VOLUME 22
NUMBER 7
NOVEMBER-DECEMBER 2020

DEMOLITION & d&ri RECYCLING INTERNATIONAL

A KHL Group publication

www.demolitionworld.com

WORLD DEMOLITION SUMMIT2020 CONFERENCE AND AWARDS

Full report

Hydrodemolition

Dust suppression

Mini excavators

COVID-19 CRISIS UPDATE
The industry response

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DEMOLITION & d&ri RECYCLING INTERNATIONAL
Volume 22 ■ Number 7 ■ November-December 2020

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ISSN 1465-9778

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EVENTS

WORLD DEMOLITION SUMMIT
www.demolitionsummit.com

ON THE COVER

JCB recently announced a heated cab for its 19C-1E electric mini excavator. Our feature on this and other mini excavator developments starts on page 28

REGULAR FEATURES

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Postmaster: Send address corrections to *Demolition & Recycling International*, c/o I.M.S., Box 1518, Champlain, NY 12919

Metso 'to exit recycling'

Sustainable technology specialist Metso Outotec has announced plans to divest its recycling business as part of a strategy review published in October.

It cited limited synergies with the core of the new company, which was created at the end of June, as the main reason.

The business, which supplies products and services for metal and waste recycling, posted sales of €156 million (US$ 183 million) in 2019, when it reported an adjusted EBITA (Earnings Before Interest, Tax and Amortisation) margin of approximately 6%.

However, financial performance targets in the new strategy include an adjusted EBITA margin of more than 15% as the Finland-based Metso Outotec bids to become "an industry leading company" and "take profitability to a new level".

Pekka Vauramo, who announced the decision, will continue as president and CEO until the end of 2023

Company president and CEO Pekka Vauramo said: "We have made a strategic decision to exit the recycling business.

"We have concluded that even though the circular economy and other market drivers offer attractive opportunities for developing the recycling business, it has limited synergies with the core of the new Metso Outotec, and therefore we will not be the best owner to fully leverage its opportunities.

"This being the case, we have started preparations to divest the business. I am confident that we will reach a solution that is good for Metso Outotec as well as for the recycling business and its personnel."

In a series of announcements to the Finnish stock exchange, Metso Outotec also confirmed that Pekka Vauramo will continue as president and CEO until the end of 2023.

He described this as "a unique opportunity to lead the integration of the two great companies into Metso Outotec and to develop Metso Outotec to become an industry leader.

"We are in the beginning of our integration journey and Metso Outotec has a lot of potential to increase the effectiveness of its operations and to serve its customers even better and in a more sustainable way." ■

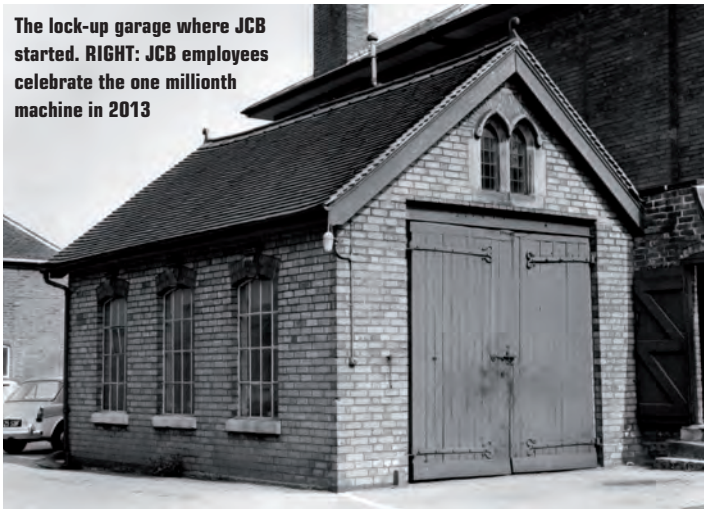
75 years and counting for JCB

United Kingdom-based construction equipment manufacturer JCB has now been in business for 75 years.

It was founded in October 1945 by Joseph Cyril Bamford in a "tiny lock-up garage" in Staffordshire, England, the same county in which its – now somewhat larger – global headquarters are located.

The company marked its milestone year with the launch of a range of electric products, including new developments on the 19C-1E electric excavator which is featured elsewhere in this issue.

Despite the anniversary year being affected by the Covid-19 pandemic, the company also produced its 750,000th backhoe loader during March before an enforced three-month closure – having reached a total of one million units for all machines back in 2013 – while the 20 t 220X excavator powered by a hydrogen fuel cell has been undergoing testing for more than 12 months. ■



The lock-up garage where JCB started. RIGHT: JCB employees celebrate the one millionth machine in 2013

Switzerland-based circular economy pioneer Eberhard has invested in a 200 t/hr recycling plant that it says will convert mixed construction waste into valuable secondary raw materials by the autumn of 2021.

Advanced AI (artificial intelligence) and smart robotic waste sorting technologies by Finnish specialist company ZenRobotics will be used at the plant to capture high purity fractions from construction and demolition (C&D) waste.

The recycled materials are then converted into new building materials for the construction industry. Eberhard's believes the plant will also significantly reduce CO2 emissions and environmental pressures from resource extraction.

The plant, which is being built in Oberglatt, Switzerland, will feature a ZenRobotics sorting system that includes two parallel lines with multiple high capacity heavy duty robots on each line. The job of the robots is to capture high-value and high-purity materials from mixed construction and demolition. These will then be converted at the new plant into circular raw materials of equal quality as primary materials.

DEMOLITION BIT

■ The Crystal River Nuclear Plant in Florida, USA, is to be decontaminated and dismantled 50 years ahead of schedule.

The go-ahead for the new demolition timetable was announced by Accelerated Decommissioning Partners (ADP) – a joint venture between international demolition company NorthStar Group Services and specialist nuclear supplier Orano USA – after it completed the licence transfer and became the plant's official operator.

The transfer of the operator licence to ADP from the plant's owner, Duke Energy Florida, was only recently approved by the US Nuclear Regulatory Commission after a 14-month review.

PEOPLE NEWS

■ Brokk, the manufacturer of remote-controlled demolition machines, has named **Jeff Keeling** as its North American sales and marketing manager.

In his new role, Jeff is responsible for growing the Brokk brand in key segments across the USA and Canada, including demolition. He previously served as Brokk's business development manager for North America.

"Brokk's demolition robots are all about having the right tool for the job," said Lars Lindgren, president of Brokk Inc. "The same is true for our staff. Jeff is the perfect candidate to help us spur growth in North America. A lifetime of first-hand application and sales experience in a number of our core industries gives him a unique perspective on how best to support our customers."

■ Italian manufacturer Case Construction Equipment has announced **Federico Bullo** as the new head of Europe for its Construction Equipment businesses. He takes over in this role from Jose Cuadrado, who will retain his current responsibilities as global head of Aftermarket Solutions & Digital – Construction Equipment at CNH Industrial. Federico has also held various positions at other CNH Industrial subsidiaries.

German Demolition Conference is cancelled

The 2021 Berlin Demolition Conference, also known as Fachtagung Abbruch, has been cancelled due to the Covid-19 pandemic.

The annual event, which this year included 20 expert speakers, 127 exhibitors and attracted over 1,000 attendees, was originally due to place in March in Berlin, Germany.

The decision to cancel the event was made by the board of directors of Deutscher Abbruchverband – the German Demolition Association. While the conference could have taken place if it implemented the measures outlined in the country's Corona-compliant hygiene regulations, the organisers felt this would negatively impact the event.

Johann Ettengruber, chairman of the association's board, said: "What good is the best and safest concept for all participants, exhibitors and other stakeholders if the Fachtagung Abbruch thereby loses the character so cherished by all those present?"

The association said the event will go ahead in 2022. ■

The 2021 expo event will be held outdoors with an expanded Live Demolition event

NDA sets dates for 'reimagined' expo in 2021

The US National Demolition Association (NDA) has announced new dates for next year's Annual Convention and Expo in New Orleans after taking state and national health guidelines into account.

The association's yearly event will now take place on 3 and 4 March after the NDA was forced to shorten it from the original four-day programme.

The NDA said: "Demolition New Orleans will be reimagined as a two-day, outdoor experience with an expanded Live Demolition event.

"The annual convention will consist of two days of the Live Demolition Event, job site best practices and education, and opportunities to come together safely as a community.

"We are uniquely equipped to host this event following safety protocols, with your protection in mind. All attendees will be asked to adhere to the NDA's Attendee Covid-19 health and safety policy.

More details are available at www.demolitionassociation.com ■

Italian demo associations announce merger

Two of Italy's foremost demolition associations have merged to become a single entity. The Italian Association for Demolition (NAD) and the Italian Association for Controlled Demolition (AIDECO) have joined to become the National Association for Demolition and Circular Economy in Construction (NADECO).

The newly formed association comprises six member categories: demolition, diamond concrete sawing, decontamination, scrap iron treatment, inert waste treatment and engineering offices.

It aims to develop working groups made up of companies and institutions within the construction and demolitions market. The association said the groups will focus on the central theme of green economy and that the organisation itself would work to make industry professionalism, respect for work ethics and attention to environmental issues universally recognised, so that companies could "create an efficient and sustainable future for the deconstruction chain".

The organisation's new board of directors has appointed Giuseppe Panseri of specialist demolition firm Despe as its president and Diego Tedoldi of construction and controlled demolition company Tecnotagli as vice president.

Giuseppe Panseri of contractor Despe will be the first president of the newly merged associations

DIARY DATES

2021

NDA Convention & Expo
March 3 – 4
New Orleans, USA
www.demolitionassociation.com

Samoter
March 3 – 7
Verona, Italy
www.samoter.it

Steinexpo
April 14 – 17
Homberg/Nieder-Ofleiden, Germany
www.steinexpo.eu

Intermat
April 19 – 24
Paris, France
Paris.intermatconstruction.com

World of Concrete
June 8 – 10
Las Vegas, USA
www.worldofconcrete.com

EDA Annual Convention
June 10 – 12
Belgrade, Serbia
www.europeandemolition.org

Hillhead
June 22 – 24
Buxton, United Kingdom
www.hillhead.com

World Demolition Summit
October 20 – 21
Venue Chicago, USA
www.demolitionsummit.com

2022

Bauma
April 4 – 10
Munich, Germany
www.worldofconcrete.com

Martin Lehner set to leave Wacker Neuson

Martin Lehner will leave German compact equipment manufacturer Wacker Neuson at the end of March after more than 30 years with the company and its predecessors.

Wacker Neuson said Mr Lehner will not be extending his contract as chairman of the Executive Board, CEO and CTO "for personal reasons", but he would remain in an advisory capacity until 31 March to ensure a smooth transition.

Supervisory Board member Kurt Helletzgruber has been seconded to the Executive Board effective 1 January and will assume the duties of CEO and the position of Executive Board chairman for the first half of 2021.

Martin Lehner said: "I have spent many successful years at the Wacker Neuson group. During this time, the organisation has grown to become a leading manufacturer of light and compact equipment. Now, the time has come for me to focus on new tasks and challenges.

"I am extremely grateful that I have been able to help the Wacker Neuson group on its path to becoming an internationally successful group and technology leader. I have always been passionate about areas of future significance such as zero emission construction equipment and digitalisation and I am particularly proud of the innovative drive that our group has shown in these fields."

Martin Lehner has been chairman of Wacker Neuson's Executive Board since 2017 as well as CEO and CTO

Hans Neunteufel, chairman of the supervisory board of Wacker Neuson, commented: "The Supervisory Board of Wacker Neuson regrets Mr Lehner's decision and thanks him for his unwavering personal commitment. During his many years of successful work on the Executive Board, he has helped drive forward the group's internationalisation and opened up new growth areas.

"With the departure of Martin Lehner, Wacker Neuson group is losing a valued CEO."

Martin Lehner was appointed to Wacker Neuson's Executive Board after the merger with Kramer Baumaschinen in 2007, becoming chairman in 2017.

For the past 10 years, the group has reported average growth rates of 11%, but it has suffered badly during the Covid-19 pandemic. Earlier this month it reported a 16.5% fall in year on year revenues for the third quarter of 2020, following a drop of 25% in the three months to the end of June. ■

Cat Q3 sales down 23%

Caterpillar's latest financial results have revealed that the company's construction industries segment saw total sales of just over US$4 billion in the third quarter of 2020, a decrease of US$1.2 billion – 23% – compared to the third quarter of 2019.

The only region to see sales grow was Asia Pacific, which saw sales increase 14% in the third quarter of this year compared to 2019.

Sales in the region were driven by a strong Chinese market.

North America saw a drop of 35%, Latin America by 44% – unfavourable currency impacts from a weaker Brazilian Real were said to have been a factor – and EAME (Europe, Africa and Middle East) was down by 24%.

The profit of the Construction Industries segment was US$585 million in the third quarter of 2020, a decrease of US$355 million, or 38%, compared with US$940 million in the third quarter of 2019.

Caterpillar's Resource Industries' total sales – which includes quarrying and mining equipment – were US$1.8 billion in the third quarter of 2020.

This is a decrease of US$494 million, or 21%, compared with US$2.3 billion in the third quarter of 2019.

Sales were down in all geographical regions, with North America seeing the biggest decline at 38% and EAME the smallest at 3%. Latin America declined 23% in the third quarter of 2020 compared to the same period in 2019, and Asia Pacific was down by 13%.

Caterpillar's combined third quarter 2020 sales and revenues for all its segments was US$9.9 billion, a 23% decrease compared with US$12.8 billion in the third quarter of 2019.

"I'm proud of our global team's performance as we continue to safely navigate the pandemic while remaining firmly committed to serving our customers," said Caterpillar chairman and CEO Jim Umpleby.

"Our third-quarter results largely aligned with our expectations, and we are encouraged by positive signs in certain industries and geographies.

