

SEPTEMBER 2020

# concrete openings

THE OFFICIAL MAGAZINE OF  CSDA™

## Arlington Memorial Bridge Renovation

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**MATTHEW FINNIGAN**  
*CSDA President*



**A** lyric toward the end of the Grateful Dead song “Truckin” that was released in 1970 reads, “What a long, strange trip it’s been”. I believe that that’s a rather apt description of where we are as both a nation and an industry at the present time, and unfortunately the ‘trip’ isn’t over. It’s hard to believe that roughly six months have passed since we started dealing with effects of the Coronavirus. How each of us have addressed the situation has varied based on state by state recommendations and regulations. For some, it brought about a shutdown of business for a period of time, for others it has required substantial changes in daily operation. For all, it has certainly changed the way we do business, up to and including interactions with salespeople and those we work with and for. And the newest addition to our way of doing business is Zoom and other related web conferencing services.

For CSDA, the virus has undoubtedly had an impact on our operations and programs. We have become regular users of Zoom as our committee and Board meetings have taken place electronically rather than in-person, and our September meeting included both in-person and virtual participation. The bonus of this new format is that it has enabled more people to participate in the business of the

association without having to travel to our meeting location, and that has been a benefit for everyone.

Additionally, CSDA has had to postpone our training classes that regularly occur each fall as a result of Covid-19 due to closed facilities and travel challenges. It’s our hope that we will be able to resume a training schedule early next year, however it is far too early to be able to accurately predict what the situation will be come early spring.

Where we go from here is unpredictable. At the present time we are planning to hold our Winter Committee and Board meetings in Nashville in early December, and also plan to continue with our annual convention in March of next year. With luck this schedule will hold, and we will also be able to return to our training classes that are so valuable to furthering the skills of the operators that our industry requires.

In the meantime, CSDA and its members continue to move forward and we are looking for new ways to deliver services and programs that will help you safely conduct business in our altered environment. We are open to your thoughts and ideas and invite you to contact us, or better yet join with us – virtually or in-person - in a committee meeting to help further the state of our industry.

Cheers.

Seattle



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## CONCRETE CASES



**CSDA Contractor Assists in Planning & Engineering Demolition of Arlington Memorial Bridge**



**UNESCO World Heritage Medallion Installed at Fallingwater**



**Flood Risk Alleviated in Texas County Thanks to CSDA Contractor**

## CONCRETE OPENINGS MAGAZINE

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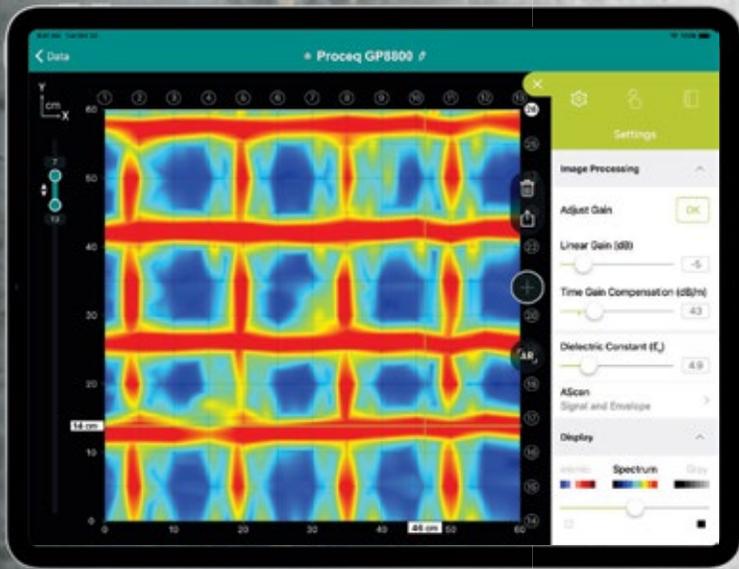
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## CONTENTS

- 14** **Polished Perspective**  
THE NEW NORMAL IS COMING!  
THE NEW NORMAL IS COMING!
- 20** **GPR Insights**  
Solutions for Supporting the Aging U.S. Utility Infrastructure
- 28** **Core Health**  
Is it Safe to Travel?
- 32** **The Business of Business**  
Cannabis at Work: How Employers are Reacting to the  
Legalization of Marijuana
- 34** **Industry Bits**
- 44** **Certification**
- 46** **Membership**
- 48** **Calendar**
- 52** **Director's Dialogue**





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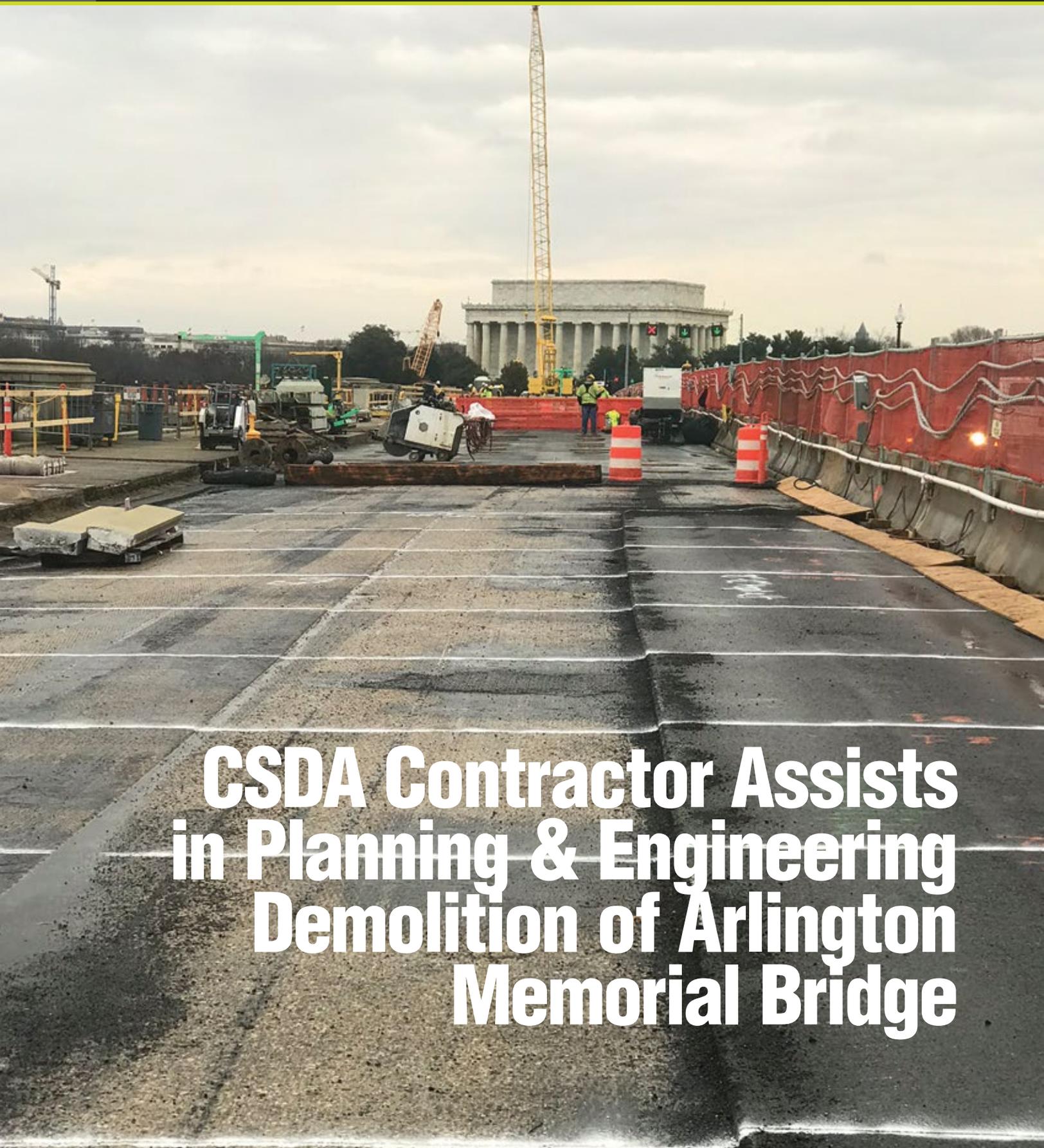
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# **CSDA Contractor Assists in Planning & Engineering Demolition of Arlington Memorial Bridge**

The Arlington Memorial Bridge deck cuts are planned ahead of slab sawing and removal.

**R**unning across the Potomac River from the Lincoln Memorial to Arlington National Cemetery, the Arlington Memorial Bridge is one of six bridges that connects Virginia with the District of Columbia. Opened in 1932, the Arlington Memorial Bridge connects, in a direct line, the Lincoln Memorial and the Civil War General Robert E. Lee's home, Arlington House, to the hill overlooking Arlington National Cemetery. This linkage symbolizes the re-joining of the north and the south after the Civil War.

For the past six years, the National Park Service (NPS) has been making temporary repairs to the bridge while preparing for a full rehabilitation. In February 2016, the Federal Highway Administration (FHWA) informed the NPS that despite the emergency repairs, the accelerated deterioration of the concrete road deck would require a complete bridge closure in 2021. Therefore, a complete rehab of the 90-year old bridge would need to happen before that time.

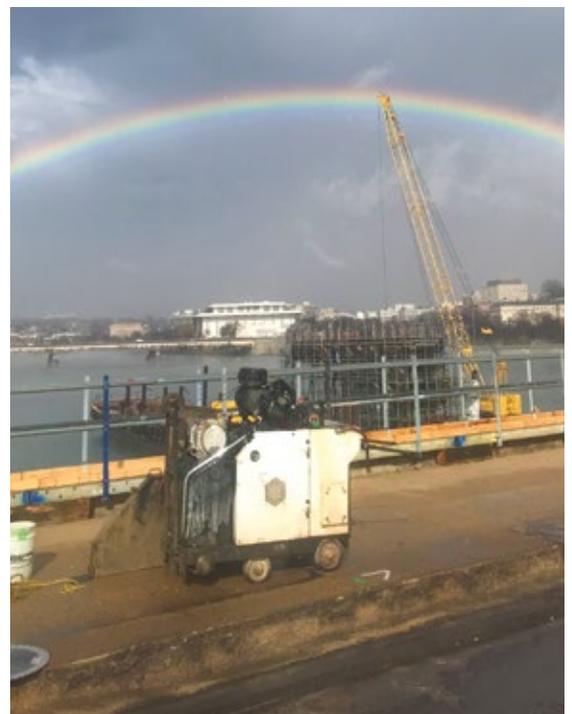
With over 68,000 drivers crossing the bridge daily from Virginia, Washington, D.C, Maryland, and other locations, a plan of action was needed immediately. The NPS developed a rehabilitation project that would restore the bridge's structural integrity while preserving its memorial character and signature design elements. Due to the bridge being a vital part of Washington and Virginia's transportation system, a complete closure during rehab was impossible. Instead, the work would be done in phases.

Altogether, rehabilitation would include replacing the drawbridge span, rehabilitating the concrete approach spans and replacing the concrete deck. CSDA contractor Concrete Technology Services Mid-Atlantic, Inc. (CTS) was hired to assist in planning and engineering the demolition plan for the existing deck. To do this, they would saw cut the bridge deck sections in a manner that would allow the General Contractor, Kiewit Infrastructure Co., to lift the cut deck pieces when the schedule allowed.

CTS engineered a plan that required wall sawing the existing bridge deck in two phases. As part of this plan, they determined they needed a 72" blade to saw cut a thickened portion of slab and beam structure that originally was planned to wire saw. CTS contacted Diamond Products to help them design and fabricate a slab saw that would accommodate a blade of this size. Diamond Products modified a CTS owned V6 slab saw that could hold the 72" blades capable of cutting 32" deep. This new system saved both CTS and Kiewit a lot of money and time.



CTS worked with Diamond Products to customize a slab saw that could hold a 72" blade.



Rainbow at the CTS jobsite in Washington, D.C.



The custom Diamond Products V6 slab saw with the 72" blade at work.

Starting in August of 2019, the first phase of this job was to cut the walls along the arch, which ranged in height from 36" to 18' high, using Pentrunder and Husqvarna wall saws. CTS cut the 24" thick walls horizontally on the slab deck's underside on each of the nine arch sections. Then, they slab sawed the deck into 8' by 8' by 15" sections using six Diamond Products 7574 slab saws and the custom-built Diamond Products V6 slab saw. With Kiewit's help, after CTS slab sawed over the pier sections, steel beams were installed to hold the cut section from falling 20' below. Existing beams and pier frames were wire saw cut into numerous cut sections to be removed by Kiewit. Altogether there were eight pier sections and four abutments in each phase. For new drainage piping throughout each arch section, CTS core drilled 12" diameter holes using Hilti DD250 core drills over the existing sleeves. This allowed for the removal of old sleeves to make way for larger piping. Lastly, CTS used wire saws to cut the 20' high by 24" thick walls at the bascule walls for full height removal. A variety of wire saws were used for these cuts including: a Hilti DSW 3018-E, the WS50 and CC110 track wire saws from Diamond Products, a Husqvarna CS10 and a Pentrunder wire saw.

To meet the aggressive schedule, CTS cut one side of the wall while traffic continued to flow on the roadway, just 18" above, prior to the bridge's planned shutdown. This allowed for

50 percent of the wall saw cutting to be completed before the planned work schedule was realized. In return, the process allowed for CTS to expedite the accelerated schedule.

CTS and Kiewit's method versus conventional demolition with large excavators and hydraulic hammers created the least amount of noise pollution, dust and debris. This technique was not only the fastest process for demolishing existing structures, but it was the most environmentally-conscious.

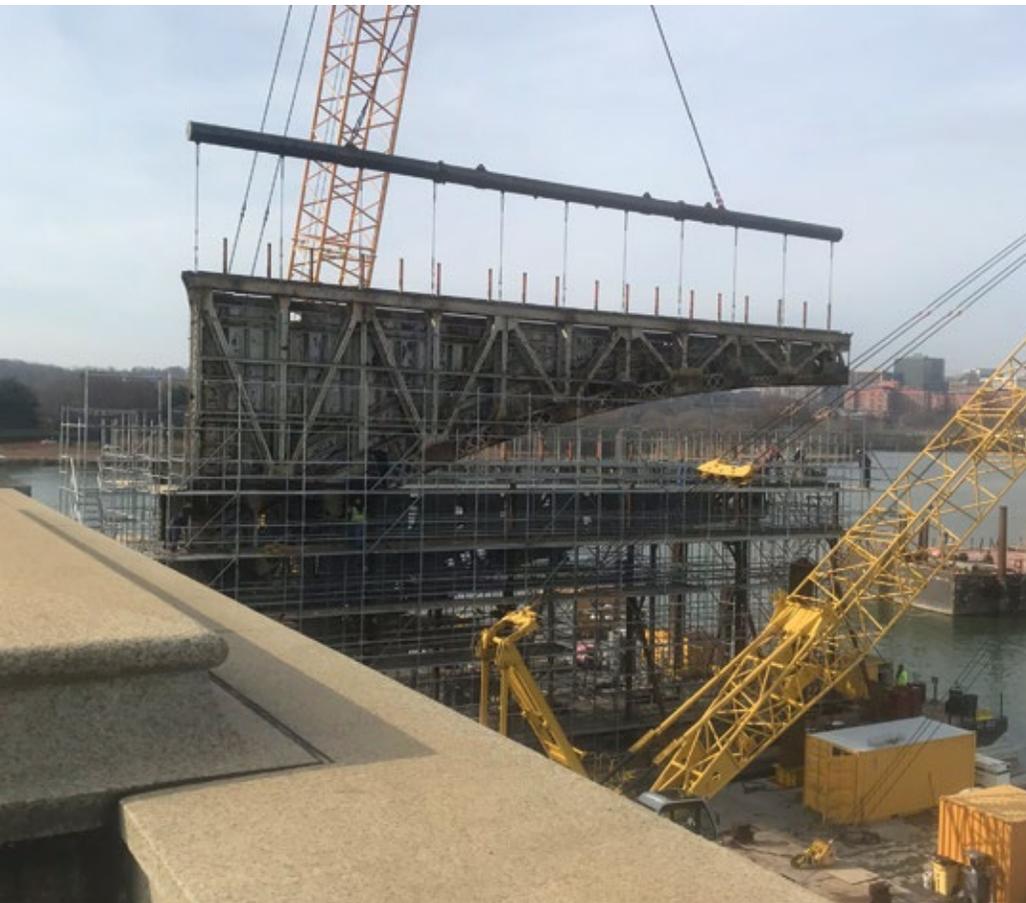
There were several challenges faced by the CTS team on this job. Besides the pressure of working on a national historic structure, the crew also had to deal with below freezing temperatures, frozen water lines, limited access to work areas, working with harnesses on the scaffolding provided by the GC, climbing ladders to access the work zone and finally, safely maneuvering a 72" diamond blade.

