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President's Page

KELLIE KIMBALL
CSDA President

As we approach the holiday season, I would like to extend warm greetings of Merry Christmas, Happy Holidays, and a Happy New Year to our valued industry members. May this festive season bring happiness and joy to you and your family.

Reflecting on the passing year, 2023 seems to have flown by, and I hope that all our companies and families have experienced a positive rebound in the wake of the challenges posed by the COVID-19. Throughout this year, CSDA has remained actively engaged in various ways, including hosting quarterly meetings, webinars, member mixers, and our exceptional convention held in Bermuda.

As we bid farewell to 2023 and usher in 2024, we have some important news to share. It is with a mixture of gratitude and nostalgia that we announce CSDA is parting ways with O'Brien International. We would like to express our deep appreciation to our long-standing management partner for their invaluable support and partnership spanning over three decades. We extend our best wishes to Jon, and Kelsey and thank them for their dedicated service and friendship.

Starting in 2024, we are thrilled to announce a new chapter in our journey with our new management company, FrontlineCo. FrontlineCo is a full-service association management company that will work closely with CSDA to drive growth, enhance member engagement and boost our brand's visibility. This collaboration will also enable us to expand our digital training programs. The CSDA executive team and board are eagerly looking forward to embarking on this new adventure in the year ahead.

We invite you to meet our new management team during the World of Concrete event, either at the CSDA Booth or at our WOC Member Mixer on Wednesday, January 24th, from 4 pm to 8 pm at the Davidoff Cigar bar on the Las Vegas Strip. Additionally, be sure to explore our updated website for more ways to get involved with our esteemed association. We are excited about the opportunities and innovations that lie ahead and are eager to welcome you on this journey with us.

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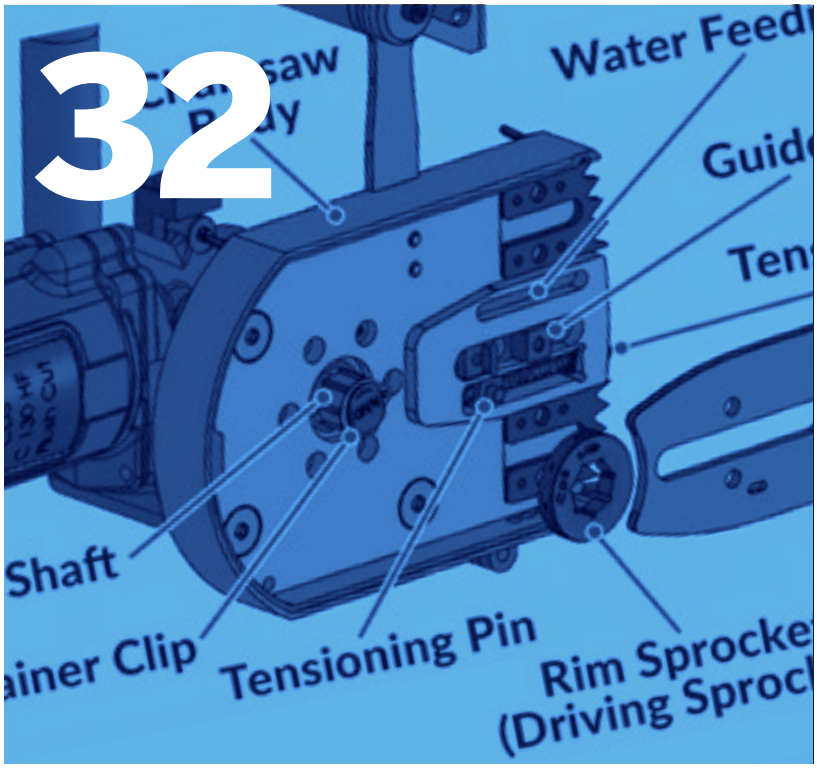

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CSDA Member's Part in Converting Lock and Dam into Hydropower Station

A lock and dam is a hydraulic engineering structure commonly found on rivers and canals. Its primary purpose is to facilitate the movement of boats, ships and other watercraft between different water levels along the waterway, and is accomplished through the integration of two key components: the lock chamber and the dam.

The lock chamber, a watertight enclosure, is the central feature of the system. It is equipped with gates at each end, which can be opened or closed as needed. When a boat enters the lock, the gates are sealed behind it. This isolation allows for precise control over the water level inside the chamber.

Adjacent to the lock chamber is the dam, a strategically designed barrier across the waterway. The dam serves several functions, with one of the primary purposes being to regulate the flow of water into the river or canal. This control is achieved through mechanisms like gates and valves, which can be adjusted to manage the volume and speed of water passing through.

Converting a lock and dam into a hydroelectric power plant presents a range of benefits, mainly, this transformation allows for the repurposing of existing infrastructure. Lock and dam structures are typically situated on rivers or waterways with strong water flow, providing an ideal foundation for harnessing hydroelectric power. By retrofitting these facilities, there's a significant reduction in the need to construct entirely new power generation sites.

Moreover, hydroelectric power is a clean and renewable energy source. It generates electricity by harnessing the kinetic energy of flowing water, producing minimal environmental impact. This makes it an environmentally sustainable option, contributing to efforts to reduce greenhouse gas emissions and combat climate change. This also leads to reduced environmental disruption compared to constructing entirely new dams and power plants. It avoids the ecological consequences of creating new reservoirs and impoundments, preserving local ecosystems and habitats.

In an endeavor to harness cleaner energy, CSDA member Concrete Coring Company of Central Kentucky was contracted to transform Kentucky River Lock and Dam #13 into a new, cleaner energy hydropower station. This project not only requires precision but also innovative methods using diamond tooling to ensure structural integrity while accommodating the new hydro-energy infrastructure.

For the installation of the hydropower equipment and to safeguard the lock and dam's framework, selective demolition was determined to be the best method for this transformation. The methods employed were chosen as they stood out as the only viable options for this unique undertaking. The hydropower equipment required a flawless fit, leaving no room for compromise. Any alternative approach would have entailed a reengineering of the entire lock structure from the ground up.

Keyways for the gates within the lock walls were crafted through a combination of wall sawing and selective demolition. The majority of the selective demolition was performed with a Brokk. This precision work extended to the installation of the cable tray, a conduit for the wiring that powers the lock. Alterations to the bulkhead's size were executed using CAT 336 and 308 excavators equipped with shears and hammers, Hilti wall saws for sawing and finally with removal with cranes.

Unpredictable floods in the region had already set the project back by a year. As the calendar veered into fall and winter, the challenges escalated as the colder weather makes work much more difficult. The cofferdam, a critical element in flood control, was reinforced with additional bracing to counteract the pressure surges that accompanied the river's periodic floods, safeguarding the working area from potential flooding.


KUBOTA

There was concern over both the flooding and working at heights for the Concrete Coring crew. Each day, equipment had to be carefully removed from the work area and then moved back to the working area the following day. With operations taking place on 60' boom lifts, strict cabling measures were taken for added safety. Additionally, rigorous assessments of lifting capacities were conducted daily to ensure the lift could handle the weight of equipment and operators safely.

As the project marches forward, nearly 1000' of wall sawing, reaching depths of up to 3' will have been completed. The process of selective demolition is slated to yield 20 tons of concrete for removal. While the project remains a work in progress, it is currently on track and within budget. The Concrete Coring team's performance has drawn the attention of the American Hydro Association (AHA), opening doors to future collaborations on similar projects.

Thus far, the progress of this endeavor has been nothing short of commendable. Despite the inherent dangers and formidable challenges, the team's expertise and cutting-edge equipment have exceeded all expectations. The project stands as a testament to the company's well-deserved reputation for excellence in the field. Their selection came on the heels of another concrete company's inability to meet the project's demanding standards, highlighting their unwavering commitment to quality and precision.

The transformation of Kentucky River Lock and Dam #13 into a hydropower station represents a remarkable undertaking in the realm of cleaner energy. The integration of hydroelectric power into existing lock and dam structures not only repurposes vital infrastructure but also aligns with the global push for sustainable energy sources. The execution of selective demolition and precision engineering by the Concrete Coring Company of Central Kentucky has showcased unparalleled expertise, overcoming unpredictable challenges such as floods and elevated work conditions. As the project progresses within budgetary constraints, it stands as a testament to the company's commitment to excellence and innovation. The attention garnered from the American Hydro Association suggests potential collaborations on similar projects, the success of this

undertaking and its significant contribution to the evolving landscape of renewable energy.

The ongoing transformation of Kentucky River Lock and Dam #13 and others like it into a hydropower station not only signifies a groundbreaking venture in the realm of cleaner energy, but also emphasizes the critical importance of selecting a CSDA member for such transformative projects. The decision to enlist the expertise of the Concrete Coring Company of Central Kentucky has proven to showcase their ability to navigate and overcome the unpredictable challenges inherent in large projects such as this. The utilization of cutting-edge equipment highlights the distinct advantages of choosing a CSDA member for projects of this magnitude.

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COMPANY PROFILE

Concrete Coring Company of Central Kentucky has been serving Kentucky, Indiana, West Virginia and Tennessee for nearly 30 years. They have about 20 employees and their fleet ranges between 12-15 trucks and trailers. They offer core drilling, flat sawing, wall sawing, wire sawing and selective demolition. Their team's specialty is innovation; whether it is means and methods or customizing equipment, their committed and creative team is why they are an industry leader. They have been a CSDA member since 2023.

RESOURCES

General Contractor
Appalachian Hydro Associates

CSDA Contractor
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Methods Used: Wall Sawing, Hand Sawing, Wire Sawing, Selective Demolition, Robotic Demolition

Most Contractors Unprepared for Cyberattacks

A new report follows warnings that hackers often target AEC firms' clients

Contractors have a looming problem—most of the industry isn't prepared for a cyberattack, according to a new survey from Dodge Construction Network and content security and management company Egnyte.

Among surveyed AEC firms, 59% say that they have experienced a cybersecurity threat in the last two years, according to a press release. General contractors were the hardest hit—70% have experienced a threat, and 30% have had a ransomware attack since 2021.

Seventy-two percent of architects, engineers and contractors rate themselves as having a moderate or higher degree of preparation for an attack that would cause them to lose access to documents, according to the anonymous survey. Despite this belief in their preparation, however, 77% said they can't go more than five days without access to their documentation before they experience serious schedule impacts on their projects. That period pales in comparison to the 24-day duration of an average ransomware attack, according to Statista.

Based on the results, "most of the industry is not prepared for a serious cyberattack," the survey's authors wrote.

These cyberattacks may not even have the AEC firm as the end goal. Stel Valavanis, the CEO of onShore Security, wrote recently on Construction Dive that contractors often

act as the entry point through which hackers can strike at more lucrative targets—a builder's clients.

"Construction companies may not think of themselves as likely victims, but from the perspective of cybercriminals, they are the weak point in the wall of defenses surrounding these high-value targets—which puts them squarely in the hacker's crosshairs," Valavanis wrote.

PREPARATION IS KEY:

Earlier this summer, the Securities and Exchange Commission released new public disclosure rules for cyberattacks, requiring that public companies report on material cybersecurity events and outline the facts of the breach on the SEC's Form 8-K.

The most common mitigation strategy is to improve internal security procedures, according to the survey, examples of which could be keeping and updating unique passwords or having the latest security software installed.

Many other firms create rules around exchanging data, such as creating an information backup, using a secure service and maintaining built-in security measures, but far fewer require or use security compliance certificates.

The report wasn't all bleak. Firms that do engage in these preventative measures usually have good results, it said.

A majority of respondents say that these access deficiencies result in numerous performance issues, such as unplanned rework and schedule delays. "Previous studies conducted by DCN show the impact that unplanned rework and schedule delays have on construction projects," says Steve Jones, senior director of industry insights at DCN. "As the digital transformation of the design and construction industry continues, companies with universal access to their documents will be better poised for success."