"We're executing our strategy and are ready to respond quickly to changing market conditions." ■

DEMOLITION BIT

■ The Rotar RCC Concrete Cutter has been instrumental in tearing down the infamous 'Berlin Wall' in Piccadilly Gardens in the centre of Manchester, United Kingdom as part of a revitalisation project for the area.

The unique Rotar RCC, the first one in the UK, took just a few days to take down the huge concrete structure which has been standing for 18 years.

AW Demolition was the first customer for the Rotar RCC30 and was working with Hyde Demolition on this high-profile job.

The RCC Concrete Cutter is described as ideal for primary demolition needs when users need to cut concrete. Built for heavy industrial demolition, it can be used on jobs involving thick concrete with reinforcements inside such as bridges. According to UK distributor Worsley Plant, the RCC has a huge opening with massive force.

It is also said to be suitable before it is moved onto other stages of demolition, for example, to be pulverised or taken away to be crushed elsewhere.

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WORLD DEMOLITION AWARDS 2016 WINNER URBAN DEMOLITION AWARD

WORLD DEMOLITION AWARDS 2018 WINNER

WORLD DEMOLITION AWARDS 2018 WINNER

WORLD DEMOLITION AWARDS 2019 WINNER

WORLD DEMOLITION AWARDS 2019 WINNER

WORLD DEMOLITION AWARDS 2019 WINNER

Mixed fortunes

National Demolition Association president **Chris Godek** spoke at a recent webinar on how contractors, particularly in North America, can find a way through Covid-19 – and described a recovery since the worst days of the pandemic but a shrinking backlog of work as the industry moves towards the new year.

NDA president Chris Godek

The demolition industry has recovered almost two-thirds of the jobs lost during the Coronavirus pandemic – but tough times are around the corner in 2021.

That was the view of National Demolition Association (NDA) president Chris Godek, who was speaking at a webinar titled: "How Contractors can navigate Covid-19", organised by US companies Fieldflo and Sage.

The webinar was moderated by Fieldflo CEO and co-founder Roni Szigeti and other participants were Karsten Pawlik, vice president of operations at Alpine Demolition Services; Riley McLaughlin, CEO of I-Kota Construction; and Iris Halpern, attorney at law firm Rathod Mohamedbhai.

"Our industry has remained quite resilient," Chris – who is also the owner of Connecticut-based demolition contractor New England Yankee Construction – told the online audience.

"Being from New England, we say if you don't like the weather, wait a few minutes and it will change. It has been a bit like that with 2020. Depending on which newspaper you read, you get a different forecast."

In April, a survey of more than 100 NDA member companies revealed that while 90% had introduced social distancing of at least 2 m (6 ft) between employees and 67% had office staff working remotely, 37% had laid off or furloughed staff, 36% had frozen requirement and only 12% said they were not suspending or cancelling equipment purchase or capital investment.

> "There will be more of a trend towards deconstruction. Owners will be more concerned with the full life cycle of a building"

CONTRACTOR RESILIENCE

At the webinar, which took place on 18 November, Chris was able to report a healthier picture.

"We have added 700,000 jobs in five months and we have recovered 64% of the jobs that were lost in the pandemic. It shows the resilience of our contractors. They live by the mantra of 'we have to get the job done'.

"The industry has helped in other ways. We have got involved in Covid cleaning, as a lot of us have a background in remedial cleaning.

"That has avoided laying people off."

Turning to what might happen in the future because of the pandemic, Chris said: "There will be more of a trend towards deconstruction. Owners and architects will be more concerned with the full life cycle of a building, so they will look at deconstruction in lieu of full demolition.

"The pandemic has shown how fragile our supply chain can be, and in true American style we are throwing a lot of money at it.

"We are seeing, where work could be coming up and continuing to grow, that contractors are becoming more versed in technology – not just in the office, but in construction technology. We have become slightly better connected with our people. Instead of an office of 15 to 20 people we now have an office of four or five.

"We are trying to leverage technology in the field. The NDA has a few member companies who provide micro or robotic equipment, and that is a way to limit people on the job site and to increase social distancing.

"One of the biggest things I've seen on job sites is QR scanning.

"Everyone has one before they go on the job site to do their Covid test."

Throughout the summer, the NDA lobbied the Trump administration to secure support for the demolition industry during the pandemic, and with the webinar taking place two weeks after the 2020 Presidential election, Chris believes that the experience of the first wave of Coronavirus should make for a more targeted response this time round.

"I believe that we are looking for and hoping for investment in infrastructure. We are more educated about Covid and the people who make the decisions are more educated, in terms of things like local and national lockdowns and essential or non-essential industries.

"I'm hoping for more relief for small businesses, because many of my members are small businesses.

"We tend to forget about the indirect cost that Covid has created for our industry – wiping down every bit of equipment takes hours that we wouldn't normally have to spend without getting back in the bidding process. I would like to see that number at some point."

SELECTIVE DEMOLITION

Pressed on how the demolition business might look in 2021, Chris said: "We are seeing a shrinking backlog. There is nothing on the horizon that suggests the situation is going to improve in the next six months."

Giving a construction industry view, Riley McLaughlin of I-Kota Construction offered some hope.

"We have companies in construction like yours in demolition. There has been a dramatic fall off in some specific sectors, such as offices, medical and hospitality, and we will struggle to fill that backlog.

"I want to keep things positive and talk about something that we are involved in and that niche is affordable housing.

"Selective demolition, on projects where buildings have been occupied or unoccupied, can be a plug for your business.

"My recommendation is partly to shift some resource to emerging markets like this. My mentor always said: 'Don't waste a crisis'.

"You should use this as a chance to grow your market share."

A Covid-19 stand down at contractor JR Ramon, supported by other companies including Chris Godek's New England Yankee Construction

Averda said with fast and decisive action required, it arranged for four mobile thermal treatment units to be flown to the UAE

Million kg milestone as Averda safely treats Covid waste

United Arab Emirates (UAE)-based waste and recycling specialist Averda has announced that it has safely destroyed over one million kg (2.2 million lb) of infectious Covid-19 waste since the start of the Coronavirus pandemic.

Averda, the leading waste and recycling company in the emerging world, said it has been working with local authorities and medical institutions across the UAE to ensure that the enormous increase in medical waste and used PPE (personal protective equipment) created by Covid-19 is managed to the highest safety standards.

Thermal treatment at high temperature is agreed to be the most appropriate method of disposing high-risk hazardous healthcare waste. However, when the pandemic hit, UAE's capacity for dealing with medical waste in this way needed to be urgently expanded.

Fast and decisive action was required, so at the request of the authorities, Averda arranged for the delivery of four mobile thermal treatment units which were flown in, installed and made operational within record time.

Working around the clock, teams at Averda's sites were able to install the incinerators at key locations in a matter of days.

The challenge was magnified by the travel restrictions in place at the time, which meant that all technical guidance and training had to take place via videolink and pre-recorded means.

Since then, the waste from hospitals, isolation units and clinics has been exposed to temperatures of up to 800°, rendering it virus-free.

Volumes fluctuated throughout 2020 in accordance with the number of Covid cases and the pandemic medical research activity.

"I am very proud of our team's response to the huge increase in medical waste needs created by the pandemic," said Malek Sukkar, CEO of Averda.

"They have worked day and night to ensure that over a million kilos of potentially-infectious PPE and other medical waste has been treated safely."

Elsewhere, Averda has announced its entry into the Indian waste market, starting in Amritsar.

The company has completed a share sale and purchase of Amritsar MSW, which holds a concession agreement issued by the Municipal Corporation of Amritsar, and provides various environmental services including waste to energy and recycling.

Averda CEO Malek Sukkar

WORLD DEMOLITION SUMMIT2020 CONFERENCE AND AWARDS

The South African contractor scoops the biggest prize as 13 different winners from around the globe are recognised to show that even in a challenging year like 2020 there is still a place for celebrating innovation and best practice in demolition.

Lift off for Jet

South African contractor Jet Demolition grabbed the headlines at this year's World Demolition Awards – claiming the overall 'Best of the Best' award for its implosion of the Bank of Lisbon building in Johannesburg after winning the Explosive Demolition category earlier in the day.

In recent years, Jet has been a regular winner at the awards, which are part of the World Demolition Summit organised by KHL group magazine Demolition & Recycling International in co-operation with the European Demolition Association and the National Demolition Association of the USA.

GLOBAL LINE UP

But this is the first time it has won the main award, with delighted managing director telling the hundreds watching in the online audience he was "flabbergasted" and "speechless" at the company's world-beating success as colleagues celebrated in the background.

Jet's win crowned an event that featured a truly global winning line up.

North America got things underway with Veit & Company taking Urban Demolition under US$10 million for its project at the Marquette University McCormick Hall, affectionately known locally as the "beer can" because of its shape.

Other winners from the USA and Canada were Kiewit Infrastructure West (Urban Demolition $10 million or over); Budget Demolition (Safety and Training); and Brandenburg Industrial Service Company in Contract of the Year over $1 million.

Australia was also well represented by Industrial Demolition winner McMahon Services and Contract of the Year under $1 million winner Liberty Industrial, while the Delta Group took first prize in the Collaboration category for its work on the New Western Australia museum project.

Europe provided the winners in Civils Demolition with Erith Contractors of the United Kingdom, while the two Manufacturer Innovation awards went to British company Webster Technologies in Tools and Attachments, and the Swiss arm of US-based Caterpillar for Plant and Equipment.

There was a double success for South America, with Argentina's Grupo Mitre triumphing in Recycling and Environmental, while Flesan Demolition Chile earned a Highly Commended in Civils Demolition.

Finally, the New Entrant Award, presented to a company shortlisted either for the first time or an absence of at least three years that earned the highest score without winning its category, went to Demex of Australia for its industrial demolition project at a major explosives facility.

Joe Brinkmann, managing director of Jet Demolition

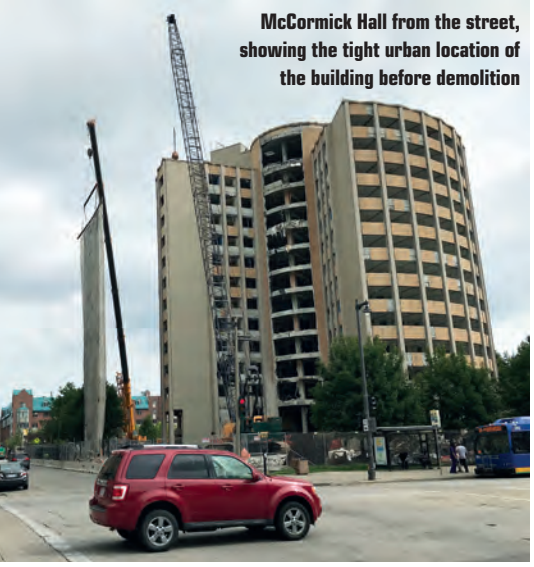
JOHN WOODWARD RETIRES

While the overriding mood of the event was one of joy for the winners mixed with a combination of disappointment – but also hopefully quiet satisfaction – for the shortlisted companies who didn't win, there was one moment of sadness for those people who have made the World Demolition Summit an annual event in their calendar.

Long-serving World Demolition Awards judge John Woodward announced his retirement from the event's international judging panel after being involved since the start in 2009.

John, a consultant at United Kingdom-based company C&D Demolition Consultants and a past president of the Institution

Urban Demolition under US$10 million



McCormick Hall from the street, showing the tight urban location of the building before demolition

WINNER **VEIT & COMPANY**
COUNTRY USA
PROJECT Demolition of Marquette University McCormick Hall
Also shortlisted
Budget Demolition (Canada)
Despe (Italy)
Flesan Demolition (Chile)

For a third year, the Urban Demolition category was divided into two categories either side of a US$10 million project value, and again it opened the awards ceremony.

This time, the shortlisted companies in projects under $10 million were announced first, with Veit & Company emerging from a strong field to take the prize.

The winning project, at Marquette University in Winsconsin, started in April 2019 and finished eight months later, covering a site of more than 8,000 sq m (90,000 sq ft).

In its submission, Veit said: "This project had a few challenges. The first was gutting out the structure. Each floor had to be stripped of all non-recyclable materials prior to structural demolition.

"The second hurdle was the location of the structure, in the heart of Marquette University's campus just 24 m (80 ft) away from a busy intersection. The site was very small for a 43 m (142 ft) tall structure."

On being announced as winner by European Demolition Association president Francisco Cobo, Veit said: "This project posed many challenges to us, from an expedited schedule to an aggressive recycling goal. We sat down with our entire project team and came up with the best demolition project we could."

