tower crane companies are focused on utilization over rates," he said. "This is driving down revenue for all."

Soaring freight costs

Logistics is also a big problem, given the status of current supply chain issues around the globe. Juhren said trans-ocean freight costs are soaring and shipments are often delayed or halted.

"As of this writing there are 73 ships anchored off the Port of Long Beach, with estimated wait times to unload of 18 to 21 days," he said. "If owners did not plan accordingly, the availability of new cranes and spare parts will be a big problem."

But again, there's a lot to be optimistic about, Juhren said.

"Utilization is climbing, and I see a much

Two of Morrow Equipment's Liebherr 420 EC-H 16 units work on the Aston Martin Luxury Residences in Miami, FL.



better growth picture in the second to third quarters of 2022," he said. "There is plenty of idle capital sitting around, and the commercial sector has roared back. Demand for housing is still hot, as is the condo market regionally. I also see an uptick in infrastructure jobs such as water treatment plants and natural gas storage."

For Morrow, the large capacity luffing boom cranes are in the highest demand, as well as cranes above 500MT.

"Self-erect cranes are also starting to become more popular, and Morrow has had good success in the past year in this market," he said.

As far as the most popular model in the Morrow fleet, Juhren said, as is the case with most tower crane companies, the 400 MT range is the sweet spot in the United States.

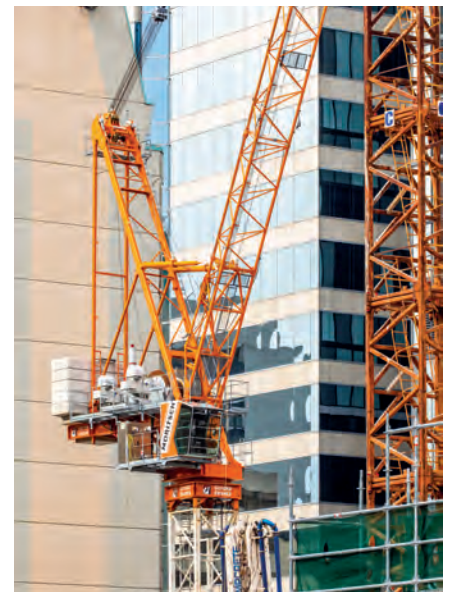
"Our Liebherr 420 EC-H is the most popular and highly utilized crane in our fleet," he said. "Larger cranes are gaining ground, but the 400MT size has been the bread and butter in the U.S. for over 40 years."

Mike Demelo, vice president and equipment manager for Oxford Builders,

based in London, Ontario, said in his market in Canada, the biggest challenges are skilled workers, including crane operators and technicians, mainly because there are no training facilities or schools that service this sector.

"Our utilization is excellent at the

Oxford Builders' tower cranes are working at Union Station in Toronto.



up

moment,” he said. “All different capacities and models are in high demand.”

In the urban areas in Canada, high rise residential is driving the market.

As for the most sought after tower cranes, Demelo said in hammerheads it's the 300 to 400MT units and for luffers, it's the 200 MT ranges. The SK415 and CTL260 are the most popular cranes in the Oxford fleet.

Downward pressures

Robert Kohler, vice president of Crane Tech Solutions, based in Portsmouth, VA, and the exclusive distributor for Jaso tower cranes, said the market is steady, but agreed there are downward pressures on rental rates in several markets that had been growing.

“The biggest challenges are maintaining utilization and negotiating acceptable terms and conditions,” he said.

As well, he thinks that as the pandemic subsides and more people return to work, things will get better.

“Companies [need to] limit work-at-home options and focus more on employees coming into the office,” Kohler said. “Business travel must return to previous levels. This may increase the need for tower cranes and increase utilization.”

Commercial real estate projects are still in progress and cranes are needed to build them, Kohler said.

He agreed that in his company's markets, the 300 and 400 MT cranes are still the primary size cranes in demand.

“We have not seen many requirements for the larger cranes,” he said. The most popular model crane in the CTS fleet is the JASO J300.

Compass Equipment's Sales and Marketing Director Paul Autry contends that better times are ahead. Based in Phoenix, AZ, Compass's market includes Arizona, California, Colorado, Nevada and Texas.

“The tower crane market in 2021 is gaining momentum with a strong showing to come in 2022,” he said. “There are some very focused infrastructure action plans that are aimed at increasing new



Compass Equipment's Potain MR418 works at the Metropolis residential high rise project in Los Angeles.



A JASO J145 works at an apartment complex in Virginia Beach.

tower crane or self-erector is a much better solution with better return on investment.”

Driving factors

Autry contends that there isn't one dominant sector – commercial real estate, stadium projects, government buildings, medical, hospitality – driving growth in the tower crane market.

“All of these segments are driving factors to the current market, including multi-unit residential and large entertainment district projects,” he said. “Manufacturing is big as well, which in turn drives the need for residential builds. Another segment is in the refurbishment projects. Again, typically tight jobsites offer a perfect fit and strategy for a tower crane.”

For Compass, there are two crane models that are seeing the most demand.

“Our large 45 meter self-erecting tower cranes and our medium city tower cranes are consistently at a high utilization rate,” he said. “Our Potain T85A self-erecting tower cranes and our Potain MCT88, MDT98, MDT178, MDT219 models are in very high demand. Our large hammer head tower cranes and flat tops (like our MDT389s) are filling up quickly for the first and second quarters of 2022.”

Autry said the Compass team is excited about the market and what's to come.

“At this very moment, our MA21s (the smallest self-erectors in our fleet) are our least in demand,” he said. “But we have hired a new representative to focus on the three to six-story projects only, so that should change.”

Autry said the most popular model in the Compass fleet is a toss up between the 45 meter self-erecting tower cranes and small to medium size flat top tower cranes. ■

construction and refurbishment projects. The diverse demand for manufacturing, multi-residential, telecommunications as well as oil and gas are driving factors in the tower crane market growth. It seems that many of the projects that were on hold or taken over by new GCs/investors are now moving forward setting the stage for a very strong 2022.”

Autry echoed Demelo that finding talented operators and technicians is more challenging than ever.

“We are now using a variety of strategies to find new hires for our specialized positions,” he said. “As a dealer, we have access to certified manufacturer training programs as well as our internal NCCCO Certification Training Center, so finding the right individuals to invest in and put through these programs is more of a challenge today. We work with veteran's groups, network with trade schools and conduct equipment ‘show and tell’ demos for interested individuals looking for a career in construction.”

Utilization will also improve when the market better understands how a self-erecting tower crane or tower crane offers a more efficient strategy in overall building return on investment.

“More and more jobsites are getting tighter and are restrictive in terms of area available for equipment, offering a perfect scenario for a tower crane,” he said. “There are still many contractors that are comfortable with forklifts, telehandlers and mobile crane strategies whereas in efficiency, safety and overall logistics a



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Hannah Sundermeyer

rounds up the latest in landmark specialized transportation projects.