The data suggests that cloud-based functionality can help to avoid these challenges since 85% of those who report no issues with document access are currently utilizing the cloud.

"The architecture, engineering, and construction industries have seen a surge in migrating data to the cloud in recent years empowering them to collaborate more efficiently and effectively," says Kevin Soohoo, senior director of AEC Industry Solutions at Egnyte. "This study demonstrates how the digital revolution has empowered companies to adapt to new ways of work despite the unique challenges each of these industries have faced with the opportunities and risks that come with technology today."

"Promisingly, most of those who pursue security compliance certificates and improve their internal security procedures find these measures highly effective, suggesting that there are good options for the industry to effectively address these challenges," the authors wrote.

Dodge Construction Network is a solutions technology company providing an unmatched offering of data, analytics, and industry-spanning relationships to generate the most powerful source of information, knowledge, insights, and connections in the commercial construction industry.

The Decommissioning of Crystal River NUCLEAR UNIT 3

Crystal River Nuclear Plant

On October 1, 2020, Duke Energy and Accelerated Decommissioning Partners, a joint venture of Orano USA and NorthStar Group Services, completed a transaction to start accelerated decontamination and dismantlement (D&D) of the Crystal River Nuclear Plant (CR3) in Citrus County, Florida. The 5100-acre site on Florida's Gulf Coast 85 miles north of Tampa, also includes two operating coal plants and 1 operating natural gas plant. The D&D work began in 2020, rather than 2067, 50 years sooner than originally intended.

Decommissioning a nuclear plant is a safe and well-defined process with strict oversight by the U.S. Nuclear Regulatory Commission. The process involves downsizing, packaging and shipping radioactive materials, such as the reactor vessel (RV), to an off-site licensed disposal facility.

Orano USA is a major supplier of materials and services with in-house capabilities and decades of experience dismantling nuclear reactors and packaging and transporting radioactive materials,

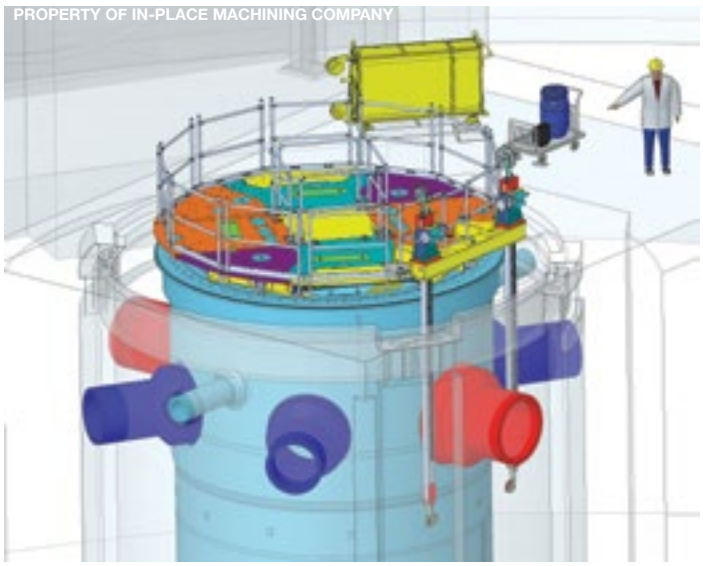
as well as managing used nuclear fuel. NorthStar is the largest demolition company in the world, with active D&D operations at multiple USA nuclear sites, including Vermont Yankee, also supported by Orano USA.

CSDA member In-Place Machining (IPM) was contracted by Orano to design, build, test, deliver and provide on-site services for a Multi-Purpose Reactor Vessel (MPRV) Work Platform system. The delivered solution was designed to be used for the specific purpose of supporting this industry-first execution of Orano's Optimized Segmentation process, plus packaging and disposal of the Crystal River Unit 3 Reactor Vessel and Reactor Vessel Internals.

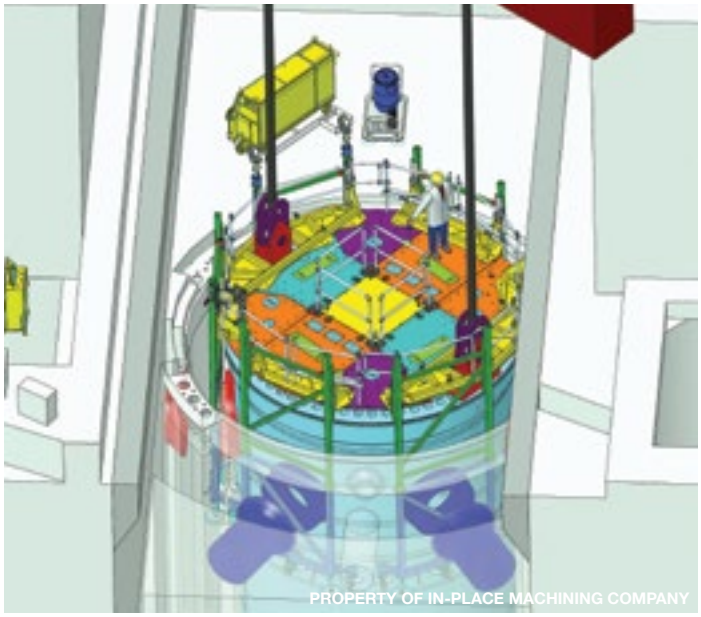
The MPRV Work Platform consists of a large diameter steel-plated deck which, when set atop the CR3 reactor vessel, provided critical operator shielding during segmentation activities. The platform served as a base structure to attach various tooling that was used to perform the segmentation of the reactor vessel. The MPRV Work Platform scope of supply included a diamond wire cutting system for making both horizontal cuts through the RV and vertical cuts through the attached nozzles, as well as a remotely operated thread milling machine and accompanying indexing slide to machine the threaded lift holes required for attachment of the Orano provisioned Heavy Lift System (HLS).

Prior to site mobilization in 2022, engineering and fabrication of all tooling was performed at IPM's primary shop in Milwaukee, WI. A full-size mockup of the RV was built to allow testing of all components

Final MPRV Platform and Pulley Supports In-Place Over Reactor Vessel Mock-Up



Wire Saw Setup for Cutting Nozzles with IPM Down Pulley Mechanism (DPM)



Wire Saw Setup for Horizontal RV Cut

and pre-assembly of the entire work platform. IPM emptied its 150,000-gallon underwater testing pit to allow work to be done in the dry, as would be the case at the job site. Multiple horizontal diamond wire cuts were made under the observation of Orano engineers and field supervisors. Each completed cut was scanned by Exact Metrology: A Division of In-Place Machining Company, using their Surphaser HSX100 system to comply with strict requirements for surface flatness, stemming from disposal package constraints.

While work proceeded in Milwaukee, Orano disassembled the reactor internals and transferred high-level waste to specialized storage casks. The remaining segmented internals were placed back into the reactor vessel and secured in place by filling the vessel with solidified grout.

Following the delivery of the work platform and all IPM equipment to the job site, the platform was reassembled and placed on top of the RV.

IPM utilized a wire saw system consisting of a Diamond Products WS-50-XLE, and Tyrolit 46 BPM plated wire to execute the vertical nozzle and horizontal vessel cuts. The diamond wire saw control station was located on the Refuel Floor and the wire saw was placed on the shallow end of the Fuel Transfer Canal.

IPM's pulley mechanisms were preassembled on the Refuel Floor, before being craned down and mounted to the work platform, where the combined motion of the diamond wire and IPM's custom-built Down Pulley Mechanism (DPM) was used to advance the wire saw guillotine and ultimately sever all 8 connecting nozzles.

After all the nozzles were cut, the platform was reconfigured to make the first of 2 horizontal cuts through the entire reactor vessel. The diamond wire from the Wire Saw Drive was routed around a vertical swivel pulley at the upper elevation and down through a tube to another vertical swivel pulley on the work platform. From there, the wire was selectively routed around additional horizontal pulleys and independent wire support guides, all of which were synchronized to be at the desired cut elevation. The return of the diamond wire back to the Wire Saw Drive was accomplished in a similar reverse arrangement. During horizontal cutting operations, the diamond wire was strategically moved from pulley to pulley around the vessel, following a sequential cut plan methodology.

Following the completion of the first horizontal cut, the wire sawing equipment was removed, and the upper section of the vessel was lifted and packaged. This

16’ diameter section with 9” walls and grouted stainless-steel internals weighed more than 489,000 pounds!

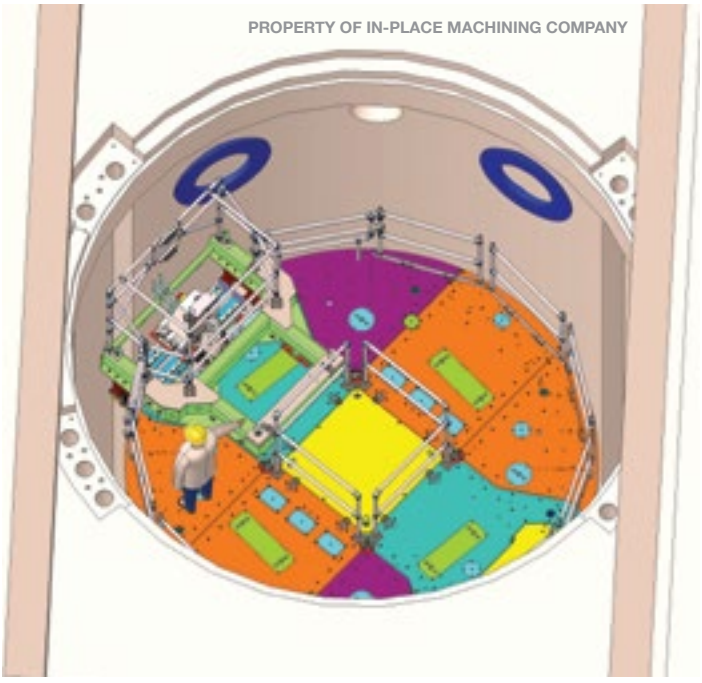
After the removal of the upper package, the platform was re-installed at the lower elevation, complete with the thread milling machine. This specialized remote-operated machine tool was used to helical mill the threaded holes required for the Heavy Lift System (HLS).

Following the completion of the threaded holes, the wire saw system was set back in place for the final horizontal cut.

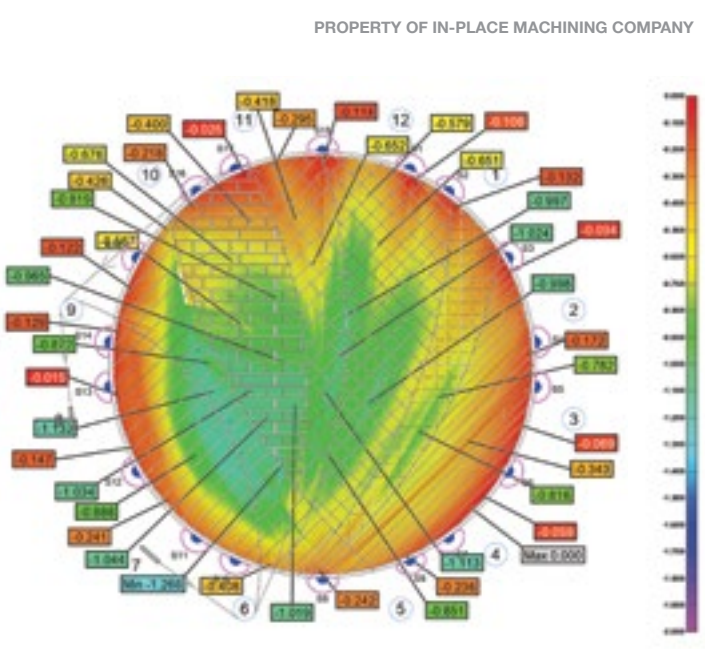
When speaking about the project, Ricky Agrue, IPM Site Manager, said, “The mock-up cuts, performed in the IPM Milwaukee Facility, were analyzed by our metrology group and gave us the data we needed to execute the cuts in the field. The collective effort from the start of the project until the very end made this difficult task a remarkable success!”