John Woodward, seen here chairing the WDS Summit 2017 in London, retired as an awards judge this year

of Demolition Engineers, said he was "hanging up his judge's hat" in a video message to this year's World Demolition Summit (WDS), which was watched by almost 400 delegates

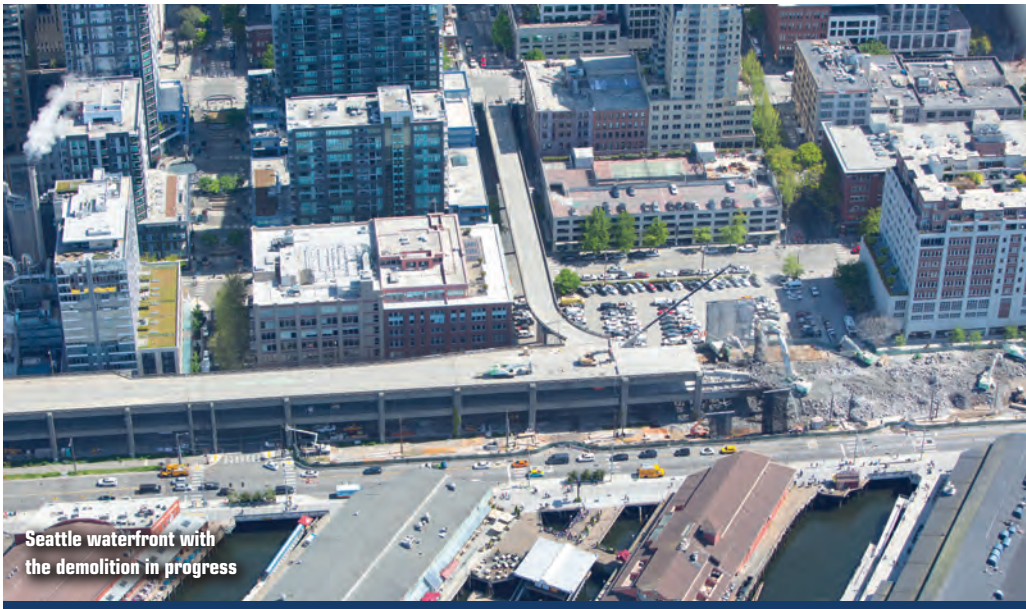
Recalling the origins of the awards, John remarked that organiser the KHL Group "thought they might run for at least two years". John also traced the journey the WDS has made to a truly global event, moving from its original Amsterdam home to Miami, London, Dublin and Boston in recent years.

ADVANCES IN TECHNOLOGY

In addition, John mentioned some of the advances in demolition projects and technology during the years he has been involved, concluding that anything that was groundbreaking at the moment would be either an entry for the 2020 awards or the subject of a conference paper.

In his own words, John will now spend more time with his wife Jill and their greyhounds – one of whom, Ellie, made an unscheduled guest appearance during the video – though he does plan to return to the WDS as a delegate.

Steve Ducker, editor of KHL title Demolition & Recycling International thanked John for his hard work and dedication over so many years, and all at KHL wish John a long and happy retirement. ■



Seattle waterfront with the demolition in progress

Urban Demolition US$10 million or over

WINNER **KIEWIT INFRASTRUCTURE WEST**
COUNTRY USA
PROJECT Alaskan Way Viaduct demolition
Also shortlisted
Erith Contractors (United Kingdom)
Mainland Civil Queensland (Australia)

Kiewit's senior operations manager Phil Wallace was in no doubt about the challenges involved in the Alaskan Way Viaduct demolition.

When the decision of the judges was announced, he said: "Getting recognised for demolishing a two-stage highway right through the waterfront of Seattle is like the first step in a total regeneration and rejuvenation of the area.

"It was great to work with all the people down there, working completely safely with no recordables and no damage to any of the buildings."

Phil also paid tribute to Ferma, the demolition contractor on the project, and to the client, the Washington State Department of Transportation.

The second American winner in the Urban category, and by coincidence the second contract to finish just before Christmas 2019, the project involved removing 43,500 cu m (1.54 million cu ft) of reinforced concrete and a peak workforce of 74 people.

Working in a dense urban environment, Kiewit achieved a 100% recycling rate with the rubble from the viaduct. ■

Fire damage to the building added to the complexity of the task for Jet Demolition

Explosive Demolition

WINNER **JET DEMOLITION**
COUNTRY South Africa
PROJECT Bank of Lisbon implosion
Also shortlisted
Alford Technologies (United Kingdom) and Delta Group (Australia)
Precision Demolition Company (United Kingdom)

Having recorded wins in 2017, 2018 and 2019 – in a different category each time – Jet went back to the Explosive award for 2020 and again proved successful. Its controlled demolition of Johannesburg's fire-damaged Bank of Lisbon building, executed on behalf of the Gauteng Department of Infrastructure Development, concluded in March 2020 having employed over 120 people working close to 220,000 hours between them. Furthermore, Jet used 920 kg (2,028 lb) of explosive in the project and achieved a waste recycling rate of 93.4%.

Jet said it was a daunting task to implode the 108 m (354 ft) structurally compromised building within an extremely restricted basement footprint, without damaging neighbouring structures as close as 7.8 (25 ft) away.

Premature collapse of the building had been a serious concern so extensive back propping, with an electronic movement detection system, was installed.

Managing director Joe Brinkmann told the online audience: "It was a very, very difficult project indeed.

"I have to thank all of our people, who always give their best, it was a very difficult job but a very pleasing result." ■ >13

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Aerial view of the 'logistically challenging' Cleveland Street site

Civils Demolition

WINNER **ERITH CONTRACTORS**
COUNTRY United Kingdom
PROJECT Cleveland Street substructure, London
HIGHLY COMMENDED
FLESAN DEMOLITION
COUNTRY Chile
PROJECT Demolition of two concrete trestles in Puerto Barquitos
Also shortlisted
Delta Group (Australia)
Despe (Italy)

As the Highly Commended awarded to Flesan Demolition suggests, this was a tightly contested category, but in the end Erith just edged out Flesan to repeat its success in the Civils category of 12 months earlier to become Europe's first winner the 2020 World Demolition Awards.

Once again, Erith's winning entry was for a project in London, this time as 101 Cleveland Street.

"We undertook the asbestos removal, soft strip and demolition works to make way for a new exciting mixed use development comprising of retail/commercial units at ground floor level with residential dwellings in two four-storey blocks and one nine-storey tower above," the company's submission said. "Following on from the successful demolition we were awarded the works to form, a double basement for retail/commercial use."

Not least, the project also involved the salvage and safe removal of unique "Banksy" artwork.

On being announced as award winner, David Darsey, managing director of Erith's demolition division, said: "This was a very logistically challenging project. I think winning the category is a testament to the team that carried the project out."

Recycling and Environmental Demolition

WINNER **GRUPO MITRE**
COUNTRY Argentina
PROJECT Demolition of former Osram lighting plant
Also shortlisted
Costello Dismantling (USA)
Despe (Italy)

Since the World Demolition Awards were launched in 2009, few companies have celebrated a win with the enthusiasm of Group Mitre, whose demolition of the former Osram lighting company plant in its native Argentina gave South America its first success Brazil's Fabio Bruno Construções won the Explosive Demolition category at Miami in 2016.

Group Mitre introduced solar panels as an integrated alternative energy management for the site office

Completed in May 2020, the project involved the demolition of a 30,000 sq m (320,000 sq ft) site, with the 98.3% recycling rate that contributed to the award win equating to over 550 t of waste.

In its submission, Grupo Mitre said: "A key element was the structuring of our service under standards of excellence. An integral intervention plan was built under the supervision of a multidisciplinary team: management, technical area, health and safety, and sustainability area.

"Regarding the recovery of materials, in the context of our circular business model, specific materials such as scrap, crushed material, paper, plastic, cardboard and glass were reinserted in the productive cycle."

Headline sponsor Volvo Construction Equipment made the announcement, with Stephen Roy, president of the company's America's sales region naming the winner. On hearing the news Grupo Mitre said: "We are really happy. Our company is a family business and we want to thank all the people who were involved in this project. It's hard to work towards a recycling culture in our country and we had to work during the Coronavirus restrictions. Thank you very much."

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Innovation, Plant and Equipment

WINNER **CATERPILLAR**
COUNTRY Switzerland/USA
PRODUCT Ultra High Demolition machines
Also shortlisted
Blastrac (Netherlands)
Dragon Equipment (United Kingdom)
ES Manufacturing (United Kingdom)

Caterpillar emerged from a diverse field of entrants to take the award for Manufacturers' Innovation in Plant and Equipment for its Ultra High Demolition machines.

This included a 60/70 t excavator size class and what the company described as a new generation of machines with its 352 UHD.

Caterpillar described the 352 UHD as "a solution based on direct feedback from demolition customers. The key elements of the voice of the customer were to reduce fuel consumption as well as maintenance and operational costs, while at the same time improving performance."

Based on its boom coupling system, it is said to offer users the chance to switch between Ultra High Demolition and Retrofit (short) fronts in 15 minutes.

At the awards ceremony, the company's demolition product application specialist Gilles Ronnet said: "We are extremely honoured to be receiving this prestigious award. Our customers might be very diverse, but they all have something in common. They expect the best from us, and we really understand the importance of anticipating changing customer and future business needs."

Caterpillar said its new machines addressed customer feedback on reduced fuel consumption, maintenance and operational costs

Budget Demolition employees gather for training during 2020

Safety and Training

WINNER **BUDGET DEMOLITION**
COUNTRY Canada

Also shortlisted
Brandenburg Industrial Service Co (USA)
Grupo Mitre (Argentina)
Priestly Demolition (Canada)

The first half of the awards took place between two conference presentations, by Angus Holdsworth of Andun Consultants and then Bartek Kogutowski of Delta Group jointly with Roland Alford of Alford Technologies.

The second part of the event would follow the same path, with James Milburn getting us underway with a presentation of his company Milburn Demolition's project at Oakmont Point in the USA.

The awards announcement that concluded part one also had a North American theme, with Budget Demolition taking Safety and Training. Budget's win, announced by Gordon Hambach, managing director of awards category sponsor Epiroc, showed the value of long-term planning.

Budget's Wil Bartels said the company had developed its safety programme after listening to Aecom's Tim Barker at the World Demolition Summit in Miami four years earlier. After being shortlisted in 2018 and 2019, it could now celebrate the recognition of its industry peers.

"We have been working very hard on this for four years," said Wil.

"We were very inspired by Tim and we went on this journey to see where health and safety could bring us as a company."

Innovation, Tools and Attachments

Webster Technologies' Rockhit, an award winner after many years in development

WINNER **WEBSTER TECHNOLOGIES**
COUNTRY United Kingdom
PRODUCT Rockhit hydraulic breaker
Also shortlisted
Bladecore (USA)
Demolition Resources Inc (USA)
Epiroc (Germany)

Webster's entry for the awards was based on a breaker suitable for carriers between 13 and 18 t capable of producing energy that would normally need a carrier of at least 30 t.

It was an idea that the judges identified with as Webster was voted the top entry in this second category for demolition and recycling equipment manufacturers.

But it was not just about power. Webster said: "At 90 bpm noise levels are more tolerable and exposure times are significantly improved, 20 hours exposure at 10 m (32 ft) compared to four hours."

Following the announcement of the award by National Demolition Association president Chris Godek, technical director Ian Webster said: "This recognition means a lot after many years of development. For a company of less than 10 people this is a fair achievement."

Industrial Demolition

WINNER **MCMAHON SERVICES**
COUNTRY Australia
PROJECT Deconstruction and scrapping of quay and gantry cranes at PSA's Singapore City terminals
Also shortlisted
Demex (Australia)
Erith Contractors (United Kingdom)
Liberty Industrial (Australia)

With three Australian companies shortlisted, it was always likely that the award for Industrial Demolition would be on its way to the southern hemisphere. In the end it was McMahon Services who came out on top, but for a project outside its own country.

The project at the Singapore City Terminals took almost a year from commencement to its completion at the end of August 2019 and covered more than 150,000 sq m (1.6 million sq ft).

As well as meeting the key challenges of dismantling quay and gantry cranes while working in an active port facility, the project achieved a 99% recycling rate.

The award was announced by category sponsor Steelwrist, with vice president of the Asia Pacific region Peter Lam doing the honours.

Joshua Board and Chris Chisholm accepted the award for McMahon, commenting: "The logistics of working in a very busy port, one of the biggest ports in the world, certainly created some issues but we overcame them with the assistance of PSA and delivered a very successful project."

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McMahon's project achieved a 99% recycling rate while working in an active port facility

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Demolishing aggregate storage bins at the plant with a 200 t high reach demolition excavator

Contract of the Year under US$1 million

WINNER **LIBERTY INDUSTRIAL**
COUNTRY Australia
PROJECT Hanson Blackwattle Bay concrete batching plant demolition
Also shortlisted
Apex Demolition and C&D Demolition
Consultants (United Kingdom)
Despe (Italy, two entries)

Having made the shortlist in this category in 2019, Liberty Industrial went one better this year.

The project involved the removal of a harbourside concrete batching plant, including the demolition of a large reinforced concrete aggregate storage bin situated on the site boundary, a concrete batch plant located at the far end of the wharf and the removal of the interconnecting conveyor systems.

Most of the works were carried out with a 200 t high reach demolition excavator with a reach of 36 m (118 ft), and a 48 t high reach demolition excavator fitted configured for 24 m (78 ft) of reach.

Loading restrictions associated with the operation of heavy machinery on the wharf meant that the works had to be executed in a highly choreographed sequence with limited movements for both machines and only a single angle of approach for the 200 t excavator. ■

The project starts with the demolition of the Link Building

Collaboration in Demolition

WINNER **DELTA GROUP, MULTIPLEX, CAYS ENGINEERING, PERTH RIGGING, WROXTON, VASENG CONSULTING**
COUNTRY Australia
PROJECT New Western Australia Museum project
Also shortlisted
Group Mitre (Argentina)
Jet Demolition (South Africa)
Priestly Demolition (Canada)

Delta had already been shortlisted in two categories. This time it was successful. Fittingly for a Collaboration entry, the winning submission was a multi-agency approach. Multiplex was the managing contractor, Cays provided new steelwork design and supply, Wroxton brickwork installation, and Vaseng structural engineering.

Delta's submission said: "We arranged a series of pre-commencement meetings that allowed the integrated build trades including Cays Engineering, Perth Rigging, Vaseng and Wroxton to collaborate and define their requirements whilst identifying issues that may arise through the project.

Delta took the time to understand Perth Rigging's scope and ensure they understood ours, this collaboration was vital to the success of both companies and the project.

"Our project team faced numerous challenges in the delivery of the new museum, from working in and amongst heritage buildings, to delivering an ambitious engineering design and innovative structural support systems, whilst collaborating with multi-tiered stakeholders."