During the immediate aftermath of Hurricane Ida, Northwest Crane Company rolled a process vessel onto a 180-foot by 54-foot by 12.5-foot deck barge using a 14-line Goldhofer THP-DC dual lane transporter.

Hauling hosses!

When it comes to the transport of oversized loads and specialty equipment, the planning and execution process is no small feat. ACT surveyed some of the leading specialized transportation companies for information and snapshots of their latest heavy haul projects. From traversing through tropical storms to moving antique yachts, these industry

Northwest Crane navigated a process vessel between a hurricane and a tropical storm.

titans completed their unique projects safely and successfully.

Rain, rain go away

All projects have milestones, but little did Northwest Crane Company and its client know that a recently completed transportation project would begin with a hurricane and end with a tropical storm. However, despite nature's seeming best efforts to disrupt the critical delivery, Northwest completed the multi-phase transportation and offload project of a

472,00-pound process vessel safely and on schedule.

Originating in Iuka, MS during the immediate aftermath of Hurricane Ida, the process vessel was rolled onto a 180-foot by 54-foot by 12.5-foot deck barge by Northwest personnel using a 14-line Goldhofer THP-DC dual lane transporter. Soon after, the loaded barge began its journey south and west to the Port of Victoria, TX. Along the way, close coordination and daily planning updates were required to navigate the numerous lock closures that had nearly closed off all access to the Intracoastal Waterway system in the vicinity of New Orleans, LA.

Once the New Orleans area was safely traversed, it seemed the remaining barge transit would be smooth sailing. However, as the loaded barge neared its destination, Tropical Storm Nicholas was bearing down on the Texas coast with forecasts predicting landfall in the exact vicinity of the barge and critical cargo. Fortunately, a safe and secure fleeting area provided protection from any storm impacts and the barge was able to proceed to the Port of Victoria, TX after the U.S. Coast Guard issued the all-clear for the Victoria barge channel.

Upon arrival at the Port of Victoria,

>36



International transport

Sarens was commissioned by Kazakhstan Petrochemical Industries (KPI) to offload and transport 37 oversized tanks from the KCOI port to the Karabatan Integrated Gas Chemical Complex.

The Karabatan Integrated Gas Chemical Complex, located 20.5 miles north-east of Atyrau and around 5.6 miles north of Karabatan station, is planned to be operational by the second quarter of 2021. Once completed, the project aims at release of export-oriented products with high added value and polymer production for industrial diversification.

The team had to arrange for permissions and approvals from authorities of two regions, including the power companies, traffic police and local civic authorities. The CC4000 available at the KCOI port was used to offload the tanks. Sarens deployed 126 axle-lines and 8 prime movers for the transportation of the oversized loads.

The maximum height of the loads were 32.8 feet with the trailer and the maximum weight was 250-tons without the trailer. The transport was completed in seven continuous trips by a crew of 35 that tackled difficult weather conditions including heavy winds, slippery roads and snow.

Northwest personnel safely rolled off the loaded 14-line Goldhofer THP-DC dual lane transporter and then immediately navigated an extremely tight 90-degree term which tested the skills and capabilities of personnel and equipment. However, due to Northwest's meticulous advance planning, the level of difficulty was a known factor and the tedious operation to get the 812,000-pound gross weight transporter onto route was completed safely and without incident, the company said.

After departing the Port of Victoria, the project went like clockwork with the 1,100-mile permitted route being covered in five days. Upon arrival at the delivery location in the Texas panhandle, Northwest personnel employed two 550-ton capacity LTM 1450-8.1 all-terrain cranes to safely offload the process vessel, rotate the vessel to the correct orientation for vertical lifting at a later date, and place the vessel onto the client's staging foundations.

specialized transportation team worked efficiently to make a safe and timely delivery.

When the extreme summer heat damaged a transformer at a substation in Sherwood, the company's Portland-based specialized transportation crew was called into action. An electrical utility company in the process of expansion had initially contracted with Omega Morgan to transport a new transformer to a storage facility in Hillsboro. But with an emergency at hand, the specialized

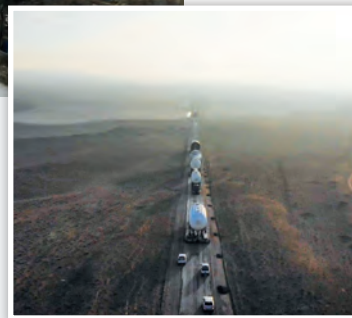
transportation team worked quickly to reroute the new unit to replace the damaged transformer.

The new transformer was already aboard the railway to Cornelius when the team learned of the damaged unit. With limited time, Omega Morgan simultaneously searched for available

rail and trucking routes. Planning this transportation job would typically take two months. However, as the client and the Sherwood community faced potential power outages in the middle of summer, the specialized transportation team found a way to execute with the same level of care and precision in a quarter of the time.

"In this industry, you learn to work with Murphy's Law, especially when you are up against a time constraint. Our initial plan involved the rail company diverting the railcar closer to the Sherwood area," said Erik Zander, chief operating officer, Omega Morgan. "When clearance to the necessary rail spur was unavailable within the required time frame, moving the transformer by truck became the only

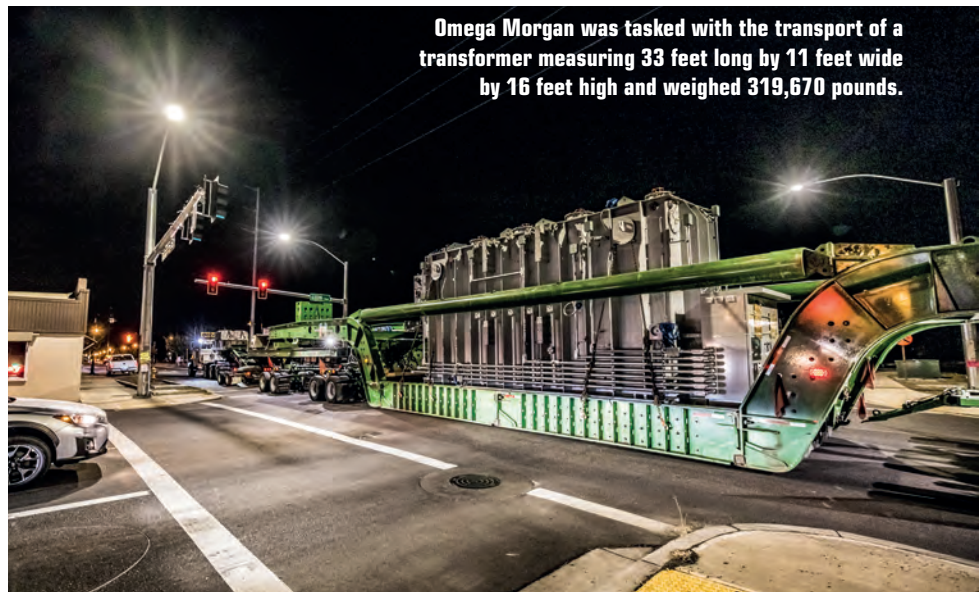
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Against the clock

To avoid potential power outages, a transformer needed to make it from a rail siding in Cornelius, OR, to a substation in Sherwood within two weeks. Between permit and route challenges and an ever-tightening time frame, the Omega Morgan

Omega Morgan was tasked with the transport of a transformer measuring 33 feet long by 11 feet wide by 16 feet high and weighed 319,670 pounds.