In total, CTS slab sawed over 3,500 linear feet at 32" deep, 20,000 linear feet at 12" to 15" deep, over 15,000 linear feet of 24" deep of wall saw cuts, 200 wire saw cuts through concrete frames measuring 4 square feet each, 200 wire saw cuts through beams measuring 12 square feet each and thousands of core drill holes for piping, MOT LUCS signage and lifting holes. All scope of work was accomplished with CTS working over 20,000 man hours without any loss time or other safety incidents.

Ron Salera, CTS General Manager, admits, "This project was one of the most challenging projects I have ever experienced in my 37-year career. Although there were many obstacles, the project had many details that everyone involved



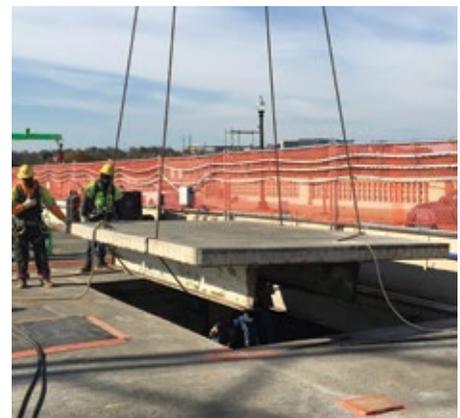
In total, CTS performed over 23,500 linear feet of slab saw cuts ranging from 12" to 32" deep.



A section of one of the arches is lifted after being cut free by the contractor.



Bridge deck after removal of the concrete roadway.



can be proud of. During the second phase, CTS mobilized a team of 28 personnel to the project out of our D.C. branch while simultaneously completing the largest demolition project within the D.C. market. The project finished at \$3.1 million while we were operational on a \$17 million project during same time frame. The team completed an unbelievable amount of work in a short time. The finished project is simply amazing, and for that alone, it was a complete success.” He continued “CTS feels we were selected because we were involved from the beginning of the planning process and offered solutions for our scope work. We had enough personnel and equipment to meet the schedule and budget constraints. While we were not lowest price, we were awarded project because of our knowledge of project needs and our commitment to meet the demands of the GC.”

CTS was involved in the rehabilitation of the bridge from the very beginning of the planning process until the successful conclusion of the demolition and removal phase in June of 2020. Their reputation, creativity and professionalism were the reason they were chosen for this project, and why it was such a success. CSDA contractors are routinely successful for all of these reasons, and CTS expects to see additional work because of their work on this job.

## COMPANY PROFILE

Concrete Technology Services Mid-Atlantic, Inc. is a concrete cutting contractor that was founded on the principle that planning, proper equipment, trained personnel and the highest level of expectations make it possible to achieve anything in the construction industry. They maintain that mindset today, 33 years later. CTS is headquartered in Glenn Dale, Maryland, operates 25 service trucks with 90 total employees. Besides concrete cutting and structural demolition, they offer GPR scanning and X-Ray services.

## RESOURCES

### General Contractor

Kiewit Infrastructure Company

### Cutting and Demolition Contractor

Concrete Technology Services

Contact: Ron Salera

Tel: 301-794-7500

Email: ron@ctsinc.org

Website: [www.concretetechnologyservices.com](http://www.concretetechnologyservices.com)

Social Media: Facebook (Concrete Technology Services Mid-Atlantic, Inc.), Instagram (@ctsmidatlantic), LinkedIn (Concrete Technology Services Mid-Atlantic, Inc.)

### Methods Used

Slab Sawing, Wall Sawing, Wire Sawing, Core Drilling

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# UNESCO World Heritage Medallion Installed at Fallingwater





Matcon operators layout the core drill plan prior to medallion installation.

**It's not every day that a concrete contractor is asked to work at a UNESCO World Heritage Site, but CSDA member Matcon Diamond of Pittsburgh, PA, was asked to do just that.**

Fallingwater, known as one of the greatest architectural triumphs of the 20th century, is located in the mountains of Southwestern Pennsylvania and considered to be one of American architect Frank Lloyd Wright's best-known designs. Commissioned by Pittsburgh department store owner Edgar J. Kaufman, Sr. in 1935, Wright designed Edgar and his family this private residence, which combines an ideal fusion of art and nature. Fallingwater is built over the waterfall for which it is named and was donated by the Kaufman family to the Western Pennsylvania Conservancy in 1963. It operates today as a museum and nature reserve.

Matcon, who had previously worked on several projects for Fallingwater, was pleased to be asked to do another. This time, the plan was to install a UNESCO medallion into the facility's sidewalk.

During the 2019 meeting of the World Heritage Committee, "The Architecture of Frank Lloyd Wright," was added to the UNESCO World Heritage List due to its outstanding universal value and organic representation of architecture (open plan, blurring of exterior and interior boundaries and the modern use of steel and concrete). Each site on the UNESCO World Heritage List is presented with a medallion to display on its property.

For this job, Matcon decided to core drill a 32-3/8" diameter hole, 2" deep into the existing 8" thick exposed aggregate sidewalk slab. Once that was completed, a diamond-cut would need to be made inside the core hole's

footprint so that the concrete could be chipped out to its desired level. Lastly, after the installation of the grout bed, the UNESCO medallion would be inserted into the sidewalk.

During the project, the Matcon team learned that the sidewalk around the entire facility had recently been replaced with a decorative exposed aggregate finish. In order to eliminate the risk of mismatching the finish, a panel would have had to be replaced entirely. This, along with the threat of the inset detracting from the medallion, made Matcon go back to the drawing board.

Thanks to Superintendent AJ Waldor, Matcon came up with a solution to modify a 30" core bit to accommodate the medallion's required size. The in-house fabrication shop took 1/8" by 8" flat steel and rolled the piece to the rough diameter of a 32-3/8" hole. Matcon then welded a series of square stock spacers at set positions around the outside of the 30" core bit. After that, the 8" rolled piece was welded to the square stock where it was raised from the drilling surface of the 30" bit by approximately 1". This allowed them to utilize the drum of the 30" bit for centering the guide plate.

Since the owner didn't want anchor holes in the sidewalk, Matcon fabricated a guide plate that could be mounted to the concrete sidewalk, within the footprint of the core hole. Once the diamond cutting and drilling were completed, the anchors were removed along with the rest of the material needed to create the medallion pocket. Then, the guide plate was outfitted with stems to accept three Diamond Products concentric rollers.



Matcon worked with K2 Diamond to create the perfect drill bit for this job.



Matcon's jobsite setup with a hydraulic core drill motor mounted to a Diamond Products CC8000 Rider Saw.

To create a clean and sharp cut kerf without damaging or removing any exposed aggregate stones, Matcon needed to get some obscenely soft segments. To do this, they contacted K2 Diamond, who worked with their metallurgist to create a solution for Matcon. Two days later, the fabrication shop brazed a series of K2 Diamond Superman segments to the outside ring at a dimension that would precisely create the 32-3/8" kerf. After a few test runs of drilling into the shop driveway and making slight tweaks to the outside band, Matcon was confident they had created the perfect bit for the job. Matcon mounted a hydraulic core motor and stand to their Diamond Products CC8000 Rider Saw and headed to the Fallingwater facility.

"Having worked on Fallingwater on and off throughout the past couple of years, we have a great rapport with the facilities management staff. This project was special to us since it celebrates not only Frank Lloyd Wright's contributions to American architecture but to the whole world during the 20th century," says Dan Matesic, Operations Manager for Matcon Diamond. "It was a huge honor to be a part of it."

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## COMPANY PROFILE

Matcon Diamond was founded in 1985 by Dave Matesic with an F-150 pickup, a 65 HP saw and a lot of grit and determination. Since their inception, they've grown to over 50 employees with as many trucks (and even more custom saw gadgets that they've created). Matcon offers a full range of concrete sawing, drilling and removal services throughout Pennsylvania. They have been CSDA members since 1987.

## RESOURCES

### Cutting Contractor

Matcon Diamond  
 Contact: Dan Matesic  
 Tel: 412-481-0280  
 Email: [matcon@matcondiamond.com](mailto:matcon@matcondiamond.com)  
 Website: [www.matcondiamond.com](http://www.matcondiamond.com)  
 Social Media:  
 Facebook: Matcon Diamond  
 Instagram: @matcondiamond

### Methods Used

Core Drilling



# THE NEW NORMAL IS COMING! THE NEW NORMAL IS COMING!

By Tim Kennady

## How to Prepare Your Concrete Polishing or Cutting Company for “The New Normal”

*Aren't we kind of late for preparation?  
Isn't this like preparing for pregnancy in your  
second trimester?*

## 10 Secrets to Surviving the New Normal in Concrete Polishing!

*10 Secrets? How numerically convenient.*

## What's your “new normal”?

## Post-crisis concrete polishing and epoxy business models.

*This one might be the closest one yet, but it  
continues to perpetuate a terrible myth.*

**W**hat exactly is meant by “the New Normal”? We hear it thrown all around. Heck - I used it numerous times, until one day, it was said back to me and I immediately rejected it. NEW normal? What was my OLD normal? And why am I supposed to mourn its death? WHY did I allow my business to even have a ‘normal’ that did not include evolving and adapting as part of its natural ethos?

According to Wikipedia, and marginally modified for context of this article; “A new normal is a state to which an economy, society, etc. [YOUR COMPANY] settles following a crisis, when this differs from the situation that prevailed prior to the start of the crisis.” That’s actually a very accurate description of really poor business vision and planning. In fact, there is one deadly word in there that did not get my attention until I read it several times. Read it again...now tell me, what is the most dangerous word in that paragraph? Settles. ‘Settles’ is EXACTLY why businesses inevitably fail when change occurs. It ‘settled’ as the ‘Old Normal’ before the ‘New Normal’ and it will likely settle again into a new old normal.

*“Good is the enemy of great. And that is one of the key reasons why we have so little that becomes great. We don't have great schools, principally because we have good schools. We don't have great government, principally because we have good government. Few people attain great lives, in large part because it is just so easy to settle for a good life.”—Jim Collins, Good to Great: Why Some Companies Make the Leap...and Others Don't*

In my opinion, the delta between good and great is the buffer to all crisis threats. The brain trust and imagination that makes a company great will not fail during a crisis and I’m hesitant to suggest they even perceive an actual threat during such events. History suggests that these businesses actually thrive, likely because they see opportunity through the noise and chaos.

Every business is subject to one or more significant events that changes the vision, direction or goals of a company. These don’t have to be the result of a pandemic, war or a housing market crash. For most small businesses, they include divorce, marriage, children, death, new ownership, new partnerships, ending partnerships, retiring and/or leaving “rockstars”, natural disasters, crime, social or economic or regulatory/governmental environmental contributing factors and any substantive change that impacts a company and distracts it’s leadership from a complete macro peripheral perspective. Um, I hate to be the guy to yank that out of some of your hands right about now, but, that actually IS ‘normal’. Nothing ‘new’ about it. If every time something happens in your company that it creates a ‘new normal’ - I suggest you fire your ‘Imagination Manager’. Unfortunately, for most of us business owners, this is usually our job.

So, lets leap across the success divide into some highly successful organizations, none of which planned for a ‘New Normal’, yet all of them have one major thing in common - change is normative. Amazon, Apple, Google. A ‘New Normal’ for these, and thousands of other companies like them, would be sustained stability doing the same thing every day and failing to continually evolve and adapt to new opportunities, while enjoying anemic marginal growth. You can look across the spectrum of companies and see this is true. Comcast, Netflix, Tesla, SpaceX, Nintendo, Clorox, Kroger and thousands of others in all sectors



- and I’ll wager that even one of your local competitors is among them!

How about we don’t chat about how to survive THIS crisis. Instead, let’s discuss your ‘normal’ and leave others to settle into their ‘New New’, soon to be ‘Old New’ normality. Then, when the next ‘event’ occurs, your company will thrive as its natural, ‘normal’ response. Yeah - That sounds WAY better!

Your company exists for one primary purpose ONLY;

## CREATE VALUE THAT EXISTS TO SERVE SOMEONE, SOMEWHERE, SOMETIME BEYOND NOW.

That’s a basic fundamental fact - regardless of your mission, vision or values. It doesn’t matter if it’s for your personal wealth, retirement, kids/grandchildren, colleges, generational wealth, employees, their families, the community or the increased value of your customers interests and/or quality of life. Value is relative to the seeker and does not always define itself as money, but 99% of the time, it does. Your company is a vehicle for that acquisition of value. Since the world is continuously evolving and the desires of people change - why wouldn’t your company work each and every day to successfully provide that? Better yet – inspire charge, regardless of circumstances out of your direct control. Don’t be the world’s leading wooden wheel manufacturer when the world is going to steel wheels with rubber tires.

## DON'T BE THE COMPANY THAT FIGHTS CHANGE - LEAD CHANGE.

OK - What does this have to do with your concrete polishing or cutting/demo/ GPR company, during a pandemic, where the government is interfering and shutting everything down and making this out of your control? Many companies in our industry are thriving right now. They've identified key market segments that are working and like-minded companies that see opportunities presenting themselves in their market segments. They paid attention to trends, watched markets and moved gracefully, like business ninjas. They were always diversified, and they maneuvered and adapted to the winds - and it had nothing to do with a crisis. Nope - they always operate that way.

Model your business to be about change, always adapting, seeing and listening acutely. So many of us dig in, stay stubborn, refuse to change, resist forces greater than us and take the lazy path of least resistance when the wounds are calm.

Here are a few things great businesses do really well before, during and after a crisis.

### Identify the business's purpose

- Convert that purpose into an achievable economic number value to work towards. I call this your 'Power Number'.
- Make sure everyone is working towards that purpose.
- When making decisions, ask: does this decision help that purpose?
  - If not, don't do it.
  - If so - don't hesitate to execute.
- Evaluate, every day. Did you move closer to the purpose?
  - If not, identify why and adjust
  - If so, identify ways to do it better
  - Adjust the purpose when appropriate. Identify it and start from the top.

### Be prepared for a virtual, digital, automated world

- Hiring: Why limit your administrative and estimating talent pool to your geographical region? Outsource those jobs. They don't need to be at a desk in the next room.
- Outsourced payroll and financial services take a lot of mistakes and time sucking activities out of your team's hands
- Utilize Technology Accelerators
  - Bid board/Service Subscriptions
  - Take-Off Software
  - Computer/Tablet Technology
  - Cloud Based Solutions for ease of data access
  - Apps vs Software opportunities - especially for field staff



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- **Electroplated and brazed wire also available**

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### Embrace and Empower

- Strategic Partnerships
  - Turn competitors into resources. Partner with them on bigger projects. Go to lunch and stay friendly competitors.
  - Build a strong supplier relationship network. DO NOT penny pinch your supply chain. It suggests you're financially weak or petty. If you are focused on saving five cents a square foot, you are losing a dollar a square foot. You are not gaining respect as a master negotiator, I promise.
  - Subcontract when necessary and take the lead in your market.
  - Acquire opportunities when they make sense to do so to increase your available market geographically or through a new service/product offering, like polishing companies going into epoxy markets. You will be more successful, faster, in acquiring a struggling existing company rather than starting from scratch.