On being announced as award winner, Delta communications manager Damien Hanger said: "Thank you to our West Australia team, who delivered such a challenging project, and to our project partners." ■ >18

Contract of the Year US$1 million or over

WINNER **BRANDENBURG INDUSTRIAL SERVICE CO**
COUNTRY USA
PROJECT Liberty Rig project, Alaska
Also shortlisted
Despe (Italy)
Erith Contractors (United Kingdom)
Priestly Demolition (Canada)
S Evans & Sons (United Kingdom)

Following Erith Contractors' win in Civils, Brandenburg emulated the British company by claiming a second consecutive prize in this category after winning with its Chambers Works Complex in 2019.

The project involved this year was very different – for a start it took place on SDI Island, in Prudhoe Bay, Alaska, almost 2,000 km (1,200 miles) south of the North Pole. It was a considerable logistical challenge, requiring months to plan the event, develop engineering drawings and co-ordinate project details.

Liberty Rig was a project of extremes for Brandenburg

Brandenburg was brought in to dismantle the land-based rig including structural demolition, fluid removal and environmental remediation. The project took around 20,000 man hours with the team remaining on high alert to ensure no harm to the island.

Dennis McGarel, Brandenburg's vice president of sales and estimating, said: "We accepted the challenge of performing some works we hadn't done before, equipped our execution team properly and they executed the project flawlessly." ■

The judges

- **Henrik Bonnesen**, Environmental Manager, Cowi, Denmark
  Henrik's categories were *Collaboration, Contract of the Year US$1 million or over, and Recycling and Environmental,*
- **Francisco Cobo**, President, European Demolition Association
  Francisco's categories were *Contract of the Year US$1 million or over, Innovation Plant and Equipment and Innovation Tools and Attachments*
- **Dan Costello**, President, Costello Dismantling, USA
  Dan's categories were *Contract of the Year under US$1 million, Innovation Plant and Equipment, Innovation Tools and Attachments, Industrial Demolition, and Urban Demolition under US$10 million*
- **Clinton Dick**, Founding Director, Liberty Industrial, Australia
  Clinton's categories were *Collaboration, Innovation Plant and Equipment, Innovation Tools and Attachments, Safety and Training and Urban Demolition US$10 million or over*
- **Patrick Frye**, Technical Director, Cardem, France
  Patrick's categories were *Explosive Demolition, Recycling and Environmental, and Urban Demolition under US$10 million*
- **Jim Graham**, Executive Vice President and Principal, Winter Environmental and the Winter Construction Company, USA
  Jim's categories were *Civils, Collaboration, Contract of the Year under US$1 million, Industrial Demolition, and Recycling and Environmental*
- **Bill Moore**, Principal Consultant, Environmental Resources Management, USA
  Bill's categories were *Contract of the Year US$1 million or over, Explosive Demolition, Safety and Training, and urban Demolition US$10 million or over*
- **William Sinclair**, Managing Director, Safedem, United Kingdom
  William's categories were *Contract of the Year under US$1 million, Explosive Demolition, Safety and Training, and Urban Demolition US$10 million or over*
- **John Woodward**, Demolition Consultant, C&D Demolition Consultants, United Kingdom
  John's categories were *Civils, Industrial Demolition, Safety and Training, Urban Demolition US$10 million or over*

The nine judges were divided into sub-teams of three for the categories they judged. No one can sit on the judging panel for a category in which their company has submitted an entry.

Thanks also to the European Demolition Association and the National Demolition Association of the USA.

Demex completed the project against the backdrop of the Coronavirus pandemic

New Entrant Award

WINNER **DEMEX**
COUNTRY Australia
PROJECT Industrial Demolition project at Mulwala explosives facility

Twelve categories down, two to go, 12 different winners so far and a guaranteed 13th different winner because of the way the New Entrant Award works. Now in its fourth year, the New Entrant Award seeks to recognise companies who have entered the awards for the first time, or after a period of absence, and goes to the highest scoring company which has not won in its own category or categories.

After the successes of McMahon Services, Liberty Industrial and Delta Group, Demex completed a successful year for Australia by taking the New Entrant Award, for its entry in the fiercely contested Industrial Demolition category.

Demex took the award for the demolition of the Mulwala NC and first stage precinct buildings, a project that involved both working with residual highly volatile cellulose and working with a large major hazards facility that remained operational.

The contract started in February 2020 and was completed just over four months later, so Demex had to manage the Covid-19 pandemic during the lifetime of the project.

Demex director Richard Todd said: "Thank you very much for the acknowledgment. We are humbled to receive this award."

World Demolition Award

WINNER **JET DEMOLITION**
COUNTRY South Africa
PROJECT Bank of Lisbon implosion

This was one of only two categories without a shortlist, as it is awarded to the winning category that the judges considered a cut above the rest.

This year it went to Jet Demolition, much to the surprise of managing director Joe Brinkmann, who said: "It's a huge thrill, I wasn't expecting this."

As the representative of the winning company in the overall World Demolition Award (or "Best of the Best" as it has become known) and as is traditional, Joe will return to the 2021 World Demolition Summit to present on this project.

The site cleared and ready for handover after implosion

Congratulations to Jet Demolition, to all our award winners and to the shortlisted companies.

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Performance under

The circumstances behind the collapse of Italy's Morandi Bridge two years ago, resulting in the deaths of 43 people, meant its eventual demolition was always going to be under scrutiny. At this year's World Demolition Summit, heavy lifting specialist Fagioli described how the demolition phase was executed.

When on 14 August 2018, a 210 m (688 ft) section of the Morandi Bridge collapsed, Genoa suffered one of the saddest tragedies that had ever occurred in the history of this ancient and glorious city.

Since 1963, the bridge had not only been part of the modern landscape and architectural representation of the city, but due to its location, was one of the major links from Italy to France.

After this tragic event, the city of Genoa supported by the Italian government decided to accelerate demolition of the bridge. Fagioli was called along with other expert operators for the removal of the Morandi Bridge sections. This included experts in structural and architectural design and companies specialising in environmental reclamation.

Fagioli used a tower lift and strand jacking system, crawler cranes – which were used wither for the lifting or lowering of materials and as a support for Fagioli equipment – and SPMTs (self propelled modular transporters) to mobilise sections at ground level.

REMOVING THE BEAMS

In February 2019, Fagioli started removing beam number eight, between V-shaped piles numbers seven and eight, weighing about 916 t and about 36 m long (118 ft) and 18 m (59 ft) wide. Fagioli used four 600 t capacity strand jacks, two on the western side and two on the eastern side, to lower the central bridge section.

The jacks used for the lowering operation were positioned onto cantilever beams, provided with four additional strand jacks of 180 t capacity each, with the task of balancing the whole structure.

Two counterbalancing support beams were transversely positioned underneath the western and eastern bridge pylons to anchor all the lifting and lowering structure to the west-east bridge sections. Two support beams were positioned underneath the beamed section. On the eastern bridge pylon another structure was positioned at the top end of the bridge with two additional strand jacks, with counterweights tasked with providing a counterbalancing action during the lowering.

Following the same procedure with the position of the counterweights and strand jacks, removal of decks, constraints such as fixed and mobile joints, lifting action of the beam by a few centimetres, cutting operation with diamond wires, beam number seven (850 t), beam number six and beam number five (each weighing 916 t) were lowered by the strand jacking system in two months. By the end of March, deck beam number four was lowered and touched the ground.

IN COME THE CRANES

In the meantime, on 18 March, five cranes arrived in Genoa to dismantle the western piles. The two main cranes had a capacity of 600 t each. V-shaped pile number five was the first pile to be demolished on the west side of the bridge. Preparations started with the removal of the lateral parts and the sidewalks. The deck was sectioned in three parts in a longitudinal direction – the first section weighing 300 t was lowered on 16 April, the second on 19 April and the third on 26 April, by crawler cranes with a rotating action.

After three portions of the deck beams, the pillars were also sectioned to two-thirds of their height by oblique cuts, and the sections taken away by Fagioli SPMTs. In the same way, pile number four (end of May), pile number seven (first half of June), pile number six (first week of July), pile number three (end of July) and pile number eight (early August) were dismantled and sections taken away by the SPMTs.

Beam number 11, weighing 750 t, was cut and lowered with jacks by the end of May. Rather than blasting with explosives for pile number eight, it was decided to disassemble just like the other piles. Being 4 m (13 ft) longer than all the others, it required two additional cuts. Like the other piles, the likes of pile number eight were cut with diamond wire, then loaded and lowered with Fagioli crawler cranes.

Pile number two, the last one remaining, was demolished at the same time as pile number eight.

Demolition of the bridge ended on 12 August 2019, while Fagioli's scope of work ended on 31 July.

DIFFERENT REGULATIONS

Demolition works on complex structures require relevant planning effort, as in many cases we need to operate on structures conceived and built many years ago, with different regulations compared to the requirements nowadays. This is the case with the Morandi Bridge, one of the highest expressions of Italian engineering capacity in the field of pre-stressed concrete structures back in the 1960s.

The partial collapse of the structure

Andrea Gazzola, business development manager at Fagioli, who presented on the Morandi Bridge at this year's World Demolition Summit

The first operation at the bridge, in February 2019

pressure

The bridge after the collapse in August 2018, and two of the five cranes sent to Genoa in March 2020

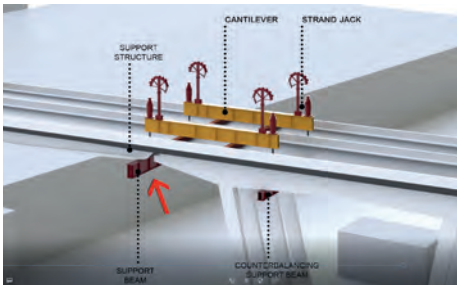

Diagram showing the two counterbalancing support beams placed under the eastern and western bridge pylons to anchor the lifting and lowering structure

meant the rest of it was in a potentially risky condition. Consequently, the procedures adopted for the dismantling of the bridge involved the detailed preparatory phase of securing and functional testing of the remaining structures to ensure the operations would take place in the safest and most stable conditions possible.

The viaduct was divided into distinct sections with different structural peculiarities. On the west side the structure consisted of eight piles with inclined V-shaped columns embedded at the base with an average length of 36 m and height of 45 m (147 ft). On the east side there were only two large cable-stayed piles with cantilever spans, total length of about 180 m (590 ft) and total height of 90 m (295 ft).

Fagioli proceeded with repeated load tests, carried out by detecting the deformation of the structure. To identify the conditions of post-incidental stress, and the residual resistant capacity, the entire work was modelled on the finished elements and calculated in all its temporal phases – from construction to collapse up to the representation of all the intermediate steps of the planned dismantling operations.

The rheological effects – deformation and flow within a material – of post-compression were assessed with laser scanners. Steps were taken to restore the balance of surviving structures, which had high asymmetrical loads due to the lack of the collapsed structural elements.

The external vertical load, equal to about 300 t, was applied by means of two cable recovery jacks, positioned on to the cantilever beam of the pile, contrasted at the base by a counterweight of adequate mass.

Piles were previously reinforced to guarantee more safety.

DEMOLITION PHASES

Once the safety and functional tests were completed, the real demolition phases began. On the west side the eight piles and the related beams were dismantled in pieces. For the dismantling of the beams, supported by the V-shaped piles, a metal structural work system was designed, resting on to the piles. The lifting system positioned at the end of the cantilever bridge section raised it gradually, to allow the cutting of the support on to which it was placed and lowering it to the ground. The positioning of strand jacks opposite to the lifting one guaranteed stability.

The support system of the Fagioli cantilever beam system was designed to distribute the loads on to the pile in a uniform manner, able to perfectly transfer the 250 t load of the two strand jacks on to the three beams of the pile. The load transferred to each concrete structure was applied by support, that is by contact from below, and not by traction.

The dismantling phases of the piles in the western area was carried out by making longitudinal cuts in the concrete structure about 36 m long with thickness up to 3 m (10 ft), using Tyrolit diamond wire specifically designed for reinforced concrete processing.

The whole concrete structure was divided into three large blocks with a weight suitable for lifting by two Fagioli Demag CC2800 crawler cranes in SSL configuration with a 78 m (255 ft) boom.

Due to the shape of the pile before it was cut, it was necessary to support it with the cranes, which maintained for the entire duration of the cut, a weight close to 100% of its weight.

What concerned the two piles on the eastern side that survived the collapse of the third, they were much higher and more complex to be handled compared to the piles on the western side as they were cable stayed with large cantilever beams.

Three pairs of Fagioli lifting towers were erected, two for pile 10 and one for pile 11, each 50 m (164 ft) high and positioned on specifically cast concrete foundations. Lifting towers had the function of temporarily supporting three cantilever beams of the piles from below in the event of structural collapse of the stays.

To increase precision and consequently monitor load transmitted to the reinforced concrete structure, our reading system with load cell was also adopted, with accuracy of 0.5% and readings 24 hours a day seven days a week. The system was mounted at the base of each jack and the calculation allowed the secure removal of beam 11.

The Morandi Bridge demolition in numbers

10
home office-based engineers

2
site engineers

5
home office-based draughtsmen

10,000
engineering man hours

168
uninterrupted days of work on site

15
personnel on site on average

20
personnel on site at peak

Dismantling the western piles (top) and the removal of beam 11 of the Morandi Bridge in a secure operation

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Above: Liberty Industrial's 200 tonne Kocurek modified Ex1200 Hitachi high reach demolition excavator carrying out the demolition of the former Blackwattle Bay Concrete Batching Plant on Sydney Harbour.

