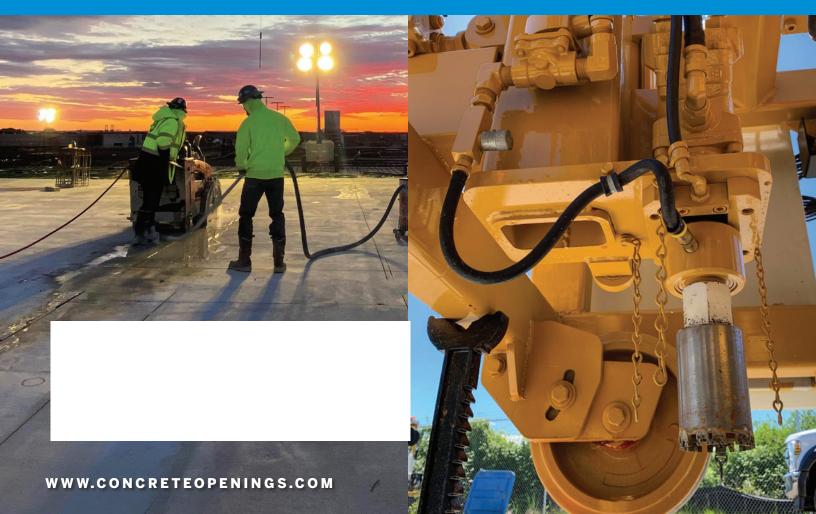


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President's Page



KELLIE KIMBALL CSDA President

he first quarter of 2024 has flown by, and CSDA has been actively engaged in a series of impactful industry events. From co-sponsoring the World of Concrete in Las Vegas to our booth at the Canadian Concrete Expo in Toronto, and now concluding with a highly successful management conference in Hawaii, these gatherings have not only facilitated new connections but also bolstered CSDA's influence within the industry.

As we charge ahead into the rest of the year, we invite you to join us on our journey. In June, our quarterly meeting will convene in Pittsburgh, PA, featuring a member mixer at a Pirates game. September brings us to Arizona, where we'll kick off our 2nd annual new member golf tournament following our quarterly meeting. All members are encouraged to participate, with details soon to be available on our website. Wrapping up the year, our December meeting, in Tulsa, OK, will include a tour of Vacuworx.

I extend a warm invitation to all members to engage in our quarterly meetings and explore committee opportunities. Committee involvement offers a unique chance to actively contribute to the betterment of our industry. For example, our Safety Committee collaborates with the Construction Industry Safety Coalition, ensuring that our industry's voice is heard on proposed OSHA standards. Likewise, our Training Committee continually updates our training materials and expands our training programs, ensuring that a greater number of operators have access to top-tier instruction from industry-leading trainers.

Participating in our meetings not only connects you with leading manufacturers but also cultivates a network of industry peers—a valuable asset for your company's growth and success. For more details on our committees or to explore deeper involvement with CSDA, please don't hesitate to reach out. I look forward to speaking with you and working together to advance our industry.

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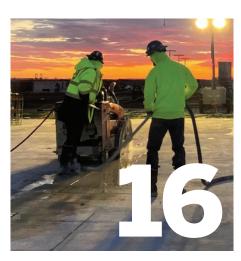
CONCRETE CASES



Scanning for Success on a \$100M Wisconsin Casino Renovation



The Decommissioning of Crystal River Nuclear Unit 3



Structure Safely Demolished with Diamond Tools



Slot Cutting Precision at the Vancouver International Airport

CONCRETE OPENINGS MAGAZINE

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SCANNING for SUCCESS on a \$100M Wisconsin Casino Renovation

he Potawatomi Hotel and Casino in Milwaukee, Wisconsin, underwent a \$100 million renovation to the third floor. The Potawatomi Casino is a chain of casinos operated by the Forest County Potawatomi Community; a Native American tribe based in Wisconsin who also operate several other casinos in other parts of the state.

The renovation added new restaurants, gaming areas and entertainment experiences and covers a whopping 120,000-square-foot area. It includes the addition of 1,800 slot machine stations, new quick service food and beverage stations, a new bar, a gift shop and a collection of 4K televisions. Another major new feature will be the addition of an exclusive high-limit room.



The Potawatomi Hotel and Casino





Construction on the renovation project began in spring of 2023. Greenfire Management Services of Milwaukee, a wholly owned subsidiary of the Potawatomi Business Development Corporation, teamed with Gilbane Building Services as the general contractors on the project. CSDA member Interstate Sawing and Demolition was contracted and GPR operator, Donald Goebel, was requested to assist with the remodel of the 3rd floor renovation by using his ground penetrating radar (GPR) scanning expertise.

During the initial phase of the project, the first three days were dedicated to scanning large square footage areas ranging from approximately 150 to 800 square feet. Both the Proceq GP8000 and the GP8800 GPR units were employed for this purpose. The need for scanning larger than normal areas was a result of the absence of an exact dimensional layout provided to the subcontractor and the need to stay on schedule.

Daily discussions were held to assess the progress of the scanning and address any challenges that emerged. These discussions served as a platform for the team to communicate any issues encountered during the scanning operations and promptly inform the general contractor. Open lines of communication ensured that any concerns were addressed immediately, minimizing potential delays and maintaining project momentum.

During the structural slab scanning process, it was discovered that a topping slab was present. A topping slab is a layer of concrete that is applied on top of an existing slab or structural surface, typically used to provide additional strength, protection or to level the surface. However, due to the active casino situated beneath, there was no access available below the slab to scan. As the topping slab was affecting scan results, it became clear it would be necessary to remove it to gain access to the underlying structural elements and accurately assess their condition.

This early effort in scanning and open communication laid a solid foundation for subsequent project phases, enabling the team to make informed decisions based on the data collected. The subcontractors removed 500 square feet of the scanned topping slab and Goebel was able to resume scanning for any substructures in the remaining slab.

Goebel was able to determine that there were posttensioned cables within the slab, based on the slab scan reflection patterns found. However, due to the thin nature of slab, the cables were considered temperature tendons as opposed to uniform tendons. Through his analysis of the scan results, he was able to identify the distinctive reflection patterns associated with the cables. These patterns are significant and requires specialized knowledge and experience, as it affects the approach and considerations for working with the post-tensioned structure.

As usual, ensuring safety precautions on a construction site was paramount. For this project, dirty floors and potential cut or scratch hazards were mitigated by implementing a clean-up routine to maintain a tidy work area and ensuring proper disposal of debris and waste materials. Personal protective equipment (PPE) including gloves and a dust protection mask were worn by Goebel and other contractors. With the removal of the topping slab, there were potential trip hazards and puncture hazards, so caution tape was placed around the areas where the slab was removed.

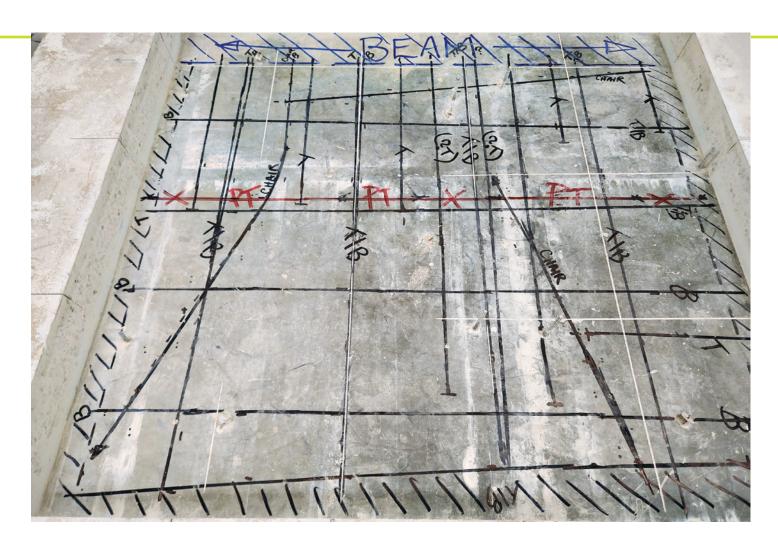
There were no incidents or issues during this project credited to the skillful scanning and identification of posttension cabling. The accurate results reduced the risk of damaging any critical infrastructure during the construction phase. Overall, Goebel scanned 2,500 ft2of slab for the casino.