### Empower Your Team

- Get your team(s) involved in inspirational change. If you have an amazing team that you believe in - ask them what they would do differently.
- Reward performance.
- Pay a performer's wages and most people will feel an obligation to perform to that level. If you are one of those, 'show me first' managers - you are starting the relationship backwards. A typical worker in today's market will exceed performance when they are being valued.

Open your eyes wide, hear the sounds, increase your field of vision to as close to 360 degrees as possible and be the Imagination Manager you were when you started your business. That also goes for you too, motivated excited 'new guy'.

Pandemic? Oh yeah, there is that... Well, I think we will manage through that pretty well. How about you?

*Tim Kennedy is President of XrQ Corp, a concrete surface treatment company and industry consultant based in Roseville, CA. XrQ Corp is a CSDA member company.*



# Flood Risk in Texas County Alleviated Thanks to CSDA Contractor

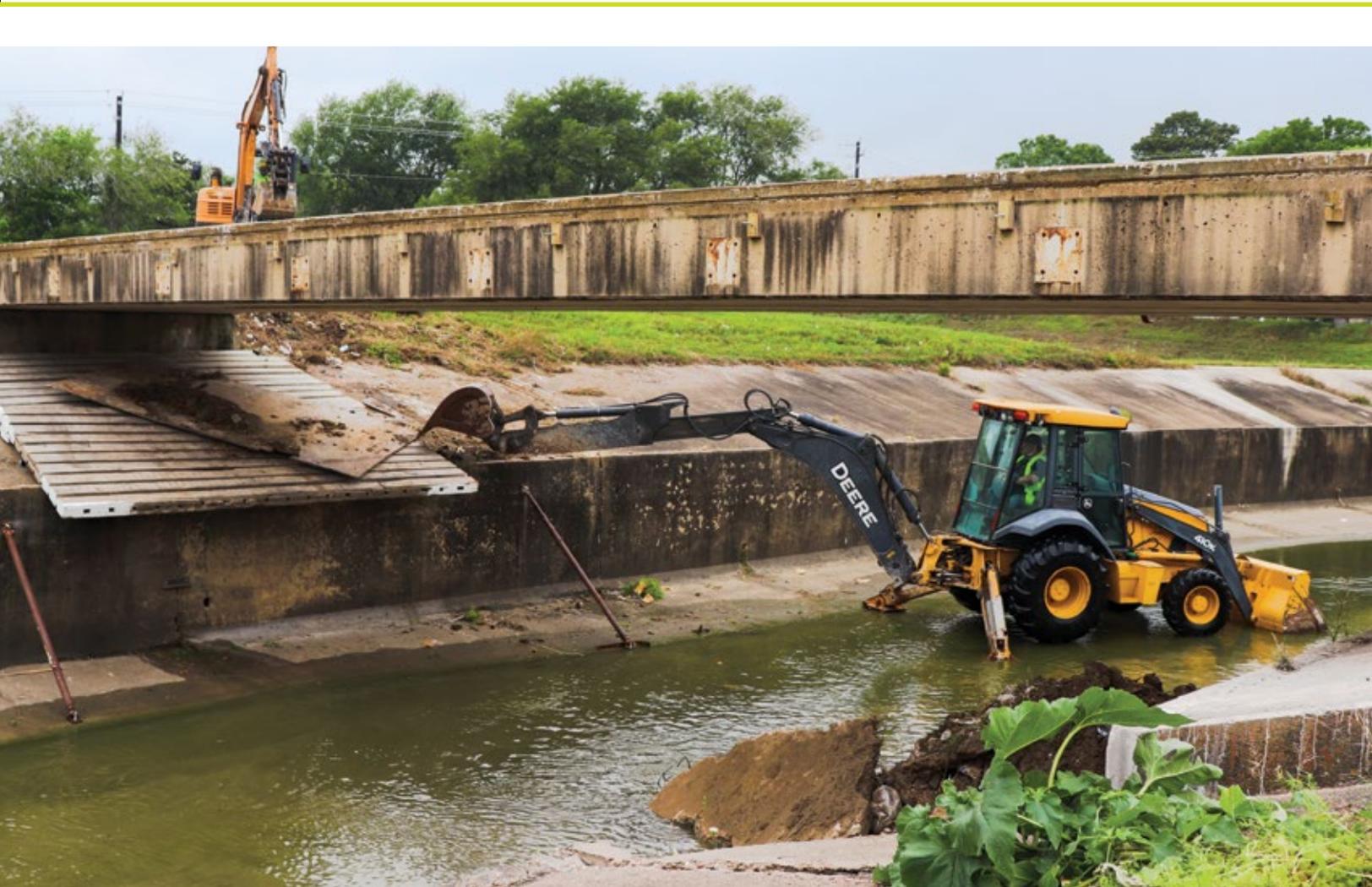


One of the three golf cart bridges prior to removal by Holes.

**H**arris County is the third most populated county in the nation and the most populous county in Texas. With the region being a low-lying, flat area with a higher-than-average annual rainfall, frequent flooding occurs. As a response to floods that devastated the region in 1929 and 1935, the Texas Legislature created the Harris County Flood Control District to manage projects that reduce Harris County flooding risks.

Recent catastrophic flooding in the Houston area caused by Hurricane Harvey spurred the Harris County Flood Control District to initiate projects to help alleviate Harris County's future flood risk through the 2018 Bond Program, which allocated \$2.5 billion in bonds to finance flood damage reduction projects. One of the bond program projects included removing three concrete golf cart bridges, two at Goose Creek in Baytown and one across from Sims Bayou watershed in southern Harris County. A new subdivision is being built next to both watersheds so Harris County initiated the removal of the bridges to produce better waterflow through the bayous. BRH-Garver Construction was awarded the maintenance contract for this project and hired CSDA contractor member Holes Incorporated to cut, hoe ram and remove the three bridges.

The bridges were located in environmentally-sensitive areas and were heavily reinforced with steel. Other methods of bridge removal were considered, but due to the need to protect the bayous and surrounding areas, it was determined that concrete cutting with diamond tools and utilizing heavy equipment provided



Steel plates were installed prior to cutting and demolition.

the safest, most environmentally friendly removal option, while also ensuring a clean cut area after the removal.

The first step of the job for each bridge removal was to install safety steel mats to protect the surrounding area from construction trucks, equipment and the demolition itself. Steel braces were installed on the slope paving underneath the bridge to prevent the retaining wall from buckling during demolition. Next, a Holes operator used a Pentruder 8-20HF wall saw with Diamond Products blades to make the 6" deep cuts at the ends of the bridges, while also cutting off the broken and buckled concrete underneath. These cuts were made parallel with the bridge deck on a sloped area to preserve and protect the wall from buckling, while also protecting the paving under the bridge and the retaining wall. Wall sawing was selected due to the ease of set up and the versatility of the equipment. The equipment was used to saw cut on top of the bridge and beneath the bridge. Mobilization and wall sawing took approximately three and half days, while the remaining five days were used to complete the demolition and removal of the bridge concrete and steel.

Altogether, approximately 1.5 million pounds of concrete were removed from the single 36' by 4' by 3' Sims Bayou bridge and the two 90' by 13' Goose Creek bridges. Holes performed a total of 360' of wall saw cuts at 6" deep on this project.

The Holes-owned and operated equipment used on this job included a Pentruder 8-20HF wall saw, a Komatsu PC 400 excavator, a Caterpillar 321D excavator with hoe ram and a Case mini excavator with hoe ram. The Cat 321 and the mini excavator were both used to hoe rams the bridges, while the Komatsu 400 excavator was used to crush the broken concrete into manageable pieces and load those pieces into dump trucks to be taken to the nearest recycling plant. As rubble could not be left behind in the bayous, a skid steer was used for a more thorough and easier clean-up.

Additional safety measures included performing daily Job Safety Analysis and tool box safety meetings, where the job lead communicated the safety and job plans to all operators onsite. All operators wore standard PPE.



The ends of the bridge were cut using a Pentrunder 8-20HF wall saw.



After the bridges were cut free, heavy equipment helped to demo 1.5 million pounds of concrete.



Sims Creek after the bridge demo and removal.

Holes completed the job within contract, on time and within budget. This was not the first job they successfully completed with BRH-Garver Construction, and it will not be the last. Glen Crawford, Project Manager/Business Development at BRH-Garver Construction, stated “The Holes Incorporated crew did an outstanding job of demolition and removal in a short period of time.” He added, “During the bidding process, the Holes Incorporated sales rep, Eddie Jester, was responsive and very helpful in planning the work with BRH-Garver’s site superintendent and me on several occasions. His responsiveness and crew’s professional prosecution of the Goose Creek portion of the job back up the industry-wide reputation that Holes Incorporated commands as a ‘Top Shelf’ resource for expertise and site-specific solutions.”

CSDA contractors have a reputation for being reliable, efficient, professional and safe on all jobs, and Holes is an exemplary example of those qualities. They were able to quickly come up with a safe, quick and environmentally-friendly solution to the demolition project, effectively communicate with the client and complete the project successfully, on-time and under budget.

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## COMPANY PROFILE

The Holes Companies are service companies specializing in concrete sawing, drilling, breaking, lifting, demolition, scanning, load and haul and specialty wire sawing. The Holes Companies primarily work for commercial and industrial contractors, state highway departments and municipalities. Holes Incorporated, Holes Golden Triangle, LLC, Holes South Texas, LLC and Holes Technology, LP have built a solid track record through 48 years of experience, reliability and reputation.

Holes Incorporated retains veteran employees, which translates into superior problem-solving skills and an ability to provide innovative solutions to your concrete cutting, drilling, demolition and removal needs. Holes employs highly-trained and safety-conscious operators. Thousands of dollars are spent each year to train and equip the Holes team with the latest safety techniques and tools. With OSHA recordables far below industry norms, Holes Incorporated is known as the best in the business. They have been CSDA members for over 45 years.

## RESOURCES

### General Contractor

BRH-Garver Construction LP

### Cutting and Demo Contractor

Holes Incorporated

Houston, TX

Contact: Kellie Kimball

Tel: 281-469-7070

Email: [kellie@holesinc.com](mailto:kellie@holesinc.com)

Website: [www.holesinc.com](http://www.holesinc.com)

Social Media:

Facebook: Holes Inc

Twitter: @holesinc

Linkedin: Holes Incorporated

Pinterest: HolesInc

### Methods Used

Wall Sawing, Demolition and Removal

# Solutions for Supporting the Aging U.S. Utility Infrastructure

**M**uch has been studied, analyzed, and written about as it relates to the aging U.S. infrastructure over the last several years. While we can't pretend we have the expertise to add high-level studies, data or information to the ongoing conversation regarding infrastructure, we do want to provide a unique perspective from an industry contractor who supports the efforts to maintain, upgrade and replace that infrastructure.

From one vantage point, given the data, the infrastructure needs in the U.S. seem like an insurmountable task. From our vantage point, with the power of American ingenuity, teamwork and grit, we can overcome and ensure the critical infrastructure stability needed for our future.

It's important to first define what we mean when we say 'U.S. infrastructure.' The Department of Homeland Security (DHS) and the Cyber Infrastructure Security Agency (CISA) offer 16 sectors defined as 'critical infrastructure' (DHS source; CISA source). However, these categories are too broad and far reaching for us to attempt to provide perspective.

A definition for 'critical infrastructure' is also provided by Wikipedia (sourced by common and educated resources from around the globe) which offers a more narrow and helpful list of 'critical infrastructure'. Even more helpful, however, is the infrastructure list provided by the American Society of Civil Engineers (ASCE) in their landmark report, 2017 Infrastructure Report Card – A Comprehensive Assessment of America's Infrastructure. Within this report, the ASCE recognizes 16 categories (which differ from those supplied by DHS and CISA) it deems critical. Of this group, we will review and consider five. Our selection is not meant to imply importance. Simply put, these are infrastructure segments in which GPRS holds a unique expertise and perspective. The categories are:

**BRIDGES** – Receiving a 'C+' grade on the ASCE Report Card, the U.S. has more than 614,000 bridges. Forty percent of these

bridges are more than 50 years old. More, 9.1% of bridges in the U.S. were deemed structurally deficient in 2016. It is calculated that 188 million trips were conducted across bridges that were structurally deficient. Lastly, it is estimated that it will take more than \$120 billion to rehabilitate the nation's structurally deficient bridges – and this statistic is from 2017!

The Report Card estimates the total infrastructure budget needed to repair our roadways and bridges ('surface transportation') at \$2.042 trillion.

Source: ASCE 2017 Infrastructure Report Card, page 8,14

**DRINKING WATER** – Receiving a 'D' grade on the ASCE Report Card, there is roughly 1,000,000 miles of potable water piping across the country. It is estimated that over 240,000 water mains break per year and with many of these pipes having been installed in the early to mid-20th century, contamination is a concern. The American Water Works Association estimates \$1 trillion are needed to maintain and expand water service in the near future.

The Report Card estimates the total infrastructure budget needed to repair our drinking water supply system is \$150 billion (combined with our wastewater system).

Source: ASCE 2017 Infrastructure Report Card, page 8,15

**ENERGY** – Receiving a 'D+', the U.S. energy system also presents some disturbing statistics. As of 2017 it was estimated that there were more than 640,000 miles of high-voltage transmission lines throughout the lower 48 states. All of these lines were running at full capacity and with most having been installed in the 1950s and 1960s, they have surpassed the planned life expectancy of 50 years.

The Report Card estimates the total infrastructure budget needed to repair our energy system is \$934 billion.

Source: ASCE 2017 Infrastructure Report Card, page 16

**ROADS** – To quote the ASCE 2017 Report Card directly, "America's roads are often crowded, frequently in poor condition, chronically underfunded and are becoming more dangerous." The ASCE offered a 'D' grade

to our roads. One out of every five miles of roadway is deemed to be in poor condition and the repair and remediation timelines for our road system is increasing.

As noted above, the Report Card estimates the total infrastructure budget needed to repair our roadways and bridges ('surface transportation') at \$2.042 trillion.

Source: ASCE 2017 Infrastructure Report Card, page 19

**WASTEWATER** – With roughly 15,000 wastewater treatment plants around the U.S., we have seen significant increases in water quality. That being said, millions of new users will be connected to centralized plants over the next 20 years. New infrastructure is needed to meet this demand not to mention the burden this places on existing facilities. As it relates to our wastewater facilities, the ASCE offered a 'D+' grade.



The Report Card estimates the total infrastructure budget needed to repair and upgrade our wastewater system is \$150 billion (combined with our drinking water supply system as show above).

Source: ASCE 2017 Infrastructure Report Card, page 21

In total, the ASCE estimates needing \$3.2 trillion to complete the necessary repairs and upgrades to the five critical infrastructure categories noted in this article. While the current statistics surrounding the aged U.S. infrastructure are concerning, to say the least, things are not dire just yet. Attention must be given to the remediation, repair and ongoing maintenance procedures for our infrastructure. If little is done to bolster our efforts, the articles written 10 years from now will offer a grim picture as it relates to failing infrastructure and the spending necessary to bring things back to the standards normally accepted in the most prominent and technologically advanced country in the world. What is needed to overcome these statistics is a sound strategy and a commitment to teamwork ranging from local contractors to the national government.

(Note: the statistics above were sourced from the referenced ASCE 2017 Infrastructure Report Card)

The ASCE 2017 Report Card offers an overarching strategy for how to deal with the current critical infrastructure crisis in the U.S. Their strategy is inclusive of the following keys:

- Investment – given the financial statistics quoted above, it is easy to see that a significant financial investment will be necessary. The way that investment is deployed is key, as the Report Card states. The investment approach must be long-term and consistent in its focus.
- Leadership & Planning – The Report Card recommends a collaborative effort from all levels of government, business, labor, and nonprofit organizations. A team (or several teams) oriented effort is the only way to overcome the daunting infrastructure needs in the U.S.
- Preparing for the Future – Lastly, in considering the Investment and Planning noted above, the strategy must have a future oriented focus. An emphasis on resilient and sustainable technology will be critical to ensure we reverse the infrastructure deterioration curve over the course of time.