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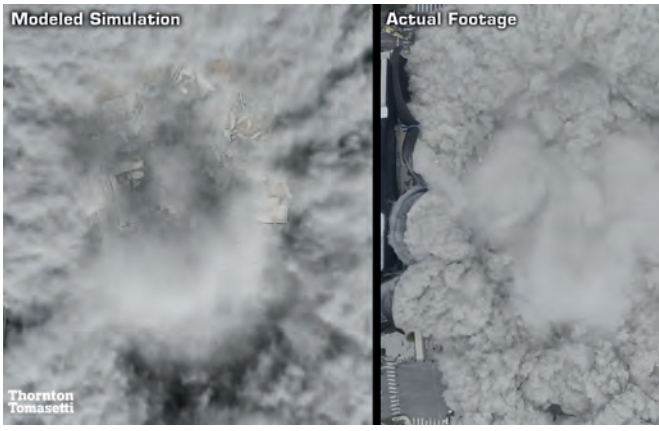
Managing safety and risk with demolition engineering

When the time came for the headquarters of US company Dominion Energy to come down, the project featured extensive engineering analysis by consultant Thornton Tomasetti, whose engineers helped contractor DH Griffin address the risks and safety concerns involved. **Mahesh Raju Bailakanavar** reports.



The first of four views from different directions of footage from the May 2020 implosion of One James River Plaza in Richmond, Virginia, alongside Thornton Tomasetti's computer simulation

Since 1978, the 21-storey Dominion Energy headquarters had stood prominently in downtown Richmond, Virginia, USA. Also known as One James River Plaza, the concrete-framed building featured a 0.6 ha (1.5 acre) plaza space with three underground levels of parking. Conceived as a continuous unit, the plaza operated as a platform for the headquarters building, and together they took up an entire city block. While many are familiar with the role that structural engineers play in the design of buildings such as this, their involvement in bringing them down is less well-known.

When it was constructed, few could have guessed that the spacious plaza – a staple of 1970s office building design – would someday be used as a "bathtub" to catch the entire building during its implosion. Yet that is what happened in May 2020, made possible through extensive engineering analysis by experts from Thornton Tomasetti. The firm was retained by demolition contractor DH Griffin Companies, and in addition to engineering analysis, performed a range of other services to address the risk and safety concerns due to the tight city setting. Thornton Tomasetti's engineers collaborated with DH Griffin, implosion contractor Controlled Demolition, general contractor Hourigan and Clayco, and the building owner.

Located in a dense urban setting, One James River Plaza was surrounded on three sides by glass buildings, including Dominion Energy's brand new headquarters, and the I-95 interstate highway on its south side. The building consisted of three layouts – the subgrade basement, levels one to three, and levels four to 21. The structure was supported by a caisson foundation with a slab on grade.

Below grade, it consisted of three basement levels, with concrete foundation retaining walls supported on caissons.

The floors consisted of a waffle slab construction, with a 9 cm (3.5 in) thick slab that transitioned to drop panels at columns.

MECHANICAL DEMOLITION

A range of engineering services was undertaken to address the risk and safety concerns of Dominion Energy due to the busy urban setting. The purpose of the mechanical demolition was to create a basin into which the main superstructure could be imploded. The demolition of the three levels of parking garage and plaza framing into the tower was completed from the street level using long-reach excavators, while the rest of the structure, and where these excavators could not reach, was demolished with conventional mechanical demolition equipment. Thornton Tomasetti's team worked with the demolition contractor to carefully divide the mechanical demolition work into phases based on floor area sections, which mirrored the contractor's schedule.

The extent of the areas to be demolished was designed such that no shoring or bracing would be required during the different demolition phases. The work also involved designing timber platforms to distribute the loads imposed by the heavier equipment on the existing slabs to maintain the integrity of the building for the duration of the demolition activities. Thornton Tomasetti's engineers also undertook detailed geo-structural engineering analyses to sequence the demolition work to ensure the installation of the new earth retention system, as the perimeter foundation walls were exposed during demolition.

The engineers conducted multiple stability analyses to confirm the adequacy of the

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The controlled demolition of the 21-storey urban office tower was validated by high-fidelity engineering analyses

AUTHOR'S DETAILS

Mahesh Raju Bailakanavar is senior associate at Thornton Tomasetti, an engineering consultancy firm based in New York City, USA, which has more than 50 offices worldwide and employs over 1,500 people.

structure to withstand the lateral loads in both the pre-weakened and weakened state pre-implosion. To validate the feasibility of the structural weakening plan, the superstructure had to be analysed against temporary wind loads and confirmed adequate.

Apart from the nuances of modelling such a complex structure accurately, a technical challenge the team faced was to ensure that the bending of the structure's beams due to lateral wind loads would not exceed the designed bending under gravity loads. We conducted iterative analyses involving such scenarios until the team determined an acceptable load path and confirmed serviceability and strength requirements.

At locations where the lateral bending overcame the gravity bending, Thornton Tomasetti's engineers proposed piling up debris on the floors to add the necessary weight. Finally, with the load path determined and added weight placed, the engineers conducted multiple stability analyses to confirm the structure could safely withstand the temporary loads imposed.

Thornton Tomasetti's structural engineers also developed plans for the mechanical demolition of the below-grade car park and determined the structural stability of the building prior to the implosion…

…while geo-structural experts focused on the installation of a new earth retention system to maintain the stability of the surrounding area

CRITICAL INSIGHTS

An integral part of Thornton Tomasetti's risk and safety management was to provide several critical insights before the implosion proceeded. Detailed implosion analysis allowed demolition and implosion contractors to visualise the progression of the structure's collapse. The engineers also assessed the risk of debris falling on adjacent properties and estimated the extent of the debris field as well as assessed potential for damage to buried utilities and the foundations of adjacent buildings from the ground vibrations caused by debris impact. They even assessed dust-volume and the dispersion of the dust cloud.

Several innovative methods to resolve the daunting technical challenges were implemented by Thornton Tomasetti's engineers. Among these was the extensive modelling effort, given the scale and size of the building. The failure of the waffle slab also needed careful consideration, given its robust construction. The modelling of the failure of the 6.1 m (20 ft) deep transfer girder between the second and third floor also needed a higher level of resolution.

An understanding of the failure of the waffle slab system and the transfer girder was required to accurately model the progression of collapse of the building. Embedding a detailed representation of the waffle slab and the transfer girder into the building model was computationally prohibitive. To overcome these challenges, the engineers developed a global model of the building with a simplified representation of the waffle slab and the transfer girder. In addition, separate models of the waffle slab and the transfer girder were created and analysis undertaken to characterise the failure of these structural members. The team used analysis results from these models to inform the building implosion analysis model. This approach was key to balancing accuracy and computational efficiency.

The implosion analyses were performed using NLFLEX, a nonlinear, transient analysis finite element code developed by Thornton Tomasetti, and used extensively by its engineers since 1981 to address a range of dynamic problems. These include air blast effects on structures to disproportionate collapse and controlled demolition. NLFLEX has been validated through pre-test predictions and post-test correlation with small and large-scale tests. It was also used to perform analyses investigating numerous structural collapse events, including World Trade Centers 1, 2 and 7 in Manhattan, the collapse of the Tropicana car park in Atlantic City, New Jersey, the demolition of New Haven Veterans Memorial Coliseum in Connecticut, and the demolition of the iconic Georgia Dome in Atlanta.

DISPLACING CONCRETE

In its entirety, the analyses involved displacing the concrete and steel in the structural members in accordance with the implosion plan and simulating progressive collapse of the structure under its own weight. The analyses consisted of a pre-load phase and the dynamic analysis phase. In the pre-load phase, pre-stressing of the building structure along with application of dead load was undertaken to achieve static equilibrium. Once the structure is in static equilibrium, the dynamic demolition phase can begin, wherein structural elements are removed as per the implosion delay sequence. During the collapse process, all critical interactions – like impact between structural members and impact with the ground – were accounted for to ensure the dynamics of the collapsing structure were accurately represented. The demolition phase allowed us to evaluate the progression of the demolition due to the combined effect of local failure of concrete and steel and corresponding effects of gravity on the structure.

The analysis results indicated that the implosion contractor's plan was feasible. The progression of collapse confirmed that the building by design would slightly lean to the north as it came down, so the debris would spread in the basin created by demolishing the three levels of the below-grade car park.

For ground vibration analysis, we developed a soil model underneath the building model based on the available geotechnical report. Next, a coupled implosion-vibration analysis was performed to model the ground vibrations due to implosion debris impacting on to the soil model. The soil peak particle velocity (PPV) recorded from these analyses was confirmed to be below the threshold.

On 30 May at 7 am, the building was razed to the ground in a way that belied the lengthy careful and methodical preparation and engineering. Every piece of the building that came down fell into the "bathtub" as predicted. While it took just 15 seconds, and more than 1,360 kg (3,000 lb) of dynamite and 5 km (three miles) of detonation cord, to bring down the office tower, there was more than a year's worth of planning behind this final moment. ■

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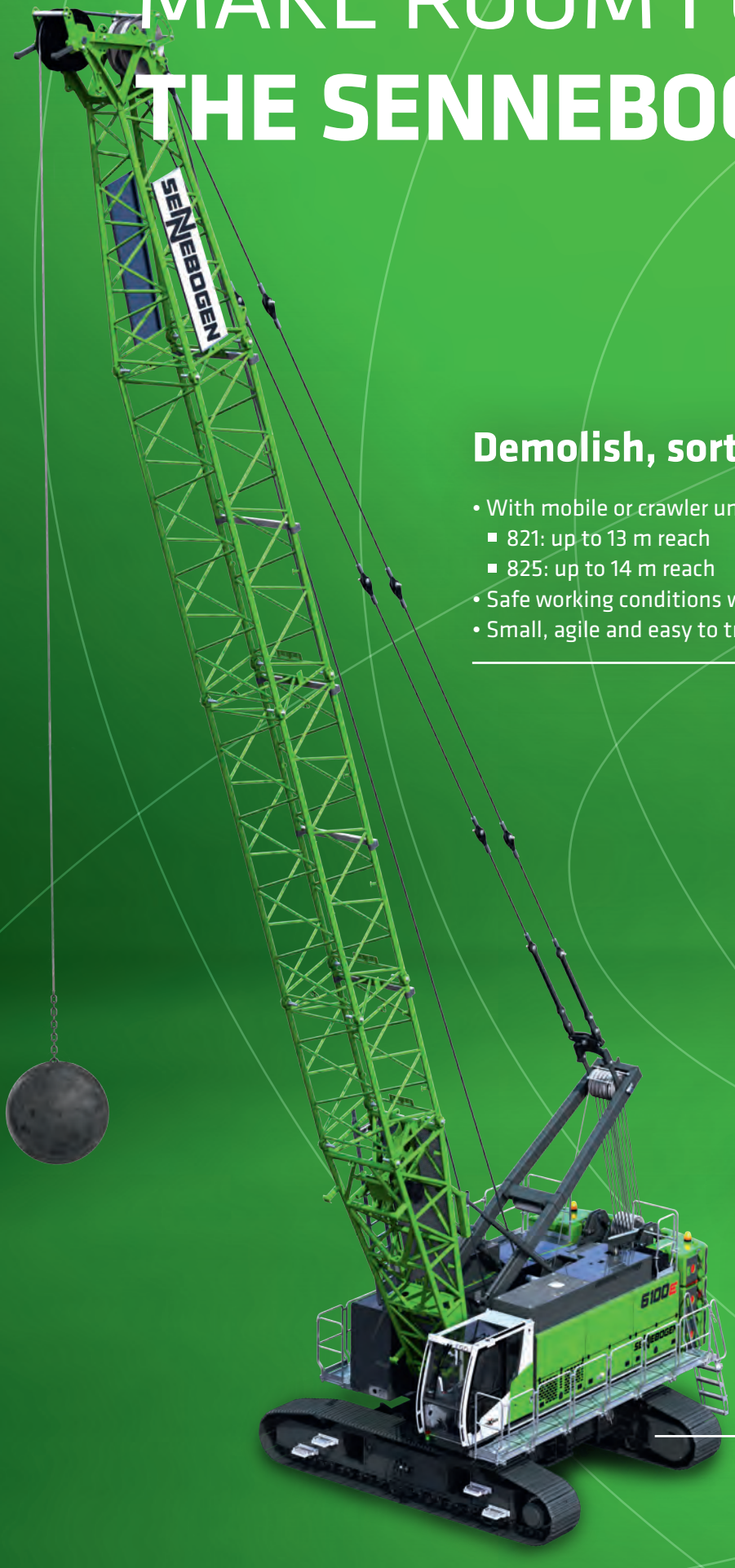

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JCB updates

JCB recently announced a heated cab for its 19C-1E electric mini excavator. We look at this and other innovations in the mini excavator market.

JCB's electric mini excavator, now with heated cab, has already secured two major British engineering awards

United Kingdom-based equipment manufacturer JCB is to offer a fully glazed cab on the 19C-1E to increase its appeal in countries with a colder, wetter climate.

The machine, which will use the same cab as JCB's conventional 1 to 2 t models, will be equipped with an electric heater to provide instant heat to demist windows and warm the cab working environment for the operator.

The company, which is celebrating its 75th anniversary this year, said that with a large glazed area, the cab is equipped with easy to replace laminated flat glass. It has a 70/30 front windscreen split, with clear jointing, for an unobstructed view of the digging area, and uses the same LED working lights and wipers as the diesel models, making it easier to work in poor visibility or during hours of darkness when required.

BATTERY CAPACITY

JCB added that when operating the machine with the heater on, there is zero impact to the machine's digging or tracking performance, while the battery capacity allows a full day's shift to be worked.

The company said: "The addition of a cab option will increase the appeal of the 19C-1E in Nordic countries and in territories with poor weather conditions, where a canopy is not suitable.

"The E-Tech cab provides a dry, comfortable operating environment throughout the working day, with a locking door adding to the security of the machine for contractors and rental companies."