Goebel's expertise and willingness to take the necessary measures to obtain accurate data underscores his dedication to delivering reliable results. Through his efforts, potential risks or challenges associated with the structural slab were identified, allowing for proactive measures to be implemented to mitigate any potential issues. By addressing the presence of the topping slab and adapting the scanning approach accordingly, the project team demonstrated their commitment to thoroughness and their ability to adapt to unexpected circumstances. These efforts contributed to the overall success of the project, ensuring that the structural elements were evaluated accurately and paving the way for subsequent construction phases.

Post-Project Thoughts

Donald Goebel, the GPR concrete scanning engineer who spearheaded the Potawatomi scanning project for Interstate Sawing & Demolition, shared his insights and reflections on the experience.

Donald expressed his gratitude for the opportunity to contribute his expertise to such a significant undertaking. He highlighted the project's size and the complexities inherent in scanning the various build-out areas within the facility as key challenges. The unexpected additional hours spent on scanning and the importance of maintaining clean floors to ensure clear markings were notable aspects of the project. Donald emphasized the critical nature of the structure, particularly due to its composition with post-tension cabling -- the most critical item next to conduits and beams. His approach prioritized avoiding cutting any items within the slab, with a willingness to involve engineers and obtain necessary approvals if required.



Donald expressed appreciation for the willingness of Potawatomi casino facilities to trust his scanning accuracy and structural knowledge, and for recommending Interstate to all contractors involved in the project. This trust has resulted in Donald and his team being selected to continue work on other ongoing renovations at the casino.

Reflecting on technological advancements,
Donald noted that while a similar job could have been
accomplished 15 years ago, his confidence and critical
approach to safety have significantly evolved over his
two decades in the field. He credited technological
improvements in radar for enhancing clarity and visibility
through concrete, including the ability to detect conduits
more accurately.

In closing, Donald reaffirmed his passion for concrete scanning, which has been his focus for the past 20 years. He emphasized his commitment to providing clients with reassurance and clarity regarding their projects, ensuring smooth and accurate execution.

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

COMPANY PROFILE

Interstate Sawing and Demolition is headquarted in Madison, WI, with an additional branch location in Milwaukee, WI. They have 48 employees and a fleet of 25 service trucks, which are self-contained and mobile-ready. They specialize in robotic demolition, electric interior excavation, curb cutting, wire sawing, concrete grinding, hydraulic splitting, concrete removal, confined space lifting and GPR scanning. They have been a CSDA member since 1999.

RESOURCES

General Contractor

Gilbane/Greenfire management

CSDA Contractor

Interstate Sawing and Demolition

Contact: Donald Goebel

Email: donald@interstatesawing.com

Tel: 920-285-9113

Methods Used: GPR Scanning





Crystal River Nuclear Plant



Concrete Cases continued

in Milwaukee, WI. A full-size mockup of the RV was built to allow testing of all components and pre-assembly of the entire work platform. 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.

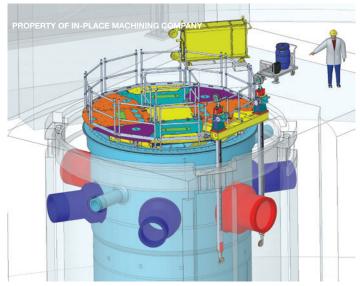
Once testing was complete, the work platform and all IPM equipment was delivered to the job site, where the platform was reassembled and placed on top of the RV.

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.

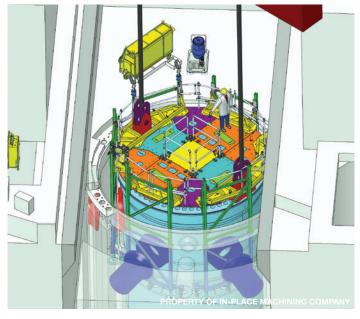
IPM's pulley mechanisms were preassembled on the Refuel Floor, before being flown down and mounted to the work platform, where the combined motion of



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

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.

Once 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 over 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.

Ricky Argue, 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!"

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.

Post Project Thoughts

InPlace Machining's Tim Beckman recently expressed satisfaction with how the *Concrete Openings* article confirmed



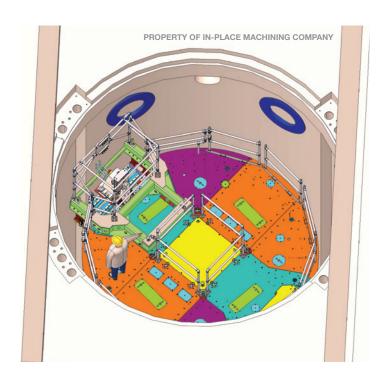
the client's satisfaction with the work. Looking back, he harbors no regrets, asserting that the diamond wire cuts and machining proceeded smoothly without equipment modification. Notably, the full-scale mock-up in their Milwaukee shop facilitates component adjustments, which provides the opportunity to replicate the systems for projects with similar scopes.

Safety was paramount in the design of the extensive work platform, mitigating fall risks and reducing radiation exposure. Remote operations further shielded technicians from the hazards posed by diamond wire movements. Tim reminisced about the significant advancements in diamond wire technology since his early days in wire sawing, citing cost reduction and enhanced performance through equipment automation. These advancements proved invaluable in the recent job, with cutting speeds meeting expectations and wire jambs posing minimal issues.

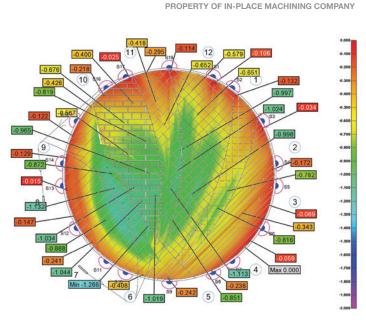
The crowning achievement was the successful completion of a pioneering diamond wire cut through a grouted nuclear reactor vessel, accomplished safely and within schedule—an unprecedented feat. He acknowledged that a decade ago, external assistance would have been necessary for platform and machining



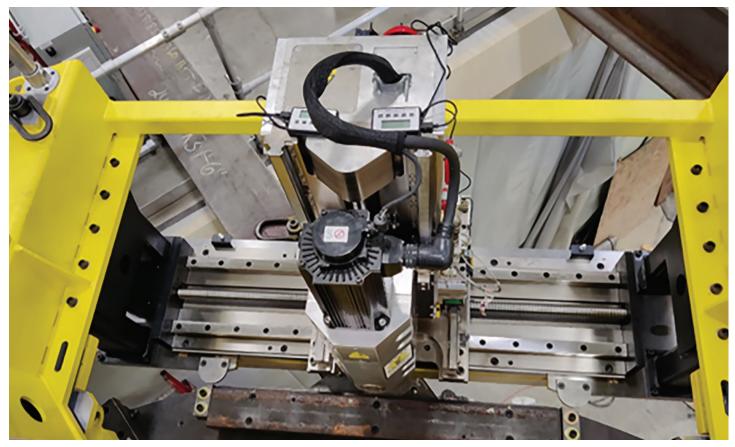
View of First Horizontal Cut - Looking at Bottom of Upper Section of Reactor Vessel



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

of threaded holes. However, the 2018 acquisition of Cutting Edge Services garnered the necessary engineering and fabrication support to make this project successful.

Tim emphasized the exponential growth in their team's confidence in planning and executing intricate projects, asserting that this success catapulted them to the next level.