As an industry partner working on and around the named U.S. infrastructure on a daily basis, GPRS believes we have a unique vantage point allowing us to offer distinctive recommendations within the categories enumerated in the ASCE 2017 Report Card.

- Investment – the technologies and services deployed by GPRS and similar service providers can offer high quality information on subsurface features

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critical to determining the location of the infrastructure in question. From concrete scanning analysis and mapping with the ability to provide 3D images of inspection areas to utility locating, designating and mapping, the pre-project spending (investing) conducted with companies specializing in scanning and locating is certain to save financial resources down the road. Additionally, locating and scanning companies like GPRS are able to deploy technologically advanced video pipe

inspection equipment that can provide a high quality internal view of piping. All the information and images collected with VPI equipment is compiled and positioned within a formal report (many providers like GPRS provide NASSCO certified reports). All of this subsurface information makes project planning more accurate, provides real-time information on the location of subsurface features of concern, and can illuminate other hazards within the project vicinity that may not be originally known.

Contractors specializing in subsurface investigations offer many unique subsurface studies that are certain to protect and ensure the investments made in our critical infrastructure will be prudent. These services could include any of the following:

### Concrete Scanning and Investigations:

- Scanning to determine the positioning (horizontal and vertical) of reinforcing steel
- Locating subsurface voids around critical infrastructure below concrete slabs
- Analysis of reinforcing steel delamination and deterioration
- Concrete voiding and honeycombing investigations
- 3D Imaging of concrete embedments

### Utility Locating and Investigations:

- Scanning to determine the positioning (horizontal and vertical) of subsurface utilities
- Locating subsurface boice around critical infrastructure
- Locating of non-metallic objects, structures, and pipes
- Conflict and anomaly investigations related to unknown subsurface features

### Video Pipe Inspections and Investigations:

- Structural integrity consultation related to the internal features of large pipes
- Blockage investigation and awareness
- Cross-drill confirmation and locating
- Accurate vertical and horizontal locating of the line being investigated
- Confirmation of sound construction practices post installation of utility infrastructure

### Deliverables Provision and Detailed Reporting:

- 3D imaging of concrete and utility subsurface features
- Accurate, GPS collected, data points which can be mapped and provided to a utility contractor in varied data formats (Revit, AutoCAD, KMZ, etc.)
- Aerial drone imaging
- Formal written reports with detailed reviews of the subsurface findings including pictures and data screen shots
- Contour maps for electromagnetic induction data
- Contour maps displaying disparity in reinforcing steel spacing, elevation, and concrete thickness

Again, the construction landscape has many service providers capable of providing expert subsurface investigations, many of those investigations are listed above. GPRS

and similar service providers exist for the purpose of revealing unknown subsurface concerns in many and varied ways to, again, support and protect the investment needed when planning and conducting critical utility infrastructure projects.

**Leadership & Planning** – GPRS and our similarly equipped competitors and industry service providers offer field service team members who are committed to deploying the right tool with the correct scanning method on any infrastructure project. Further, they are prepared to offer a consultative approach to a project's decision makers that moves them closer to the solutions needed when repairing or updating critical infrastructure. Our industries services and team members work in concert with the architects, civil engineers, and construction professionals ensuring they have the most accurate subsurface information on their job site. It's all but certain that the information provided by GPRS or a similarly capable company will increase the speed of the project, limit cost overruns related to unknown subsurface concerns, and streamline the flow of critical infrastructure information between all leaders on a given job site.

**Preparing for the Future** – Not only do the services provided by service providers in our industry offer real time Investment and Planning solutions but, they are built to help maintain and support the future needs of the U.S. Infrastructure. For example, as an infrastructure maintenance or repair project is underway, subsurface scanning and locating service providers can offer scanning and mapping services on a set interval to ensure all subsurface utility changes are captured and prepared for future records needs. Mapping whole utility infrastructure systems (wastewater facility, water filtration plant, energy production environment, etc.) and providing ongoing mapping of that system is not beyond the capabilities of the best services providers in our industry. Having accurate and up-to-date records of an entire utility infrastructure facility provides cost saving data which can be utilized in the future. Not only the locating, mapping, and data storage capabilities of GPRS and our similarly equipped competitors add future value but, our technologies will continue to be seen as a viable non-destructive key to maintaining our critical infrastructure.

Overall, the most effective, qualified, and skilled subsurface investigation companies are focused on providing the subsurface information necessary to empower project

solutions for even the most complex infrastructure job sites. The added safety and risk mitigating benefits added through the application of these services increase the return on investment, too.

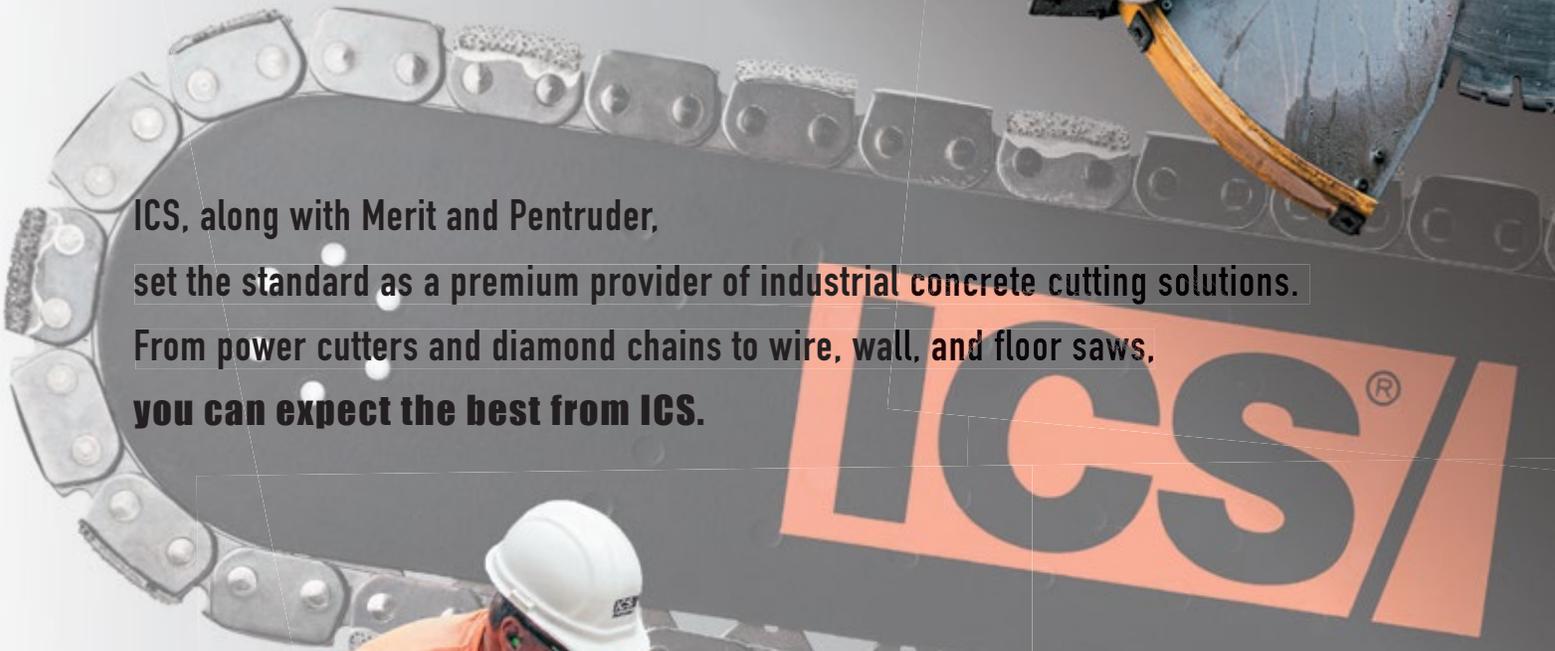
In each of the recommendations presented by the ASCE in their Report Card, it is easy to see that a qualified service provider like GPRS has a key support role to play. Whether in utility locating and mapping, concrete scanning and mapping, NASSCO certified video pipe inspection services, or client mapping and data management support, our industry providers can be your subsurface eyes helping you plan and execute your critical infrastructure maintenance project. When you need subsurface solutions, turn to an expert company providing subsurface locating and assessment.

In closing, the aging infrastructure in the U.S. is certainly problematic. When compared to the various seen and unseen adversities we have faced as a country, this is nothing. We've got this. The key to overcoming and moving forward with excellent support and management of our critical infrastructure is teamwork, a care for the common good of our fellow Americans, and an expert plan of attack. The best solutions won't come from our nation's government alone but from a collaborative effort from all levels of government, business, labor, and nonprofit organizations - the creative individuals powering our engineering, construction, and support service businesses. Will you join GPRS, and our industry, in pushing forward in the fight against our growing infrastructure concerns?

### GPRS is a CSDA member contractor

providing GPR scanning, imaging, utility locating and other related services to companies all over the U.S. CSDA offers several other GPR scanning companies, many of whom employ CSDA GPR Certified Operators and are CSDA Certified Companies. These Certifications provide company owners, general contractors, architects, engineers and government officials with a valuable prequalification tool, improves the knowledge and skills of GPR contractors and enhances their public image. Contractors carrying these designations can be found on the CSDA website and GPR contractors can be searched by service type and location at <https://csda.org/find-a-product-service/>.

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## IACDS President's Insight

**A** year like no other is slowly approaching its end and what a year it was. Full of anticipation for an eventful year with a silver jubilee, the IACDS has quietly turned 25 years old. One of the best trade fairs for concrete drilling and sawing, the BeBoSa, like all other events has been canceled and has also been postponed by a year.

At the beginning of this year, nobody could have expected this. With one stroke, public life was over. It was like driving into a concrete wall at 130 mph! From one day to the next, everything changed and instead of the annual general assembly in Carlsberg or the great 25th anniversary event of IACDS and the fantastic trade show BeBoSa, we found ourselves in the middle of a lockdown. Instead of talking to friends and business colleagues, we practiced keeping distance and wearing masks.

But, for the last half of a year now, we have read and written about almost nothing else.

There is something else, even if it seems that this Covid-19 topic dominates us and our lives.

But even if I can't tell you much about events and meetings of the past year, we have been able to gain two new members from Germany with the companies HEGER and KERN-DEUDIAM. With the company LEE YEON INDUSTRIAL Ltd. we welcome the first member from Taiwan.

The German association (FBS) held its annual general meeting under Covid-19 conditions in mid-June. That meant only one representative per company, keeping distance and apart from the speakers, a mask had to be worn at all times. The event went smoothly and the duration was impressive with its brevity.

At the turn of the year, there will be another yearbook from the IACDS. This time it will be an anniversary yearbook full of amazing stories about our fantastic industry and if you have a contribution that you want to share with us, I would be very happy to hear and read from you. Please don't hesitate to contact me at [info@IACDS.org](mailto:info@IACDS.org).

Since the implementation of all events is subject to the travel restrictions still in force, it is difficult for me to recommend any international event at this point. Hopefully we'll meet at the next CSDA Annual Convention & Tech Fair at the Hamilton Princess, Bermuda from March 2-6, 2021 or the BeBoSa in Willingen, Germany from April 15-17.

And by the way, I can truly tell you that the people in Austria do not live in "forest cities" and the trees do not explode. In fact, forest fires are a very rare phenomenon in Austria.

For the coming autumn, I wish you all a good business and a well fed turkey for Thanksgiving. I wish you well and please stay safe.



**MICHAEL FINDEIS**  
IACDS President



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— **Bennett Jones,**  
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# Is it Safe to Travel?

By Erin O'Brien

**H**ere we are, four months after my first Core Health article on COVID-19, and I hate that I'm still writing about it. I thought about choosing another topic, but as many people are starting to get back to some kind of normal, I felt writing about travel was timely. Ironically, I write this as I'm on a Delta flight, 30,000 feet in the air. In my (very humble) opinion, the answer to the title question is yes, it's safe to travel. Here's why.

Before we took off today, our pilot made an announcement. He said there was a great deal of misinformation on the national news circuit (crazy, right?) about the air in airline cabins and wanted to make sure we knew the facts. Delta Airlines aircraft recirculate their cabin air every two minutes. Each plane has hospital-grade HEPA (high-energy particulate air) filters which remove 99.997% of virus-sized particles. The entire volume of cabin air is removed every two minutes – half is pushed outside, and the other half passes through the HEPA filter. Fresh outside air is then pumped in, combined with the filtered air and blown into the cabin from the top air vents down. This vertical top-to-bottom flow ensures all passengers are breathing fresh, clean air. Other major airlines have similar processes for cleaning and recirculating cabin air. Additionally, Delta, along with Alaska Airlines, Hawaiian Airlines, JetBlue



and Southwest Airlines block the middle seats to reduce the number of people in the cabin and their proximity to each other. All surfaces on the planes are sanitized between each flight and flight attendants hand out sanitizing wipes to each passenger upon boarding. All passengers and crew are required to wear masks (without the valves) in the airport, gates areas and on the plane. Personally, I believe there has never been a safer time to fly.

However, keep in mind not all airlines follow every single one of these rigorous safety procedures. Allegiant, American, Frontier, Spirit and United do not block out the middle seats, so planes can be much more crowded. See Fig. 1 for current airline policies regarding cleaning procedures, facemasks, seat blocking and more. Choose your airline accordingly.

Besides dirty cabin air, another presumption about travel is that traveling through airports and touching multiple surfaces could also increase risk for transmission of COVID. The CDC has largely determined that the risk of contracting COVID via surface contact is extremely low. Airborne transmission is the most likely mode, and masks and social distancing have proven to reduce that risk dramatically. So, if you are traveling through an airport, on a bus or train or in a car, disinfecting surfaces and frequent hand washing will all but eliminate the risk of transmission via surface contact. In this case, air travel is no more likely to spread COVID via surfaces than going to your local grocery store or gas station.

Each situation and person remain unique in their risk of contracting COVID, and high-

Fig. 1

Airline	Masks required (crew)	Masks available (passengers)	Masks required (passengers)	Cleaning before every flight	Limited seat selection	Middle seats not sold	Back-to-front boarding
Alaska	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Allegiant	Yes	Yes**	Yes		Yes		Yes
American	Yes	Yes	Yes	Yes			
Delta	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Frontier	Yes		Yes	Yes	Yes		Yes
Hawaiian	Yes	Yes	Yes		Yes	Yes	Yes
JetBlue	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Southwest	Yes	Yes	Yes	Yes	Yes*	Yes*	
Spirit	Yes		Yes		Yes		
Sun Country	Yes		Yes				
United	Yes	Yes	Yes	Yes			Yes

Fig. 2

All the states below have varying levels of travel restrictions for visitors and/or returning residents. Please review your states guidelines prior to travel.

- Alaska
- Connecticut
- Hawaii
- Illinois
- Kansas
- Kentucky
- Maine
- Massachusetts
- New Hampshire
- New Jersey
- New Mexico
- New York
- Ohio
- Pennsylvania
- Rhode Island
- Vermont
- Washington D.C.
- Wisconsin

risk individuals are more likely to have severe symptoms if infected. So, each person must consider their own risk and determine what is best for them. If you have a condition that could make you more susceptible to severe symptoms, like diabetes, respiratory disease, heart disease, cancer or obesity, then you should take additional precautions to keep yourself safe. This may mean not traveling.

Full disclosure – I had COVID-19 back in June. I contracted it from friends who I took an 8-hour road trip with. They think they were infected while eating at a restaurant indoors, where another diner was infected. My symptoms were very mild, a slight sore throat, headache, fatigue, body aches and congestion. It felt like I had allergies or a sinus infection (both of which are common for me). Had my friends not gotten tested before they went to visit family, I wouldn't have taken the test and confirmed a positive diagnosis. I never had a fever, cough, shortness of breath, chest pain or any of the other common symptoms that at the time were certain indicators of COVID infection. Once I learned I was likely exposed, I self-quarantined for 14 days (which when you don't really have symptoms is extremely boring. There's only so much Netflix a person can watch. I made a lot of bread and cleaned out my closet). I let the few people I had close contact with know I tested positive and thankfully, did not spread it to anyone else. I tell you this because I know that I now have the COVID antibodies that will prevent me from getting infected again in the next few months and spreading it to others. So, I travel knowing that it's almost impossible for me to be infected. I also consider myself to be a relatively young, healthy person which I sincerely believe was the main reason why my symptoms were so mild. I still believe that air travel is safer than dining indoors at a restaurant – no air filtering or circulation there.