The electric mini excavator itself is a new development for JCB, having been launched in 2018, and going into full production last year.

However, it has already been honoured with both the Royal Automobile Club's Dewar Trophy for outstanding British technical engineering excellence and the MacRobert Award for engineering innovation from the Royal Academy of Engineering.

It is described as being five times quieter than its diesel counterparts.

"We have gone from zero electric machines to over 2,000," said JCB group engineering director Andy Whyman.

"This shows the benefits of the total cost of ownership and the needs of our customers for robust electric machines capable of working in all weathers outdoors.

"We are the only manufacturer that offers a heated cab with an electric mini excavator. It's a machine for all seasons, it is equally at home indoors or outdoors, and we are very proud of our award winning 19C-1E."

ZERO TAIL

German compact equipment manufacturer Wacker Neuson believes its two new mini excavators "take working to a new level".

Both new tracked excavators, designated the ET42 and EZ50, are in the 4 or 5 t class. The EZ50 is a zero tail version with no rear overhang to enable more efficient and comfortable working.

With these mini excavators, Wacker Neuson said it has expanded its portfolio, which ranges from 800 kg (1,763 lb) to 15 t in weight, to

German manufacturer Wacker Neuson has introduced the ET42 and EZ50 to cover both conventional and zero tail options. (Inset) Inside the cab of the latest Wacker Neuson model

electric offer

include two powerful machines suitable for a variety of applications.

"In designing the new mini-excavators, it was important to us to develop compact machines that are easy to handle, impressive in their performance and in keeping with the latest technological developments," said Stefan Bogner, managing director of Wacker Neuson Linz, the research and development centre of expertise in excavators within the Wacker Neuson group.

"Both excavators offer the perfect mixture of time-tested and proven characteristics, innovative features and the highest comfort and safety standards to our customers. All of that can be applied flexibly and thus particularly economically – a boost for every construction site."

DEMANDING TASKS

Wacker Neuson said that in developing the products it has focused on high performance, compact dimensions and comfortable operation.

With the tracked ET42 conventional tail excavator ET42 and EZ50 tracked zero-tail excavator EZ50, the company said the powerful drive allows customers to deploy the machines for demanding tasks.

In addition, the wide opening covers make access to all service points easier, which results in less downtime and thus cost savings. The radiators and hydraulic system are said to make it possible to use the excavators for applications with ambient temperatures 45°C without suffering loss of performance.

With "Load Sensing Flow Sharing" hydraulic system, Wacker Neuson says the machine adjusts automatically to the load and the joystick movement remains constant for the operator. Four additional control circuits allow the use of a variety of attachments, for example, a Powertilt with gripper, opening up more varied application areas for the user.

Also, with the new pressure release switch, hydraulic attachments can be changed more easily and quickly.

"The operator should feel good in the cab and be able to get his bearings quickly and easily," added Stefan Bogner adds.

"For this reason, we placed great value on intuitive operation and the greatest possible overview."

Rental company BPH Plant has invested in Kubota minis as demand goes back to pre-Covid levels

REINFORCED DIGGING

Volvo Construction Equipment has introduced the new generation ECR50.

The 5 t mini excavator has been launched with the rental market in mind, and Volvo said: "As a rental owner you need a machine that will perform for your customers like new month after month – and the ECR50 is just that. Its zero-tail swing radius enables access and work in confined spaces while reducing the risk of machine damage.

"In addition, the in-track boom swing ensures the swing post and cylinder remain within the track width when digging alongside obstacles. Reinforced digging equipment, undercarriage and hoods further contribute towards durability.

"With auto engine shut down, hours not worked are not recorded, reducing maintenance costs while contributing to higher resale value, and the patented multifunction hydraulic oil filter provides outstanding protection to the hydraulic system."

The ECR50 has an automotive-style jogwheel and 12.7 cm (5 in) colour display to help the operator navigate menus.

To match specific preferences and applications, the machine can be tailored with a range of attachments and options, including Tilt Quick Coupler, green beacon – which flashes when the seatbelt is safely fastened – extra counterweight and extra hour meter. As with other Volvo excavators, the ECR50 is more than 93% recyclable and compatible for use with bio hydraulic oils, which Volvo CE believes demonstrates its circular economy credentials.

The Volvo ECR50F, a 5 t model launched with the rental market in mind

EXPANDED RANGE

Still on the rental theme, United Kingdom-based company BPH Plant has invested £600,000 (US$800,000) in expanding its range of machinery available for hire following increased demand from customers across the south of England.

The investment include numerous Kubota KX015-4 and KX027-4 mini excavators,weighing 1.5 t and 3 t respectively.

The expansion of its offering comes after the company experienced an upturn in business over the second half of 2020 to pre-Covid levels.

BPH said the decision to invest in Kubota mini excavators aims to meet the needs of a more diversified client base following the changes brought about by the pandemic.

"We've received more enquiries than ever from small to medium-sized groundworks companies and independent traders that have been able to continue working despite Covid restrictions," said director Simon Bastable.

"While they are busier than ever with smaller residential projects, we are now starting to notice a return to business as usual with larger contractors needing equipment for bulk earthwork.

"We think it's important to continue to invest in the latest models of plant machinery to ensure we can meet growing demand with up-to-date, reliable equipment."

As one of the best-selling mini excavator manufacturers in the UK, the Kubota KX027 was selected for its compact size combined with powerful performance.

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A Bobcat E17z in action with Italian demolition contractor Seli Manutenzioni Generali

Precision demolition

Three mini excavators from Bobcat helped take down a five-storey building in Milan, Italy for contractor Seli as its product development programme continues.

The E50z, part of Bobcat's R2 Series of 5 to 6 t Stage V compliant mini excavators

Demolishing a building in the centre of a city like Milan is a specific task. The work must be carried out with surgical care, without damaging the adjacent buildings or disturbing the residents, in full compliance with environmental and safety regulations.

This was certainly the case for the interior demolition in a prestigious five-storey building in the heart the Italian city. To carry out the work, the contractor, Seli Manutenzioni Generali of Monza, purchased a fleet of five Bobcat compact machines including two E17z and one E10z mini excavators.

According to Bobcat, the small dimensions and low weights of the mini excavators, equipped with breakers and other attachments, easily dealt with the precision demolition of the floors and other structures to make way for new stairwells and lift shafts.

One of the E17z mini excavators was also used in top-down mode to demolish the roof to create new floor levels for the building.

The remaining new products, comprising two S70 skid-steer loaders, were used to complete the process by handling and removing debris, unloading it into self-tipping bins, which in turn were moved with a crane.

Founded in the 1960s, Seli specialises in the construction of civil and industrial buildings. It is structured into four business units of which Demolition/Excavation is the most recently formed.

Since October 2019, this division has been winning important contracts, particularly in and around Milan and its province.

Robert Husar, product line manager mini excavators, said this is Bobcat's largest compact equipment market

"We chose to purchase Bobcat skid-steer loaders and mini excavators as we consider them to be extremely high performing and reliable," said sales manager Ivano Perego.

"This allowed us to provide a guarantee to the customer that the job would be carried out with maximum efficiency and precision."

MAIN SUPPLIER

Seli recently signed an agreement with DMO – the authorised dealer for both Bobcat and Doosan for the several Italian regions including the province of Milan – to be the company's main supplier for the rental and sale of construction machinery.

Gianmaria Lupis, DMO sales manager for Lombardy, said: "The strong partnership with Seli has led to a number of machinery orders, including the five Bobcat compact machines involved in this demolition work."

Robert Husar, Bobcat's product line manager for mini excavators, says the market for these machines in Europe, the Middle East and Africa is the company's largest compact equipment market, with 90,000 units.

"We consider it very important today, and also for our growth in the future," said Robert. "The strongest and largest markets are the United Kingdom, France and Germany.

"But Eastern Europe has also experienced significant year on year growth."

In recent years, the market has been driven by Stage V engine emission legislation.

"This has required a significant amount of engineering resources," Robert told D&Ri.

"From a customer perspective, there are different requirements, depending on the region and the type of customer, but in general the focus is on operator comfort and safe machine operation."

One development has been the R2 Series of 5 to 6 t Stage V compliant mini excavators. Comprising the E50z, £55z and E60 models, it includes features such as Bobcat's Advanced Selectable Auxiliary Control and Automatic Track Tensioning System technology. The company said that, like the R-series of 2 to 4 t machines launched in 2018, the new products are built around the operator and designed to take this philosophy a stage further.

"We consider our customer as the centrepiece of our product development approach," continued Robert.

"With our engineering teams in North America and Europe, we have developed a global platform approach that enables us to use global design with regional customer capability."

Like other manufacturers in the sector, Bobcat has had to operate against the backdrop of Covid-19, which has resulted in a 13% year on year drop in market size during 2020.

"There has been a shift in the overall mix, to further increase the contribution of machines in the 0 to 2 t category.

"In the future, we see opportunities with zero emission concepts in certain applications, but wider adoption in the short term will continue to be driven by regulations."

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Hitachi mini excavators have been the contractor's choice in a number of excavation projects during 2020.

JLG Groundworks using a ZX55U-6, described as ideal for confined spaces

Hitting the ground running

Norwegian contractor Berge Bygdeservice has acquired a Hitachi ZX65USB-6, with software from ABAX enabling the new Zaxis-6 range of mini excavators to communicate with the remote monitoring system, Global e-Service.

Hitachi said that this not only simplifies fleet management and maintenance for machine owners, but also allows them access to operational data on their machines. This in turn helps to increase productivity, enhance efficiency, maximise availability and reduce running costs.

The software can also be retrofitted to previous generation models by the authorised Hitachi European dealer network.

Based in Lillestrøm, Berge Bygdeservice's fleet consists of four Hitachi excavators – the ZX65USB-6, as well as a ZX17U-5, ZX85US-5 and ZX145W-3 – and one wheeled loader, a new ZW150-6. The four new machines were supplied by Nasta, the authorised Hitachi dealer in Norway.

REMOTE MONITORING

When buying the first of a new generation of Zaxis-6 mini excavators, Berge Bygdeservice's Simen Berge was made aware of the latest ABAX technology available in remote monitoring systems.

"I have downloaded the user-friendly ConSite Pocket app on to my phone and already receive the monthly ConSite report from Hitachi for the two medium excavators," said Simen.

"I look at the idling time data, as this is something that we are aiming to improve and it's topical in Norway at present. It is also interesting to see how far the ZX145W-3 has travelled and the figure for fuel consumption.

"As a result, we are turning the engines off as much as possible and trying not to use the full power of the machines unless it is absolutely necessary."

The order from Berge Bygdeservice was not the only one this year as Hitachi seeks to establish the Zaxis-6 in the market.

In the United Kingdom, the mini excavator has been added to a civil engineering firm's fleet of Hitachi machinery. The ZX26U-6 was delivered by HCM(UK) to West Midlands-based Jim Dorricott for a groundworks project on a commercial and retail development on the outskirts of Telford in Shropshire. The contractor is using the ZX26U-6 to excavate parts of the 2 ha (five acre) site so that operators can investigate and remove the existing services. One of its four Zaxis medium excavators, a ZX225USLC-5, worked alongside the mini to dig deeper and lay sewage pipes connecting the site to the main sewer.

Berge Bygdeservice pof Norway purchased a Hitachi ZX65USB-6 with software from ABAX able to communicate with Hitachi's remote monitoring system

Jim Dorricott's ZX26U-6 excavates a 2 ha site in the United Kingdom

CONFINED SPACES

Elsewhere in the UK, one of the first Stage V-compliant Zaxis-6 mini excavators to be delivered there has been used on projects by contractor JLG Groundworks. The latest addition, a ZX55U-6, started work on a housing project on the outskirts of Worcester. Described as ideal for confined spaces, it is excavating the area around the properties for internal and external drainage, and backfilling after the work has been completed.

Hitachi Zaxis-6 mini and compact excavators were unveiled at Bauma in April 2019. With Stage V-compliant engines, they are said to offer high levels of productivity, greater fuel efficiency and reduced emissions.

A white paper on the future of the European mini excavator market produced by Hitachi says that the market size doubled to 80,000 units between 2013 and 2019 based on annual shipment figures by the Committee for European Construction Equipment, with 70% of mini excavators sold weighing below 3 t.

Suppressed is

As dust suppression becomes increasingly important on demolition sites for a range of reasons, ***D&Ri*** rounds up recent developments.

The DustBoss Atom at a demolition project

As effective dust control continues to gain priority across a range of industries, a new equipment design has been engineered to deliver effective particle suppression for new and existing applications. With a throw of 30 m (100 ft), the adjustable elevation angle and user-defined oscillation allow precise aiming of a powerful dust-capturing mist, which comprises millions of droplets per minute in the range of 50-200 microns.

SELF-CONTAINED DESIGN

The DustBoss Atom from BossTek is a fanless, self-contained design that incorporates remote control and 4G LTE telematics technologies as standard equipment. The compact, diesel-powered unit fits in the back of a pickup truck, so it can be quickly positioned and relocated to address dust-generating activity directly at the source. It also has forklift pockets on the front and back.

"After more than 15 years of designing purpose-built dust suppression equipment in a variety of sizes and styles, we found that some companies expressed a desired for a smaller, more manoeuvrable unit with a lower price point," said BossTek Sales manager Mike Lewis.

"This machine is well suited to demolition projects, recycling operations, transfer stations, bulk material processing, ports or shipping applications, quarrying or crushing, biomass handling, concrete curing and even indoor operations where significant air movement may be undesirable."

The Atom features a Kohler KD440 power plant – a 9.1 hp air-cooled engine that meets Tier IV Final emissions standards and complies with California Air Resource Board requirements. The air filtration system increases performance and lengthens service intervals, even in dusty environments.