COMPANY BIO

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

In-Place Machining Company, LLC

Contact for Story: Joe Shebesta, PMP

Tel: 513-388-0199

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Website: www.inplace.com

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

Concrete Parking Structure Safely Demolished with Diamond Tools

rystal Bridges Museum of American Arts in Bentonville, Arkansas is renowned for its world class collection of art, architecture, sculpture and walking trails. The sprawling 120-acre park connects the museum to downtown Bentonville. According to their website, "The mission of Crystal Bridges Museum of American Art is to welcome all to celebrate the American spirit in a setting that unites the power of art with the beauty of nature."

In 2021, the museum began construction on a 6-story, 800 space parking garage. The new, large garage would help accommodate the museum's future growth. General Contractor Baldwin & Shell was working alongside concrete contractor

Cantera Concrete of Tulsa, Oklahoma, to manage the parking garage project. Unfortunately, after erecting the parking garage, quality issues with the concrete were discovered. It was determined that the fifth and sixth floor ramps, and the entirety of the sixth floor, including beams and the parking deck, needed to be removed as it would not pass the quality tests.

Ark Wrecking was contracted to demolish the fifth and sixth floors of the parking garage completely so that the GC could start over. In 2022, Ark Wrecking contracted CSDA member Fine Cut Drilling and Sawing to assist them with the removal of the bad concrete. Fine Cut was given twenty days to complete their portion of this project. The project would consist of nearly 7,000'



Fine Cut mobilized trucks and equipment from both their Tulsa and Kansas City for this project. On the first day of work, Fine Cut operators flew all equipment up to the sixth floor via crane and began slab sawing the ramp with three Husqvarna FS 7000. The slab saws were outfitted with Husqvarna and Diamond Products diamond blades. On days two and three, the team finished slab sawing the ramp and the sixth-floor deck. After that, operators installed a Hilti 1510 wire saw and a Husqvarna CS10 wire saw that were ran daily to complete the project on schedule. Both wire saws were equipped with Husqvarna C1000 diamond wire.

In order to preserve the structurally sound first through fourth floors, Fine Cut operators selected diamond tool removal methods. Diamond tools were used to keep the remaining structure secure by minimizing vibration and utilizing the shoring that was still in place from the initial construction.

The main safety concern was the structural integrity of the deck shoring once operators began removing slabs of concrete. While removing slabs of the concrete, it was possible that the slabs would stick to the shoring and create holes. To combat this, they inspected the deck after each





to pour new concrete to replace it and ensure it met all necessary standards.

It is always a contractor's goal to exceed a customer's expectations. On this project, they put together a great plan and adapted when necessary, resulting in perfect execution. "It's a great feeling to know a customer is happy with your work and continues to thank you over and over. That's when you know you have exceeded their expectations."

Post-Project Thoughts

Clint Ralston, representing Fine Cut Concrete Drilling and Sawing, LLC, expressed great satisfaction with the outcome of a recent job. "We entered with a solid plan and executed it flawlessly. The meticulous planning paid off, particularly given the need for a swift turnaround. In hindsight, there's nothing we would have done differently."

Additionally, Clint was pleasantly surprised by the collective effort and teamwork demonstrated by everyone involved, ensuring both speed and safety throughout the project. Safety remained paramount, with particular attention paid to the shoring below. Strategic decision-making during the cutting process prevented any potential failures, demonstrating the effectiveness of the implemented strategies.

Reflecting on industry advancements, Clint highlighted the significance of wire saws, which took a long time to gain traction in construction. Their presence was instrumental in this project, with all three wire saws playing a pivotal role.

When asked if the job could have been completed a decade or so ago, Clint acknowledged that while possible, it would not have been as efficient due to technological limitations. Improved technology and more powerful saws have significantly enhanced efficiency, and he is





certain that it would've been impossible to achieve these results with the same resources in the past.

Overall, the project was a resounding success, completed within the designated timeline and without any incidents. Clint found the most rewarding aspect to be the customer's positive feedback, particularly as they initially doubted the feasibility of completing the project within the given timeframe. Hearing the customer's satisfaction upon completion was immensely gratifying for the team.

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

COMPANY BIO

Founded in 2002 by Jim Ralston, Fine Cut Drilling & Sawing is a full-service concrete cutting and demolition company. Fine Cut services the Midwest with offices in Kansas City, MO and Tulsa, OK, but will go anywhere their experienced services are needed. Their core leaders have been working in concrete cutting for over 20 years. They have a fleet of 10 trucks and over 40 employees. Services offered include wire sawing, slab sawing, wall sawing, hand sawing, chain sawing, grinding and polishing services, GPR scanning and even container rental for demolition purposes. Fine Cut has put training & safety at the top of the list. All operators have a minimum of OSHA 30, CSDA 101, CSDA 201, Silica Competent person & CPR Training. They have been a member of CSDA since 2016.

RESOURCES

Demolition Contractor

Ark Wrecking

CSDA Contractor

Fine Cut Sawing and Drilling

Contact: Omar Martinez

Email: omar@finecutusa.com

Tel: 918-934-8968

Website: www.finecuteusa.com

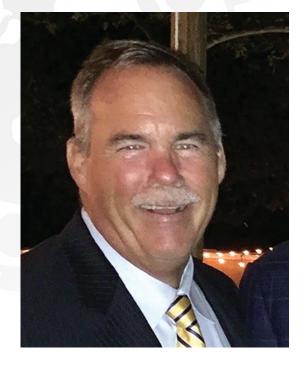
Methods Used: Slab Sawing, Wire Sawing



IACDS President's Insight

Drilling and sawing industry is back in action





s 2024 begins to take its course, I can't help but reflect on how far we've come. Global pandemic, decline of the market, international conflicts – much of which has affected the industry professionals from all around the globe.

And, despite everything, the drilling and sawing industry and its workers has remained steady in its values and goals, moving, sometimes slower, to uniting the sector, exchanging knowledge and ideas, as well as promoting better standards of training and safety among the companies.

In that regard, the return of face-to-face encounters, as well as joint projects, have been crucial to restoring the close relationships between the industry professionals. And, as always, the IACDS has come forward, celebrating its Annual Meeting 2024 this last January.

The IACDS Annual Meeting was truly a cornerstone in our calendar – a unique chance to meet, face-to-face, with our colleagues from all over the world. And the fact that it took place during WORLD OF CONCRETE, in a vibrant and lively city of Las Vegas, has certainly helped as well!

Thus, on January 24th, the IACDS members from several countries, such as Germany, India, Japan, United Kingdom, and, of course, United States, gathered together to visit the WOC Trade Fair, celebrate our General Assembly and discuss the current state of affairs.

One of the great highlights was the meeting with the International Grinding and Grooving Association, IGGA, who kindly invited us to their Cocktail party on the day prior to our Annual Meeting. Meeting our colleagues from another corner of the industry was a great pleasure, and we look forward to collaborating with them in the (not so distant) future.

In particular, we're very excited to launch our next project, the Global Training and Certification Pathway, which will aid in ensuring that the industry workers have an appropriate qualification to carry out their work. The formal launching of the project will take place in late 2024, so keep an eye on that!

Of course, I can't help but mention the Welcome Reception, organized by the Concrete Drilling and Sawing Association, CSDA. After a long day, having a relaxing and friendly environment is a great pleasure, as it allows us to connect with each other on both a professional, and personal, level.

Lastly, I would like to extend special thanks to the CSDA, and its president, Kellie Kimball. CSDA has been a long-lasting friend of IACDS, and their heartwarming disposition and welcome made the celebration of our Annual Meeting not only possible, but also an incredible experience.

There is no doubt that the years to come will bring their share of problems and obstacles. The international geopolitical climate, for one, will surely define the way in which we do business and interact with each other in general.

However, with perseverance, time and collaboration, I'm certain that we'll be able to overcome anything the future throws at us.