While air travel is generally safe, it's important to check your local state or national guidelines and regulations. Many states require a 14-day self-quarantine to enter as a visitor or if you are a resident returning from an area that has previously been a COVID hotspot. See Fig. 2 for a list of states with current restrictions. Many countries are not allowing Americans to enter at the time this article was published. (One especially important exception – Bermuda! Americans can travel to Bermuda without restriction, so be sure to make your plans to attend the March 2-6, 2021 CSDA Convention in Bermuda!)

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Again, all decisions to travel should be individualized and state and national guidelines should be followed. But if you are a healthy individual and are willing to take a few extra precautions, air travel is relatively safe, even during times of Corona. Pack your bags and join CSDA at our Winter Board & Committee Meetings in Nashville, TN, December 2-3, 2020!

*Erin O'Brien, MS, ATC is a Certified Athletic Trainer and VP/COO for O'Brien International, the association management company that manages the Concrete Sawing & Drilling Association, and Executive Director of CSDA. O'Brien received her Bachelor of Science degree in Athletic Training from Ohio University and her Master of Science degree in Applied Physiology and Kinesiology from the University of Florida. She is also a Certified Level 2 CrossFit Instructor and member of CrossFit9 in St. Petersburg, FL. She is a regular contributor to Concrete Openings magazine. She can be reached at erin@csda.org or 727-577-5002.*



# The Importance of Knowing Velocity When Scanning Concrete with GPR

By Troy DeSouza

Every day, GPR is used to scan concrete prior to cutting or coring. In some cases, the users will set the velocity of the GPR signal as part of their routine scanning process. This article explains when and why it is necessary to determine the velocity of the GPR signal as part of your concrete scanning workflow.

First off, velocity is not how fast you scan with the GPR! (Though some might argue that one's speed of collection might be quickened on a Friday afternoon in the summer). Velocity, or sometimes referred to as dielectric constant, is the speed that the GPR wave travels in a material. Dielectric constant and velocity are related via the equation:

$$Velocity = \frac{c}{\sqrt{\epsilon}}$$

where  $c$  is the speed of light  
 $\epsilon$  is the dielectric constant

GPR does not measure depth directly; it measures the travel time for the signal to travel from the GPR system to an object in the subsurface, such as a rebar, reflect from that object and return to the GPR system (Figure 1).



Figure 1: GPR measures the travel time for the transmitted wave, to and from an object in the concrete.

Since GPR measures travel time, depth determinations are obtained by multiplying the travel time by the velocity, as per the equation:

$$Depth = \frac{Velocity \times time}{2}$$

But what does all this mean for you? Equations aside, there are two main instances when the GPR operator must know the GPR velocity of the concrete.

### LINE SCAN IMAGES

In most cases, the concrete cutter is not concerned with depth, just the location of the embedment so they can avoid it when cutting. However, there are times when slab thickness or cover depth to objects needs to be known. In these situations, having an accurate depth

is critical. Remember that GPR inherently measures time, but a depth scale is calculated and displayed based on a velocity value. The three main methods to measure velocity are:

- Automatic velocity determination – many modern GPR systems use this to make it easier for the operator. Simply collect data containing some hyperbolas and press a button; the software will analyze the hyperbolas on the screen and automatically determine the velocity
- Curve fitting – fit a curve to a hyperbolic response
- Using a target at known depth

The curve fitting method is shown below, where the shape of a computer-generated hyperbola is adjusted to coincide with an actual hyperbolic response from the concrete.

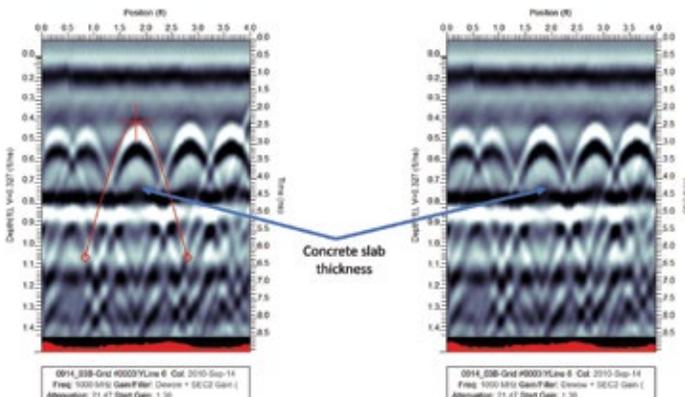


Figure 2: A correctly fit hyperbola (left) yields an accurate slab thickness of 9".

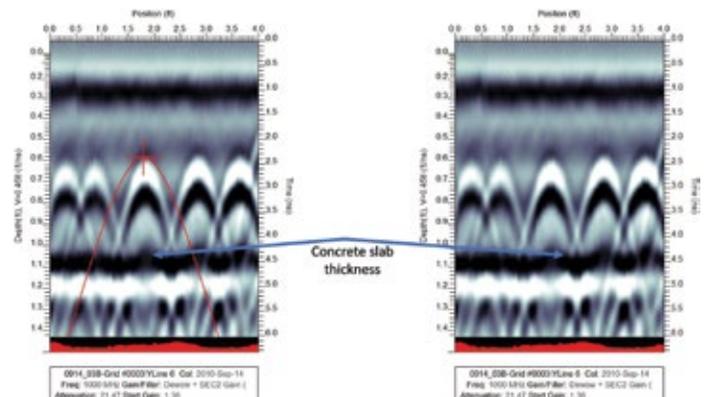


Figure 3: An incorrectly fit hyperbola (left) yields an overestimate of depth at just over 12"

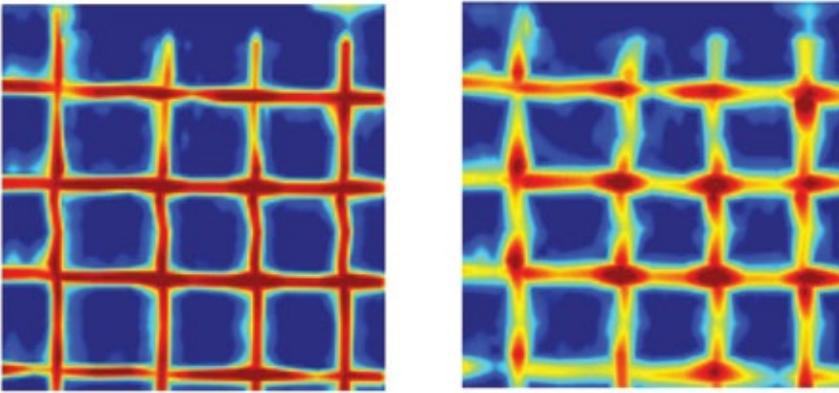


Figure 4: The depth slice image on left was processed using the correct velocity of 0.110 m/ns, whereas the image on the right used an incorrect velocity of 0.140 m/ns.

The width of the hyperbola is directly related to the GPR wave velocity. An example of a correct curve fitting is shown in Figure 2, while an incorrect one is shown in Figure 3.

Whichever method is used, it is important that objects used to calibrate for velocity are crossed perpendicularly. This results in the narrowest (or “tightest”) hyperbola, which yields the correct velocity. Crossing an object at an oblique angle results in a wider hyperbola, which will give a higher velocity and a correspondingly (false) higher depth reading.

Setting velocity does not change the GPR data, only the depth axis. If the velocity is incorrect, the target depth will be incorrect. However, the location marked on the ground is unaffected. In other words, you can pinpoint the position of an embedment, such as a rebar, but the depth to the rebar indicated by the GPR is not accurate with an incorrect velocity value.

#### DEPTH SLICE IMAGES

Some users may opt to collect a grid of data to help unravel a complex area. Once the grid is

collected, the data is processed to create depth slice images. One of these processes is called migration. The purpose of migration is to focus the GPR signal back to the top of the hyperbola prior to creating depth slices. The key parameter for a successful migration is – you guessed it – an accurate velocity.

The correct velocity yields the tightest, most focused result on the depth slice images (Figure 4, left). Clearer depth slices not only enable you to visualize the data, but also make for a better report to the customer.

Some people ask, why can’t we just use the same velocity for all concrete? The reason is that the velocity will vary between concrete pours as it is a function of the water content, aggregate type, air entrainment and any admixtures. So anytime you are on a different pour and need to know depth or are collecting a grid, you should determine the GPR velocity for that location.

*Troy De Souza is Training Manager at CSDA member Sensors & Software Inc. ([www.sensoft.ca](http://www.sensoft.ca)), a manufacturer of Ground Penetrating Radar (GPR) equipment. Troy can be reached at [tds@sensoft.ca](mailto:tds@sensoft.ca).*

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## Cannabis at Work: How Employers are Reacting to the Legalization of Marijuana

By Max Freedman

**A**lthough cannabis remains a federally illegal substance, the number of states that permit its use is growing rapidly. Currently, 11 states (plus Washington, D.C.) have marijuana laws in place that permit the cultivation, possession and use of marijuana for all adults, while 33 states have legalized some form of a medical marijuana program. These policy developments have created a new challenge for employers who maintain drug testing policies either as part of the employee onboarding process or a periodic condition of employment.

Naturally, employers have a financial interest in ensuring that employees are not coming to work intoxicated, but cannabis use off the clock would result in a failed drug test as well. Are employers responding to the shift in state laws by relaxing their drug-testing policies to allow for employee consumption outside the workplace? Are they changing their policies for new job applicants? Are they enacting separate rules for safety-sensitive positions? Or are they keeping the same rules in place for fear of marijuana in the workplace?

### HOW CANNABIS LAWS HAVE CHANGED

In two decades, cannabis legalization has gone from a fringe issue to a national discussion. In the 1990s, only five states plus Washington, D.C., had marijuana laws permitting medical use. That number gradually crept up to eight states plus D.C. after the turn of the 20th century, yet legalized adult use (often referred to as recreational use) remained unheard of.

It wasn't until 2012, when Colorado voters passed Amendment 64, that adult-use cannabis was legalized for the first time. In the past seven years, nine more states plus D.C. have legalized adult-use cannabis. Much of this activity occurred via referendum, but Vermont became the first state to legalize cannabis through the legislature. Today, several states are considering doing the same, including New York and New Jersey.

In the same time frame, the number of states in which residents can obtain a medical marijuana card has grown to 33. While cannabis remains an illegal substance under the federal Controlled Substances Act, the federal government has largely taken a states-first approach to regulating and enforcing the new cannabis industry that has grown as a result of the changing laws. Some federal lawmakers have introduced legislation in support of the industry or that calls for outright legalization nationwide, a shift that could potentially lead to marijuana in the workplace.



### CANNABIS LEGALIZATION AND WORKPLACE DRUG POLICIES

These rapid changes have left many employers in a precarious position. Many employers maintain zero-tolerance policies on using drugs (including marijuana) in and outside the workplace and, naturally, don't want their employees showing up to work intoxicated.

The legality of cannabis is not the issue; certainly, employees drinking on the job is grounds for termination in any company, despite alcohol's legal status. However, determining whether employees and job applicants are using cannabis on the job or on their own time is more difficult, said Matt C. Pinsker, an adjunct professor of homeland

security and criminal justice at the L. Douglas Wilder School of Government and Public Affairs of Virginia Commonwealth University.

"For employers, a key issue involving marijuana is not legalization but workplace safety," said Pinsker, who is also a criminal defense attorney. "The problem for employers is that impairment, because of marijuana, is usually much more difficult to detect and test for than alcohol. Unlike alcohol, it is very difficult for employers to determine if a positive drug test for marijuana is the result of drug usage during work or on nonwork hours, so it is logistically simpler to just have an outright ban."

But in some cases, state law makes workplace drug policy more complicated than a simple blanket ban on marijuana use.

### ADULT-USE CANNABIS VS. MEDICAL CANNABIS

There is a significant distinction between adult-use cannabis, a leisurely activity of choice, and medical cannabis, which is prescribed as a medicine to patients who use a medical marijuana card to get cannabis for a variety of conditions outlined under state laws. Some states bring that distinction into the workplace, and it can impact employers' drug policies.

"Employers must understand their rights and duties when it comes to drug testing because state laws are evolving," said David Reischer, attorney and CEO of LegalAdvice.com. "Marijuana is still federally illegal, and employers generally are allowed to have a drug-free workplace and to enforce zero-tolerance policies."

However, it's critical that you, as a small business owner, know whether any of your employees are medical marijuana patients and if your state's laws protect their usage of cannabis in the workplace or against the failure of employer-mandated drug tests, Reischer added.

"A company needs to be careful when disciplining medical marijuana users," said Reischer. "Several states have specific

laws protecting medical cannabis patients from employment discrimination. Typically, employers can require drug testing before employment and at random times, so long as there is no discrimination against medical marijuana users [who] are legally allowed cannabis for medicinal reasons.”

Further muddying workplace drug policies is the question of employee morale. Many employees argue that legal usage of cannabis off the clock should not be grounds for their termination if they fail an employer drug test. Employers need to keep in mind the attitude of their workforce when making disciplinary decisions related to drug testing.

### HOW EMPLOYERS ARE RESPONDING

How are employers responding to the change in laws and attitudes? Some employers are maintaining tight restrictions and zero-tolerance policies, even for off-the-clock cannabis consumption. Others are relaxing their policies and only disciplining employees for failed drug tests when it's clear their productivity has been negatively impacted. Some employers allow employees to openly consume cannabis on the clock.

### MAINTAINING ZERO-TOLERANCE DRUG POLICIES

According to Derek Riedle, owner of cannabis lifestyle company Civilized, the ongoing federal prohibition of cannabis has prompted many employers to maintain strict workplace drug policies, sometimes even for medical cannabis patients.

“We're seeing more and more employers revisit their workplace rules around cannabis, but because it remains illegal at a federal level in the U.S., most companies still have a zero-tolerance policy,” Riedle said. “It's more common to see employers loosen up their regulations for patients with a valid medical cannabis card, but even that is not guaranteed.”

### TYING ENFORCEMENT OF COMPANY DRUG POLICY TO JOB PERFORMANCE

In his cannabis lifestyle company, Riedle permits employees to periodically step away for a consumption break, especially if it prompts a burst of creativity. Other employers, however, have concerns surrounding cannabis consumption as it relates to employee productivity and have enforced their policies accordingly.

“As an employer, I have no plans to relax any drug policies in and around my work

environment as we move forward in this new era of cannabis tolerance and legality,” said Abtin Hashemian, owner of a Los Angeles-based Subway franchise. “[Against] the backdrop of legalization in California, I've had to terminate employment for several of our employees due to performance-related issues stemming from cannabis intoxication while on the clock.”

Hashemian said his franchise's high-performance and results-oriented culture is important to him, so he feels obligated to act when productivity is impacted. However, Hashemian added that he is certain many well-performing employees consume cannabis off the clock and that he is ultimately indifferent to it as long as their work remains up to par. When it comes to medical patients, he added, employers should always consult with an attorney to determine the best approach.

### HOW MARIJUANA USE CAN IMPACT JOB SAFETY

The conversation around marijuana in the workplace takes a completely different shape in occupations with a higher likelihood of on-the-job employee injuries.

Marijuana in the workplace may increase the risk of on-the-job injuries. According to a study in the Journal of Occupational and Environmental Medicine, there may be a statistical correlation with marijuana use and an increased likelihood of workplace accidents. This risk is amplified for workers whose jobs involve driving vehicles – especially public transit drivers – as several studies have correlated marijuana intoxication with impaired driving ability.