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On October 16, 2021, Daily Express safely delivered a historic antique yacht, originally built in 1912 for Adolphus Busch to Wrightsville, PA.

option After searching for a viable route and submitting an application, the Oregon Department of Transportation (ODOT) denied our first permit request due to a weight-deficient bridge. Now with even less time available, we had to look for an alternate route.”

The company’s specialized transport crews spent several nights surveying viable options that would allow a 17-foot clearance. Scheduling necessary wire lifting and tree trimming along the final route on short notice only increased the pressure to have this latest plan approved in time. Fortunately, ODOT worked closely with the specialized transportation team to expedite the process.

The transformer itself measured 33 feet long by 11 feet wide by 16 feet high and weighed 319,670 pounds. Transport required a dual lane perimeter deck trailer with 12 8-tire axles – due to the height and weight – plus a Kenworth C500 in the front to pull and a Kenworth T800 in the back to push. The Omega Morgan specialized transportation crew maneuvered the 96-wheeler into position at a nearby rail siding and loaded the

transformer onto the trailer.

That evening when there was less traffic on the route, the team operating the trailer was accompanied by four Omega Morgan pilot cars – two in the front and two in the back – and a bucket truck from a local utility provider to help maneuver the transformer under wires and low hanging traffic signals. Arriving at the substation in Sherwood, the crew offloaded the transformer onto a temporary pad. A few days later, when the permanent pad was ready to receive the transformer, the team completed the move.

Safe and sound

In mid-October, Daily Express safely delivered the historic antique yacht, *Chief Uncas*, originally built in 1912 for Adolphus Busch to Wrightsville, PA. The company first received a call from the Susquehanna National Heritage Area (SNHA) to move the boat almost a year ago. Daily Express has a reputation for safely moving historic items for multiple historical organizations in both York and Lancaster Counties in Pennsylvania, and where SNHA is headquartered.

SNHA’s mission is to connect people to the Susquehanna River which starts in Cooperstown NY and ends in the Chesapeake Bay. The *Chief Uncas* was also located on Lake Otsego in Cooperstown at the Susquehanna River’s headwaters making it the ideal vehicle to meet the organizations mission. With boat dimensions of 55 feet long by 10 feet wide by 12 feet high and clocking in at 15 tons, this move presented many logistical challenges since it was located at a marina with very tight access and turning radius issues. Multiple on-site visits with SNHA and the Daily Express team determined the best course of action to safely transport a 109-year-old wooden boat.

“Daily Express is heavily involved in the

transport of historic railroad equipment throughout the United States and this move was the second oldest piece we have moved, so the safety of the boat was paramount,” said Mark S. Eyer, vice president of operations, Daily Express. “Route evaluations found that a 53-foot long step deck trailer was the safest option as a stretch lowboy would be too long to make specific turns on the route, and the step deck trailer’s ability to spread the axles would result in a shorter turning radius as well, which was critical.”

Keeping as much of the boat supported on a trailer floor was another factor given its historic significance. The overall dimensions of the loaded tractor/trailer were 90 feet long by 10 feet wide by 14 feet 11 inches high loaded with a 10-foot rear overhang. Daily Express arranged the crane loading of the boat as well and brought the crane company into the very first meetings to determine how to get the boat from its location for over-the-road transport. It was determined a 70-ton crane was needed to reach and also safely load the boat for the truck to have access to back out of the marina up a hill.

Extensive dialog with the NYS DOT Central Permit Office and NY District 2 resulted in the approval of a route that would provide sufficient turning radius for the boat and the rear overhang along with a loaded height of 14 feet 11 inches. On the move date, all went well, and the planning resulted in no unexpected transport issues. Loading the *Chief Uncas* on the shortest possible trailer enabled Daily Express to safely navigate many turns in small towns on the route. Once the boat was loaded onto the tractor/trailer and the loaded dimensions were measured and verified, the driver and the two escorts then resurveyed the permitted route in New York to verify all the vertical clearances of bridges, trees and wires on



TRANSPORT50

The annual **ACTTRANSPORT50** ranks North America’s largest specialized transportation companies. Be sure to check out the December issue to see where the industry stacks up!

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the route, while checking turning radius. Following that final route evaluation, the Daily Express team departed Cooperstown NY with the *Chief Uncas* for Wrightsville PA and arriving safely the following day.

Transformer transfer

Buckingham Heavy Transport provided the logistics and transportation for two 488,800-pound transformers from the port in New Orleans to a new power substation in the hills of central West Virginia. The transformers were too large to move by rail, so Buckingham met the ship at the port and coordinated the transfer of the transformers to a barge for travel up the Ohio River. At the landing, Buckingham's team used barge ramps and 12 lines of Goldhofer PST/SL-E to unload the transformers and haul them several miles down the road to a staging area.

The next leg of the transport was at night. This section of the route had many low overhead wires, a failed bridge where Buckingham used bridge jumpers and several miles of traveling the wrong way on the interstate. The team utilized a custom 36-axle dual-lane trailer made up of hydraulic dollies programmed with Buckingham SmartSteer technology, which allowed them to distribute the weight while still maneuvering tight corners in a self-propelled mode.

After that, Buckingham had 55 miles of fairly straightforward divided two-lane highway to navigate. The team put the transporter into tow mode and used two pull trucks and two push trucks for additional torque and braking power on the climbs and long grades of the hilly terrain.

After exiting the divided highway, the team transloaded back to the Goldhofer

The Tradelossa team designated six Prime Movers to perform the titanic task of moving uphill 245 tons throughout 9.3 miles of both irregular and steep terrain.

PST/SL-E for the final miles to the substation, as the narrow back roads left little clearance and were too winding to accommodate the dual-lane trailer. The $\frac{3}{4}$ -mile gravel driveway to the site was also winding and steep. A local contractor assisted with a CAT D-9 dozer.

In the substation, the transformer was unloaded to its foundation pad using a Buckingham jack and slide system while another crew hauled the dual-lane trailer back to the staging area to load the second transformer and prepare for the second move. The same procedure was followed for the second transformer.

Prime power

Tradelossa recently hauled a 245-ton transformer from the northern state of Nuevo León, Mexico to one of the most

important wind farms in the state of Coahuila, Mexico.

In April of 2021, Tradelossa was asked to store the transformer at its facility in Apodaca, Nuevo Leon. The transformer measured 34 feet long, 13.4 feet wide, 17 feet high and had a total weight of 245 tons.

Tradelossa's team made multiple visits to the wind farm to determine the right route. It required preparing the terrain at site and implementing multiple land and road modifications within the wind farm to prepare for the arrival of the transformer. Other tasks included permitting, scheduling and preparing various rigging operations.