MAXIMUM PERFORMANCE

CC4948DCV

Rear Pivot Saw

5048DC\

Front Pivot Saw



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Easily maneurverable rear pivot

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Powerful and versatile

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PROFESSIONAL SELECTION

Front Pivot Large Saw

CC9074DCV

Deep Cut Saw



17.5" Cutting Depth

High performance large saw

25" Cutting Depth

Huge power and depth

74HP CAT Turbo Diesel

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World-class product support

Caterpillar dealer network

Quickly detach stuck blade to minimize down time.

Powerful Jackshaft Drive

Low speed, high torque maximizing full engine power.

Advanced Digital Display

Showing important alerts and engine information controls.



ANNIVERSARY











World of Concrete Celebrates 50 YEARS

orld of Concrete celebrated its fiftieth anniversary in January with nearly 60,000 registered attendees taking part in this multi-day event of exhibits and education. World of Concrete is the industry's only annual international event dedicated to the commercial concrete and masonry construction industries. It features indoor and outdoor exhibits with the industry's leading suppliers showcasing innovative products and technologies, exciting demonstrations and competitions, and a world-class education program.





This year, as part of the 50 year celebration, World of Concrete highlighted six legends of the concrete industry. Four of the six have been actively involved in CSDA throughout their careers. Their expertise and dedication have truly set them apart.

Brothers Kevin & Kraig Baron at Western Saw are the third generation of leaders, helping carry on the legacy of what started out as a knife and scissor sharpening shop to become the well-respected manufacturer of diamond tooling that exists today. Known for their innovation, Western Saw has continued to expand since the 1940s, when they manufactured their first diamond core. Western Saw continues to be an active member of the Concrete Sawing & Drilling Association (CSDA) where Kevin has served as President, Board member and current chair for the conference committee.

Richard (Rick) Norland, P.E. currently serves as a consultant for Echo GPR Services which he originally started as Construction Solutions, an international engineering consulting firm, in 2001. Holding multiple construction industry patents, he was also an active CSDA member, serving

as President, Board member and lead instructor for the CSDA Training program for over 30 years. He won the CSDA Lifetime Achievement Award in 2019.

Richard Long, Lombardo Diamond Core Drilling, was one of the founding members of the Concrete Sawing and Drilling Association (CSDA) in 1972. Mr. Long is a Past President of CSDA, serving as President in 1993, served as a Board member for many years and was awarded the CSDA Lifetime Achievement Award. During Mr. Long's term as CSDA President, he helped to develop and introduce CSDA's Cutting Edge Training Program that is still a staple for training in the concrete renovation industry.

Other legends included Robert Paul Weatherton who was instrumental in starting the very first World of Concrete and James A. Duit who was a co-winner of the 1996 NOVA Award, which captures the spirit of international construction innovations and is considered the construction industry's Nobel Prize.

[Hard] hat's off to these dedicated concrete professionals whose vision and drive have helped the concrete industry expand.



World of Concrete Introduces...

CSDA members continue to play a huge role in advancing the trade. With such a large crowd this year, members like Brokk were excited to showcase advancements in their technologies with new products such as the Brokk 170+ and Brokk 200+. Expertly engineered with rugged components, Brokk's newest generation is resistant to shock, temperature, and vibrations — not to mention that all new robots and control boxes are dust and water protected to an IP65

equivalent—leading to outstanding reliability regardless of the work conditions. Brokk SmartPower+ revolutionizes the operating experience with more precision and better response times. Brokk's SmartPower+ generation redefines the operating experience by introducing a new and improved lightweight control box weighing less than 6.5lbs.

Husqvarna responded to the increasing demand for cordless, battery-operated construction equipment with a couple of new products to their PACE battery system



line-up including the DM 1 PACE core drill. Designed for indoor and out, heavy-duty drilling applications, the DM 1 PACE is a powerful stand mounted, battery-powered core drill. To optimize performance, it's paired with D1610 drill bit.

The Flex NX® concrete scanner from Geophysical Survey Systems, Inc (GSSI) delivers industry-leading performance in an ergonomic and intuitive handheld scanner. Two antennas allow for one-pass cross polarization and with soon to be released Flex Mode, previewed at World of Concrete 2024, will set new imaging standards. The combination of these elements will lead to streamlined testing for structural safety and simplify concrete scanning. Two wireless antennas, NX25™ and NX15™ offer greater flexibility for challenging jobsites, as well as a host of other technological advancements that redefine the scanning workflow.

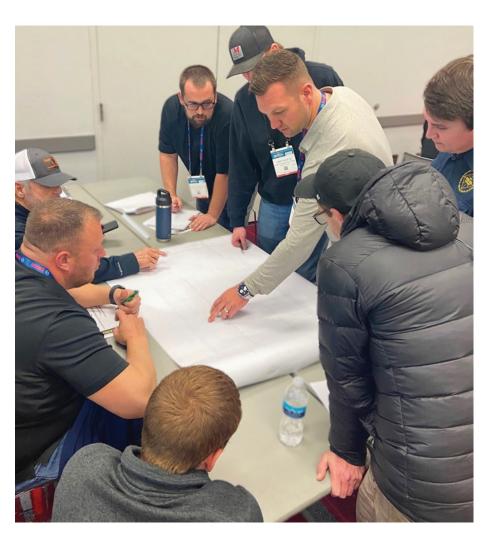
The World of Concrete offers a great venue, both inside and out, for CSDA manufacturing members to highlight their innovative ideas come to life. All in all, every CSDA member exhibitor had something to offer. Members who were among the 14000 leading companies at

World of Concrete included American Society of Concrete Contractors, Brokk Inc., Cratos Equipment, DITEQ Corp., Diamond Products Limited, Diamond Vantage, Inc. aka General Tool, GSSI, Hilti, Inc., Husqvarna Construction Products/HTC, ICS Diamond Tools & Equipment, LISSMAC Corporation, Makinex USA LLC, Real Power, Screening Eagle Technologies, SlurryMonster, LLC (Syncon, Inc), Superabrasive, Inc., U.S.SAWS, Vacuworx, World Diamond Source, Inc.

World of Concrete and CSDA

CSDA sponsored its always popular "How to Prepare Estimates That Win Jobs" as one of the World of Concrete education sessions. The show significantly increased its education opportunities this year to offer 185 different sessions over four days. Even with all that competition, the estimation course still reached a near record high number of students. This two-day course continues to prove itself as a worthy investment.

CSDA also hosted the annual Concrete Openings awards at their booth. Any member who has a concrete case



published in the magazine that year is eligible to win an award in one of four categories. Those articles are judged by a committee on the following merits: pre-planning, use of innovation, degree of difficulty and quality. Read this year's winning stories and the post-project reflections on pages 6, 10, 16 and 32.

The World of Concrete attracts professionals from around the globe. This year, members from the International Association of Concrete Drilling and Sawing (IACDS) traveled to Las Vegas to experience this immersive event. IACDS hosted a board meeting where members discussed the state of the concrete sawing and drilling industry across the globe. Later that evening, CSDA invited the IACDS members to join them at their annual networking event. The Davidoff of Geneva Cigar Bar was the perfect venue to connect the two groups for an evening of conversation and fun. IACDS president Doug Walker and IACDS Secretariat Jose Blanco presented CSDA president, Kellie Kimball, with a plaque honoring the CSDA 'for its great contributions and active participation for the development of the industry.' The evening was well-attended and enjoyed by all.

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 217-528-3275 or editor@concreteopenings.com.

Stand Your Ground on Ground Rods

A refresher on electrical code and safety for Trailer and Truck-Mounted Generator Systems

Don Smith

icture this: you're driving onsite for a long day of wall sawing and before you can even unpack the equipment, you're stopped by the facility Safety and Health officer over concerns that you need a grounding rod to operate your truck-mounted generator. Not only is that not something you've ever had to do before, but you don't even have the equipment with you to do it. So, do you give up on the morning and run back to the shop to figure out a solution, or is there a way you can still salvage the day?

The question of how and when to ground mobile generator systems is a frequent topic of discussion, due in part to the fact that it's complicated and not necessarily intuitive. Most people are familiar with connecting a small gas generator to their home and know that a ground rod is usually required by code. Other systems, like trailered amusement rides are explicitly required by law to have ground rods driven to a specified depth.