In celebration of the successful joint venture, Sebastien Guillot, VP of Operations of Orano Decommissioning Services, recognized the many key contributors to the project by saying, “When executing an industry-first process such as our

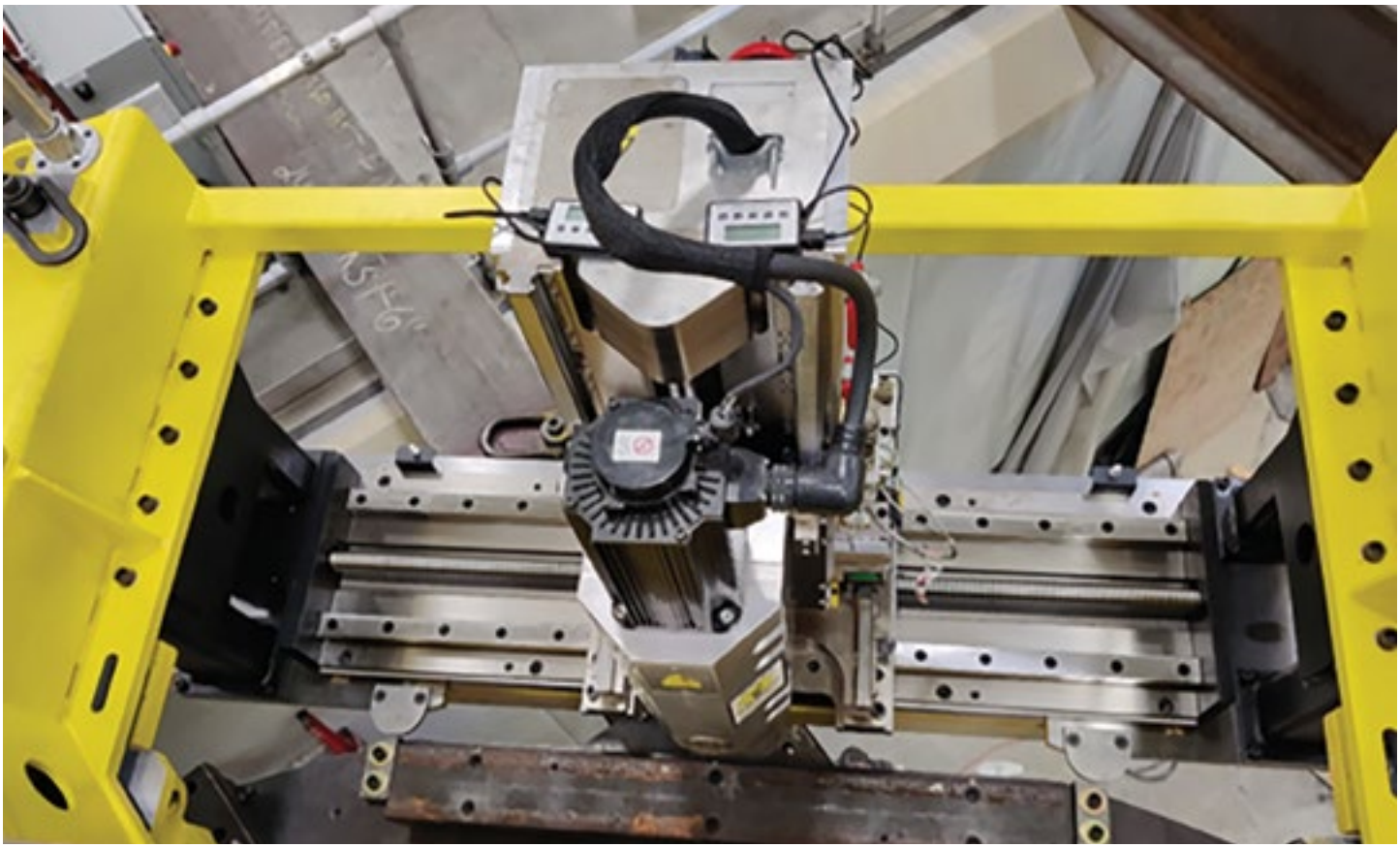
View of First Horizontal Cut - Looking at Bottom of Upper Section of Reactor Vessel



Thread Milling Machine for Lifting Lug Attachment



Metrology scan shows minor deviations in flatness of diamond wire cut



The IPM Shop Mock-Up of the Thread Milling Machine

Optimized Segmentation of the CR3 reactor vessel, we help ensure success by bringing on highly qualified companies like IPM with their proven skills and technology for engineering and performing complex and unique diamond wire sawing operations."

The meticulous dismantlement of the Crystal River Nuclear Plant exemplifies the unparalleled expertise that comes with selecting a CSDA member. In-Place Machining not only designed and delivered a cutting-edge solution, but executed the project with precision and finesse. Their commitment to innovation and safety was evident from the rigorous testing of components to the seamless execution onsite. This successful project stands as a testament to the capabilities of CSDA members, ensuring that your projects are handled with unmatched proficiency and professionalism.

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COMPANY PROFILE

In-Place Machining Company, LLC, has sixteen locations across the United States and Canada and has 381 employees. They are a premier provider of high precision engineered on-site machining, machine shop services, large-scale diamond wire cutting and drilling, dimensional metrology and measurement and alignment services for a wide range of industries including renewable energy, aerospace, nuclear, industrial and military customers across the globe. They have been a CSDA member since 1998.

RESOURCES

General Contractor
Orano USA

CSDA Contractor
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OSHA Injury and Illness Reporting: What Employers Need to Know

Adam R. Young, Mark A. Lies, II, and A. Scott Hecker

Most employers understand that they are required to report serious injuries and illnesses to OSHA shortly after they occur. Even employers in low hazard industries who are not required to keep written OSHA records still face reporting obligations. Federal OSHA regulations require employers to report work-related fatalities within eight hours, and serious injuries within 24 hours (amputations, loss of eye, or hospitalizations for medical treatment). California reporting obligations are more onerous, requiring reporting within 8 hours for a "serious" injury or illness. First and foremost, employers must comply with the law and report all injuries and illnesses as required by law.

The decision to report can be difficult for employers because it requires rapid analysis of dynamic incidents and medical situations, and the regulations related to reporting are numerous and complex. OSHA aggressively conducts inspections relating to reporting and issues non-serious citations for failure-to-report or late reporting. OSHA learns about incidents from worker complaints, medical providers, and news media reports, and often opens investigations prior to receiving an injury report from the employer.

1. Injury Reporting Serves as a Legal Basis for an OSHA Inspection

OSHA may only conduct an unprogrammed inspection where it has a neutral basis and probable cause to do so. These include reports of injuries (amputation, loss of an eye, or hospitalization) and fatalities. A workplace fatality, other than a public-road car accident or personal medical condition, almost always will result in an onsite OSHA inspection within two weeks. Depending on the jurisdiction, a reported injury can have an approximately 50%-90% chance of an onsite inspection. If you report an injury or death, you should expect OSHA will be onsite shortly and prepare accordingly. An employer can reduce the probability of an onsite inspection if it only reports injuries where required by law, and does not report non-reportables. We recommend closely examining each incident, involving qualified outside counsel, to ensure that reportable injuries are properly reported.

2. Only Work-Related Injuries and Illnesses Must be Reported

The OSHA regulations require employers to report work-related injuries and illness, for which work conditions were a cause or contributing factor. The OSHA regulations presume that an injury or illness occurring at the workplace, unless factors indicate otherwise. Personal medical conditions that manifest in the workplace, such as heart attacks, strokes, and seizures, represent one tricky issue. OSHA's standard interpretations generally provide that these types of events are reportable. In the instance of reporting such an event, we recommend working with outside counsel to evaluate work-relatedness and frame the issue appropriately.

3. Common Reporting Misconceptions

A surgical amputation (after an accident), surgical loss of an eye, and in-patient hospitalization may all be reportable. But they are not reportable if the reportable event (e.g. surgical amputation) does not occur within 24 hours of the accident. A hospitalization is only reportable if it meets several elements, including a formal admission to the hospital for purposes of medical treatment.

Many times, workers who suffer unfortunate accidents later succumb to their injuries. If their death was in part the result of the work-related injury or illness, and they pass away within 30 days of the incident, there is a fatality-reporting obligation. However, employers only need to report once per employee and need not make a subsequent fatality report if the employer previously reported the employee's initial injury.

As with other OSHA citations, employer knowledge is a key element. The employer must know or should have known of the reportable injury. This means that the 8- and 24-hour clock begin to run when a manager knew or should have known of an accident. We recommend that employers make good faith efforts to inquire as to employee status at the hospital and report if they learn about a reportable event.

4. Tips For Making the Report

When reporting an injury or illness to OSHA, employers should provide 100% truthful and accurate information. This should not include speculations, assumptions, or inevitablypremature conclusions about the root causes of incidents. Generally speaking, less is more. Report only what is requested and do so accurately.

As with any legal topic, there are exceptions to the general rule. It may be advantageous in some circumstances to provide more information suggesting that an injury or illness is not work-related, or other information that might discourage an onsite OSHA inspection.

5. Inspection Management for a Reported Injury or Illness

For an onsite inspection, OSHA will have a particular location or equipment focus. OSHA will want to see the site of the accident or the equipment on which there has been a complaint. The employer should plan a route on how to get to that area of the worksite, minimizing exposure to other equipment or alleged hazards that OSHA will see. Sometimes the most efficient route will be walking around or driving in a car to remote parts of the worksite. For unprogrammed inspections based on injury reports or referrals the employer knows about, management should assume OSHA is coming onsite and can plan/map the route ahead of time. A qualified manager can walk the route to ensure there are no visible safety hazards (e.g. exposed wiring, unguarded edges), and to ensure prompt and proper correction of any hazards they do identify.

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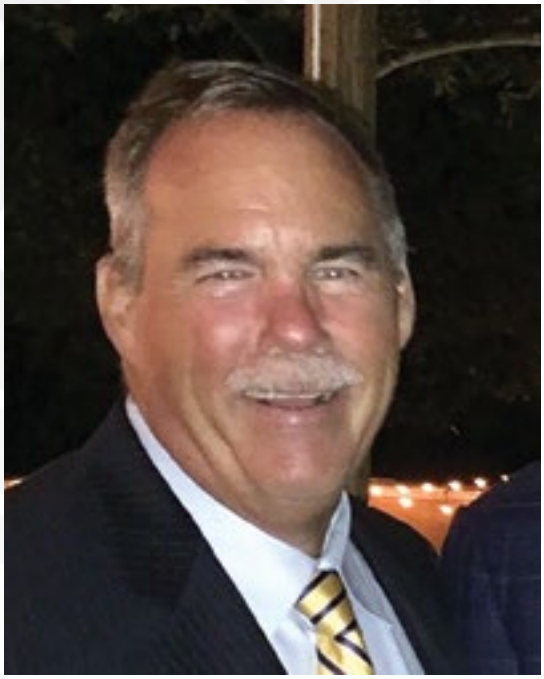
Addressing the supply chain problems within the drilling and cutting industry



DOUG WALKER
IACDS President

Supply chain management often plays a crucial role within the drilling and cutting industry. When it is done right, it ensures that the projects come together in a smooth, efficient manner, meeting all the requirements and deadlines expected of the workers.