The component was transported using a 15-foot 12-axle + deck hydraulic configuration with six axles on the front of the deck and six axles on the back. This configuration allowed the team to safely perform the full transportation of the transformer. During a previous visit at the site, the Tradelossa engineering team realized that to haul the transformer through the wind farm, it had to pass through 9.3 miles of steep terrain.

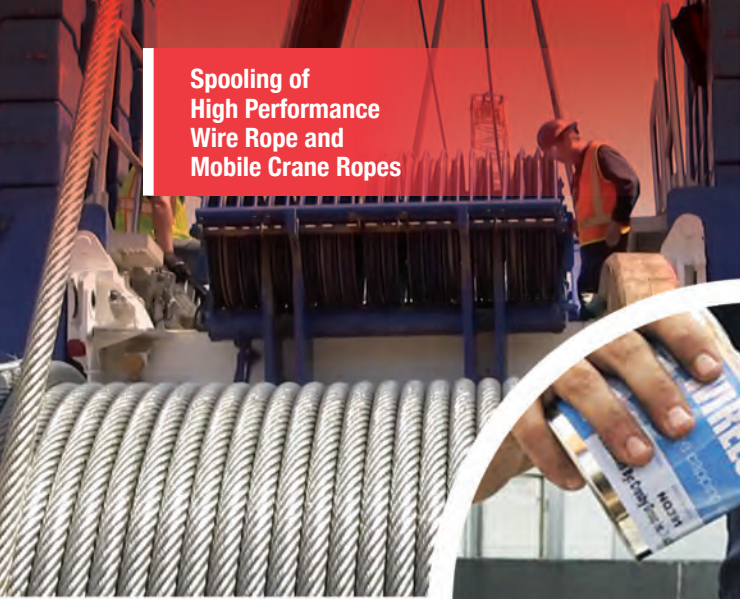
The Tradelossa team designated six Prime Movers for this sole project to perform the task of moving uphill 245 tons throughout 9.3 miles of both irregular and steep terrain. Once the cargo arrived at its designated point, the rigging team carefully unloaded it and prepared it for installation.

With about 186 miles traveled, all services and operations were executed in three-and-a-half days.




Buckingham Heavy Transport provided the logistics and transportation for two 488,800-pound transformers from the port in New Orleans to a new power substation in the hills of central West Virginia.






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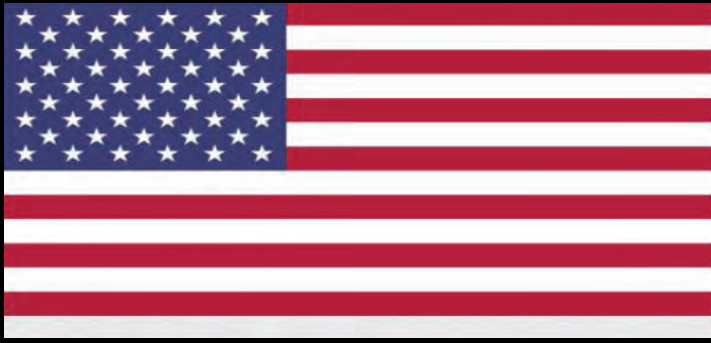
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Enhancing productivity

With a distinct location, a Liebherr 125 K assists in the erection of an 8-story residential project in New Rochelle, NY.

The external crane operator's cab provides an excellent view of the construction site. It can be assembled without additional tools.



The crane is lifting and placing concrete components and structural steel at the 25 Maple Avenue building in New Rochelle, NY. The project was designed with 180 residential units and 1,900 square meters of commercial space and a multi-story parking garage. Extreme Construction is responsible for the structural and interior work. The project is scheduled for completion in 2022.

Peak performance

The 125 K is positioned on the third floor in such a way that all areas of the site are reachable. As a result, time-intensive relocations are not required. Unlike with other types of lifting technology, such as loading or telescopic cranes, there is no need to plan extra routes and parking areas, according to Extreme Construction.

The crane has a jib length of 55 meters and a maximum lifting capacity of 8,000

On its first assignment, a new Liebherr 125 K fast-erecting tower crane is working on the construction of an eight-story residential building in the New York metropolitan area.

"We bought the crane expressly for this purpose," said Daniel Bossi, managing director of Extreme Construction, based in Hamilton, NJ.

It was the reach, usability and flexibility of the Liebherr K series that won over Bossi and his crane operator, he said.

The set-up on site is unusual in that assembly engineers didn't erect the 125 K on the ground but on the third floor of the building. This means there is no need for a recess in the floors of the podium to accommodate the tower of the crane, which saves both time and money.

In addition, the 125 K is high enough to be able to rotate above a nearby Liebherr 316 EC-H tower crane without

The Liebherr 125 K is working on a residential project in the New York metropolitan area. It towers over a neighbouring 316 EC-H crane by almost seven metres.

any problems. Due to its higher position, the 125 K works above the 316 EC-H by almost seven meters.

The fast-erecting crane is positioned on the third floor so that its jib can reach every part of the site.





“ Using this crane allows us to perform all the required lifting on site. The heaviest lift has been around 4,000 kilos. ”

DANIEL BOSSI, Extreme Construction

kilograms. The hook height for this site is just under 37 meters.

“Using this crane allows us to perform all the required lifting on site,” said Bossi.

“The heaviest lift has been around 4,000 kilograms. The auxiliary crane, a Liebherr LTM 1350 mobile crane, lifted the folded 125 K to the third floor and will also

bring it down again once the project is complete.”

Crane operator Jeff Allen, who has been a tower crane operator since 1984 and has worked for Extreme since 2008, has been impressed with the 125 K.

“He said this is the best tower crane he has ever worked with,” Bossi said. “We used the Load Plus assistance system for the duration of the job.”

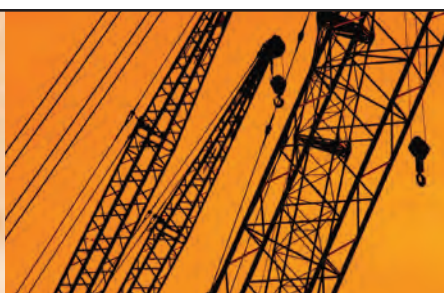
With Load Plus, the lifting load can be increased by up to 20 percent, increasing the performance of the crane. The external cabin and the support provided by other assistance systems of the Litronic control system also ensure safety on the construction site.

Allen brought up the crane to Bossi after seeing it at ConExpo in March 2020.

Bossi subsequently ordered the crane in Extreme’s brand colors, black and orange.

Another attribute of this crane is that the cabin can be assembled without additional tools. The 125 K is designed with low-maintenance rope kinematics, allowing it to unfold with the support of its own drives.

The 125 K is the largest of Liebherr’s K series.



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Efficient and streamlined

CCO continues to improve the exam application process and fee schedule to increase fairness and flexibility.

Effective January 1, 2022, NCCCO will further simplify its exam fee schedule for Mobile Crane Operator written exams. These fee reductions and standardizations are intended to be fairer and provide increased flexibility for candidates.