But in our industry, filled with portable electrical tools and equipment powered directly from cord reels and cables running off 480V generators, we are generally not required to ever use ground rods. For our purposes, the vehicle or trailer chassis is considered sufficient grounding to the earth to enable safe dissipation of stray voltage while power is being provided.

State and local codes vary so you should always check with the laws in your area, but the National Electric Code gives clear guidelines to fall back on when the question arises. Specifically, 2023 NEC **250.34 (B)** is written as follows:



250.34 Portable, Vehicle-Mounted, and Trailer-Mounted Generators.

(A) Portable Generators.

The frame of a portable generator shall not be required to be connected to a grounding electrode as defined in <u>250.52</u> for a system supplied by the generator under both of the following conditions:

- The generator supplies only equipment mounted on the generator, cord-and-plug-connected equipment through receptacles mounted on the generator, or both.
- The normally non-current-carrying metal parts of equipment and the equipment grounding conductor terminals of the receptacles are connected to the generator frame.

(B) Vehicle-Mounted and Trailer-Mounted Generators

The frame of a vehicle or trailer shall not be required to be connected to a grounding electrode as defined in 250,52 for a system supplied by a generator located on this vehicle or trailer under all of the following contribute:

- (1) The frame of the generator is bonded to the vehicle or trailer frame.
- (2) The generator supplies only equipment located on the vehicle or trailer; cord-and-plugconnected equipment through receptacles mounted on the vehicle, or both equipment located on the vehicle or trailer and cord-and-plug-connected equipment through receptacles mounted on the vehicle, trailer, or on the generator.
- (3) The normally non-current-carrying metal parts of equipment and the equipment grounding conductor terminals of the receptacles are connected to the generator frame.

Put succinctly, this means that a generator mounted on a truck or trailer with a ground strap from the generator to the chassis does not need a ground rod as long as it is only powering remote equipment with properly wired, built-in receptacles.

Example of a ground strap connecting a vehicle generator to the frame for system grounding per 250.34 (B) (1)

Even though they don't need a ground rod, it is important not to confuse trailer or truck-mounted generators with "floating neutral" generators installed in buildings for standby backup power



Example of a ground strap connecting a vehicle generator to the frame for system grounding per 250.34 (B) (1)

(which also don't need a ground rod). Those generators don't need their own ground rod because they get their grounding through the neutral line of the electrical system they're connected to.

To illustrate a little further, the NEC distinguishes two types of generator system as being either "separately derived" or "not separately derived."

In a **Not-Separately Derived** generator system, the neutral wire from the load panel is permanently tied to both the main service disconnect and the neutral of the generator. This means that, regardless

of whether power is coming from the grid or the generator, there is always a solid electrical connection from the neutral to the ground road at only one point. To avoid creating a ground loop, the neutral coming out of the generator is not connected to the ground in the frame, hence being referred to as a floating neutral.

MAIN SERVICE TRANSFER SWITCH DISCONNECT W/o Switched Neutral

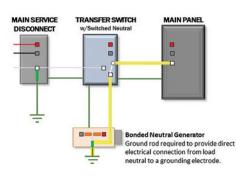
Floating Neutral Generator Ground rod not allowed. Electrical

connection from load neutral a

NOT SEPARATELY DERIVED SYSTEM

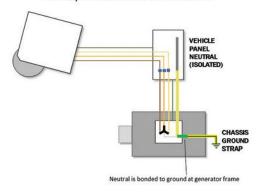
In a Separately

Derived generator system, the grounded neutral coming from the main service disconnect is not disconnected from the load center when the generator is running, so the generator must have a ground rod of its own, with the neutral of the generator and its case bonded to it.



Trailer and Truck-Mounted generators fall into the category of Separately Derived systems and must have a bond between neutral and ground at the generator frame. But 250.35 (B) provides the exception to the requirement for a ground rod, due to the smaller size and lower complexity of mobile generator systems, and specifically a reduced risk from lightning strike induced voltage.

VEHICLE / TRAILER INTEGRATED GENERATOR



So, while the ultimate authority lies in state and local requirements, as well as the directives of any onsite safety administrators, for the most part, grounding electrodes are not part of the daily coring, drilling, and sawing business. With NEC code as a guide, you should be able to guide you to the right answer, letting you quickly get on with your day.

Don Smith, M.S. Mechanical Engineering, Real Power Division President since 2015

Slot Cutting Precision at the Vancouver International Airport

he Vancouver International Airport (YVR) located in Richmond, British Columbia, Canada, is one of the busiest airports in Canada, serving as a major hub for both domestic and international air travel. It handles a significant amount of passenger and cargo traffic, with over 600 aircraft runway movements per day as of March 2023.

YVR consists of two parallel runways and one single crosswind runway. The main North Runway had deterioration occurring on the concrete surface due to the loss of load transfer between the panels. This is a common issue for airports, as the constant weight and friction of aircrafts creates wear and tear on the runway surface over time, causing the concrete runway panels to become uneven or

even separated. YVR desperately needed to address this fundamental issue in order to extend the North Runway's service life and ensure the safety of aircraft and passengers. The challenge was to perform the repairs around the high volume of flight activity. It was impossible to reroute air traffic or remove the North Runway from service for an extended period, therefore making the common full panel replacement repair method infeasible.

In order to circumvent the high runway movements, an ambitious plan was hatched to allow the rehabilitation work to be done while maintaining normal flight operations. The plan involved installing over 50,000 dowels to stitch together the concrete panels of the North Runway to strengthen and reduce deflection in order to preserve the existing runway. This installation would have to happen in a short 10 p.m. – 6 a.m. work window, allowing planes to



land the very next morning. And to achieve any reasonable project schedule, a goal of 500 dowel installations per night was set.

The short work window created a significant constraint to achieving the goal. All work had to be completed between the 8 hours including a full mobilization of crews and equipment onto the runway, precise sawing and removal of the concrete, dowel installation, concrete patching, quality control check, clean up and a full demobilization. The timing of each work process had to be meticulously planned and the first and most critical task would be the quick and precise sawing of the dowel slots.

CSDA member West Coast Cutting and Coring Group Ltd. (WCC Group) of Vancouver, BC took on the challenge,

for over 47 years, the team at WCC Group knew that conventional techniques and equipment would not suffice and that a customized approach was necessary due to the project's parameters. Conventional off-the-shelf flat sawing equipment could not meet the project constraints of speed, runway manpower restrictions, consistency and precision. Conventional highway gang saw equipment could not perform without significant modification, creating the need for an innovative solution.





Manufacturing the vacuum trailer systems

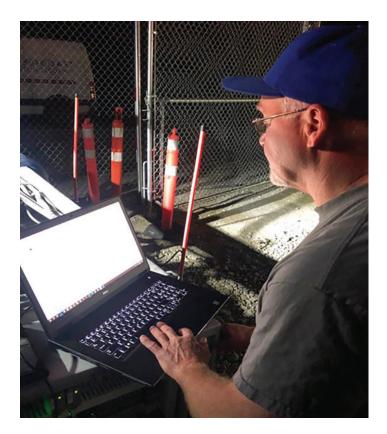


First Saw Complete and Ready for Testing

equipment was the turnaround time between the contract award and the project start date. From day one of equipment design, until it was out on the runway was approximately 100 days, which for machinery of this technical caliber, is an extremely short development time.

The team at WCC Group had to think outside the box and develope an innovative sawing solution for the airport that would help facilitate the rehabilitation work as YVR had planned. A custom automated saw head design was developed that met the exact project specifications and constraints. The sheer volume of the slots that had to be saw cut within a close tolerance of 5mm in length, width and depth required machinery that was very task specific.