However, as is the case with any sector within the construction industry, we face a myriad of challenges on a daily basis, which often affect the supply chain. This leads to delays in the flow of materials and equipment, slowing the work and increasing the cost of production.

Shipping and transportation costs are another issue that often arises during the work. Since the industry usually operates globally, with suppliers and contractors cooperating on an international level, any disruption of it, such as natural disasters, fluctuations in fuel price and increase in transportation cost, can have an immeasurable impact on the worksite's schedule.

On the jobsite itself, quality control and customization demands are also frequently present. Due to the risk that the work in the drilling and cutting industry entails, as well as the specification of each worksite, the professionals must conduct and follow rigorous procedures to ensure that the workers are adequately educated and protected and that the work is well done and durable.

Both of these tasks require a thorough study and assessment, and, if not well planned, not only delay the supply chain but also lead to accidents on the jobsite.

On the other hand, there are environmental and regulatory concerns. As environmental awareness grows, so do the regulations that focus greatly on sustainability within the construction industry.

While they are completely necessary, the adaptation to different regulatory frameworks, as well as the transition to sustainable practices and equipment take time and effort. This, coupled with the difficulty of the work, can slow down the supply chain in a significant way.

Finally, the supply chain technology is another topic worthy of discussion. Many companies in the concrete drilling and cutting industry still rely on outdated supply chain management systems, and upgrading them implies a great cost that is not always affordable.

How do we fix those issues? The answer is quite complicated. One of the most important aspects is being able to forecast certain costs. Before, we used to order certain bits and blades uniquely; and now, we tend to order more of those parts. While it might lead to an overstock and increase prices, it is equipment with an extended shelf life, and it will last for many works to come. Additionally, having the estimated cost of the suppliers before the job also helps predict and mitigate certain problems.

The challenges we, as professionals in the industry, face are undeniable. However, we must not shy away from them. Often there is a lot of "trial and error" that takes place while we figure out the best solutions.

By addressing these issues through innovative solutions and best practices, companies in this sector can streamline their operations, reduce delays, and enhance their overall performance.

As the industry evolves, so do we, and, by tackling those issues together, we are guaranteed to come forwards with better knowledge than ever before.

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Transforming a Speculative Warehouse into a 5GW Solar Manufacturing Facility with Precision and Innovation

Invenergy, a trailblazer in sustainable energy solutions, is embarking on the establishment of its inaugural manufacturing facility in the United States. This project involves the transformation of a speculative warehouse into a 5GW 8-line Mono-Crystalline Solar Manufacturing Facility, highlighting Invenergy's commitment to bringing clean energy to communities around the world and to advancing renewable energy on a grand scale.

The project is a buildout of a 1.1M SF speculative warehouse for a 5GW 8-line Mono-Crystalline Solar Manufacturing Facility. Areas being built include a laboratory, packaging room, warehouses, break rooms, conference rooms, production floor, mechanical rooms and an office. The main utility service upgrades include water, sewer, natural gas and electrical. The shell upgrades include high-bay lighting and new ventilation systems Additionally, 3,000 tons of cooling load is required to manage equipment heat loads and process mechanical installation including piping, ventilation and ducting and the build requires a complete electrical buildout.

The building selected was originally built as a speculative warehouse, a building designed for high-piled combustible storage, which was designed to minimum code requirements, including minimum heating and air changes, emergency and egress lighting and minimal structural design. This meant that the design and build General Contractor (GC) ARCO/Murray was starting with a 1,100,000 square foot cold, dark box as a canvas.

In order to meet the operational requirements, the ARCO/Murray design included full-package architectural and structural designs. This included a new mezzanine, joist reinforcing for new rooftop equipment and mechanical, electrical and plumbing (MEP) collateral loading. This also included civil design for expanding parking requirements and upgrading electrical and water services. The physical buildout of the speculative building would cover demolition, utility upgrades, a full MEP buildout, demising walls of varying construction types to split the building into 9 operational zones, and 5 office buildouts to support operations.

The desired completion timeframe of quarter 1 of 2024 could not have been met by building a build-to-suit facility, so the focus was to find a speculative building that would fit the facility's needs. An extensive site selection process that reviewed potential buildings for this project's purpose, as well as other potential business needs, took place across multiple states. Square footage, utility service provider and availability were highly weighted variables.

The operational demands for this facility required additional power services to be brought to the building. This was achieved through collaboration between the owner, local utility provider, ARCO/Murray design team, and ARCO/Murray Power Solutions. The electrical upgrades include 4 electrical service entrances provided by the utility company which power

40+ utility-grade transformers serving the building's systems. There is also an initiative to install a solar roof system to power the building operations further.

CSDA member Donley Concrete Cutting was tasked with a multifaceted aimed at transforming the speculative warehouse into a functional space for Invenergy's 5GW Solar Manufacturing Facility. Among the tasks undertaken were the flat sawing and removal of 7,000 square feet, 8" interior concrete slab-on-grade for an interior plumbing trench. This process was executed with precision to avoid overcuts, and the removed 700,000 pounds of concrete were disposed of at a local recycling company.

Additionally, the team at Donley Concrete Cutting performed concrete flat work, including flat sawing 2,000 square feet, 8" interior concrete slab-on-grade for mezzanine spread footer installation. Core drilling was also a significant aspect of the project, involving the creation of 200 18" cores for bollard installation.

In terms of electrical work, over 100 3" and 4" diameter cores were drilled in both block and precast walls. Furthermore, a substantial area of 43,000 square feet of 8" exterior concrete slab on grade was flat sawn to facilitate the installation of underground high voltage systems.

The mechanical requirements of the project were met through wall sawing over 60 penetrations in 10" concrete precast walls, located 40' above grade. These penetrations allowed for the installation of louvers, supply fans, and exhaust fans to ensure proper building ventilation. The constraints of the speculative building demanded creative design solutions, leading to the utilization of knockouts designed into existing tilt panels for ventilation.

Concrete sawing and core drilling were crucial methods employed to penetrate the 8" concrete slabs and the 10" concrete walls with precision. The team adhered to strict safety requirements, ensuring that overcutting was avoided on wall openings to maintain structural integrity and eliminated on the slab for aesthetic reasons.

The concrete slab was cut into manageable pieces using Husqvarna Tier 4 diesel flat saws, and the debris was efficiently removed off-site. Core drilling for electric lines in block and concrete precast walls was performed using the Hilti DD250 core drill and Hilti slurry recovery system to ensure a clean finished product.

For the wall openings, crews worked from scissor lifts and boom lifts, using the Pentruder 8-20 HF wall saw to complete perimeter cuts. Each piece received cores for lifting holes, and the finishing touches were carefully done with the Pentruder chainsaw. The sections were then removed using a telehandler and loaded into dumpsters for proper disposal. After each step, the surrounding work area was power washed to maintain a clean and safe environment. The precision and expertise demonstrated by Donley Concrete Cutting played a pivotal

role in overcoming the challenges posed by the speculative building's constraints.

The multifaceted nature of the endeavor, including areas like laboratories, packaging rooms, warehouses, and more, underscores the complexity and innovation required to drive sustainable energy initiatives. The collaboration between the owner, local utility provider and ARCO/Murray design team to bring over additional power to the facility, coupled with plans for a solar roof system, emphasizes the project's strategic alignment with clean energy goals.

In parallel, the invaluable contributions of Donley Concrete Cutting in overcoming the challenges of the speculative building's constraints demonstrate the importance of precision and expertise in executing the necessary tasks. The intricate concrete sawing and core drilling processes were pivotal in meeting operational needs within the structural confines, showcasing the company's prowess in the field. The successful completion of the first phase ahead of schedule exemplifies the dedication and skill of Donley Concrete Cutting's highly skilled technicians.

Furthermore, the project selection process, wherein ARCO/Murray utilized a competitive bidding process based on various factors including subcontractor expertise and safety metrics, brings to light the significance of choosing partners with proven track records. Donley Concrete Cutting's reputation as a highly regarded saw-cutting contractor and their competitive pricing and relevant experience

positioned them as the ideal choice for this intricate project.

As these projects progress within budget and schedule, they serve as beacons of innovation and excellence in the pursuit of a cleaner, greener energy future. Their success not only contributes to the global push for sustainability but also underscores the importance of strategic collaborations and precise execution in the renewable energy sector.

In emphasizing the importance of being a CSDA member, the collaborative efforts of Invenergy and Donley Concrete Cutting Co showcase the unique advantages that come with being part of a recognized association. CSDA membership ensures that companies adhere to the highest industry standards, bringing a level of expertise and professionalism that is crucial in executing complex projects. The intricate work undertaken by Donley Concrete Cutting Co, coupled with the strategic decisions made by ARCO/Murray and Invenergy, highlights the significance of partnering with organizations committed to excellence in the field. As the renewable energy landscape continues to evolve, the role of CSDA members becomes increasingly pivotal, ensuring that projects not only meet but exceed industry expectations, setting a standard for sustainability and innovation.

REVIEW AND COMMENT ON THIS ARTICLE AT:
WWW.CONCRETEOPENINGS.COM

COMPANY PROFILE:

Donley Concrete Cutting Co. just celebrated its 25th anniversary in 2022. With headquarters in Canal Winchester Ohio, they have a support location in Cincinnati, Ohio, as well as a Toledo, Ohio, location which is operated under Duffey Concrete Cutting. Donley Concrete Cutting Co offers a full service of core drilling, flat sawing, wall sawing, wire sawing, curb sawing, diamond grooving and grinding, ground penetrating radar, profilograph services, selective demolition and vacuum truck operations. They have been a CSDA member since 2004.

RESOURCES

General Contractor
ARCO/Murray

CSDA Contractor: Donley Concrete Cutting Company

Contact for Story: Jason Young
Tel: 614-834-0300
Email: Jason.young@DonleyConcrete.com
Website: www.donleyconcrete.com