The Mobile Crane Operator Core exam fee will be reduced to \$120, down from \$160 for paper/pencil tests (PPT); for computer-based tests (CBT) the fee will go to \$155, down from \$230. Mobile Crane Operator Specialty exams will all be standardized at \$60 each for PPT and \$95 each for CBT, no matter how many exams are taken on a particular day.

The simplified fees should reduce confusion and additional fees brought about by the current exam bundling options. CCO performed a thorough analysis of recent candidate activity and determined that on average candidates will pay the same or less for certification under the new fee structure. The changes will also set up the organization for additional streamlining and test administration options that will benefit candidates in the future.

CCO to improve applications

After receiving an overwhelming positive response to CCO's adding the capability to process multiple applicants in a single batch for online practical test applications, CCO has now made the batch processing system available for paper/pencil test (PPT) applications. With this system, test site coordinators or other designated persons can submit a batch of applications, entering each candidate's information and selecting whichever exam(s) they will be taking. All exams in a batch must be for the same exam administration (location and date). The designated person can then submit all the applications at one time,

providing payment for all the candidates in the batch. Candidates are then emailed the exam administration details and authorization to test.

This is one of the many improvements and efficiencies CCO has made this year to application processes, including moving all application submissions online, creating batch application processes, and adding a look-up feature to all applications to automatically complete contact information for candidates who have previously tested.

Stakeholders can expect to see continued efficiencies and improvements to processes and procedures in the coming year.



CCO is streamlining the fee structure for the Mobile Crane Operator written exam.



DIRECTOR PROFILE: Chris Trembl

Having been a member of the International Union of Operating Engineers (IUOE) Local 57 for more than 34 years, Chris Trembl brings to the CCO Board of Directors the interests of the 400,000+ IUOE members. Today Chris is IUOE's Director of Construction Training at the International Training and Education Center (ITEC) in Crosby, Texas, as well as Executive Director for IUOE's National Training Fund.

As Training Director at IUOE Local 57 in Rhode Island back in 2005, Chris selected CCO certification as the standard for IUOE members and set up the union's first training program leading to CCO certification, and he's been involved with CCO ever since. He first became an Alternate Commissioner in 2016, and then joined the NCCCO Board of Directors in 2020, after long-time IUOE General President James Callahan stepped down.

Next up for the IUOE International Training & Education Center will be to offer training leading to Rigger and Signaller certification; and, once they get the equipment at the large training facility in Texas, they will also offer training for pile driving and foundation drilling. His goal is to offer all the training and certification opportunities that IUOE members need to stay gainfully employed. Chris believes, "CCO has set the bar for other certification programs in our industry. OSHA's mandate requiring third-party certification makes my job bringing training and certification to our members that much more important." He went on to say, "Being on the Board gives a voice to the union's membership, and I actively stay connected with our members, instructors, exam boards and CCO committees." When not working, he enjoys spending time with his family – he's a proud father of five boys, with one granddaughter, and a grandson on the way – as well as showing his Ford and Chevy muscle cars at regional car shows.

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Leading by example

A new addiction recovery initiative sets a productive tone.

Last month, U.S. Labor Secretary Marty Walsh joined the Massachusetts Building Trades Council (MBTC) to launch a new initiative to address drug and alcohol addiction among its members and their dependents.

The initiative is in response to the increase in substance use disorder (SUD) cases throughout construction and related sub-industries in recent years. For context, the construction industry has the second-highest percentage of SUD cases in the country – at 14.3 percent for workers 18 to 64 – only behind the food services industry. Additionally, construction only sits behind mining in alcohol-abuse data nationally.

While this isn't a new phenomenon, the hope is that Walsh's initiative will take root similar to the "Drug-Free Workplace Act" more than two decades ago, which lowered substance-abuse rates in both construction and all industries.

The MBTC represents more than 75,000 construction workers and other building trade union members in the state. The council has coordinated the existing anti-addiction efforts that individual member unions have established and created a new online portal with resources, including a calendar of recovery meetings, treatment, and counseling services, and 24/7 phone numbers for members who need help. It's also accompanied by a statewide public campaign to raise awareness of the effort and reduce stigma endured by those who are struggling with addiction.

In a webinar kicking off the campaign, Walsh drew on his personal experience,

"I'm somebody in recovery who got my first access to treatment because I had good benefits from working construction projects in Boston, and that gave me the opportunity to get into detox and, honestly, turn my life around. I'm able to be here as United States Secretary of Labor because of that support I got."

He added that recovery not only requires resources, but requires community, and happens person to person.

Advancing the fight

Substance abuse within construction commonly happens through similar channels. Because it's often physically and psychologically demanding work, some workers use drugs and/or alcohol to manage stress or self-medicate physical pain. Others often become addicted to opiates after taking them as prescribed for a job-related injury. The trades have been particularly hard-hit by the opioid epidemic. According to a 2019 American Journal of Industrial Medicine study, in Walsh's home state from 2015 to 2017, construction workers' opioid fatality rate was seven times the average for the general worker population in Massachusetts.

Frank Callahan, president of MBTC, told reporters during the launch of the initiative that construction workers typically work through the pain of their injuries with painkillers, "... because in our industry, if you don't work, you don't get paid."

But he added that another crucial distinction of union-supported recovery, is job security.

"In most workplaces if you're not represented by a union, particularly in the construction industry, they'll say, 'Why don't you go get yourself cleaned up ... and when you come back, we'll see if we have a job for you. In our end, they're our members and we're looking out for them and their families.'" With that in mind, MBTC's website shows a schedule of weekly recovery meetings open to union members and their families. Additionally, a 2021 MBTC Occupational Health Internship Program report examined union recovery programs in the state and highlighted the importance of peers.

"In building trades unions, peers have 'worn the tools' together and can relate across shared work experiences in their union. With this shared background and mutual respect, peers help members express their problems and begin the process of recovery," the report stated.

In spotlighting the report and the new initiative, Walsh emphasized, "This will help countless workers get access to recovery services, reduce the stigma that prevents people from getting help and advance our fight to end the epidemic of addiction that impacts every part of our country."

CHIEF EXECUTIVE OFFICER



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The new WITPAC
certification elevates safety
for wind transports.

Raising

Back in June (2021) at the SC&RA Specialized Transportation Symposium, Jamie France, Logistics Safety & Quality Engineer at GE Renewable Energy, Onshore Wind, led a panel discussion titled “Finding Success Supporting the Growing Wind Energy Market.”

France’s presentation had two purposes: to make a case for training and coaching, especially around safety, and to give an overview of the WITPAC (Wind Industry Transportation Professional Advanced Certification) program – developed by GE Renewable Energy, Siemens Gamesa and Vestas – who account for over 75 percent of the total global installed capacity every year.

France, an SC&RA member representing GE Renewable Energy, explained that part of her motivation for presenting at the Symposium comes from a decade of working closely with OS/OW carriers that move GE components.