The concept of the sawing system used the largest skid steer that Caterpillar manufactures and paired it with the custom automated saw head and vacuum system that would saw cut the dowel slots and core drill the corners to prevent spalling in one automated process, as well as contain and collect the slurry run off as it was created. Each slot saw required a freshwater slurry recovery system and had to be completely self-contained to run independently out on the runway. This posed the first design hurdle – how to design



All control logic and functionality is programmed into the PLC (Programmable Logic Controller) directly from a laptop computer.



Automated hydraulic core drill

an automated sawing system that could cut slots and clean them out at the same time.

The machines were designed using Programmable Logic Controllers (PLCs), which are specialized industrial computers designed to control and automate manufacturing processes. PLCs are created to be rugged and reliable, with a high degree of resistance to electrical noise, vibration and temperature extremes. They typically have a variety of input and output modules that allow them to interface with sensors, actuators and other devices.

The programming of a PLC utilizes specialized software that allows the user to create ladder logic diagrams. These diagrams communicate the logic of the control system with inputs and outputs represented as "rungs" of the ladder and logic operations represented by symbols such as AND, OR and NOT. For these machines, all control logic and functionality were programmed into the PLC directly from a laptop computer. In the end, the internal operation of the machine resembled a player piano.

Due to the automation of the machines, WCC Group estimated that the number of operators required to complete the project per shift was reduced from five to one. And while safety was a large factor of the machine design, the automation also meant that the operator could keep their distance from the actual cutting operation resulting in no injuries on this project.

Each sawing machine was totally self-sufficient, with an operator controlling them via iPad and a team to follow behind and replenish the freshwater and remove the slurry from the runway. Despite the brief timeframe on the runway each day, they hit the goal of 500 slots, got operators and equipment off, and left the runway clean. The maximum production achieved using five machines on a single night was 720 slots per night of the 50,000 required total.

The team fine-tuned the machines as they went, achieving and exceeding their goal. Not only did WCC Group and the team complete the original 50,000 slots, but the owner added 15,000 more slots due to their original high-quality work. The YVR engineering staff acknowledged the innovation and were impressed by the initiative to fabricate equipment designed for a very specific purpose.

The completion of this project stands as a testament to the unwavering dedication and ingenuity of CSDA contractors and how beneficial collaboration can be. Through the fabrication of special equipment tailored to the project's unique requirements, WCC Group highlighted their remarkable problem-solving abilities. They demonstrated an exceptional ability to adapt and innovate, resulting in the successful delivery of a high-quality and timely product.

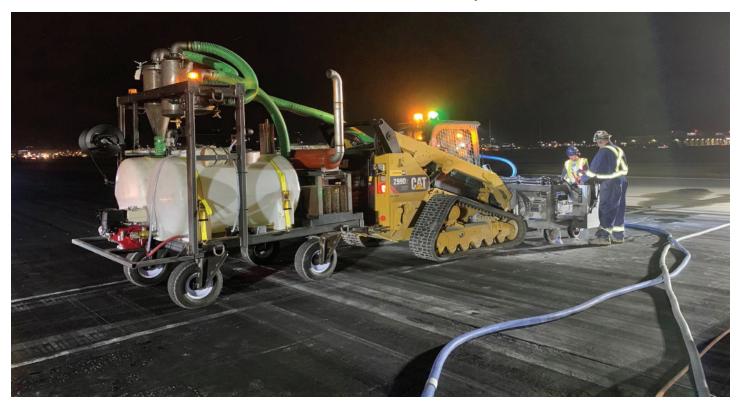
Post-Project Thoughts

We interviewed Brian Wnuk from West Coast Cutting and Coring to reflect on his award-winning project.

He emphasized how this particular job provided valuable exposure to the concrete sawing and drilling industry for many people who may not have been aware of its possibilities. Brian noted that it not only increased awareness but also encouraged innovative thinking, pushing him to "think outside the box" and improve existing methods.

Reflecting on the project, Brian mentioned that if given the chance, he would explore utilizing high-cycle equipment instead of hydraulics. He highlighted the significant advancements in high-cycle technology in recent years, emphasizing its benefits such as eliminating concerns regarding oil contamination or hose failures. For environmental considerations, they opted for biodegradable oil on the runway to simplify clean-up in case of leaks. However, the prospect of using high-cycle equipment, which operates strictly on electricity, eliminates such concerns entirely.

Safety remained a paramount concern throughout the project. Brian explained how incorporating remote operation via an iPad significantly reduced risks of injury by removing operators from direct contact with the machinery.



1st totally self contained, saw, skid steer and vacuum in action



Final cleanup and inspection of runway at end of shift

When asked about the most surprising aspect of the project, Brian expressed his satisfaction with the outcome, stating that it exceeded his expectations.

The success of the project led to additional work opportunities, with Brian noting that they not only met but surpassed the client's expectations, which was immensely rewarding for the team.

Reflecting on industry changes over the years, Brian identified computerization, particularly the introduction of programmable logic controllers (PLCs), as a significant development that facilitated projects like this one. He credited collaboration with engineers possessing manufacturing knowledge for bringing fresh perspectives and enhancing efficiency in their work.

Looking ahead, Brian expressed hope that the custom sawing equipment developed for this project could be utilized in future endeavors. He takes pride in continuing to innovate and remain at the forefront of industry advancements. Additionally, he emphasized his willingness to share expertise and collaborate with other CSDA contractors, particularly on challenging projects like this one, to drive further innovation within the industry.

REVIEW AND COMMENT ON THIS ARTICLE AT:

COMPANY PROFILE

West Coast Cutting and Coring Group Ltd. (WCC Group) has been in business since 1976 and is headquartered in New Westminster, B.C. Canada with branch offices in Prince George, Vancouver Island and Edmonton, AB. WCC Group has 60 employees and 50 trucks. They have been a CSDA member since 2001.

RESOURCES

General Contractor

Flatiron Constructors

CSDA Contractor

West Coast Cutting and Coring Group Ltd.

Contact: Brian Wnuk

Email: brianwnuk@westcoastcutting.ca

Tel: 604-291-1448

Website: www.westcoastcutting.ca

Methods Used: Flat Sawing, Core Drilling

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Canadian Concrete Expo

The Canadian Concrete Expo (CCE) continues to expand with the addition of another exhibit hall and the re-introduction of large equipment demonstrations in 2024. From its humble roots of 100 exhibitors and 1000+ attendees, the CCE just boasted nearly 10000 registrants and 350 exhibitors.

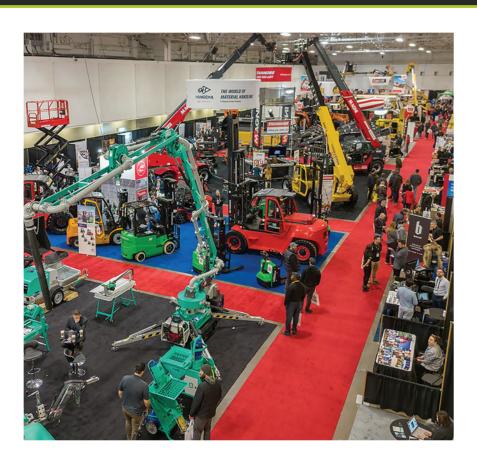
CSDA was among those who had a booth at this year's show which took place February 14-15 in Toronto, Ontario.
Traffic was steady for all exhibitors as attendees didn't let an unexpected snowstorm stop them from walking the halls.



CSDA also sponsored one of the conference sessions. Josh Ruiters. Sales and Project Manager at Hi Tech Concrete Cutting and Coring, Inc received a lot of positive feedback from his session titled The Ultimate ROI: Employee Focused Growth Strategies.

Overall the Expo was a grand success for everyone involved.

The 2025 show will take place February 12-13 at The International Centre, Toronto.





Joanne Kubinski

New Executive Director appointed

CSDA, the only concrete sawing and drilling association in North America, is pleased to announce that **Joanne Kubinski** has been appointed as the new Executive Director and will play a pivotal role in driving the association's strategic initiatives and fostering continued growth.