The risk often associated with marijuana use and job safety have informed workers' compensation laws in several states. In Wisconsin, for example, if an employee is injured in the workplace while intoxicated under any controlled substance, including marijuana, then the employer can reduce the workers' comp indemnity benefits by 15%, with a maximum allowed reduction of \$15,000. In Michigan, workplace injuries sustained while intoxicated aren't covered by worker's comp at all.

Although marijuana in the workplace can be concerning for safety-sensitive positions, it may safeguard against workers' comp claims in other occupations. According to a study published in the journal Health Economics, states with medical marijuana programs saw a 7% decrease in workers' comp claims. This drop may stem from medical marijuana treating many of the same illnesses and symptoms that employees may use workers' comp claims to address.

### IS ONSITE EMPLOYEE CONSUMPTION RIGHT FOR SOME BUSINESSES?

One employer we spoke with said it benefits his company to allow employees to consume cannabis not only on the clock but in the workplace itself. iBAKE Denver is a cannabis club, an establishment where it is legal to consume cannabis and there are no cannabis products for sale. Owner Steve Nelson Jr., known to employees and customers as Thurlow Weed, said his business's unique model lends itself well to allowing employees to consume onsite.

“We've noticed that when we hire employees that do not smoke, our members get a little worried [and wonder] why,” Nelson said. “We also have found that, for most employees, it does not affect their work.”

Nelson said employee consumption helps his brand-building efforts as an adult-use consumption club, and also helps to establish a relaxed and inviting atmosphere for guests. However, he added, allowing consumption on the clock is clearly not right for everyone, especially businesses that are not in the cannabis industry.

“It's not for all businesses or for all employees,” he said. “[Employers] need to take careful consideration to what ... your employee will be doing. Some tasks are not OK to perform while high.”

### TRIAL-AND-ERROR PERIOD OF CHANGING CANNABIS LAWS

The states are often referred to as laboratories of democracy, and we've seen this type of trial-and-error approach in cannabis legalization as each state builds on the experiences of its forerunners. As cannabis legalization becomes normalized and more widespread, employers will have to experiment with different approaches that suit their industry, brand and workplace culture.

Much as with other workplace policies, there is no right or wrong answer. The best approach will be different for each company and, ultimately, is whatever arrangement ensures workplace safety, productivity and high employee morale.

As the cannabis legalization debate moves from the states to the halls of Congress, workplace drug policy on cannabis is something more employers should think about.

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*Max Freedman is a Contributing Writer for Business News Daily.*



## In Memoriam: Lester "Kuz" Kuzmick, Jr

We are deeply saddened to share with you that Lester "Kuz" Kuzmick, Jr. passed away in June. Les was affectionately known as Kuz by all who knew him. Kuz began his career at Cushion Cut, working with his father Lester Kuzmick, Sr., an industry leader, who was the guiding force behind the creation of CSDA and IGGA. Les Kuzmick, Sr. served as CSDA's first President in 1972.

Kuz was known around the country as a great cook and very knowledgeable about all the applications of our drilling and sawing industry. Kuz stayed a few years with Cushion Cut, during which time Longyear purchased the company, working as a marketing consultant.

He then partnered with Dick Kirby and started K2 Diamond, (Kuzmick and Kirby = two Ks, hence K2) where he worked until he retired five years ago. Kuz loved this industry, and those who knew him loved him! He was known for his love of relationships with many customers, colleagues and friends all over our industry. He traveled all over and became a true ambassador for our whole industry!

Kuz was still an active participant in CSDA and you could find him at the World of Concrete booth each year, catching up with friends and colleagues.

Lester "Kuz" Kuzmick, Jr. is survived by his wife Tara, sister, Evelyn Larson, his niece, Lisa Larson and not to be forgotten, Aunt Margy! Our love and heartfelt thoughts go out to the whole Kuzmick family, friends and colleagues at this most difficult time.



Lester "Kuz" Kuzmick, Jr



## Brokk Offers In-Depth Training Program to Maximize Jobsite Safety and Productivity

Brokk, the world's leading manufacturer of remote-controlled demolition machines, offers on-demand, personalized training options for Brokk customers. The offerings allow contractors to provide crews with in-depth operational or mechanical training from an experienced Brokk technician on-site or through Brokk's Demonstration and Service Center in St. Joseph, Missouri. The flexible options – including curriculum, location and single- or multi-day durations – offer customers continuing educational opportunities that fit their team and unique applications to increase safety, productivity and machine utilization.

"To help our customers ensure they are using their Brokk machines in the safest, most efficient way possible, our technicians provide in-depth, hands-on training on all new and used machine purchases as well as rental machine startups," said Lars Lindgren, president of Brokk Inc.

Customers can tailor training to focus on either machine operation or mechanics, depending on their needs and applications. All curriculum includes a combination of hands-on and classroom training by one of six specialized Brokk technicians. These team members are highly skilled with years of experience using Brokk machines in a variety of applications and will be assigned based on their specialties, including concrete cutting, process and foundry, demolition or service and repair.

Training curriculum will vary based on customer applications and crew requirements. A refresher course that covers key systems and components and touches on general jobsite procedures – such as daily inspections and control box protocols to maximize machine control and operator comfort – will be included in most customized courses. Additional training in areas such as key troubleshooting and error code analysis, as well as operation tips to increase production and reduce stress on the machine, are also incorporated to help operators seamlessly integrate Brokk equipment into their applications and revolutionize productivity.

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## Diamond Products' Updated First-Cut Booklet

Diamond Products Limited announces its newly updated booklet on products to cut green concrete under its First-Cut™ brand. First-Cut™ products feature the True Early Entry System that includes First-Cut™ diamond blades, U.S.A. made saws with a unique skid plate guard and information on optimal cutting time known as the 'Control Zone™.'

You can find everything you need for early entry sawing, including a vacuum system, aggregate information and more.

These booklets can be downloaded on our website: [www.diamondproducts.com](http://www.diamondproducts.com) or ordered through our Customer Expert Specialist team at 800-321-5336.

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## Hilti Unveils New Products Focused on Increased Safety and Efficiency During COVID-19 Recovery

Hilti North America, a commercial construction-focused technology, software and services company, has launched a suite of new tools, systems and accessories. The new lineup includes the PMD 200 jobsite layout solution, which shifts the boundary for productivity and allows faster work, with potentially fewer employees. Simultaneously, Hilti is bringing forth new solutions that help contractors further enable digital transformation and expand cordless flexibility on jobsites with the release of a “smart” diamond coring system, and an adaptable metalworking tool.

### Precision & Speed to Complete Jobsite Layout.

The PMD 200 is an addition to Hilti’s layout tool portfolio, designed specifically for North American interior jobsite layout applications. Powered by Hilti’s 12V batteries, the tool bridges traditional and digital solutions and represents a powerful alternative to the time and labor-intensive methods used for layout today. It was designed to give customers the accuracy and productivity benefits of a digital solution without the added complexity of having to manage AutoCad data or change existing workflows. This new solution is easier to understand and therefore a virtually non-intrusive alternative to traditional jobsite layout methods.

### Versatile, Connected and Smart Diamond Core Drilling System.

The diamond core drilling system DD 150-U now has enhancements to make diamond coring even easier. The core motor offers complete versatility to perform a wide variety of coring applications such as through penetrations and blind holes either handheld or rig mounted. The new digital display on the tool indicates the ideal amount of pressure required to core efficiently, guidance on what gear should be selected base on core bit diameter as well as a digital level enabling complete control of application and allowing operators to core more efficiently. You can also use the screen to view operation modes and time of tool usage. The tool has Bluetooth connectivity which pairs with our WMS 100 BLE water management system. This feature controls the WMS 100 BLE directly from the DD 150, and allows operators to manage the status of the water management system. You can connect the tool to our Hilti Connect App and download helpful data such as tool usage modes, gear selections, repair statistics, and user instructions.

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## Brokk’s New Demonstration and Service Center Increases Aftermarket Options

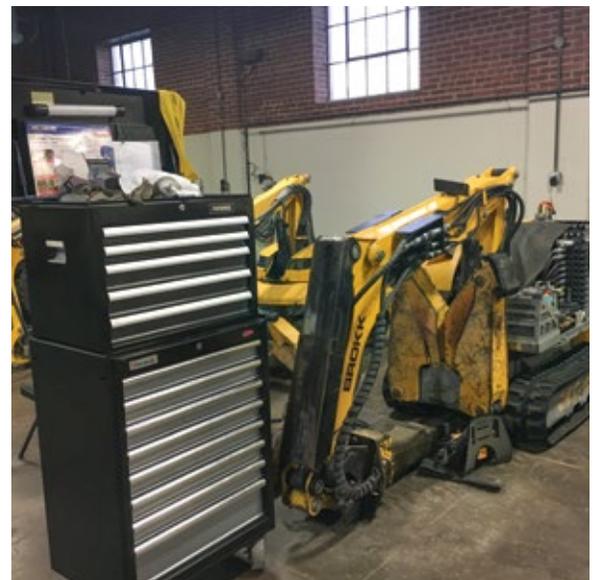
Brokk, the world’s leading manufacturer of remote-controlled demolition machines, enhances its aftermarket service capabilities, including machine refurbishment and repair, with the addition of its new Demonstration and Service Center in St. Joseph, Missouri. The 10,000-square-foot center reduces lead times on repair and refurbishment services, allowing the manufacturer to support customers’ existing product lines. Customers can repurpose older Brokk machines with complete overhaul options, increasing fleet value and maximizing inventory flexibility with an ideal blend of Brokk equipment for their operation. A team of technicians with more than 60 years of combined experience offers expert service and increased convenience for Brokk customers across the U.S. and Canada.

The St. Joseph facility includes a full-service shop with wash bay, workshop and welding station. A staff of four full-time technicians provides an array of service options from routine maintenance to repairs and refurbishments. The Demonstration and Service Center also houses an extensive inventory of Brokk machines, attachments and parts, as well as a number of hydrodemolition robots and products for sister company, Aquajet.

In addition to repair services, the Demolition and Service Center offers certified refurbishment for older Brokk and Aquajet models. The refurbishment process starts with a thorough inspection and analysis of all critical components including hoses, hammer seals, outrigger pads and arm bearings. From there, technicians and owners can walk through the various upgrades to match machine capabilities to operation needs.

As an added convenience, Brokk arranges transportation to and from the center and, when necessary, provides replacement equipment from the Brokk service fleet. The service team welcomes customer mechanics to accompany equipment and assist in repair or refurbishment, creating a valuable opportunity for customers to learn more about care and maintenance of their machines.

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**In Memoriam:  
Robert Priest**

Robert "Bob" Priest, formerly of Sanders Saws and Blades passed away quite unexpectedly after suffering a heart attack on May 30, 2020.

Bob was an icon in the industry and served as IGGA President and treasurer for many years, his efforts shaping the industry as it grew over time. He was a friend and a mentor to many. Bob is survived by his wife Norma, sons Roberts Jr. and Christopher, granddaughters Candice and Wendy and eight great-grandchildren. Chris Priest is a past CSDA Board member and committee chair. Bob will be sorely missed.



**Robert Priest**

Due to the difficulties presented by COVID-19, a small viewing was held in Queenstown, MD in June, with a date and time to be set for a memorial service in the near future.

**The Palmer Line of Work  
Gloves by Lift Safety**

The Palmer line of work gloves all feature thin ultra-breathable 13ga seamless nylon spandex construction designed to provide a high degree of dexterity and grip, making the Palmer series ideal for small parts assembly. The micro foam nitrile coating offers superior grip in wet or oily conditions and there are multiple styles to suit any preference. Palmer Gloves Features:



- Thin Ultra Breathable 13ga Seamless Nylon Spandex Construction
- Micro Foam Nitrile Coating to offer superior grip in wet or oily conditions
- Nitrile Coating Available with dots as well for enhanced grip
- Latex Crinkle Dipped Palm version also available
- Palmer Micro Foam Winter version offers superior warmth and comfort

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**AquaJet Launches Ecosilence 3.0 for Quiet Operation and Reduced Fuel Consumption**

AquaJet, a global leader in manufacturing Hydrodemolition machines, introduces the Ecosilence 3.0 that reduces noise and allows for a more compact jobsite, while enhancing environmental stewardship and lowering overall operating costs. The new Ecosilence features integrated auto start/stop technology that improves fuel consumption, which saves as much as 25 liters (6.6 gallons) of fuel a day for a smaller carbon footprint. The re-engineered Ecosilence is more compact as well, with the entire self-contained system now fitting in a standard 20-foot shipping container. It also produces less noise while in operation, making it ideal for use in urban areas with limited space and strict noise restrictions. The new unit also has dramatically improved pumping pressure, operating as high as 3,000 bar (43,511 psi), and providing ample power for Hydrodemolition applications such as concrete renovation and road and bridge repair.

The Ecosilence 3.0 features an environmentally friendly, low-emission engine and high-pressure pump to power AquaJet's range of Aqua Cutter Hydrodemolition robots. The skid-mounted unit employs auto start/stop technology, like that found in many modern automobiles, which temporarily shuts down the engine when not in operation to reduce idling time by up to 50%. The engine automatically starts up when operation resumes. In this way, the new Ecosilence saves money and significantly reduces emissions. The integrated engine and high-pressure pump unit pairs with a state-of-the-art liquid-to-air heat exchanger to provide quiet, efficient operation for all Hydrodemolition applications.

The new, skid-mounted engine and pump are isolated, and heat regulated in a sealed compartment at the front of the container, limiting noise to allow operation in urban areas and other noise-sensitive environments. This innovative design also prevents debris or outside air from entering the engine chamber during operation. Because of this, the new Ecosilence can be used in harsh environments such as harbors or cold weather without negative effects.

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## Hilti Unveils Wearable Exoskeleton Human Augmentation Device to Help Contractors Tackle Health, Safety and Labor Shortage Challenges on Jobsites

Hilti North America, an innovator of tools, technology, software and services to the commercial construction industry, today announced a new innovation that is more connected to its customers than any tool of its time, the EXO-O1 wearable exoskeleton.

Hilti's new human augmentation device will help commercial contractors, tradesman and management alike tackle health and safety as well as labor shortage challenges. Wearable systems like exoskeletons will help reduce strain and fatigue for both experienced and novice users, at a time when the industry is managing a workforce shortage challenge.

To create the EXO-O1, Hilti Group partnered with Ottobock, the global leader in prosthetics, orthotics and exoskeletons that help people increase and retain their physical independence. Hilti is currently in real-world jobsite testing and will be bringing the exoskeleton to the market later this year. "We want to improve the health and safety of our customers, directly impacting jobsite productivity – so they can stay on time and on budget," said Johannes Huber, Head of Business Unit Diamond Systems at Hilti Group, parent company of Hilti North America. "Customers that embrace innovation and invest in the latest health and safety technology will be better able to attract and retain the best people as well as keep their jobsites productive."



The EXO-O1 is Hilti's first foray into exoskeletons for the construction industry. There will be more human augmentation developments to come from the brand. The exoskeleton development is initially focused on overhead and shoulder height and above applications because this type of motion is so physically intensive and fatiguing.

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### American Society of Concrete Contractors to Hold Virtual Annual Conference

The American Society of Concrete Contractors (ASCC), St. Louis, MO, announced that its 2020 Annual Conference will be replaced with a virtual conference the same week, September 21-25.

The conference will feature seminars, roundtable (breakout) sessions on a variety of timely topics, a sponsor show case, and two award receptions, one to recognize safety achievements and a second to recognize outstanding decorative concrete projects.

Speakers will include ASCC technical director Bruce Suprenant, P.E., Ph.D., FACI; ASCC decorative concrete specialist Chris Sullivan; Jeffrey Coleman, The Coleman Law Firm and current ACI president; Kevin MacDonald, Beton Consulting Engineers; Chris Plue, Webcor and Sherry Perdue, Safety Performance Solutions; and Philip Donovan, Little Diversified Architectural Consulting, who will speak on "A Net Zero Reality: Lessons Learned From Designing Zero-Energy Schools".

There will be nine roundtable discussions covering COVID-19 safety practices, the new ACI specification for polished concrete, workforce development, laser scanning, enhancing productivity, moving from hardhats to helmets, understanding specifications, onboarding new hires and utilizing the pre-construction checklists for slabs to be polished.