Methods Used: Slab Sawing, Core Drilling, Wall Sawing

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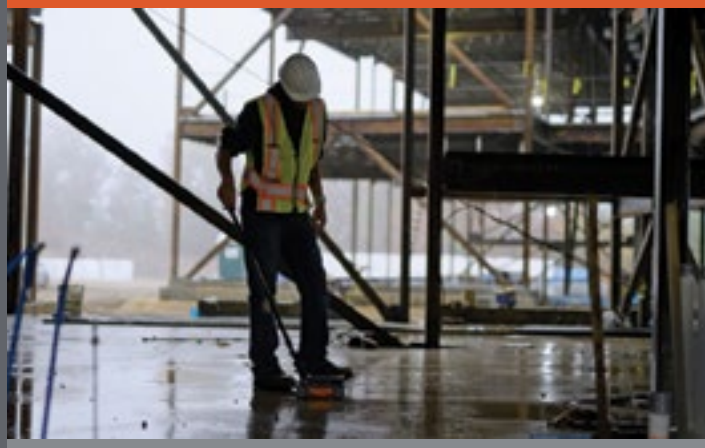
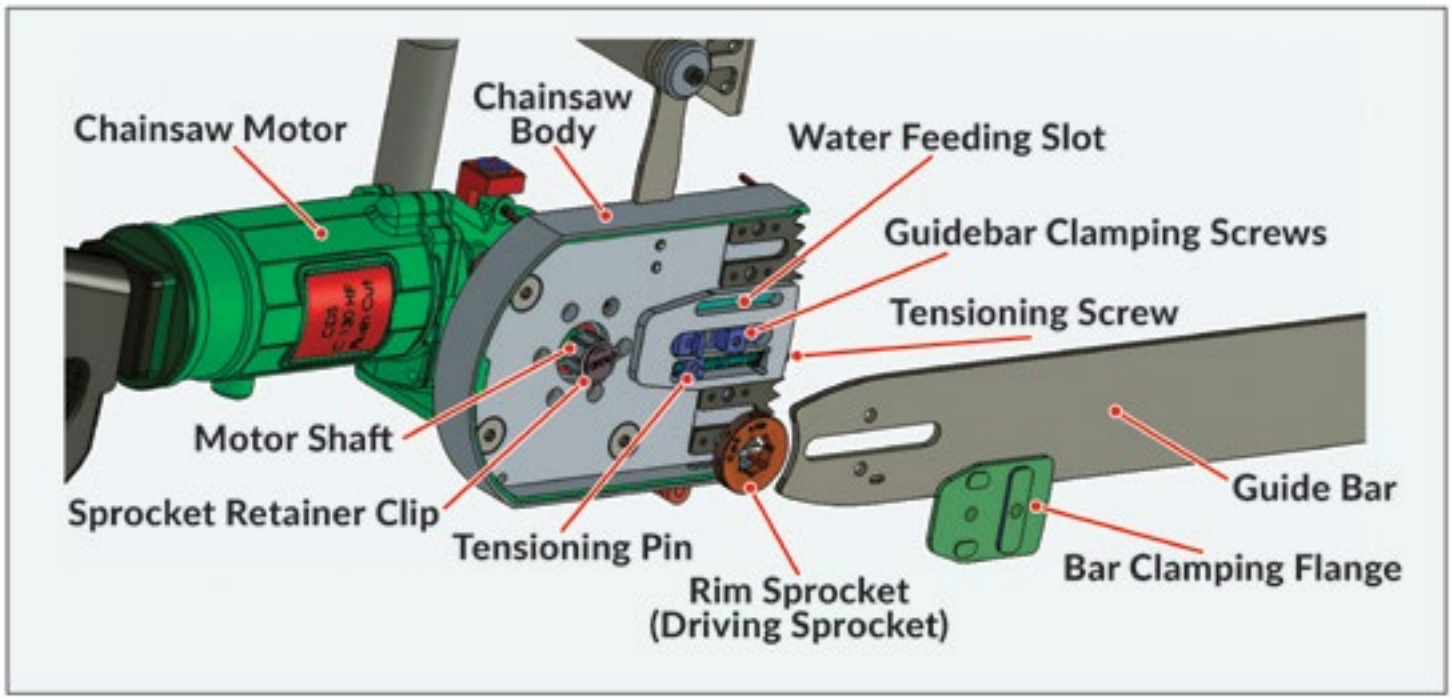


Tech Talk is a regular feature of *Concrete Openings* magazine, focusing on equipment, maintenance and technical issues of interest to concrete cutting, polishing and imaging contractors. Readers wishing to have a particular subject addressed can call or email CSDA with their suggestions at 727-577-5004 or editor@concreteopenings.com.

Forensic Analysis of Your Chainsaw Failures Can Lead to Maximized Productivity

Mike Orzechowski

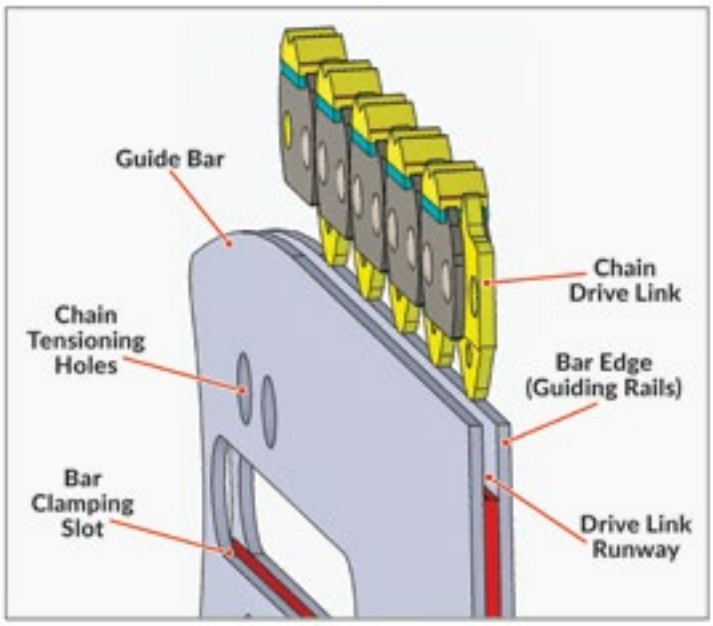


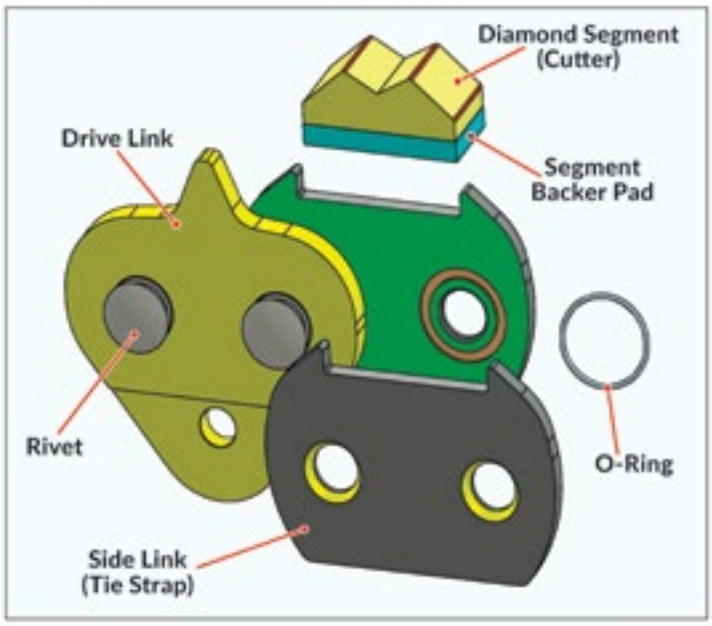
When a chain breaks or stretches beyond the adjustment range of the saw, it is not uncommon for it to be written off as a bad chain without really understanding the root cause of the problem. Can the operator understand what caused the problem by looking for telltale signs in analyzing the broken components? (Rhetorical questions, the answer is obviously "yes", which is the point of this article)

The basis for performing a forensic analysis of your chainsaw failure is rooted in the fact that the chainsaw (chain, bar, sprocket, powerhead) is a system and the operator is an integral part of the complete system. Having a good working knowledge of what has caused the failure can aid the operator in changing key parameters including operator technique. Even before the point of catastrophic failure, as some problems progress, they can rob horsepower from the saw. Maximizing productivity is achieved by having a properly working chainsaw that is not consistently needing adjustments or total need of repair.

To get more benefit from a good forensic analysis, there are 5 things to consider: First, have an open mind (like a detective). Do not immediately settle on a single conclusion. Let the facts paint the picture. The second is to look at the failure as a complete system and examine all the components. The third, do not assume that it is only one thing that caused the failure. Many times, a failure can be directly or indirectly attributed to several simultaneous factors. If it looks like it is just one single cause, but it is an isolated event and not occurring regularly, there may be some contributing factors. The fourth is to ask questions to connect the dots that leads to the failure. A good rule of thumb is to develop at least three possible (and plausible) scenarios to the root cause of the failure, before settling on the most likely one. The final is to be a part of the solution. Once you discover the problem, you can apply the solution in your operator training, administrative controls, or in your maintenance program.

Communication is a very important step in forensic analysis. When you are discussing the problem on the phone with the mechanic back at the shop or the service department at the factory, they usually do not have the benefit of seeing what you are seeing on the jobsite, but they know the product and can visualize it much better when you use the





correct terminology for each of the parts. For chainsaws, the communication breakdown is usually in the individual component parts of the chain or the bar.

One recent example was a chain that broke at one of the links on a jobsite that they were cutting reinforce concrete to add a window opening. They claimed it was an experienced operator and they were using plenty of water. At first blush, it sounded like it might be a manufacturing defect. Upon further investigation, the chain was only half used, however there was little to no side clearance visible. The rivets and side plates on the cage were heavily ground and polished. The diamond segments were mostly glazed over with heat 'burn' marks on some of the side plates and additional burn marks on the bar near the nose sprocket. The nose sprocket was very difficult to turn like the bearings were failing. There was a noticeable undercut on the bar on the bottom side near the nose sprocket. A couple of the segments were missing. Upon further inspection with a magnifier smartphone app showed that the side plates were torn and it was not a failed weld. Several of the segments had visible damage on the leading side from what appeared to be pounding. The chainsaw was near the limit of adjustment for tension and the chain rivets felt very loose. There is no way to know if the chain was properly tensioned since the chain was broken and not attached to the saw. The drive sprocket had initial signs of a groove started to be worn into the sprocket by the chain. It was a hydraulic 15" chainsaw.

One possible scenario was that the saw was being operated without an adequate water supply. This saw requires 1-2GPM at 20PSI. They had a 3/8 diameter garden hose going over 100FT which is probably not good enough for the water pressure drop. The indication of the burn marks on the chain and bar and well as the wear on the side clearance of the segments and the rivets and side plates all point to inadequate water supply. Lack of water increases the friction between the chain and the bar causes a power loss and heat (which indirectly leads to increased stretch). Very plausible.

Another possible scenario was that the precut width was to narrow for the chain which could also cause the wear on the side clearance of the segments and the rivets and side plates. If the embedded rebar was precut, the wider chain would have a pounding action but might not have dent marks across the entire leading face of the segment (just along the edges).

The heavy wear on the bottom side of the bar but not the top side indicates that the bar was not rotated, which is a training issue when installing a new chain. The centripetal motion of the chain around the nose sprocket in an abrasive concrete slurry will tend to wear the bottom side of the bar.

The slight grooves in the drive sprocket could start causing the chain to slip or climb on the sprocket teeth and create higher pulsing tension forces in the chain. The F4 chain is probably capable of withstanding forces 2,000 to 3,500 lbs, but the constant stretching action can wear and weaken the rivets or holes, over time. The chain was already half used, so it could be possible.

The damaged nose sprocket was concerning because it robs a lot of horsepower from the saw. The heat from failing nose sprocket bearings could have caused the heat marks on the bar near the sprocket. Coupled with the pounding damaged segments and missing segments, it could be that the saw was being used to plunge cut and if the embedded rebar hits at the tip of the nose at a perfect 90, it will slow the progress of the cutting. If the operator pushes harder to try to increase the cutting speed (instead of letting the saw do the work) it can cause a pounding action of the segment to the rebar. The forces generated can be extremely high on each segment as it impacts the rebar. Some chains have special drivelinks to help deflect the segment from striking the rebar to minimize the forces from the hammering action (impact forces). It can also explain the damaged nose sprocket bearing. This seems to be the most plausible.

However it is probably a combination of many factors that ultimately caused this failure, any one of which might not have been enough by themselves. The good news is that the failed chain enlightened the operator as to several progressive changes they can implement to increase their productivity on the jobsite.

Mike Orzechowski, P.E., B.S. Mechanical Engineering, B.S. Physics, DITEQ Engineering Manager of Equipment since 2008 and Past President of CSDA.

ACI Foundation Hosts Technology Forum in Portland, Oregon

The ACI Foundation's Concrete Innovation Council (CIC) gathered once again with participants and presenters to discuss technology and innovation at the 2023 Technology Forum. The successful event took place August 29-31, 2023, at the Benson Portland, A Hilton Curio Collection, Hotel in Portland, OR. The Technology Forum is an innovation-focused educational and networking event for concrete professionals.

The Technology Forum provided attendees with the opportunity to connect with representatives from material suppliers, architecture & engineering firms, contractors, academics, top-level executives, and regulatory agencies.