“Over that time period, I’ve seen some carriers that do an excellent job training their employees in certain tasks or areas, but none really have a comprehensive and effective training program,” she indicated. “Most of their training is on-the-job and/or a ‘push’ of information delivered via lectures or required reading.”

A firm believer that people retain knowledge better through participation and interaction during training, France underscored how carriers need to realize that “the way we’ve always done it” is not going to improve performance.

“WITPAC was designed to be a blend of self-paced solo study and instructor-led interactive classes in order to capitalize

on how people learn best,” she said.

“Although WITPAC is specific to hauling wind components, eighty percent of the content and the concepts are applicable to all OS/OW movements. That said, I hope my presentation was equally beneficial to those not in the wind industry.”

Jeff Vaughan, Executive Director of the Evergreen Safety Council (Evergreen), was also on France’s panel. Evergreen has been the sole provider of the Washington State pilot/escort vehicle operator (P/EVO) certification for the last 20+ years. Vaughan explained that France had heard about Evergreen’s program and actually went through the course, got certified and wanted to take things to the next level as far as wind transports goes – in order to provide some advance training to P/EVOs that do wind hauls.

“So that’s how we got involved,” he confirmed. “I met Jamie at an SC&RA conference in early 2020, and a few months later, we started conceptualizing how this might work – started pulling in subject matter experts to help us build the program. The timing was right. Jamie met other people at SC&RA who had concerns and ideas – pilot car companies and carriers, a cross-section of industry people – and we really considered a lot of different perspectives.”

Resistance to change

According to Vaughan, much of the reason a national safety program or certification for P/EVOs hasn’t existed until now can be attributed to resistance, or at least caution, at the state and federal level(s).

“But I also think that there’s been some pushback in the industry,” he noted,



While the Wind Industry Transportation Professional Advanced Certification (WITPAC) program is specific to hauling wind components, 80 percent of the content and concepts are applicable to all OS/OW movements.

“with people who don’t want to move beyond what we’re doing now, or don’t acknowledge or accept that there’s a need to improve – again, resistance to change.”

Additionally, said Vaughan, the impact of not having a uniform safety program/certification hasn’t truly been brought to bear. “People aren’t seeing it as the problem that it is. We’ve also discovered over time that the states aren’t always collecting data on things like bridge hits, and it becomes a problem when trying to look at numbers.”

Like Vaughan, France also sees collective state acceptance and cooperation as a major roadblock to pushing through a standard best-practices safety guide for P/EVOs overall, and relatedly, for wind. “We accept that the fifty states will never agree on one standard,” she said. “We also accept that a federal entity will not set a nationwide standard. And that’s the exact reason we all came together [GE, Siemens Gamesa and Vestas] – collectively deciding that we must do whatever we can to minimize the amount of incidents and injuries associated with hauling wind components.”

“WITPAC was designed to be a blend of self-paced solo study and instructor-led interactive classes in order to capitalize on how people learn best.”

**JAMIE FRANCE, Logistics Safety & Quality Engineer,
GE Renewable Energy, Onshore Wind**



the bar

“It’s very difficult when, in one state, there’s hardly any requirements at all, and then you cross

the border, and there’s a whole set of requirements – and so on.”

JEFF VAUGHAN,
Executive Director of the
Evergreen Safety Council



And that’s where WITPAC comes in, he said. “Industry said, okay look, we’re going to do better, and the wind industry manufacturers are now pursuing it. And then it makes it really easy for regulators in the future to say, well the industry has accepted this as the right way to do things. It then makes it easier for states to agree with and adopt as well.”

Taking a stand

One of the keys to developing WITPAC for France and Vaughan was making sure that GE and others were setting expectations that were realistic and effective. “So, a lot of work over the last year went into really analyzing and looking at how we do things, what’s the better way to do it, and then building a program that sets those expectations and then actually teaches and shows people how to do it,” said Vaughan.

As for the training, the WITPAC development team built the program on the back of countless hours of data analysis, boots-on-the-ground interviews and onsite testing, as well as volumes of input from subject matter experts.

“Our method has been very effective in helping us to hone and shape the program so that it’s in alignment with what happens in the real world,” affirmed Vaughan.

What emerged is a two-step process, he said. “The training program consists of a self-directed online course and exam. Users take that on their own time and at their own pace. And then they attend a live instructor-led session with other students, where there are group activities and other exercises, with additional instruction, which builds on what they learned prior to coming to the class.”

Participants then have to pass a final exam, which qualifies them for certification.

Currently, WITPAC training, which went live in October, applies to anyone participating in the movement of components for the three above-mentioned wind manufacturers.

Prerequisites include a Class A CDL (U.S. or Canada) or P/EVO certification (from select U.S. states only). Ultimately, the course is recommended for transport drivers, P/EVOs, steerpersons and other professionals who work alongside wind industry transport teams.

Chris Smith, SC&RA Vice President, Transportation, noted, “Today, only a handful of states require comprehensive certification of pilot/escort vehicle operators. WITPAC marks one of the first safety certification programs to be developed and led by private manufacturers in the wind industry, reflecting their growing and urgent demand for safe and reliable specialized transportation services.

“Whether it’s more states or the private industry requiring pilot car certification, SC&RA applauds all positive steps taken to ensure the safe operations so critical to specialized transportation carriers everywhere.”

France agreed, adding, “The WITPAC group is where it is today – with the program launched and classes available – because they decided not to wait around for state or government entities. We are taking a stand to mandate what our carriers will be trained on in an effort to continually improve safety.”

For more information, and to register for WITPAC, visit www.esc.org/program/pilot-car/witpac.



A lot of those incidents can often be associated with rogue operators, added Vaughan. “It’s very pervasive, actually, and there needs to be some fundamental chain throughout the industry to root it out. We need these operators to do things in a professional, standardized way.”

Vaughan recognized, however, that the lack of harmonization between states is certainly part of the problem. “It’s very difficult when, in one state, there’s hardly any requirements at all, and then you cross the border, and there’s a whole set of requirements – and so on.

“What I’ve told people is: we can try and persuade the government entities around the country to try and do something about this, and eventually they will, but you may not like what they come up with. A better way is that we as an industry are going to clean things up, and do things the right way – which will be a much better solution.”

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Bill Smith discusses how adopting a safety culture is easier than you think. In fact, your safety plan can be the strongest protection your company has from risk.

A culture of safety

It's not exactly breaking news that the crane, rigging and heavy transport industries have their fair share of workplace hazards. Year after year, thousands of injuries occur in these industries, along with hundreds of fatal accidents. In 2019 alone, OSHA reported 1,066 deaths in the construction and extraction occupations, and a staggering 1,481 deaths in the transportation and material moving sector. Those two occupational groups were by far the most dangerous in terms of fatalities, and when you consider the complexity and very nature of the equipment and operations involved in these industries, it's not surprising.