**For More Information**  
**Contact: Beverly A Garnant**  
**Tel: 314-962-0210**  
**Email: bgarnant@asconline.org**  
**www.asconline.org**

### Touchless Signatures Now Available in CenPoint!

CenPoint Software is an extremely powerful and effective tool to help you manage your company. Manage your office, employees, timecards, jobs, customers and inventory/equipment all in one place.

In continued collaboration with our customers to provide them with the features they need, CentralPoint Solutions has implemented a way to get signatures while keeping social distancing.

- Techs can still get signatures on their device like they have done in the past.
- Now they have a new option to text a link to the site contact and have them review and sign on their own phone.
- As an alternative to texting a link, the customer can scan a QR code from the tech's device that would then allow them to review and sign.
- As an added bonus, this new feature also makes it possible to get a signature if the site contact is not in close proximity or is no longer on the jobsite.



CenPoint's Mobile features, available on both Android and iPhone, make it possible for anyone with an internet connection to enjoy an enhanced, modern workflow. Features include tech Dispatching, JSA's, Digital Signatures, Pre-trip Inspections, Time Clock, Customer Management and much more. No more lost paperwork. Add photos of the site to the field ticket – all saving time and money. Your favorite device, plus the power of CenPoint Mobile is not only awesome, now it's safer too!

**For More Information**  
**Contact: Ryan Rindlisbacher**  
**Tel: 801-478-6822**  
**Email: sales@cenpoint.com**  
**www.cenpoint.com**

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### Expert Diamond Tools Introduces New Logo

Expert Equipment Company of Houston, TX introduces the new logo for its Expert Diamond Tools line. The newly developed product line will include saw blades and core bits for all application from contractors to professional users. Expert will have a fully stocked warehouse for pick up or shipping.

**For More Information**  
**Contact: Markus Bartl**  
**Tel: 713-979-9886**  
**Email: info@expertequipment.com**  
**www.expertequipment.com**



## Brokk Welcomes Matt Lyons to North American Service Team

Brokk, the world's leading manufacturer of remote-controlled demolition machines, welcomes Matt Lyons to the team as its newest training and application specialist. Over the past year, the company has enhanced training and support services across North America, providing easier access to both in-person and digital educational opportunities for customers through facility upgrades and new hires. Lyons joins a highly skilled team of six training specialists who have more than 165 years combined experience. Based in the northeast, he will provide on-site and virtual safety and application training for customers in a variety of operations including interior and top-down demolition, road and bridge repair and confined-space operation.



**Matt Lyons**

Before joining Brokk, Lyons spent 25 years as an operating engineer based in Boston, Massachusetts. There he gained extensive experience with several models of Brokk machines as well as other heavy equipment on demolition projects nationwide, working in paper mills, foundries, nuclear and other facilities. Now, as an official Brokk team member, he will share that expertise with other Brokk operators to increase safety and productivity on jobsites across North America.

"From the beginning, I was impressed with the capabilities of Brokk machines," Lyons said. "It made every new project exciting. As a training and application specialist, I'm looking forward to sharing what I've learned with other operators and helping them get the most out of their Brokk equipment – in terms of safety and efficiency."

**For More Information**  
**Contact: Mike Martin**  
**Tel: 800-621-7856**  
**Email: [mike@brokkinc.com](mailto:mike@brokkinc.com)**  
**[www.brokk.com](http://www.brokk.com)**

## Vacuworx Welcomes Senior Director of Sales

Vacuworx is pleased to welcome Charlie Cunningham to the North America sales and leadership teams as Senior Director of Sales.

Cunningham brings more than two decades of experience with sales, marketing and business development activities. He recently spent 15 years with Astec Industries, Inc. As Vice President of Sales with Astec Underground and GEFCO, he led the development of initiatives to identify potential markets, new products and sales and marketing domestically and internationally.

His responsibilities at Vacuworx include providing management and strategies for the North America sales team, while also driving new distribution partnerships to support material handling in the oil and gas pipeline, utility infrastructure, highway and transportation and concrete renovation markets.

**For More Information**  
**Contact: Paula Bell**  
**Tel: 918-591-3004**  
**Email: [paulab@vacuworx.com](mailto:paulab@vacuworx.com)**  
**[www.vacuworx.com](http://www.vacuworx.com)**

## Hospital Uses Hilti Firestop Speed

Healthcare workers have been on the frontlines of responding to the COVID-19 pandemic, making them particularly vulnerable to contracting the virus. At Riverside Regional Medical Center in Newport News, Virginia, the fight is no different. The hospital was confronted with a challenge that many other facilities are faced with how healthcare workers can be protected while providing vital and quality care to COVID-19 patients.



After much discussion and research, hospital officials sought to create an effective barrier between medical equipment and its patients. To successfully produce a solution to its problem, the hospital enlisted the services and products of global firestop leader Hilti. A life safety engineer initially reached out to the commercial construction manufacturer through AskHilti.com, an online education and discussion forum between customers and Hilti's engineering team.



The Hilti CP 653 Firestop Speed Sleeve is designed to be integrated into a firestopping system to address the specific needs of specialized cabling environments. Its simple twist mechanism results in industry-leading airflow control. This helps facility managers reduce the spread of potentially harmful airborne

pathogens. Inside the wall sleeve, the inner fabric liner twists close for a custom fit around the cables. Although not designed to hermetically seal openings, it does effectively help restrict the passage of air, an essential factor for life safety of the facility.

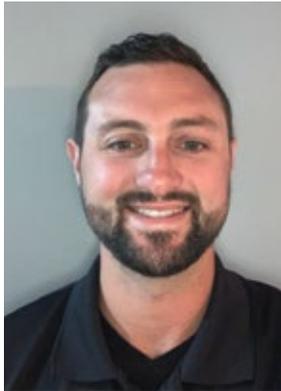
The wall sleeve installation allowed hospital engineers to position ventilators and IV pumps outside patient rooms, reducing the potential exposure of COVID-19 to its healthcare workers. This also enabled the medical team to monitor ventilators more effectively, with less downtime and more efficiency. Additionally, hospital officials say it's helped them save protective gear, another crucial need to help reduce the spread of the virus.

"Equipment safely placed outside a room reduces the need to wear personal protective equipment, helping us conserve our supply," said Robert Maynard, Business Process Improvement Manager at Riverside. "It's a thinking-outside-the-box type of concept. The Firestop Sleeve is designed to seal around the wires, stopping airflow between the two spaces. It works very well," said Maynard, who is also a licensed registered respiratory therapist with many years working in critical care. "It can reduce trips into a patient's room."

**For More Information**  
**Contact: Danielle Wilson**  
**Tel: 972-202-6178**  
**Email: [Danielle.Wilson@hilti.com](mailto:Danielle.Wilson@hilti.com)**  
**[www.hilti.co](http://www.hilti.co)**

### DDM Concut Announces the Addition of Justin King to Their Sales Team

DDM Concut is pleased to announce that Justin King has assumed the role of Territory manager. Justin will be responsible for the Kansas, Missouri, Nebraska and Iowa markets. Justin brings a strong background in the concrete cutting industry having spent the last 12 years in the field as a foreman and project lead. Justin is also an avid mechanic and has built several custom concrete cutting machines that have been featured in previous editions of *Concrete Openings* magazine.



Justin King

Justin earned his Bachelor of Science degree from Kansas State University in 2014. We are excited to have him as part of our team. Please join us in welcoming him.

**For More Information**

Contact: Justin King

Tel: 816-337-2402

Email: [jking@ddmconcut.com](mailto:jking@ddmconcut.com)

[www.ddmconcut.com](http://www.ddmconcut.com)

### HEGER becomes a new member of IACDS

Heger is a manufacturer of diamond tools for industrial purposes that is characterized by its in-house production, flexible manufacturing and short delivery times.

Heger is still family owned and located in Heitersheim south of Freiburg, Germany.

The company focuses on the professional customer requirements: they advise, analyze, develop and produce always the best and most economical solution. By cooperation and professional help in the field, they support the costumers in the daily challenges and individual projects.

Their goal is continuous quality, reliability and efficiency.

The range of application of Heger products covers:

- Building construction
- Road construction
- Floor preparation
- Renovation
- Reconstruction and decontamination
- Stone processing
- Refractory and industrial application



**For More Information**

Contact: International Association of Concrete Drillers and Sawers (IACDS)

Tel: 34 911 294 440

Email: [info@iacds.org](mailto:info@iacds.org)

[www.iacds.org](http://www.iacds.org)

**MID-RANGE SERVICE SAW MC 570**

- + 57 hp Tier 4 Final Motor
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[www.lissmac-usa.com](http://www.lissmac-usa.com)



**Matthew Dragon**

**Matthew Dragon  
Announced as Proceq  
USA a Screening Eagle  
Company Head of Product  
Marketing – West**

Proceq USA a Screening Eagle Company is excited to announce the addition of Matthew Dragon to their sales and marketing team. With 13 years in the industry Matthew has represented two GPR manufacturers and the largest concrete scanning service provider in the industry. Matthew has previously served on the CSDA Board and as chairperson on several committees. His new role at Proceq will utilize Matthew's experience in sales to bring new and innovative solutions to the concrete scanning marketplace through the Proceq Live GPR product line.

**For More Information**  
**Contact: Matthew Dragon**  
**Tel: 724-512-0330**  
**Email: [info-usa@proceq.com](mailto:info-usa@proceq.com)**  
**[www.proceq.com](http://www.proceq.com)**

**GSSI Photo Contest is Here!**

The GSSI Calendar Photo Contest provides an opportunity for our customers from around the world to showcase the interesting and unique work they perform using GSSI GPR equipment. Post your picture(s) of GSSI's GPR equipment in use on your jobsite and provide a caption describing the purpose of the survey and location.

The photo contest begins on Wednesday, August 12, 2020 at noon and ends on Wednesday, September 30, 2020 at midnight. There is a maximum of three submissions per company/individual for this year's photo contest.

**For More Information**  
**Contact: The GSSI Marketing Team**  
**Tel: 603-893-1109**  
**Email: [sales@geophysical.com](mailto:sales@geophysical.com)**  
**[www.geophysical.com](http://www.geophysical.com)**

# REFURBISH CONCRETE

## HEAVY-DUTY FLOOR GRINDER by **EDCO**



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Now available at **[csda.org](http://csda.org)**



**AquaJet Offers Increased Aftersales Services for North American Customers**

AquaJet, a global leader in Hydrodemolition machine manufacturing, provides increased equipment inventory, enhanced parts availability and high-caliber aftersales service and support in North America. Through the parts warehouse in Monroe, Washington, combined with the service and demonstration facilities in St. Joseph, Missouri, and Stanhope, New Jersey, AquaJet offers fast, reliable support for customers across North America – increasing productivity and shortening lead times.

Shared with Brokk Inc., the recently expanded Stanhope, New Jersey, equipment distribution and service facility offers the company more space for increased equipment inventory. Additionally, the added space allows the Stanhope team to offer demonstrations onsite, providing an ideal setting for customers to experience AquaJet's versatile and innovative Hydrodemolition robots and choose models and attachments best suited to their needs. The Stanhope facility also offers select equipment servicing by appointment.

The demonstration and service center in St. Joseph, Missouri, houses a complete service complex with a wash bay, workshop and welding station. A staff of full-time technicians provides the best possible solutions, reducing lead times on services from troubleshooting and routine maintenance to repairs and refurbishment. The process starts with a thorough inspection and analysis of all critical machine components. From there, technicians and owners can walk through the various options to match machine capabilities to operation needs. The service team welcomes customer mechanics to assist in repair or refurbishment of their equipment, allowing them the opportunity to learn more about the care and maintenance of their machines. Replacement parts are backed by a 12-month warranty against manufacturing defects. The facility also offers space for equipment demonstrations and training opportunities.

**For More Information**  
**Contact: Keith Armishaw**  
**Tel: 418-928-9638**  
**Email: keith.armishaw@brokkinc.com**  
**www.brokk.com**

**Lissmac Adds a New Flat Concrete Saw, the Compactcut 201 P**

Lissmac Corporation expands their U.S. based production to include a new floor saw model starting this summer.

While the Multicut 570 - 56hp diesel Tier-4-final floor saw is already being built in the U.S., Lissmac adds a new flat concrete saw, the Compactcut 201 P to their production line. The Compactcut 201 P runs on a 14hp gas engine and is ideally suited for small and medium sized repair works on asphalt and concrete. This budgetary walk-behind saw can be used for a multitude of different applications and is capable of running an up to 20" diameter saw blade, which allows it to cut up to 7.75" deep.

- Compact and sturdy floor saw
- Smooth saw blade height adjustment
- Cutting depth indicator
- Large, easy to fill water tank
- Spray system provides optimal cooling for extended blade life
- Easy to service and maintain – convenient access to engine and cutting shaft
- Parking brake comes standard
- Height adjustable handles for ergonomic operation



**For More Information**  
**Contact: Maike Blazer**  
**Tel: 518-326-9094**  
**Email: m.balzer@lissmac-corporation.com**  
**www.lissmac.com**

**Bringing the Esch Construction Supply Experience to Chicagoland**

Esch Construction Supply is proud to announce the opening of a full-service branch in Chicagoland. Doors will officially open for saw repairs and all of our services on June 8, 2020. We will be celebrating with a grand opening event later this year. Officially putting down roots in the Chicago area, we are bringing our diamond & cutting equipment expertise and industry knowledge to the booming Chicagoland construction industry! We are with our customers in the field providing the customized support and quality products that they deserve.

Our new location features: • Showroom and warehouse fully stocked with cutting & drilling equipment, diamonds and parts, • Esch certified mechanic with a top-rated parts department, • Free local delivery, • Customized contractor trainings, and more! Esch Construction Supply is excited to continue making connections and forging relationships with local industry leaders and member associations. We have so much gratitude for the industry's encouragement and support! Let's work together!

**For More Information**  
**Contact: Mandy Bastyr**  
**Tel: 651-487-1880**  
**Email: mbastyr@eschsupply.com**  
**www.eschsupply.com**



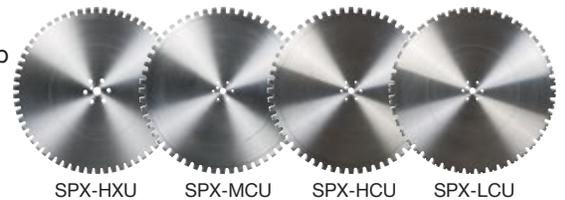


# POWER MEETS EFFORTLESS CONTROL

Hilti wall saw DST 20-CA  
with Equidist blades



The Hilti Wall Saw Systems DST 10-CA and DST 20-CA deliver the power and precision to make clean-edged cuts through thick concrete walls. With quick setup and automated Cut Assist operation, productivity is boosted even in tight spaces. Combined with Equidist diamond blades, expect faster and smoother cuts and enhanced performance with the blade's high cutting speed and long life.