"This year's Technology Forum in Portland was especially successful, in part due to growing attendance, but also in how diverse members of the concrete community engaged to discuss issues in our industry" stated, Ann Masek, Executive Director, ACI Foundation. "For instance, concrete strength is a critical parameter in determining the cost, quality, and durability of the concrete and greatly affects the construction schedule. The debate on the opportunities and challenges of introducing new technologies that directly measure concrete strength in situ offered interesting commentary from several perspectives on how to solve this industry challenge."

The event concluded with a debate that discussed new technologies for determining concrete strength and how such methodologies can find a path to be used in acceptance criteria for concrete, including accommodating in-place measurements evaluated using machine learning algorithms. Participants discussed a few currently available new technologies for in-place strength testing. The panelists debated on how the industry could develop more rapid and reliable acceptance criteria based on those methods.

To learn more about the Technology Forum or to receive the latest information for the 2024 Technology Forum scheduled for May 14 – May 16, 2024, in Santa Fe, NM, visit the site listed below.

For More Information

Contact: Stacey McCann
Tel: 248-848-3758
Email: stacey.mccann@acifoundation.org
www.acifoundation.org/technology/forums.aspx

Screening Eagle Unleashes the Future of GPR Data Post-Processing and Big Data Analytics

During the recent #KEY23SET – Built World Tech Keynote event, Screening Eagle Technologies launched the latest version of their popular GPR data post-processing and analysis software, GPR Insights 3. The new version of the web-based software brings never-before-seen capabilities for post-processing and analyzing any type of ground penetrating radar (GPR) data.

GPR Insights 3 solves the huge challenge of post-processing and storing Big Data sets such as those that will be collected with the new GS9000 and GM8000 Multichannel Subsurface Mapping GPRs.

Along with the rise in demand for large-scale mapping of subsurface utilities and highway networks comes the need for an efficient way to post-process, analyze, and share the data. GPR Insights makes light work of these tasks, even with the largest GPR data sets thanks to the artificial intelligence models and the new parallel processing capabilities. Tasks that would previously take around 5 hours, can now be automated in around 5 minutes.

The new ultra-fast computing architecture streamlines Big Data analytics, enabling users to save time and create stunning deliverables, regardless of their experience with the software.

GPR Insights 3 is also able to read and process data from almost any 3rd party GPR sensor, single- or multichannel, enabling survey companies to manage large fleets of multi-brand equipment with one powerful and intuitive software solution.

Screening Eagle Technologies is now offering the chance to gain free in-person and virtual training sessions for GPR Insights software with their Roadshow and webinars. See the events page for more details.

For More Information

Tel: 724-512-0330
Email: media@screeningeagle.com
www.screeningeagle.com

GSSI is Coming to the Southeast Region

The GSSI Showcase will be conducted in the Southeast region in November.

GSSI will be highlighting its new Flex NX™ concrete scanning system. In addition, they'll have their Utilityscan® system on hand for those who want to learn about locating utilities with ground penetrating radar.

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For More Information

Contact: Bruno Silla
Email: sillab@geophysical.com
www.geophysical.com

Concrete Sawing and Drilling Safety Week 2024

Concrete Sawing and Drilling Safety Week (CSDSW) is an annual event sponsored by GPRS that aims to promote concrete sawing and drilling safety awareness in the AEC industry. This week-long event provides attendees with valuable knowledge and resources on how to prevent risks associated with cutting, coring, and drilling through concrete. One of the primary focuses of CSDSW is silicosis mitigation. Silicosis is a progressive disease caused by inhalation of the silica particles that are dispersed when concrete is cut or cored. There is no cure for silicosis, however, it can be prevented through the use of personal protective equipment (PPE), and by having proper ventilation in the area where you are cutting or coring concrete.

What will attendees learn during their presentation?

GPRS safety experts will visit job sites to provide free educational seminars - plus breakfast or lunch - focused on mitigating the risks of working with and around concrete. Additional topics of discussion include identifying and protecting workers from other hazards commonly found on job sites, including slips, trips & falls, electrical shock, and more.

Why is it important to take part in CSDSW?

Participating in CSDSW is essential for anyone working in the AEC industry, as it provides valuable information on how to prevent accidents and injuries while on the job. By attending these presentations, workers will gain a better understanding of the risks involved in concrete cutting, drilling and coring, and learn how to minimize those risks through development of a personal safety plan. CSDSW also offers networking opportunities where attendees can connect with industry experts and peers to share knowledge, exchange ideas, and improve safety practices within their organizations. So, mark your calendars for the week of January 29 - February 2, because Concrete Sawing and Drilling Safety Week 2024 is almost here!

To sign up for your team's free CSDSW talk, visit the website below today!

For More Information

Contact: Christian Wagenhauser
Email: christian.wagenhauser@gprsinc.com
www.gp-radar.com/safety/concrete-safety-week

Department of Labor Will Seek Public Input, Ideas to Improve OSHA Whistleblower Program Outreach, Training at October Meeting

The U.S. Department of Labor's Occupational Safety and Health Administration will hold an online meeting on Tuesday, Oct. 24, 2023, to hear public comments and suggestions as part of its effort to improve outreach and training initiatives that support the federal whistleblower laws the agency enforces.

The meeting will be held from 1 p.m. to 4 p.m. EDT and is open to the public. The meeting will be offered in English and Spanish. Individuals interested in joining or participating in the meeting must register in English or in Spanish by Oct. 17, 2023. There is no cost to attend.

OSHA is seeking comments, ideas and other input in response to the following questions:

How can OSHA deliver better whistleblower customer service?

What kind of assistance can OSHA provide to help explain the agency's whistleblower laws to employees and employers?

Comments may also be submitted to the Federal eRulemaking Portal assigned to Docket No. OSHA-2018-0005

For More Information

Contact: Office of Communications
Tel: 202-693-1999
www.osha.gov

Patrick Bridger Joins Blastcrete Equipment

Blastcrete Equipment LLC, a global leader in the manufacturing of concrete pumping, gunite and wet shotcrete equipment, introduces Patrick Bridger as their new business development manager. Bridger will work with the Blastcrete team to support new and existing customers and help them find solutions for their specific concrete pumping and wet/dry process shotcrete applications.

Patrick Bridger

"Patrick is well-known in the shotcrete industry and has a unique understanding of what our customers face every day," said Tripp Farrell, Blastcrete Equipment LLC co-CEO. "We've worked in the same circles for many years, so it's exciting having him join our team and adding his experience to our business. Coming together gives us the opportunity to offer our customers decades of combined knowledge to help provide the best solutions coupled with industry-leading customer service."

In 1998, Bridger worked with other industry professionals to create the American Shotcrete Association (ASA). He remained an active member of the organization for more than 12 years serving as ASA secretary, vice president and president. He helped develop the first shotcrete nozzleman certification program, which consists of a guidebook, training, written exam and performance exam for all industry professionals.

"My commitment through all these years has been to the customers. The customers make our business; and I strive to keep that in mind while I'm serving the community, whether that's through my current position or in my role as a member of the ASA," Bridger said. "I've had a lot of people reach out, congratulating me on the new position. Some even mentioned they saw the move coming and are saying 'finally.' I'm looking forward to working with the Blastcrete team."

For More Information

Contact: Katie Grube
Tel: 701-373-0062
Email: katie@ironcladmktg.com

DITEQ Corporation is Proud to Announce Generation 7 (G7) of its Quick Tension Chainsaw Powerheads

Updates include strengthened components and a new patented shock-absorbing system to minimize chain breakage. The powerheads come in both hydraulic and high-cycle models.

For More Information

Contact: Mike Orzechowski
Tel: 816-447-6161
Email: mikeo@diteq.com
www.diteq.com

Mecalac's AX1000 Offers Stability, Intuitive Operation and Heavy-Duty Performance in One Compact Package

Mecalac, a leading global designer, manufacturer and distributor of compact construction equipment for urban environments, offers the AX1000 articulated loader. Combining heavy-duty performance with self-stabilizing maneuverability and a sleek design, the AX1000 — and all models in the AX Articulated Loader Series — features maximum benefits in one cost-efficient package for utility, construction, landscaping and recycling. For a limited time, Mecalac is offering a $1,299 monthly payment, five-year operating lease through DLL, a global vendor finance company, for the AX1000 with a matching 60-month factory warranty.

"Articulated loaders are tried and true workhorses in North America," said Peter Bigwood, general manager for Mecalac North America. "When that's what the job calls for, we have a high-quality option that has good value-adds in terms of stability, visibility, power, simplified maintenance and operator experience that will offer owners a competitive advantage."

The AX1000 stands out in a crowded market due to its monoboom. The single boom provides greater boom rigidity and strength, resisting the twisting that can occur with the traditional two-arm setup. Combining large, tinted windows with the unique monoboom design, the AX1000 eliminates the two loader arms obstructing the operator's view and allows clear visibility to the left and right in addition to straight ahead. Along with enhanced safety, this outstanding visibility boosts productivity. Danny Potteiger, owner of C&S Mulch & Stone, handles about 5,000-plus yards of mulch a day, plus a couple thousand tons of stone, thanks to a good view of his truck bed from the cab of the AX1000.

Other advantages include:

Travels up to 19 miles (30.6 km) per hour

Uses a diesel oxidation catalyst for pollution control, so no need for a diesel particulate filter or diesel exhaust fluid and associated downtime

For More Information

Contact: Mary McCall
Tel: 701-373-0062
Email: mary@ironcladmktg.com
www.mecalac.com

William Lloyd Harper

William Lloyd Harper, 67, of Rindge passed away peacefully on November 18, 2023 after a hard fought and courageous battle with cancer. He was born in North Huntingdon, PA on August 28, 1956, the only child of William and Betty (Harter) Harper and attended Norwin High School and Milligan College.

William, better known as "Bill", was an avid outdoorsman from a young age. Bill moved to New Hampshire in 1981 and began a career as a builder creating a lasting legacy in the Monadnock Region. He owned and operated West Rindge Builders and later added Cut&Core. Bill and his crew's work can be found throughout the region in fine homes, town halls, churches, schools and libraries. He was known for always finding a solution to any building problem.

Bill Harper

Community Service was important to Bill and he served as a volunteer firefighter in Rindge for 8 years. He also served on the Zoning Board of Adjustment, as a Cemetery Trustee and on the Jaffrey Rindge Ambulance Board. Bill strongly believed in developing an educated workforce and was on the Building & Trades Committee for the Jaffrey Rindge Cooperative School District for many years.

In addition to his wife of 40 years Maryann (Busang) Harper of Rindge, Bill is survived by his sister-in-law, Patricia Giles, his nieces, Caroline Giles and Vanessa Giles Sheehan, his best friend Andrew Eddy, his cousins, Sandy (Harter) Onofray, Jeff Harter, Tracy (Harter) Williams and Jennifer (Harter) Currie and their families and many other friends and relatives. Bill was devoted to his Great Pyrenees dogs and will be missed by his faithful Pyrenees, Ivy. His family is grateful for the wonderful care provided by Dana Farber Cancer Institute, Dr. Lucas Shippee and staff at Monadnock Internal Medicine and the caring nurses at Community Hospice House in Merrimack that eased his passing from this world.

For More Information

Contact: CSDA
Tel: 727-577-5004
Email: info@csda.org

FORGE Your Path Career Expo

The FORGE Foundation is Proud to Announce its Three-Day In-Person Skilled Trades Career Expo, providing a unique opportunity for approximately 2,500 students from 28 different schools in Chickasaw, Choctaw, Clay, Kemper, Lauderdale, Lowndes, Monroe, Noxubee, Oktibbeha and Webster counties to explore careers in the skilled trades. This event, hosted in partnership with more than 30 local businesses, organizations, and career technical centers, aims to inspire and equip the next generation of skilled professionals.