With a proven track record of success, Joanne brings a wealth of association experience and expertise to CSDA. Her extensive background in governance, committee and volunteer management and education positions her as an invaluable asset to the organization. Joanne has a strong reputation for innovative thinking, exceptional leadership, and a deep understanding of the association landscape.

In her new role, Joanne will be responsible for working with CSDA leadership to ensure their goals and objectives are met. Her strategic vision and ability to drive operational excellence will be instrumental in guiding CSDA towards continued success and expansion.

Joanne expressed enthusiasm about joining CSDA, saying "I am honored to be a part of the organization and look forward to contributing to the association's growth and success."

Joanne holds a B.S. degree from Bradley University and has a track record of delivering exceptional results in previous association positions. Her commitment to fostering a collaborative and inclusive work environment aligns with CSDA's values and culture.

OSHA Honors Workers Memorial Day April 22-25

The U.S. Department of Labor's Occupational Safety and Health Administration and Mine Safety and Health Administration will be hosting multiple events in honor of Workers Memorial Day on April 22-25, 2024. We come together not only to remember and recognize the lives that have been impacted by occupational incidents, illnesses, and diseases, but to educate all about the importance of workplace safety and health in preventing future tragedies. Events will be held in-person and virtually, with a tentative schedule including:

- OSHA Awareness Conference (virtual) on Monday, April 22, 2024
- Safety Pays. Injuries and Fatalities Cost Panels (virtual) on Tuesday, April 23, 2024
- Workers Memorial Day Expo (in-person) on Wednesday, April 24, 2024
- Workers Memorial Day Ceremony and Wreath Laying (virtual and in-person) on Thursday, April 25, 2024

For More Information visit: www.osha.gov/workers-memorial#events

Introducing David Lepki toDiamond Products

Diamond Products, a leader in diamond tool and equipment manufacturing, is thrilled to announce the appointment of **David Lepki** as our new Regional Sales Manager for the Northeast Region, which has been divided into two regions including the Great Lakes Region. David brings a wealth of experience and a proven track record of success to our team, having spent 19 years in the construction industry.

After several years in the diamond tool industry, David has spent the last few years as National Sales Manager in the industrial market. Beyond his professional



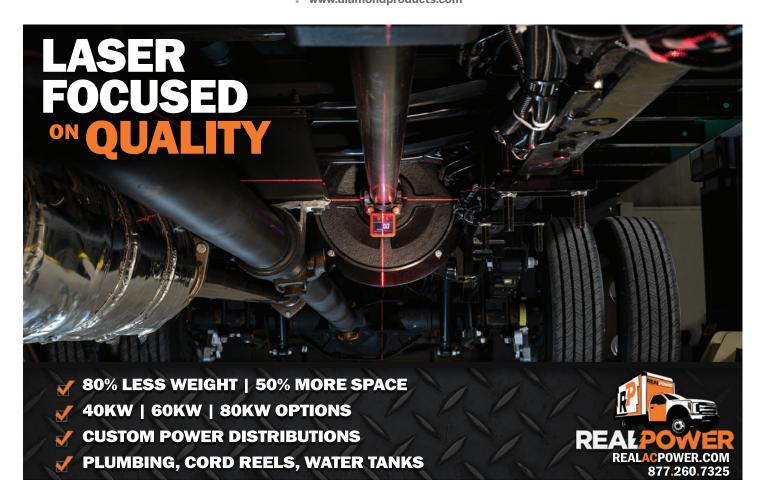
David Lepki

achievements, David is an avid enthusiast of outdoor activities, which resonates well with our company culture. His hobbies include hunting, fishing, and woodworking. Additionally, he is passionate about traveling and spending quality time with his family, values that Diamond Products holds in high regard.

"We are excited to welcome David Lepki to our team," said Keith Ripley, Vice President of Sales and Marketing at Diamond Products. "With his impressive background and alignment with our core values, we are confident that David will be instrumental in driving our regional sales strategies and contributing to our continued growth."

Diamond Products looks forward to the fresh perspectives and dynamic leadership that David will bring to the role. Please join us in welcoming him to our family.

For More Information: Contact: Diamond Products Tel: 800-321-5336 www.diamondproducts.com





The Impact of AI on Safety, Efficiency and Innovation

Artificial intelligence brings plenty to the table for construction, including enhanced predictive capabilities for site safety, but implementation challenges remain.

The adoption of AI in construction, once slow, is now accelerating, offering many applications that enhance project efficiency and precision. AI-driven analytics can forecast project timelines and budgets with high accuracy, while AI-powered robots and drones undertake on-site tasks, increasing both efficiency and safety.

Project management benefits greatly from AI, with algorithms predicting delays or cost overruns and enabling more proactive project oversight. Additionally, AI can improve resource allocation and workforce scheduling, ensuring optimal use of available materials, labor and funds.

In design and planning, AI-integrated BIM tools are streamlining architectural and engineering tasks, reducing planning phase durations. These advancements facilitate real-time collaboration among all involved in the project and ensure cohesive project development.

On construction sites, autonomous machinery, such as bulldozers and drones, are being deployed for various tasks, including site surveying and material handling. This mitigates human risk in hazardous conditions while also enhancing site safety.

Al's Role in Improving Safety and Efficiency

The integration of AI in construction extends to improving safety standards. AI-powered wearable technologies and drones

monitor sites for potential hazards, while predictive safety features can preemptively identify accident risks, leading to reduced workplace incidents.

Moreover, AI helps to minimize disruptions and enhance project timelines, from optimizing schedules to recommending the best times for specific jobs and tasks based on factors like weather.

Additionally, AI contributes to sustainability by optimizing material usage and reducing waste, in alignment with global environmental responsibility goals.

Navigating Challenges for Al Integration in Construction

Despite the promising advancements, integrating AI into construction still faces several challenges. The complexity of AI systems requires significant upfront investment and an in-depth understanding of construction processes.

Moreover, the need for high-quality, consistent data collection is paramount, as AI's effectiveness heavily relies on the accuracy of data previously recorded by

Integrating AI with legacy systems presents another hurdle, necessitating substantial updates or replacements. The construction sector's AI skills gap demands targeted training and recruitment strategies to ensure teams can effectively use these new technologies.

Privacy and security concerns also loom large, with increased data collection raising the stakes for safeguarding sensitive information against cyber threats.

The Future of AI in Construction

Looking ahead, AI's potential in construction seems boundless. We anticipate advancements in AI-driven design tools capable of independently creating building designs while taking into consideration the environmental impacts, material efficiency and structural integrity. Predictive maintenance of construction equipment, powered by AI, promises to reduce downtime and maintenance costs significantly.

The future also holds promise for enhanced construction safety through advanced risk assessment and real-time health monitoring via AI-integrated wearables.

Additionally, AI's role in promoting sustainability and green construction practices is expected to expand, making the most of available resources and facilitating the design of energy-efficient buildings.

The integration of AI in construction is a testament to the transformative power of technology. While challenges remain, the industry's dedication to overcoming these obstacles is clear. The future of construction with AI promises not only smarter, safer and more efficient project execution but also a commitment to sustainability and innovation.