## 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



**A-1 CONCRETE CUTTING & CORING LTD.**  
Calgary, AB, Canada

**ACCU-CUT CONCRETE SERVICES, INC.**  
Clearwater, FL

**ACE CONCRETE CUTTING**  
Cumberland, RI

**AGGREGATE TECHNOLOGIES, INC.**  
Houston, TX

**AMERICAN EAGLE CONCRETE SERVICES**  
Orlando, FL

**AUSTIN ENTERPRISE**  
Bakersfield, CA

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

**CENTRAL CONCRETE CUTTING INC.**  
Edgar, WI

**CHESCO CORING & CUTTING**  
Malvern, PA

**COBRA CONCRETE CUTTING SERVICES**  
Arlington Heights, IL

**CON-COR CO., INC.**  
Menomonee Falls, WI

**CONCRETE CUTTING & BREAKING**  
Jacksonville, FL

**CONCRETE CUTTING SPECIALISTS**  
Freeland, MI

**CONCRETE RENOVATION, INC.**  
San Antonio, TX

**CONQUEST DEMOLITION**  
Buda, TX

**CONSTRUCTION DEBRIS REMOVAL, INC.**  
St Augustine, FL

**CR MEYER**  
Oshkosh, WI

**DELTA CONTRACTORS & ASSOCIATES, LLC**  
Owings Mills, MD

**DIXIE CONCRETE CUTTING, INC.**  
College Park, GA

**DIXIE CONCRETE CUTTING, INC.**  
Greenville, SC

**E. LUKE GREENE COMPANY, INC.**  
Johnson City, TN

**ECHO GPR SERVICES**  
Paola, KS

**FINE CUT CONCRETE DRILLING AND SAWING LLC**  
Pleasant Hill, MO

**FORRISTALL ENTERPRISES, INC.**  
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

**HOUSLEY DEMOLITION CO., INC.**  
Visalia, CA

**INTERNATIONAL DRILLING & SAWING, INC.**  
Pensacola, FL

**JACK DOHERTY CONTRACTING**  
Woburn, MA

**JEM CONCRETE DRILLING & SAWING INC**  
Granger, IN

**KRAUS-ANDERSON CONSTRUCTION CO.**  
Minneapolis, MN

**LIUNA LOCAL 506 TRAINING CENTRE**  
Richmond Hill, ON, Canada

**M6 CONCRETE CUTTING & CORING**  
Wichita, KS

**MIDWEST CONCRETE CUTTING, INC.**  
Peotone, IL

**NEIL'S CONCRETE CUTTING, INC.**  
Taylorsville, UT

**PG CUTTING SERVICES**  
Lake Elsinore, CA

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



## COMPANY CERTIFICATION

The CSDA Company Certification 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 CERTIFICATION:

- 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

**CENTRAL CONCRETE CUTTING, INC.**  
Edgar, WI

**COBRA CONCRETE CUTTING SERVICES CO.**  
Arlington Heights, IL

**CONCRETE CUTTING SYSTEMS, INC.**  
Philadelphia, PA

**CONCRETE CUTTING SYSTEMS,  
PITTSBURGH INC.**  
Pittsburgh, PA

**DIACORE CONCRETE CUTTING  
SPECIALISTS**  
Frenchs Forest, NSW, Australia

**ECHO GPR SERVICES**  
Paola, IL

**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.**  
Pensacola, FL

**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 technicians who have expanded their knowledge of the methods, theory and practical application of GPR imaging. Certified technicians 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

**ADVANCE CONCRETE SAWING**  
Saint Paul, MN

**AMERICAN GPR SERVICES, LLC**  
Avondale, AZ

**BREAK AWAY CONCRETE CUTTING INC.**  
Coyote, CA

**CANADA CUTTING CORING & STABILIZATION LTD.**  
Regina, SK, Canada

**CENTRAL CONCRETE CUTTING INC**  
Edgar, WI

**COBRA CONCRETE CUTTING SERVICES CO**  
Arlington Heights, IL

**CONCRETE CORING CO. OF CINCINNATI, INC.**  
Cincinnati, OH

**CONQUEST DEMOLITION**  
Buda, TX

**CSDT**  
Sandy Bay, TS, Australia

**DALY CONCRETE CORING LIMITED**  
Courtice, ON, Canada

**ECHO GPR SERVICES**  
Paola, KS

**FINE LINE SAWING & DRILLING INC.**  
Newark, CA

**HARD ROCK TECHNOLOGIES, INC.**  
Prospect Heights, IL

**HOLES INCORPORATED**  
Houston, TX

**IDS GEORADAR NORTH AMERICA**  
Golden, CO

**INTERNATIONAL DRILLING & SAWING, INC.**  
Pensacola, FL

**MAREK SAWING & DRILLING, LLC**  
Spring, TX

**MAVERICK CUTTING AND BREAKING**  
Minneapolis, MN

**SAUNDERS CONTRACTING SERVICES INC.**  
Hampton, VA

**SCAN TEK GPR**  
Davie, FL

**SKYLINE CONSTRUCTION AND RESTORATION CORP.**  
Miami, FL

**SOUTHEAST SCANNING & CORING**  
Norcross, GA

**VERIFY LOCATING/SAF-CUT**  
Raleigh, NC



## CONTRACTOR

ACT SAWCUTTING & REMOVAL LLC  
Grapeview, TX

K-ROCKS SAWCUTTING  
Dublin, CA

METRO CONCRETE CUTTING & CORING, INC.  
Toronto, ON, Canada

## POLISHING CONTRACTOR

COMMERCIAL FLOOR RESOURCES  
Calhoun, GA

## DISTRIBUTOR

B+BTEC INTERNATIONAL  
Truckee, CA

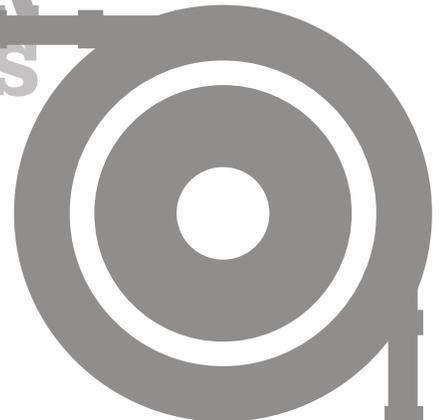
## MANUFACTURER

NIAGARA MACHINE, INC.  
Charlotte, NC

## INDIVIDUAL MEMBERSHIPS

IAN CRAIG- OPERATIONS  
Mays Landing, NJ

# 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

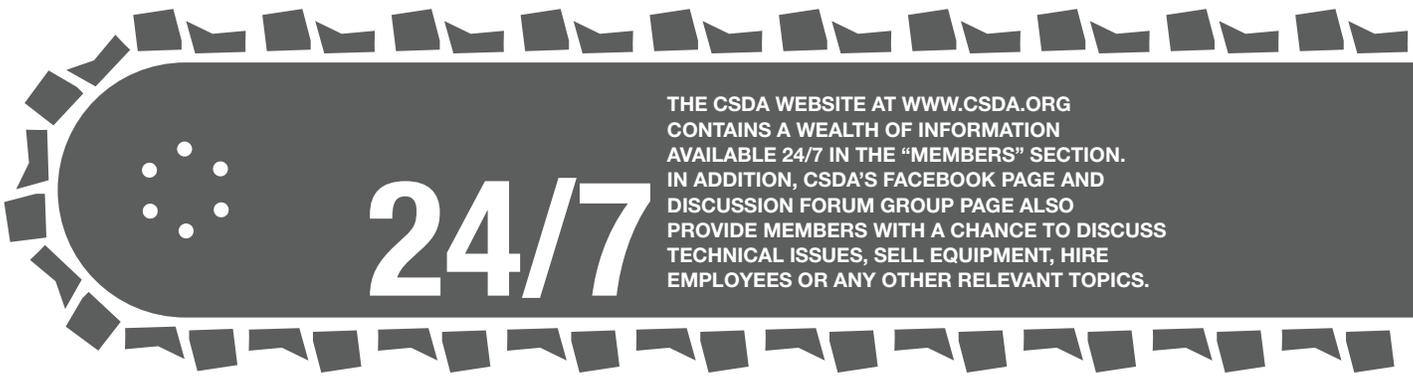
The number one benefit for members has always been the opportunity to network with cutting professionals at the annual convention and quarterly meetings. This networking provides opportunities to forge new relationships and learn from other experienced professionals.



## 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](http://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.

We have experienced the benefits of being involved with CSDA from day one! Finding a comfortable place in the organization is easy—whether you just want to attend a couple meetings here and there or be active in committees, there is something for everyone. Members are helpful and welcoming, which makes networking a breeze. I have found that both contractors and manufacturers are always open to answering questions or providing assistance. Our product is somewhat unique, and it has been invaluable to be able to bounce ideas off members and learn more about other processes used for concrete renovation. Meetings and events are both informative and fun. Best of all, CSDA is dedicated to promoting professionalism and best practices within the industry, which benefits every member.



**Paula Bell**  
Director of Marketing, Vacuworx

## 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](http://WWW.CSDATRaining.COM) OFFERS A COST-EFFECTIVE ALTERNATIVE TO THOSE NOT ABLE TO AFFORD THE TIME OR THE MONEY TO SEND OPERATORS TO CLASSES.



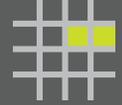
## DUES SCHEDULE

REGISTER ONLINE AT [WWW.CSDA.ORG](http://WWW.CSDA.ORG)

GROSS SALES	NORTH AMERICAN CONTRACTOR	POLISHING CONTRACTOR	GPR IMAGING CONTRACTOR	MANUFACTURER	DISTRIBUTOR	OVERSEAS CONTRACTOR	AFFILIATE
\$0 – 1M	\$705	\$705	\$705	\$1,495	\$1,085	\$450	\$865
\$1 – 2M	\$1,125			\$1,850	\$1,385		
\$2 – 3M	\$1,730	\$1,415	\$1,415	\$2,755	\$2,060		
\$3 – 5M	\$2,325			\$4,415	\$3,320		
\$5 – 10M	\$2,945			\$5,975			
> \$10M	\$3,695			\$7,365			



For more information about CSDA membership, visit [www.csda.org](http://www.csda.org), call 727-577-5004 or email [info@csda.org](mailto:info@csda.org).



## World of Concrete Las Vegas, January 19-22

### NOVEMBER 24-26, 2020

#### Concrete Show South America 2020

São Paulo Expo  
Vila Água Funda, Brazil  
Email: [visitante.concreteshow@informa.com](mailto:visitante.concreteshow@informa.com)

### DECEMBER 2-3, 2020

#### CSDA Winter Board & Committee Meetings

Loews Vanderbilt Hotel  
Nashville, TN  
Tel: 727-577-5004  
Email: [info@csda.org](mailto:info@csda.org)

### DECEMBER 9-11, 2020

#### World of Concrete Asia

Shanghai New International Expo Centre  
Shanghai, China  
Tel: +86 21 6157 7250  
Email: [info@wocasias.com](mailto:info@wocasias.com)

### MARCH 2-3, 2021

#### CSDA Spring Board & Committee Meetings

Fairmont Hamilton Princess Resort  
Hamilton, Bermuda  
Tel: 727-577-5004  
Email: [info@csda.org](mailto:info@csda.org)

### MARCH 4-6, 2021

#### CSDA Annual Convention & Tech Fair

Fairmont Hamilton Princess Resort  
Hamilton, Bermuda  
Tel: 727-577-5004  
Email: [info@csda.org](mailto:info@csda.org)

### MARCH 10-12, 2021

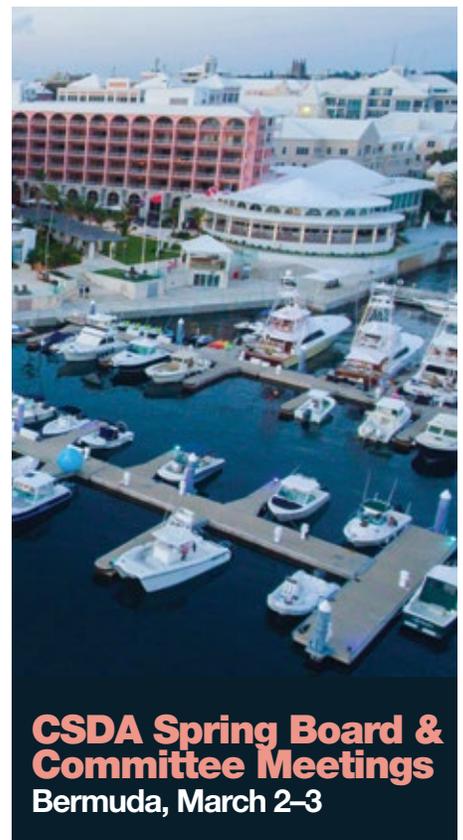
#### BuildTech Asia 2021

Singapore Expo  
Singapore, Asia  
Email: [buildtechasia@sph.com.sg](mailto:buildtechasia@sph.com.sg)

### JUNE 8-10, 2021

#### World of Concrete

Las Vegas Convention Center  
Las Vegas, NV  
Tel: 727-577-5004  
Email: [info@csda.org](mailto:info@csda.org)



## CSDA Spring Board & Committee Meetings Bermuda, March 2-3

# concrete openings



THE OFFICIAL MAGAZINE OF 

### 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.

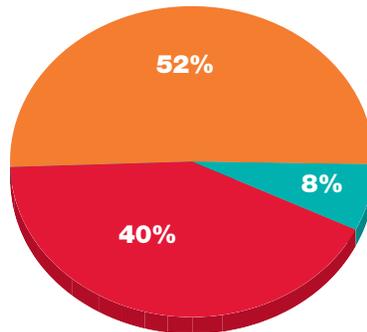
### Target the Specialized Industry of Concrete Cutting, Polishing and Imaging

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.

### 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](http://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 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](http://www.concreteopenings.com) for more information.

## Not a Subscriber?

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Visit [www.concreteopenings.com](http://www.concreteopenings.com) and click "subscribe."

# Advertisers

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

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37	AquaJet	701-373-0062	keith.armishaw@brokkinc.com
31	B+BTec International	925-575-4019	mikec@mjcsales.com
24	Brokk, Inc.	701-373-0062	mike@brokkinc.com
2	DDM Concut Diamond Tools	404-312-0770	ghenderson@ddmconcut.com
Inside Front Cover, Inside Back Cover	Diamond Products	800-321-5336	jpalmer@diamondproducts.com
15	Diamond Vantage	866-322-4078	sunny@gtdiamond.com
21,29	DITEQ Corporation	816-246-5515	enelson@diteq.com
41	EDCO- Equipment Development Co., Inc.	800-638-3326	swain@edcoinc.com
38	GelMaxx	855-322-3335	info@gelmaxxusa.com
51	GSSI Geophysical Survey Systems, Inc. (GSSI)	603-893-1109	harmonj@geophysical.com
43	Hilti Inc.	609-781-2865	valdis.sustko@hilti.com
26-27, Back Cover	Husqvarna Construction Products	913-928-1442	cate.stratemeier@husqvarnagroup.com
23	ICS, Blount, Inc.	503-653-4687	jessica.gowdy@blount.com
40	Lissmac	518-326-9094	m.balzer@lissmac-corporation.com
5	Proceq USA, Inc	724-512-0330	sonia.giro@screeningeage.com
25	Vacuworx	918-259-3050	paulab@vacuworx.com
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**Save the Date!** CSDA 2021 Convention, March 2-6, 2021, Bermuda

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**ERIN O'BRIEN**  
*Executive Director*

## **“You cannot swim for new horizons until you have courage to lose sight of the shore.”**

—William Faulkner

I am very happy to announce that by the time you read this, CSDA will have held its first in-person meeting since February! About half of our Board and committee members met in Scottsdale, AZ on September 22-23 for the Fall Board & Committee Meetings. While we missed many that were not able to join us due to travel restrictions, business obligations or family needs, we were glad to get a small group together to renew conversations about how CSDA can improve to better meet the needs of our members.

COVID-19 came at a time where the world was already in the middle of a massive shift to a digital world. The construction industry has slowly been catching up to the tech industry, but we are seeing more and more of our responsibilities and every day tasks change significantly. With a new wave of leadership in the industry now getting involved in our association, the time

is perfect for CSDA to adapt its traditional way of thinking and doing things and embracing a new type of world. Things are not the same as they were 20, 10 or even five years ago. It is up to this new group of leaders to look to the future to ensure we as an association continue to adapt and change to our environment and to best serve our current and potential members, while at the same time, recognizing what got us to where we are today.

CSDA is on the cutting edge of a new way of doing business and we want your help. Please consider getting involved in the association as a committee or Board member, attending the Annual Convention or participating in one of our 12 committees and making your voice heard. Our next Board and committee meetings will take place in Nashville, TN on December 2-3, and the Annual Convention is still planned for March 2-6, 2021 in Bermuda. You never know who you will meet or what you might learn.

My virtual door is always open. Please reach out and let's have a conversation ([erin@csda.org](mailto:erin@csda.org)).

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