The FORGE Your Path Career Expo kicked off at the EMCC Communiversity as FORGE partners with the Regional Business After Hours event sponsored by the Columbus Lowndes Chamber of Commerce, the West Point Growth Alliance, and the Greater Starkville Development Partnership. Business leaders and community partners from the Golden Triangle Region will have the opportunity to see the Career Expo firsthand. They can enjoy operating equipment, laying bricks, experience working on a construction site using VR headsets, finishing concrete and sitting in bulldozers just like the kids. FORGE will also host music from one of their own members, Goodloe Chilcutt with New Home Building Stores. The goal of the Career Expo is to expose and connect students with the necessary information and tools to explore a career in the skilled trades.

While students are touring the expo on Wednesday, FORGE and MCEF also hosted a counselor's workshop. FORGE feels strongly about influencing the decision makers that actually enroll students in skilled trades courses in our schools. Over 50 high school and middle school counselors from across Mississippi will have the opportunity to interact with multiple panelists who discussed important and relatable topics, increase network collaborations and participate in a guided tour of the expo.

Founded in 2018, FORGE (Family Organizations Recruiting Great Employees) is comprised of a group of locally owned small businesses, most of which are in their 2nd and 3rd generation of owners. Before founding FORGE, individually these companies were to the point of stealing labor from each other and were defeating their goal of strengthening each other and the community in which they work. They began to work together on determining a more long-term solution, and thus inspired FORGE. Formed with the vision of strengthening the budding partnerships with local schools and being able to help teach students how to one day be ready for the workforce, FORGE allows these companies to now work as a team to help build the workforce of tomorrow.

Katie McCrary, a FORGE founding board member from McCrary-West Construction, shared her perspective, saying, "This expo is a great opportunity for students to learn how to link their current educational outlook to a skilled trade. We want students to learn not only how they can enter these fields but thrive and advance as experts and leaders in these industries. We want to showcase our community as pioneers in developing a workforce pipeline beginning in K-12 and continuing through trade school, community college, or 4-year programs."

"The Career Expo not only connects students with experts in the construction industry, but also showcases how their interests can align with the skilled trades of the future. The trades industry is incorporating cutting-edge technology, including drones, GPS plotting software, robots, and more, to attract young talent and drive regional economic growth," said Lowe.

Today's tradespeople are innovators and entrepreneurs, shaping our economic prosperity and daily lives. The trades serve as the foundation of our communities. For a complete list of FORGE members and more information about the FORGE Foundation, please visit www.forgeyourpath.org.

For More Information

Tel: 662-574-6519
Email: mlowe@forgeyourpath.org
www.forgeyourpath.org

FORGE

Aquajet Launches Revojet 270 High-Pressure Pump for Smaller Hydrodemolition Applications

Aquajet, a global leader in the design and manufacture of innovative Hydrodemolition technology, introduces the Revojet 270 high-pressure pump. The Revojet is highly mobile and takes up less space than other high-pressure pumps, excelling in smaller-scale Hydrodemolition projects. It's designed to pair with Aquajet's most compact Hydrodemolition robots — the Aqua Cutter 410 and the Ergo system — for applications such as small parking garage renovation and industrial cleaning.

"Our innovation comes from constantly listening to customers to create new solutions for tackling their projects," said Roger Simonsson, Aquajet managing director. "As Hydrodemolition gains popularity, customers are looking for ways to use the technology for more aspects of their work. Pairing the Revojet with our compact Hydrodemolition machines gives contractors a powerful equipment arsenal for jobs in tighter spaces."

The REVO Control System makes the Revojet stand out with state-of-the-art technology to focus on both efficiency and the environment. The system provides a wide range of functions for users to control and monitor the Revojet in a safe, user-friendly package. Its features include closed-loop pressure control or RPM control and smart pressure regulating that quickly finds the set pressure from the idle or auto-stop state. The Revojet also has a mode that flushes the hoses without any nozzle mounted, along with RPM hold delay for hand lancing that minimizes delay when the high-pressure trigger is activated.

Operators can easily set parameters on the graphic color display with instructions available in multiple languages. Users can see all important information in real-time or view the history of items such as the alarm list and trip meters of fuel consumption. The system also automatically tracks service schedules to minimize downtime.

For More Information

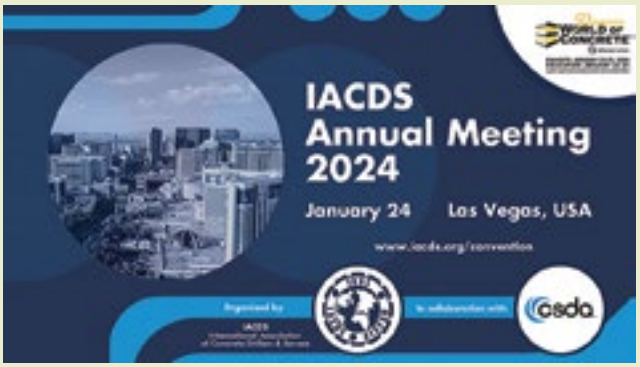
Contact: John Miller
Tel: 701-373-0062
Email: john@ironcladmktg.com
www.aquajet.se

ICS Diamond Tools & Equipment Announces a New Diamond Chain Segment

Trident™ Segment Technology is a design & utility patent-pending innovation that not only is a unique geometry within our industry but overall optimized cutting system that delivers up to 50% faster out-of-box performance without sacrificing chain life or steady state speed. This innovation allows ICS to continue its legacy of delivering industry-leading products.

For More Information

Contact: ICS Diamond Tools & Equipment
Tel: 800-321-1240
Email: ics.marketing@oregontool.com
www.icsdiamondtools.com



Would You Like to Reunite with the Drilling and Sawing Industry Professionals?

Then you can't miss out on the IACDS Annual Meeting 2024! This time, our annual event will take place in Las Vegas on January 24th, within the frame of the World of Concrete 2024 Trade Fair.

As always, the Annual Meeting will reunite the drilling and sawing industry professionals, creating a space defined by collaboration and the exchange of knowledge and ideas. This year, a Welcome Reception will be organized in collaboration with the host association, the CSDA. And the option for a leisure program is also available!

The registrations for WOC 2024 are already open and by registering for the Annual Meeting, you can receive an additional discount with code A26!

For More Information

Email: info@iacds.org
www.iacds.org

American Society of Concrete Contractors Awards Foundation Scholarships

The American Society of Concrete Contractors (ASCC) Education, Research and Development Foundation, St. Louis, MO, has awarded two scholarships for 2023 to students in the Concrete Industry Management (CIM) program. They are Arie Lynn Milam who attends Middle Tennessee State University and Alejandro Gonzolez- Ortiz who attends California State University Chico. Each award winner received $5,000 and was recognized at the 2023 ASCC Annual Conference held in Grand Rapids, MI.

Ms. Milam possesses a 4.0/4.0 GPA and looks forward to entering a career in concrete construction and explained she saw the value of the CIM program from her brother who also attended the CIM program. Mr. Gonzolez has a 3.9/4.0 GPA and is excited about the many paths available to graduates of the CIM program.

Scott Anderson, Chairman of the ASCC Education, Research and Development Foundation explains, "it is important for the ASCC Education, Research and Development Foundation to work with the CIM program to ensure the concrete industry attracts outstanding students into the program to build the qualified workforce essential to the concrete industry's unique needs."

To qualify for the scholarship, a student must be enrolled full-time in the CIM program and must aspire to a career in concrete construction along with meeting additional scholarship requirements. For more information on scholarship requirements, contact rhefner@ascconline.org.

The ASCC Education, Research and Development Foundation was created in 1989 to fundeducation and research that advances the quality and productivity of concrete construction.

The winning project details can be found at ACIExcellence.org. Entries for the 2024 ACI Excellence in Concrete Construction Awards are being accepted now through April 29, 2024.

For More Information

Contact: Rachel Zuellig
Tel: 314-962-0210
Email: rzuellig@ascconline.org
www.ascconline.org

OPERATOR CERTIFICATION

CSDA's Operator Certification is a comprehensive six-day program that combines detailed classroom instruction with on-slab demonstration and evaluation of advanced concrete cutting techniques. Safety, proper equipment use and efficiency are emphasized. CSDA certified operators are recognized industry-wide for their proficiency in the full range of sawing and drilling applications.

MINIMUM REQUIREMENTS

- Successful completion of CSDA Cutting Edge, Slab Sawing & Drilling 101, Wall Sawing 101 or Wire Sawing 101
- Three years field experience (4,500 hours)
- Successful completion of 10-hour OSHA Construction Safety course
- No more than one lost-time injury within the last three years
- Unrestricted driver's license
- Negative drug test within 30 days of taking the course

ACCU-CUT CONCRETE SERVICES, INC.
Clearwater, FL

ACE CONCRETE CUTTING, LLC
Cumberland, RI

AGGREGATE TECHNOLOGIES, INC.
Houston, TX

AUSTIN ENTERPRISE
Bakersfield, CA

BAY LINE CUTTING & CORING, INC.
San Francisco, CA

CHESCO CORING & CUTTING, INC.
Malvern, PA

COBRA CONCRETE CUTTING SERVICES CO.
Arlington Heights, IL

CON-COR COMPANY, INC.
Menomonee Falls, WI

CONCRETE CUTTING & BREAKING CO.
Grand Rapids, MI

CONCRETE CUTTING SPECIALISTS
Freeland, MI

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San Antonio, TX

CONSTRUCTION DEBRIS REMOVAL, INC.
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CR MEYER
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Garner, NC

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Minneapolis, MN

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Wichita, KS

MAVO CONCRETE SAWING SERVICES INC.
New Brighton, MN

NEIL'S CONCRETE CUTTING, INC.
Taylorsville, UT

TRUE LINE CORING AND CUTTING OF MARYLAND, INC.
Baltimore, MD

WALKER CUTTING SERVICES
Hammonton, NJ

WESTCOAST CUTTING AND CORING LTD.
New Westminster, BC

ACCREDITED COMPANIES

The CSDA Accredited Company Program is the first of its kind in the industry. This program has been created for cutting contractors to provide owners, architects, engineers, general contractors and government officials with a valuable pre-qualification tool that acknowledges sound business practices. It is available to all sawing and drilling contractors.

A COMPANY MUST MEET THE FOLLOWING CRITERIA TO ACHIEVE ACCREDITATION :

- Meet the basic safety and insurance requirements of the industry
- Undertake sound operational and financial best practices
- Provide evidence it has taken part in basic training or certification programs to better its employees and the company as a whole
- Successfully pass a written application review

ADVANCED CONCRETE SAWING
St. Paul, MN
AMERICAN GPR SERVICES LLC
Avondale, AZ
AUSTIN ENTERPRISE
Bakersfield, CA
COBRA CONCRETE CUTTING SERVICES CO.
Arlington Heights, IL
CONCRETE CUTTING SYSTEMS, INC.
Philadelphia, PA
CONCRETE CUTTING SYSTEMS, PITTSBURGH INC.
Pittsburgh, PA
CONCRETE RENOVATION, INC.
San Antonio, TX
DIACORE CONCRETE CUTTING SPECIALISTS
Frenchs Forest, NSW, Australia
ECHO GPR SERVICES
Paola, IL
FINE CUT CONCRETE DRILLING AND SAWING, LLC
Pleasant Hill, MO
HARD ROCK CONCRETE CUTTERS, INC.
Wheeling, IL
HARD ROCK CONCRETE CUTTING
Raleigh, NC
HOLES INCORPORATED
Houston, TX
IN-PLACE MACHINING COMPANY, LLC
Batavia, OH
INTERNATIONAL DRILLING & SAWING, INC.
Montgomery, AL
INTERSTATE SAWING & DEMOLITION
West Bend, WI
MAVO CONCRETE SAWING SERVICES, INC.
New Brighton, MN
ONLINE CONCRETE CUTTING SERVICES PTY. LTD.
Seven Hills, NSW, Australia
RECLAIM COMPANY, LLC
Fairmont, WV.
WALKER CUTTING SERVICES
Hammonton, NJ

GPR CERTIFICATION

GPR Certification is for experienced GPR operators who have expanded their knowledge of the methods, theory and practical application of GPR imaging. Certified operators receive classroom and hands-on time with experienced instructors and representatives from leading GPR manufacturers.