Its integrated fuel injection system and overhead cam design are coupled with a cast iron cylinder liner for what the company describe as consistent service.

The engine and pump subassembly are secured by four isolation mounts that minimise vibration transfer to the frame.

The high-impact stainless steel nozzle features a quick disconnect for easy replacement.

Since its incorporation in 2015, C J

The MotoFog MFJ10 (in foreground)

Finding the balance with Casella

Establishing any construction project is a careful balancing act between many legal, financial and social responsibilities. Firms not only have a responsibility to shareholders and business partners, but to their workers, the local authority and site neighbours in the wider community as well.

The process of managing the latter set of responsibilities, while maintaining consistent project delivery, is something that Gibraltar based concrete fabrication and construction contractor, Basewell, found to be a learning curve during the early days of the company. Established in 2010, the company was on the ground level of Gibraltar's construction boom and has since grown to supply major construction companies on the island.

Supplying and fabricating concrete meant that Basewell was faced with managing one of the most pervasive of construction site environmental hazards – dust.

Exposure to high levels of dust can lead to long term health effects including respiratory illnesses and more immediate health risks such as eye and airway irritation and asthma attacks.

Figures from the United Nations International Labour Organisation estimates

best

Charlton Group has specialised in small to medium sized demolition jobs. Chris Charlton has used his extensive on-site experience to offer a well-planned and professional service securing repeat business with a selection of high-end housing developers in Surrey and the south east of England.

Chris has built a reputation for being conscious of the environment, including dust.

And he has recently invested in a Motofog MFJ10 dust suppression unit, supplied by Inmalo.

The Motofog can come fitted with either a petrol engine or 110V electric motor, taking water from a direct feed, hose pipe or similar, or it will also draw water from a tank if needed.

TWO SPRAY OPTIONS

Chris Charlton decided to invest in the Motofog MFJ10 because: "We opted for the Motofog as we found having the two spray options very versatile in a smaller unit. It is compact enough to fit into our vans to be transported from site to site and it has enough power to deal with the dust from most of our jobs.

"It also eliminated the need to have power on site or the need for a generator."

All MFJ10 units have two nozzles, one providing a directed spray and the other a more widely dispersed mist.

The size of a small wheelbarrow, and weighing 67 kg (148 lb) Inmalo says the MFJ10 can be moved easily by one person.

Charles Polak of Inmalo said: "The MFJ10 is often under-rated, due to its perceived size, yet it's flexibility on site still packs a punch for most small to medium demolition jobs, such as the CJ Charlton site.

"We are delighted that Chris and his team are experiencing the benefits from this excellent value-for-money unit."

The Motofog range also includes; MF20D (25 m or 82 ft throw), MF40D (35 m/115 ft) and the MF60D (55 m/180 m throw) which are all powered by diesel engines.

Dutch manufacturer Dehaco says that

> "After more than 15 years of designing dust suppression systems, we found some companies wanted a smaller unit"
>
> **MIKE LEWIS, BossTek**

fighting dust in demolition and recycling activities is becoming more important.

In addition to the fact that dust poses health risks, it can cause a lot of nuisance. In dry weather and wind, dust and grit are displaced, causing the environment to become buried under a layer of dust in the absence of proper dust control. A good plan to combat dust is therefore necessary and often even mandatory. A water sprayer can then be a solution. Dehaco has different models, from small indoor jobs to huge demolition jobs in the open air.

Dehaco's Tera family consists of a variety of models, from the smallest Tera 15, which the company says with its 15 m (49 ft) range is especially useful for indoor work, to the Tera 90, which has a range of 100 m (328 ft) and is particularly suitable for large halls or outdoor demolition projects. The latest addition to the

Dust suppression with Dragon Equipment's DS110

The Tera 60 GTM, the latest addition to Dehaco's series of dust suppression products

series is the Tera 60 GTM, which distinguishes itself from all other models because of its solid and "vandalproof" finish and its self-reliance in the field due to a built-up generator and built-in water tank.

CONSTRUCTION DUST

Construction dust is a big concern for demolition sites. In their bid to use innovation and technology to make working on construction sites both safer and easier, the newest product from Dragon Equipment is a mobile compact dust suppression system.

Set for launch in the new year, the DS110 is built using the same track base and design principles as its CR300 compact crusher.

The dust suppression system can spray up to 23 m (75 ft) at a rate of 29 l/min (6 gal/min), immediately suppressing any dust particles in the surrounding atmosphere.

The machine is fully remote controlled, and weighs under 700 kg (1,543 lb), which Dragon believes makes it an extremely transportable and manoeuvrable piece of kit.

that around 17% of global worker deaths are attributable to respiratory diseases, making the monitoring for and control of respiratory hazards such as construction site dust a vital responsibility.

There are several methods to monitor for construction site dust, which include fence line or site boundary monitoring. Several monitoring solutions are set up around the perimeter of the site and consistently monitor levels of dust, capturing data and alerting users to any breach in acceptable levels.

This is the method that Basewell employed, using the Casella Guardian2 combined boundary monitoring solution.

The Environmental Agency Gibraltar sets out a need to monitor and control dust levels in the Environmental (Control of Dust) Regulations 2010. For the company to gain its certificate of approval to operate, Basewell needed to outline a dust plan policy and provide monthly dust level reports from its sites to the agency.

Prior to the installation of the Casella Guardian2, monitoring for dust levels was only conducted visually, and inspectors from the Environmental Agency would visit Basewell's sites frequently to conduct inspections. Managing legal and regulatory responsibility, and the expectations from external agencies and local authorities, is a key part of project management. This can be very time consuming, managing site visits from inspectors and producing reports of hazard levels to a regular schedule.

The Guardian2 is equipped with a function that allows data to be captured and reports to be automatically generated and sent to multiple recipients via SMS or email. This also enables users to set up alerts for when parameters for a particular hazard are exceeded. This has allowed site safety managers to monitor hazard levels remotely across multiple projects and allowed Basewell to easily automate reports on dust levels and send these reports on to the Environmental Agency.

A major bearing on bridge maintenance

When more than 200 bearings on a motorway bridge in the United Kingdom needed to be replaced, water-based demolition by Freyssinet and Aquaforce Concrete Services proved to be the solution.

Motorway traffic is thundering by a couple of metres above, but the sound of 40 t trucks is being drowned out.

With a whoosh, crack and a roar, a water jet is removing rock-hard material holding firm a bearing under one of the United Kingdom's longest bridges.

The impact of water leaving a jetting gun's nozzle at supersonic speed looks as ferocious as it sounds.

Water is flying in all directions accompanied by hundreds of shards of material that bounce around like ricocheting bullets.

Some of it fires straight back at the water jetting operative standing almost immobile in the middle of a man-made storm.

What looked like a scene of chaos was, in fact, a way to support essential maintenance work needed on the Ouse Bridge across the M62 motorway in Yorkshire in the north of England.

Highways England's principal contractor A-one+ needed to replace 208 bearings under the 1.6 km (one mile) long bridge.

It commissioned specialist sub-contractor Freyssinet, supported by its subsidiary, Aquaforce Concrete Services, to carry out the work.

Aquaforce, based in Telford, Shropshire, and a member of the UK's Water Jetting Association (WJA), carried out hydrodemolition to undermine and release each bearing. Freyssinet engineers could then remove them and install new ones.

SUPPORTING MAINTENANCE

The success of the 18-month project has demonstrated the advantages of hydrodemolition in supporting maintenance tasks on bridges.

Its advocates say it has almost none of the hand arm vibration (HAV) risks of mechanical tools, like jackhammers. Likewise, it causes no vibration damage to the structures being worked on.

Particles released are held within water, so there was less risk of dust pollution or a highway visibility hazard.

They add that hydrodemolition can also be carried out with significant precision, and only the minimum amount of material needs to be removed.

Structures that need to be retained, like rebar, are not damaged, and surfaces need little further preparation before being reworked.

"The project has been a great success and demonstrated our ability to work together with colleagues in Freyssinet and A-one+ to overcome any technical challenges," said Gavin Thomas, Aquaforce general manager.

"High pressure water jetting was the fastest, safest and most precise way to release the bearings so played a significant part in the project's success."

A bearing on the Ouse bridge during jetting

The effect of water jetting on the Ouse bridge

Aquaforce carries out high pressure water jetting under the Ouse bridge

PLATE AND GIRDER

The Ouse Bridge is a reinforced concrete plate and girder bridge that carries the M62 across the River Ouse between Goole and Howden in East Yorkshire.

It was built between 1973 and 1976 by Costain and was designed by Scott Wilson Kirkpatrick & Partners. The bridge was >38

The Ouse bridge in Yorkshire, United Kingdom – 1.6 km long and more than 200 bearings that needed to be replaced

New jacking points in place on the bridge

officially opened to traffic in May 1976.

The maintenance programme, between January 2019 and May 2020, involved replacing 208 bearings located on 26 of the bridge's 30 piers.

The bearings allow the bridge sections to flex and move to prevent vibrations caused by vehicles using it from stressing and damaging the structure.

Over time, though, they can seize up and need to be replaced.

Working on behalf of Highways England, A-one+ also wanted to install the latest remote sensing devices installed to monitor the structure.

SIMULTANEOUS WORKING

Under the work programme, bearings were replaced on successive piers working simultaneously from both ends of the bridge towards the centre.

Freyssinet teams used a system of hydraulic jacks with a maximum capacity of 8,000 t to simultaneously lift bridge sections a maximum of 3 mm, unloading the eight bearings beneath each girder without hindering traffic.

Aquaforce could then deploy two water jetting teams to carry out the hydrodemolition.

They worked one week every month in day shifts, Monday to Friday, aiming to release the eight bearings on each pier every week.

Each team had four personnel – two water jetting operatives, a third man and a pump operator.

Since water can cause fluid injection injuries, where a jet pierces skin, at pressures as low as 7 bar or just over 100 psi (6.89 bar), the operatives wore appropriate water jetting PPE (personal protective equipment), including body suits, gauntlets, and visors.

Also, in accordance with Aquaforce health and safety procedures, aligned with WJA codes of practice, all operatives were trained and qualified.

"All our water jetters undergo WJA's accredited training, which is augmented by our own induction and ongoing training programme," says Thomas.

Two 26.5 t tankers supplied fresh jetting water from a nearby Yorkshire Water metered hydrant and disposed of wastewater produced.

Aquaforce used Calder MultiJet 120 trailer-mounted high-pressure water pumps and handheld jetting guns operating at an average pressure of 17,000 psi (1,100 bar) at a water flow rate of 48 l/min (10.6 gal/min).

This meant each team used approximately 10 cu m (353 cu ft) of water per shift. Water jetting operatives working alternatively one hour on and one off to reduce fatigue.

Wastewater was collected in bunds beneath each pier and directed through Siltbuster filtration and pH balancing units to storage tanks. It was then tankered off site to a Yorkshire Water treatment works at Hull.

KEY CHALLENGE

A key challenge over the course of the programme was the differing durability and volume the material the teams encountered.

"We were working on three main types of material, concrete, resin and grout and each one responded differently," Gavin Thomas explained.

"Resin was much harder. We assume it had been used during previous smaller scale bearing replacement schemes. The shorter curing time for resin makes the process less disruptive to traffic.

"With resin, bearings could take twice as long to release. But with concrete there could be more material to remove."

With the bedding material removed, Freyssinet engineers could install new bearings, along with sophisticated remote monitoring equipment.

In line with current design codes, the bearings were designed so they could be taken out without removing cast-in upper and lower load plates.

They also installed jacking brackets as part of betterment works to facilitate future deck jacking. ■

A new bearing in place

Replenishing water for the hydrodemolition project

The Ouse Bridge job site. Water jetting operatives worked one hour on and one off to reduce fatigue

The Water Jetting Association

The WJA represents water jetting contractors, manufacturers, hirers, training providers and water jetting users – and 2020 is its 40th anniversary year.

It has two codes of practice – the Blue Code for use of high-pressure and ultra-high-pressure water jetting equipment and the Red Code, for water jetting in drains and sewers – setting internationally-recognised standards for safety and productivity.

It is also the UK's largest water-jetting training provider. City & Guilds-accredited courses are delivered by registered training providers and approved instructors. For more details please visit www.waterjetting.org.uk

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Kiverco said it supplied the construction and demolition waste recovery plant to replace an older plant, improve efficiency and increase capacity

Roberts Waste chooses Kiverco for C&D waste recovery plant

Northern-Ireland based company Kiverco has installed a new construction and demolition waste recovery plant at Roberts Waste in Somerset in the south west of England.

The plant was purchased to replace an older waste plant with the objective of processing current volumes more efficiently and increasing capacity, allowing the company to grow the waste business over the next three years.

Roberts Waste has been in business for more than 80 years and this latest investment from Roberts Waste will enable the company to handle more waste each day from the local area.

The Kiverco plant consists of a hopper/feeder, Combi waste screen, five-bay picking station for manual sorting, two overband magnets to remove ferrous metals, an air density separator (ADS) to remove lights material from the mid-size fraction and a powerful fan blower to remove any lights found in the oversize hardcore material at the end of the recovery process.

"The UK has been and continues to be Kiverco's most important market and we are delighted to once again secure this order from the region," said global sales manager Con Gallagher.

"Roberts are committed to recovering as much clean waste product as possible from their incoming waste stream and help contribute to a more sustainable future for everyone."

The Kiverco plant is designed to process more than 60,000 t a year of construction and demolition waste.

The system will recover fines, hardcore, ferrous metals, non-ferrous, hard plastics, plastic bottles wood and cardboard.

Beccy Roberts, director of Roberts Waste, said: "This is a really important investment for us to continue our growth plans by handling more waste.

"The Kiverco plant will certainly help us achieve our goal."