More surprising to us at NBIS is the number of companies we encounter with lackluster (or worse, nonexistent) safety programs. All too often, safety is low on the priority list or essentially left off altogether – and if this sounds familiar to you, now's the time to take stock and get a plan in place. Because at the end of the day, safety is just too important to leave to chance or half-baked plans. In fact, we believe firmly in the necessity of developing an organizational culture of safety – what we generally refer to as safety culture – that is well-thought-out and reaches into all corners of the organization.

Company wide commitment

The first key to creating and maintaining your company's safety culture is education. One element we see again and again in companies with strong safety records

is a long-term and company-wide commitment to learning. The first thing this does is removes your risk of fines and other negative consequences, since OSHA standards state that training must be continuing and ongoing across most occupations. Simply put, from a compliance standpoint, ongoing training protects you from fines and penalties. However, training is not just about avoiding financial loss – it's about protecting the lives and well-being of your employees.

The other benefit of continuous, ongoing training is that it keeps safety top of mind for your team and sends the message that your company is truly committed to safety. Think about it: when the last time you heard about a company initiative or objective was six months to a year ago, you're highly likely to assume, consciously or not, that the initiative in question is unimportant or very low on the priority list.

You can't expect your workers to develop a strong safety culture because they attend meetings once a year, or even once a month. Building a work culture that prioritizes safety takes time and practice, and this goal needs to be built into the daily routine of your company.

Anytime, anywhere access

One issue we often hear from our insureds and peers is how time-consuming creating a safety culture at your company can be. Without question, building a strong safety culture takes a great deal of time and effort, and there really aren't any shortcuts. On top of that, many companies in crane and rigging, concrete pumping, and specialized transportation are relatively small businesses where fleet owners often wear several hats. It's no surprise that safety training can easily fall by the wayside when faced with the daily challenges of keeping your cranes working and your trucks on the road. But it's just too important on too many levels to skip over safety.

“ Safety is just too important to leave to chance or half-baked plans. ”

The great news is that you don't have to accomplish this goal alone. There are numerous tools and resources available to help you build, manage, and maintain a strong safety culture in your company. We often recommend to our insureds the adoption and continued use of an online safety training tool like the learning solutions offered by Industrial Training International (ITI). This is hands-down one of the most effective ways to automate and simplify safety training. Software-based safety training allows compliance officers to set up courses, create lessons, and automate the learning process. Once a safety course is in place, employees simply log in and complete coursework as time allows – and many online training solutions are accessible anytime, anywhere. This takes away much of the burden of scheduling and facilitating education sessions and monitoring progress – and since the work takes place online, progress is automatically updated and saved.

Another advantage of software-based safety training is the ability to create specialized learning paths. Simply put, a learning path is a curated selection of courses tied together to teach a particular subject. Paths are often set up in a way that relates to the information the employee has already learned to the next lesson. It's an effective way to contextualize safety training, helping learners see the big picture as they progress through the course. Learning paths also help to break up potentially complicated safety lessons into manageable pieces. Users can track their progress, helping them understand where they are in the process and how far



THE AUTHOR

Bill Smith executive vice president, NBIS, is an expert on risk management and safe crane operations. He was a member of C-DAC, which assisted writing the OSHA Crane & Derricks Standard.

OSHA Crane & Derricks Standard.

they have to go before completing their training.

Software-based safety instruction also provides easier and enhanced access for your employees. An online component grants workers 24-hour access to safety lessons, removing the need to work around schedules in order to squeeze in training. That way, the employee learns when they are ready and engaged, rather than hurrying through coursework to get it out of the way. They can also leverage downtime to learn new skills and brush up on existing ones, which means what could be considered wasted time instead is put to good use.

Staying on top of the paperwork involved in safety training can be a full-time job on its own. Safety training software allows you to automate that process, making it easier to keep track of key expiration dates for certifications and licenses. This way, you can stay ahead of deadlines and give your employees the time and preparation they need to renew certifications and licenses. On top of that, should an incident occur at your company, you have proof of training on record. As we often say, preparation is the best defense. These

benefits are a great way to start on a track of being proactive, not reactive.

Your strongest defense

All of these elements are important to a robust safety culture, but one thing to keep in mind is that it's up to you to keep your employees committed and engaged. Educational material needs to be dynamic and interesting as well as convey information vital to the employee's work. Otherwise, learning becomes a chore. This is another area where an online learning solution can be beneficial. Online tools often provide virtual demonstrations that replicate hands-on field training, and are immersive and engaging ways to teach. We've seen our insured companies respond very positively to online training that is specific to their specialized fields, so don't forget to choose a training and learning solution that makes sense for your specific industry. This way, your team starts a course or lesson and immediately sees the value for them in their role.

Finally, consider that virtual learning lends itself well to employee engagement due to its ability to be gamified, which involves using the principles of game

design to challenge employees to learn in an environment that keeps scores and measures success. Using elements like leaderboards, levels, and badges, gamification changes the basic nature of learning. It turns the process into an engaging, interactive experience.

That being said, you will want to be careful with how you approach any kind of incentivized or gamified safety course. While OSHA does not prohibit incentivized safety programs, it clearly discourages employers from designing these programs to penalize workers for any reason. In other words, such programs should only be used to reward participation, not punish.

We truly cannot say it enough – a robust, ingrained safety culture is the strongest protection your company has from risk. Realizing the importance of, as well as the effort needed to implement and maintain an effective training program is the first step. After that, it makes sense to utilize tools and programs to assist you. Software alone can't create a strong safety culture, but when coupled with intentional, company-wide training, online training software makes for a powerful ally. ■



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Two top execs depart from Maxim

Two top executives at Maxim CraneWorks, the largest crane-owning business in North America, have parted ways with the company. President and Chief Operating Officer Frank Bardonaro resigned on September 20th, and on September 22nd, Chief Executive Officer Bryan Carlisle sent a letter to employees outlining his departure from the company.

Bardonaro told ACT that his exit was amicable, that he remains an investor and shareholder in the company and is committed to seeing it succeed. In the letter to employees, Carlisle said he had been with Maxim and its predecessor companies for 46

**Frank Bardonaro**

years and is proud of the company that the Maxim team had built from a small, local crane rental provider to the national market leader it is today.

Carlisle will leave over the next month, working with the Board of Directors to appoint a new CEO and transition his roles and responsibilities. He will continue to be a member of the Board and a shareholder in the company. Bardonaro has been in the crane industry for 40 years. He worked for a predecessor company of Maxim from 1988 to 2001 when he left to become president of AmQuip Crane Rental.



At the time of writing Bardonaro and Carlisle had yet to reveal whether or not they would continue their careers in the crane industry. ■

Bryan Carlisle

Following the promotion of John Arapidis to president and CEO of Kirby-

Smith Machinery, the heavy equipment distributor has recently appointed **MIKE KUNIN** as vice president of national accounts. In this position, Kunin will serve as the successor for Arapidis' previous role.

KASEY STEPHENS has been named the general manager of ALL Crane Rental of Louisiana, a member of the ALL Family of Companies.

A 15-year crane veteran, Stephens is the first woman to head an ALL Crane branch.