A GPR CERTIFIED OPERATOR:

- Has shown proficiency in performing scans and reading and interpreting results
- Can select the appropriate GPR scanner for the job
- Passed a written and practical test
- Was issued a certification card upon completion of the class

ADVANCED CONCRETE CUTTING & CORING
Charleston, SC
ADVANCE CONCRETE SAWING
Saint Paul, MN
AMERICAN GPR SERVICES, LLC
Avondale, AZ
ASAP CORE DRILLING & FIRE SAFETY, INC.
Lorton, VA
BREAK AWAY CONCRETE CUTTING INC.
Coyote, CA
BROOKBANK CORE DRILLING & SAWING, INC
Waldorf, MD
CANADIAN CUTTING AND CORING LTD.
Toronto, ON CANADA
CITY SCAN CORP
Bronx, NY
COBRA CONCRETE CUTTING SERVICES CO
Arlington Heights, IL
CONCRETE CORING CO. OF CINCINNATI, INC.
Cincinnati, OH
CONCRETE SCANNING AND IMAGING INC.
Mississauga, ON CANADA
CONCRETE TECHNOLOGY ASSOCIATION
College Park, MD
CONQUEST DEMOLITION
Buda, TX
D & D DIAMOND CUTTING AND CORING
Wainfleet, ON CANADA
DALY CONCRETE CORING LIMITED
Courtice, ON, Canada
DIAMOND CONCRETE SAWING
Grand Rapids, MI
DIXIE CONCRETE CUTTING CO., INC
College Park, GA
ECHO GPR SERVICES
Paola, KS
FINE LINE SAWING & DRILLING INC.
Newark, CA
HARD ROCK TECHNOLOGIES, INC.
Prospect Heights, IL
HI-TECH CONCRETE CUTTING INC.
Bolton, ON CANADA
HOLES INCORPORATED
Houston, TX
IDS GEORADAR NORTH AMERICA
Golden, CO
INTERNATIONAL DRILLING & SAWING, INC.
Montgomery, AL
INTERSTATE SAWING & DEMOLITION
West Bend, IL
JEM GPR
Granger, IN
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Brentwood, NH
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Toronto, ON CANADA
SAFECORE SYSTEMS, INC.
Libertyville, IL
SCAN TEK GPR
Davie, FL
TASMANIAN ASSET PROTECTION
Sandy Bay, TS AUSTRALIA
TEXAS CUTTING & CORING, LP
Round Rock, TX
VERIFY LOCATING/SAF-CUT
Raleigh, NC

NEW MEMBERS

AFFILIATE

LIUNA CHICAGOLAND
Carol Stream, IL

MANUFACTURER

DIAMOND BACK CONCRETE CUTTING, INC.
Montreal, QC

MEMBER BENEFITS

SAFETY RESOURCES
AND TOOLBOX SAFETY TIPS (TSTS)

- 230-page CSDA Safety Manual
- Safety Handbook in English/Spanish
- Safety Videos for concrete cutters
- Over 100 Toolbox Safety Tips (TSTs)

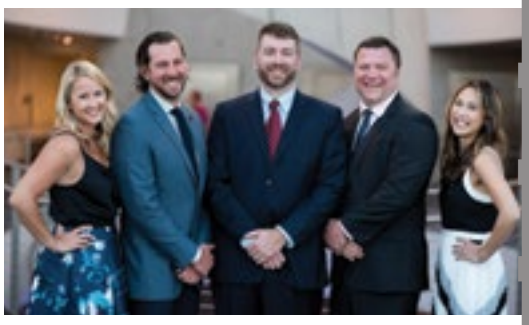
DISCOUNT PROGRAMS

The Association negotiates member benefit programs with national vendors like Staples, UPS and V-beltsupply.com in order to provide cost-savings opportunities for CSDA Members.

NETWORKING

AT THE ANNUAL CONVENTION AND QUARTERLY MEETINGS

The number one benefit for members has always been the opportunity to network with cutting professionals at the annual convention and quarterly meetings. This networking provides opportunities to forge new relationships and learn from other experienced professionals.



NEXT GEN

CSDA NEXT GENERATION GROUP

The group aims to continue the growth of the association while serving the needs and wants of the younger generation, with the goal of continuing to set a standard of excellence.

24/7

THE CSDA WEBSITE AT WWW.CSDA.ORG CONTAINS A WEALTH OF INFORMATION AVAILABLE 24/7 IN THE "MEMBERS" SECTION. IN ADDITION, CSDA'S FACEBOOK PAGE AND DISCUSSION FORUM GROUP PAGE ALSO PROVIDE MEMBERS WITH A CHANCE TO DISCUSS TECHNICAL ISSUES, SELL EQUIPMENT, HIRE EMPLOYEES OR ANY OTHER RELEVANT TOPICS.

TRAINING

OVER 4,000 INDUSTRY PROFESSIONALS HAVE GRADUATED FROM MORE THAN 20 CLASSROOM, HANDS-ON AND ONLINE CSDA TRAINING AND CERTIFICATION PROGRAMS FOCUSED ON CUTTING DISCIPLINES, ESTIMATING, POLISHING AND SAFETY. ONLINE TRAINING AT WWW.CSDATRAINING.COM OFFERS A COST-EFFECTIVE ALTERNATIVE TO THOSE NOT ABLE TO AFFORD THE TIME OR THE MONEY TO SEND OPERATORS TO CLASSES.

DUES SCHEDULE

REGISTER ONLINE AT WWW.CSDA.ORG

GROSS SALES	NORTH AMERICAN CONTRACTOR	POLISHING CONTRACTOR	GPR IMAGING CONTRACTOR	MANUFACTURER	DISTRIBUTOR	OVERSEAS CONTRACTOR	AFFILIATE
$0 – 1M	$750	$750	$750	$1,585	$1,150	$475	$925
$1 – 2M	$1,195			$1,955	$1,465		
$2 – 3M	$1,830	$1,500	$1,500	$2,905	$2,175		
$3 – 5M	$2,455			$4,650	$3,500		
$5 – 10M	$3,105			$6,285			
> $10M	$3,895			$7,750			

For more information about CSDA membership, visit www.csda.org, call 727-577-5004 or email info@csda.org.

Westin Hapuna Beach Resort
Waimea, Hawaii

December 6-7, 2023

CSDA Winter Board & Committee Meetings

Le Meridien Houston Downtown
Houston, TX
Tel: 727-577-5004
Email: info@csda.org

January 23, 2024

GPR Methods & Theory

Las Vegas Convention Center
Las Vegas, NV
Tel: 727-577-5004
Email: info@csda.org

January 29-Feb 2, 2024

Concrete Sawing and Drilling Week

Tel: 727-577-5004
Email: info@csda.org

January 22-23, 2024

How to Prepare Estimates that Win you Jobs

Las Vegas Convention Center
Las Vegas, NV
Tel: 727-577-5004
Email: info@csda.org

January 23-25, 2024

World of Concrete

Las Vegas Convention Center
Las Vegas, NV
Tel: 727-577-5004
Email: info@csda.org

March 25–29, 2024

2024 CSDA Annual Convention

Westin Hapuna Beach Resort
Waimea, HI
Tel: 727-577-5004
Email: info@csda.org

concrete openings

THE OFFICIAL MAGAZINE OF csda

Target the Specialized Industry of Concrete Cutting, Polishing and Imaging

Advertising in *Concrete Openings* magazine is the only way to reach the specialty market of cutting, polishing and imaging contractors who work with concrete, asphalt or masonry because it is specifically targeted to this segment of the industry.

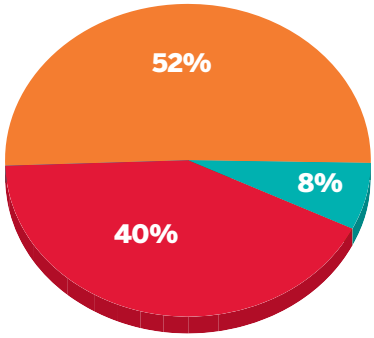
How Do You Reach 19,000+ Concrete industry Professionals?

Each issue of *Concrete Openings* magazine is sent to more than 12,000 operators, equipment manufacturers and suppliers in the concrete cutting, polishing and imaging industry, and more than 7,000 specifiers of these services around the world.

Who Reads the Magazine?

Concrete Openings reaches cutting, polishing and imaging contractors as well as specifiers of these services, including engineers, architects, general contractors and governmental agencies. Why waste your message on unnecessary circulation? Advertising in *Concrete Openings* guarantees a targeted audience of industry professionals.

READERSHIP BY PROFESSION



CSDA Social Media

CSDA's social media pages are packed with all the latest news, updates, photos and videos from the association and *Concrete Openings* magazine. Look out for exclusive content and become "friends" with others who are looking to network and promote the sawing and drilling industry. Join our growing fan base and stay in touch with the association through your PC, laptop or mobile device. Find direct links to these pages at www.csda.org.

Not a Subscriber?

Get your free subscription today!

Visit www.concreteopenings.com and click "subscribe."

Circulation

19,000+ minimum, per issue

12,000+ member and prospective member companies made up of contractors, manufacturers, distributors and affiliates

7,000+ general contractors, engineers, architects and government officials who specify cutting, polishing and imaging

Readership Per Issue

A poll of *Concrete Openings* subscribers revealed that 66% pass on their copy of the magazine to at least one other person, with almost 25% stating that the magazine is passed on to four or more people each issue. This translates to an average of four people reading each issue of the magazine for a total readership per year of approximately 60,000.

Concrete Openings Website

Visitors to the *Concrete Openings* website can access our advertisers at the touch of a button!

As a compliment to your ad placement, we include a direct link to your website on our Advertisers page. *Concrete Openings* also offers banner advertising opportunities throughout the year and a full, page-turning copy of the magazine, including ads, available for visitors on the website.

Visit **www.concreteopenings.com** for more information.

Advertisers

To receive additional information about products advertised in this issue, contact the vendors below.

PAGE	ADVERTISER	PHONE	EMAIL
13	Aquajet	701-373-0062	anne@ironcladmarketing.com
5	Brokk	312-509-0861	jeff.keeling@brokkinc.com
29	DDM Concut	770-921-2464	ggundrum@ddmconcut.com
Front Inside Cover, 24-25, 49	Diamond Products	800-321-5336	jpalmer@diamondproducts.com
37	Diamond Vantage	866-322-4078	tlaidlaw@diamondvantage.com
17, 48	DITEQ Corporation	816-246-5515	enelson@diteq.com
31	Geophysical Survey Systems, Inc (GSSI)	603-893-1109	lighthallj@geophysical.com
Back Cover	Husqvarna	913-222-9342	sarah.martin@husqvarnagroup.com
2, 22, 47	ICS	800-321-1240	jessica.gowdy@oregontool.com
21	Italian Concrete Days	39-349-7493412	daniela.chiusa@mediapointsrl.it
39	Lissmac	518-326-9094	sales@lissmac-corporation.com
48	Real Power	317-443-0805	dsmith@contourhardening.com

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www.husqvarnaconstruction.com