Tim Neubauer, President and Owner, Exceed Safety

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Calendar of events

June 5-6, 2024

Summer Quarterly Meeting Member Mixer, Pirates Game, June 5 Pittsburgh, PA Tel: 217-528-3275

Email: info@csda.org

September 3-5, 2024

Fall Quarterly Meeting New Member Golf Outing, Sept 5 Tucson, AZ

Tel: 217-528-3275 Email: info@csda.org

September 30-October 4, 2024

101 Training ICS/Oregon Tool Portland, OR Tel: 217-528-3275 Email: info@csda.org

November 4-8, 2024

201 Training St. Petersburg, FL Tel: 217-528-3275 Email: info@csda.org

December 11-13, 2024

Winter Quarterly Meeting Member Mixer, Vacuworx Tour Tulsa, OK

Tel: 217-528-3275 Email: info@csda.org

January 20-23, 2025

World of Concrete Las Vegas, NV

Website: www.worldofconcrete.com

February 12-13, 2025

Canadian Concrete Expo Toronto, ON

Website: www.canadianconcreteexpo.com

THE BIGGEST EUROPEAN EXHIBITION & CONFERENCE SPECIFICALLY **DEDICATED TO THE CONCRETE AND MASONRY INDUSTRIES**













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FOR ADVERTISING, CONTACT JEANNINE HARLOW JEANNINE@FRONTLINECO.COM





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 ENTERPRISEBakersfield, 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 SPECIALISTSFreeland. MI

CONCRETE RENOVATION, INC. San Antonio, TX

CONSTRUCTION DEBRIS REMOVAL, INC. St Augustine, FL

CR MEYER Oshkosh, WI

D.M. CONLON/DAN-KEL CONCRETE CORING, SAWING & SCANNING Longs, SC

DELTA CONTRACTORS & ASSOCIATES, LLCOwings Mills, MD

DIXIE CONCRETE CUTTING, INC.College Park, GA

DYNAMIC CONCRETE CUTTING, LLC Garner, NC

ECHO GPR SERVICES Paola, KS

FINE CUT CONCRETE DRILLING AND SAWING LLC Pleasant Hill, MO

FORRISTALL Bradenton, FL

HAFNER & SON, INC. Danielsville, PA

HARD ROCK CONCRETE CUTTERS Wheeling, IL

HOLES INCORPORATED Houston, TX

HOLES OF SAN ANTONIO, INC. San Antonio, TX



INTERNATIONAL DRILLING & SAWING, INC. Montgomery, AL

JACK DOHERTY CONTRACTING Woburn, MA

KRAUS-ANDERSON CONSTRUCTION CO. Minneapolis, MN

MAVO CONCRETE SERVICES, INC. Superior, WI

M6 CONCRETE CUTTING & CORING 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, A7

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

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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
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- · 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

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AMERICAN GPR SERVICES, LLC

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ASAP CORE DRILLING & FIRE SAFETY, INC.

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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.

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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

KENNEDY RICHTER CONSTRUCTION

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LOMBARDO DIAMOND CORE DRILLING

COMPANY, INC.

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MAVERICK CUTTING AND BREAKING

Minneapolis, MN

MAVO CONCRETE SAWING SERVICES, INC.

New Brighton, MN

METRO CONCRETE CUTTING & CORING, INC.

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MOORE CONCRETE CUTTING LLC

Brentwood, NH

PREMIER LOCATES INC. 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

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HAVE GRADUATED FROM MORE THAN 20 CLASSROOM,
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PROGRAMS FOCUSED ON CUTTING DISCIPLINES, ESTIMATING,
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- Safety Handbook in English/Spanish
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- Over 100 Toolbox Safety Tips (TSTs)



24/7

THE CSDA WEBSITE AT WWW.
CSDA.ORG CONTAINS A
WEALTH OF INFORMATION
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"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.

DISCOUNT

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

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.



Quarterly meetings offer a great opportunity to see what's going on with CSDA, contribute your ideas, and network with other members. We'd love to see you there!

SUMMER QUARTERLY MEETING

Pittsburgh, PA June 5-6, 2024 Member Mixer, Pirates Game, June 5

FALL **QUARTERLY MEETING**

Tucson, AZ September 3-5, 2024 New Member Golf Outing, Sept 5

WINTER **QUARTERLY MEETING**

Tulsa, OK December 11-13, 2024 Member Mixer, Vacuworx Tour



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.

Advertising and Readership

concrete openings



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.

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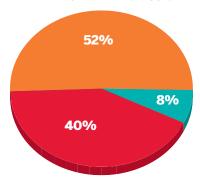
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Who Reads the Magazine?

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



- Specifiers
- Contractors
- Manufacturers, Distributors

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.











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



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, pageturning 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	CONTACT	PHONE	EMAIL
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22	Brokk	Jeff Keeling	1-800-621-7856	jeff.keeling@brokkinc.com
Front Inside Cover, 24-25	Diamond Products	Jim Palmer	1-800-321-5336	jpalmer@diamondproducts.com
Back Cover	Husqvarna	Sarah Martin	913-222-9342	sarah.martin@husqvarnagroup.com
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2	ICS-Pentruder	Jessica Gowdy	800-321-1240	jessica.gowdy@oregontool.com
Back Inside Cover	ICS-Trident	Jessica Gowdy	800-321-1240	jessica.gowdy@oregontool.com
39	Real Power	Don Smith	317-443-0805	dsmith@contourhardening.com

CSDA Launches NEW Online Training Site!

Check out our updated Cutting Edge course—perfect for your new hires, operators with less than two years of experience or anyone who needs to learn more about diamond tools. The course is completely online and can be taken at the student's own pace.

This course covers:

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- Cutting Edge
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- GPR Methods & Theory

Contact info@csda.org for bulk pricing packages.

Visit csda.thinkific.com to learn more and sign up!



CSDA Committee Spotlight: Election Committee



elcome to our newest feature. In each issue, the CSDA will highlight one of its many committees. Committees are a great way to be involved in the organization, impact the direction of the association as well as your industry, meet new people and make a difference.

The Election Committee plays a pivotal role within CSDA, providing thoughtful recommendations to the Board of Directors, overseeing the annual elections process, and managing prestigious awards such as the CSDA Lifetime Achievement Award and the Annual Outstanding Committee Member Award.

Throughout the year, the Election Committee diligently engages with our members, fostering discussions and identifying individuals willing to contribute their time and expertise to our committees and the board. The committee welcomes your input and ideas for who would be a great candidate to serve on the board.

The committee also facilitates CSDA's two major awards. The Annual Outstanding Committee Member Award is given to a committee member who goes above and beyond in their role. This individual regularly contributes to a committee with a drive for success and productivity. The Election Committee facilitates the nominations, submitted by the committee chairs, with the final decision being made by the CSDA president.

The Lifetime Achievement Award goes to an individual who has rendered outstanding service to the sawing and drilling industry along with the association. The winner will have been actively involved in the association for at least eight years and have twenty-five or more years of industry experience. The Election Committee vets all applications for accuracy and submits to the board for a vote.

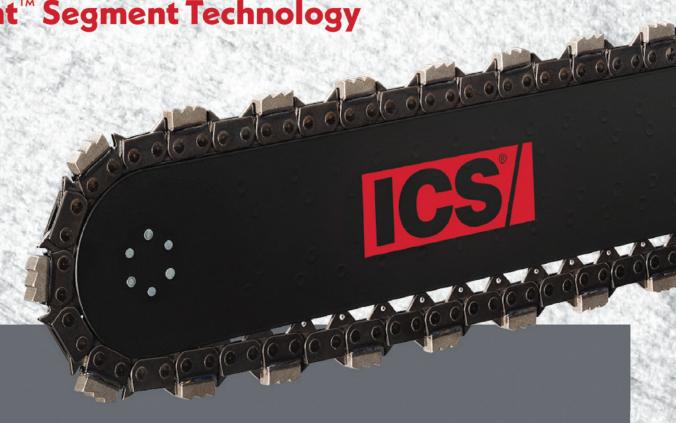
The 2024 Lifetime Achievement Award goes to Jim Dvoratchek, retired president of Hard Rock Concrete Cutters, Inc. and the only CSDA president to serve two non-consecutive terms. Jim will be honored at the CSDA Annual Conference in Waimea, HI in March.

To see the Election Committee in action, sit in on our quarterly in-person meeting on June 5th in Pittsburgh, PA. Then come to the member mixer at the Pirates game that evening. We warmly welcome new members to join our ranks.

If you're passionate about serving your industry, building connections, and facilitating democratic processes, the Election Committee offers an amazing opportunity. To learn more about the Election Committee and joining as a volunteer, please reach out to Donna Harris, Chair of the Election Committee and VP of Concrete Renovation, Inc. Let's work together to shape the future of CSDA!



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