Randall "Randy" Sorenson 1954-2021



A titan in the pilot car industry, **Randall "Randy" Sorenson**, unexpectedly and tragically passed away on October 2, 2021. He was born on January 4, 1954, in Gunnison, UT to Durell and Shyrleen Sorenson.

Sorenson later moved to Richfield where he graduated from Richfield High. Southern Utah

University would be his higher education and he finished out at Stevens Henager College. Although he held two patents and a copyright, his longest lasting achievement was the help in developing the Pilot Car Program for the states of Utah, Colorado, Florida, Minnesota and others. Sorenson's influence on the industry was largely based in his ability to teach and certify pilot car drivers across the U.S. and Canada. His passion allowed him to become a leader in promoting safety for the moving of oversize loads.

In the end, whatever he touched he left it better than when he found it. For his family life, he and his wife Terri had just celebrated their 46th anniversary on Sept 27, 2021. He was a grandparent to six grandchildren (Emily, Ethan, children of Travis and Vicki) and (Colby, Spencer, Sadie and Megan, children of Jeremy and Marci). He is survived by his wife Terri, father Durell (wife Pam), brother Kent (wife Diane), and his two sons Travis and Jeremy.

Scott Wilson takes on new role at CraneWorks



Scott Wilson has been named vice president of sales and marketing for CraneWorks,

Inc. Wilson is a former CraneWorks customer, joining the company with 40 years of crane industry experience. Wilson operated cranes and forklifts, drove trucks, moved machinery and repaired equipment for his first 16-years in the industry.

After a long field career, Wilson moved into a sales position and eventually management. Wilson's

most recent position was as president of a large crane company, starting with just two locations and growing it to more than a dozen locations. "Scott's one of those rare guys who started in the trenches, kept at it, and over time worked his way to the top," said Keith Ayers, CraneWorks CEO. "Since he worked in nearly every aspect of the crane industry, he can tell the sales team from firsthand experience what's important to the crews in the field, business owners, buyers, crane operators, project managers, schedulers, dispatchers and more." ■

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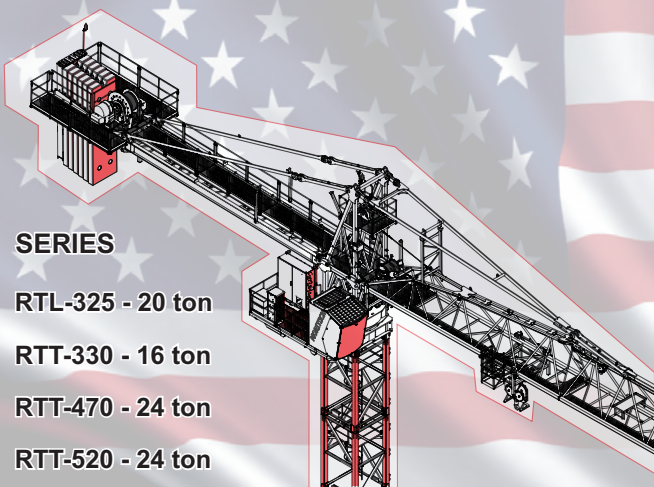
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Mike Parnell, one of the historied co-founders of Industrial Training International, (ITI) is a consummate educator. His enthusiasm for proper training and safe practices is contagious, and his unwavering vivacity has helped pave the way to a better-trained industry.

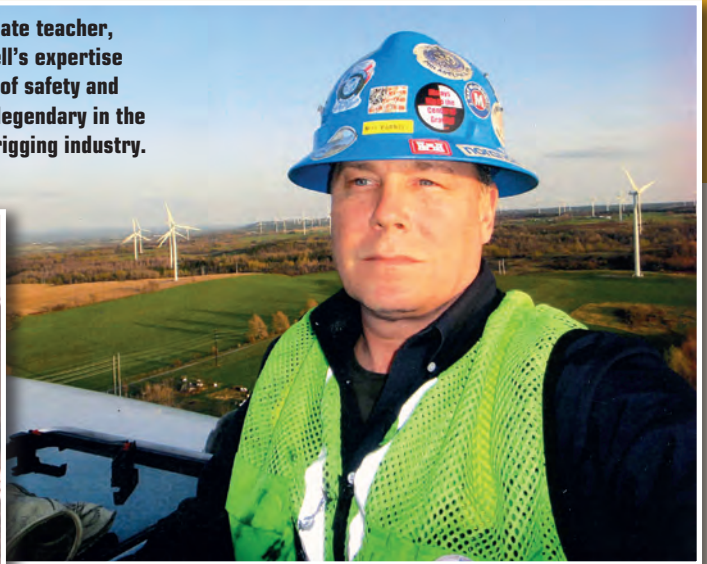
Parnell graduated with a business degree from Central Missouri State University in 1979. From the get-go he was drawn to the industrial and construction sectors.

In August of 1979, Parnell began his illustrious career as a general manager at Wire Rope Corporation America, which today is known as WireCo. He learned the business of wire rope and rigging, and also spent time in the engineering and logistics side of the business. He travelled the country familiarizing himself with all facets of the industry. He attributes this time and nearly 140,000 miles on the road as the best investment in his career. Interacting with OEMs and end-users, Parnell worked with tower cranes, mobile cranes and small mining operations.

ITI is born

Parnell and his wife Darlene signed the paperwork to start their business, Wire Rope & Rigging Consultants, in 1986. It was renamed Industrial Training International in 1995 due to the large amount of overseas work they were performing.

After landing a training contract in Nigeria in 1991, the company's revenue started to grow. ITI hired on additional staff to meet the growing global demand. In the late 1990s, ITI developed its national "Rigging Rodeos." With the help of a collection of transportable rigging equipment, attendees were broken into teams and rotated through stations competing for the winning belt buckle. Following the success of the rodeos, Parnell and the ITI team began opening



training centers throughout the U.S. Parnell was

recently awarded the 2021 Dedicated Service Award from the American Society for Mechanical Engineering (ASME). He has been serving ASME for more than 25 years on subcommittees and committees, most notably B.30. But awards and recognition aside, Parnell's favorite part of his job is seeing a student have an "aha" moment.

"To see students' eyes light up, when they understand a concept and they finally land on, those are my most memorable moments and those are what give me the most joy," he said. "All of the sales and

ITI has established training centers across the United States using hands-on learning opportunities.



“ Mike Parnell's favorite part of his job is seeing a student have an 'aha' moment. ”

money that we may or may not make – what really matters is, 'Can our people make a positive difference in our students' life?' We give them the ability to safely go home every night of their career."

In 2005, son Zack Parnell joined ITI as CEO and president. He has a passion for expanding the company into virtual reality and leading edge training and safety technologies.

Looking ahead

ITI will continue offering onsite training, training center training, e-learning and virtual reality simulations, as well as consulting and team project work with clients.

"The future of ITI is based in helping to solve problems, lower the risk of the activities we're involved in, raise the knowledge level of the team doing the work and enhance skill levels," said Parnell. "All those things go together with making a safe and more efficient workplace. That's the true calling of ITI." ■

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