Hyundai takes down college building

An 8 t counterweight was added to the rear of the machine for extra stability

Demolition and construction contractor Maanrakennus Mykrä has used its new Hyundai HX520L excavator to demolish a college building in Finland.

The latest addition to the company's growing Hyundai fleet, the 52 t machine is the largest piece of equipment operated by the company and is fitted with a customised 28 m (91 ft) boom.

The company used it to bring down the main building of the Kullaa College of Forestry – located in Ulvila on Finland's west coast – as part of a redevelopment project that will see a new college building in the near future.

Juha Mykrä, CEO of sales at Maanrakennus Mykrä, said: "Twenty-five years after purchasing our first demolition machine, we have bought our first excavator with a high-reach demolition boom."

Juha added: "Previously, we used an ordinary long-boom machine for high-work demolition, and we extended the machine's reach by 'piling up slopes'. This procedure is now a thing of the past thanks to the new Hyundai HX520L and its high-reach demolition equipment. However, the design with its modular boom joint, makes it possible to swap to the traditional Hyundai boom on site quickly – making it very versatile."

An 8 t counterweight was added to the rear of the machine, along with an extendable undercarriage for increased stability.

In addition to the high reach boom, Maanrakennus also had several other modifications made to the HX520L, including the installation of an on-board dust suppression system. The counterweight was added to the rear of the machine, along with an extendable undercarriage for increased stability. The company also added Hyundai's 360 degree Advanced Around View Monitoring safety system and the tilting cabin modified with automatic air conditioning and a heated air seat, to provide added comfort for the operator.

Hyundai said the extra equipment, plus a Daemo DMR800 sorting grapple, raised the machine's basic operating weight to 65 t. The extras and bespoke boom were supplied and installed by Kocurek Excavators, a specialist company based in the United Kingdom. ■

LEK moves fast

Netherlands-based demolition company LEK Sloopwerken has crushed 2,000 cu m (70,000 sq ft) of concrete in just 48 hours, as part of a bridge demolition project.

LEK Sloopwerken, a sustainable demolition company that operates internationally, used a specialist 140 t crusher attachment manufactured by MBI Group subsidiary Mantovanibenne to undertake the viaduct works.

The CR140R attachment was custom-built for the demolition of reinforced concrete and is equipped with double cylinders, a twin-pin system and rebar cutting blades.

LEK Sloopwerken used mounted the CR140R on a Liebherr 974 excavator to carry out the high-reach works, which were undertaken using only low-noise equipment due to the bridge's urban location. ■

Kick and cut works for AR

United Kingdom-based company AR Demolition has demolished a building using military-grade hypersonic "kick and cut" explosive technology.

The 1,200 t screen house structure was taken down as part of decommissioning works at the Croft Quarry in Leicestershire.

The project, which was commissioned by the site's owner Aggregates Industries, also included the demolition of 150 m of conveyor belts located at the bottom of the quarry's pit.

The "kick and cut" technique uses two types of explosive charge. It was designed by specialist explosives company Alford Technologies, based in Wiltshire in the south of England.

Roland Alford, managing director, said: "We used our Dioplex charges to make a hypersonic blade which cuts through steel like butter, eliminating the need to burn and weaken steel beams.

AR Demolition and Alford Technologies demolish the screen house at Croft Quarry

"When combined with the Wallhammer kicking charge to remove the columns, the speed of these military grade munitions means they are relatively easy to control.

"Without the need to use human beings on weakening work, safety is greatly increased. If necessary, the charges can be placed by robots thereby removing the human element completely."

According to AR Demolition, Alford Technologies had been developing the explosive demolition method for a long time. It added that the explosive techniques would revolutionise safety in the industry and said that its newly formed relationship with the firm was the most recent "manifestation" of its mission to bring pioneering change to the industry. ■

City Circle doubles up on bridge demolitions

Australian demolition and decommissioning company City Circle has demolished two pedestrian bridges in Melbourne and a vehicular bridge at the Duncan's Road Interchange in Victoria as part of major infrastructure projects.

The demolition company's demolition of the pedestrian bridges form part of the West Gate Tunnel development. It is a five km (three mile) toll road currently under construction in Melbourne. When complete, it will link Melbourne's western suburbs via an alternative route to the largest bridge structure in Victoria; the Westgate Bridge. The A$6.7 billion (US$4.8 billion) project was proposed as a means of alleviating congestion on the region's major arterials.

City Circle's demolition of the vehicular bridge at the Duncan's Road Interchange is part of the Western Roads Upgrade project. The $1.8 billion (USS$1.3 billion) investment is part of Major Road Projects Victoria's current scheme to improve the state of the commuter network in the western suburbs of Melbourne.

The value of the two bridge edemolition projects exceeds A$8 billion (US$5.7 billion)

Both projects will see the demolition of numerous existing structures. ■

The first Hitachi Zaxis-7 medium excavators in the Netherlands have been successfully delivered to Grondverzetbedrijf Oosterveld, based in Bornerbroek in the east of the country.

The ZX350LC-7 arrived in May and was followed in September by the ZX250LC-7. Both machines were supplied by Timmerman, an authorised sub-dealer of Hitachi Construction Machinery Nederland.

Grondverzetbedrijf Oosterveld specialises in earthmoving and infrastructure, and sister company Oosterveld Sloopwerken focuses on demolition activities.

They operate in their home country and Germany, as well as Denmark, France and the United Kingdom. Company directors Frank and Tom Oosterveld, who took over from their father, Jan, earlier this year, decided to invest in the new Zaxis-7 models after attending an event in Amsterdam.

They chose the ZX250LC-7 and ZX350LC-7 as much of their work requires machines compliant with the latest Stage V emission regulations.

'Power without noise' at German job site

Germany-based demolition company Servisa recently purchased several Indeco attachments for job sites across the Berlin-Brandenburg region.

The products included an IRP 18 X pulveriser, used in the demolition of an eight-storey building on Meierottostrasse in the German capital.

With this being a residential neighbourhood, using a hydraulic hammer was not considered due to the inevitable noise and vibration and the disturbance it would have caused to people in their homes nearby.

According to Indeco, thanks to its power in proportion to its size – maximum jaw opening of 820 mm (32 in), maximum force at tip of 65 t, maximum force at cutters of 210 t with the ability to cut reinforcements up to 40 mm (1.6 in), the IRP 18 X pulveriser successfully completed the project.

An IRP 18 X pulveriser was among the Indeco attachments recently purchased by German demolition company Servisa

The SW085 and SW115 are two of the four models in the latest addition to Sany Europe's compact wheeled loader range

Next step for Sany Europe

Sany Europe has been distributing 15 models of hydraulic excavator, ranging from 1.6 to 50 t, across Europe since 2016.

The latest addition to the portfolio, launched in November, is a line-up of compact wheeled loaders, ranging from 0.7 to 1.1 cu m (24 to 38 cu ft) bucket capacity, spread across four models. The company said that the extended product portfolio enables it to serve customers better and offer machines for more applications and industries as it looks to becoming a leading construction equipment company in Europe.

In addition, the wheeled loaders benefit from oscillating rear axles, which are normally found on larger machines to increase stability.

Based on bucket volume capacity, the range comprises the SW075, SW085, SW105 and SW115. ■

Bobcat launches demolition loader

Manufacturer Bobcat has launched its new R-Series of compact construction equipment.

The R-Series comprises a range of new loader, wheeled loader and excavator models and features a Stage V compliant T66 tracked loader for demolition, recycling and waste material handling applications.

Gustavo Otero, president of Doosan Bobcat EMEA (Europe, Middle East and Africa), said: "With Next is Now, Bobcat is empowering people to work more efficiently and to enable them to achieve more than ever before.

"We are advancing more powerful, more efficient and smarter equipment and technologies in an expansion that offers an enhanced and much wider choice of products to increase opportunities for our customers."

Designed with a new styling scheme, the R-Series models come with a fully enclosed cab, a 12.7 cm (5 in) display and an LED lighting system as standard.

The new T66 and T76 loaders have a redesigned cooling system and the machines also include longer wheelbases and track footprints than those of Bobcat's previous generation of machines. The manufacturer said this means the new models have greater stability and, with improved hydraulics, also offer greater lifting capacity and "class leading" push and breakout forces.

Bobcat's new R-Series loaders have an increased lift height for easier dumping into trucks and features cast steel structures in the loader arms. The company said this means the arms are 20% stronger than its previous models. Narrower profiles in areas such as the front knuckle also allow for improved visibility of the attachments and work area.

According to Bobcat, which has already begun delivering the first of its R-Series machines to customers, options include a clear-side cab with mesh-free side screens and a rear-view camera that connects to touch display inside the cab for improved visibility. ■

US debut

Mecalac, a leading global designer, manufacturer and distributor of compact construction equipment for urban environments, has introduced the AS900tele to North America.

The manufacturer says the new machine combines the compactness and mobility of Mecalac's AS Swing Loader Series with telescopic technology to provide versatility on the job site.

SBM's new JawMax 200 mobile jaw crusher

New crusher from SBM

Austria-based SBM Mineral Processing has introduced its new JawMax 200 mobile jaw crusher.

The company, which is celebrating its 70th anniversary, described the mobile processing plant as an entry-level model for processing and recycling construction rubble.

The compact machine has transport weight of 27 t and a feed opening of 1,000 x 600 mm (39 x 24 in).

Speaking about the new crusher, SBM sales manager Helmut Haider said: "Due to its sophisticated kinematics, it is even more powerful and offers further improved feed possibilities than comparable models.

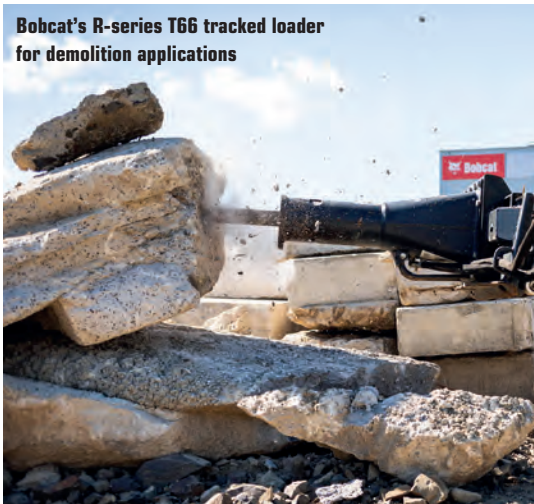
"And additionally, operation is extremely comfortable and simple. With JawMax 200 you need not dismount or mount anything after transportation. The crusher is immediately ready for use."

For ease of operation, the machine has an automatic soft start, and it can be controlled remotely.

The JawMax can also be monitored remotely using SBM's Crush Control App, which provides machine data and produces machine reports. The App is available from the iOS App Store and the Google Playstore.

The electrically driven crusher can be powered from the grid or by a 200 kVA diesel three-phase genset.

Other features of the new model include automated gap adjustment, overload protection, a magnetic separator and an adjustable discharge conveyor.



Bobcat's R-series T66 tracked loader for demolition applications

Arjes looks ahead with shredders

The Impaktor 250 evo for small and medium-sized demolition companies

Germany-based industrial shredder manufacturer Arjes has announced it is dividing its double-shaft machines into three basic product ranges as part of what it calls a strategic reorientation for 2021.

These will be the Impaktor compact class, Ekomaxx intermediate and Titan heavy-duty class.

The mobile Impaktor 250 evo will continue to be aimed at small to medium sized demolition and processing industry companies, while the Ekomaxx range will replace the VZ 750 D/DK and VZ 850D/DK series pre-shredders in the first half of the new year.

The Titan 950 will replace the VZ 950 Titan with the 16-litre Stage II engine making way for a 13-litre Stage V later in 2021. The company said this promises the same throughput capacity. A new Titan 900 machine will also be available in the second half of the year.From 2021 onwards, all Arjes machines will be equipped with an asynchronous drive and intelligent control system for the shredding shafts, with remote control operation. ■

RM Group said it received valuable input from customers before bringing the final version of the crusher to market

Series production

Austria's RM Group is launching series production of a range of new products with its RM 120X crusher, which will be followed by a RM screen in 2021. It follows the original showing of prototypes at the Bauma exhibition in Germany last year.

Rubble Master founder and owner Gerald Hanisch described the new machine as the company's first Next philosophy crusher and said it combines enhanced safety with maximum performance and flexibility.

"Operating an RM 120X still involves only a few buttons," Gerald Hanisch added.

"The built-in screen is only used to display information and has no sub-menus. We have received valuable input for this operating concept from our customers around the world, and the controls and display meet the specifications on job sites 100%.

"When we started developing RM Next, we always had our entire product range in mind. In future, an important role will be played by networking different products in operation at the same job site. However, we can only make this happen if all the products work according to the same philosophy."

RM Next focuses on four points, including extended service with a five-year warranty. Another feature is that with the operator-machine interface, the operator can see light signals indicating both the status and the current workload of the crusher from the excavator cab. ■

Mobile metal separation

Recycling equipment manufacturer Terex Ecotec has introduced a new metal separator to its mobile product range.

The new electric TMS 320 Metal Separator, which is available as a tracked and static unit, includes a splitter system that lets operators make real-time adjustments and to configure the machine for a range of applications.

Tony Devlin, business line director at Terex Ecotec, said: "The TMS 320 Metal Separator demonstrates our continued investment in new product development. It will further enhance our product range meeting both market and customers' needs."

According to the manufacturer, the model can be set up in minutes without the need for tools. It features a push button control panel and a variable speed drum magnet and eddy current rotor manufactured by magnet technology specialist Eriez.

The TMS 320 has modular design that allows for each of the machine's conveyors to be removed independently for easy maintenance and servicing.

The model's splitter system can also be moved away from the eddy current unit.

This is said to enable the TMS 320 to be folded to a transport width of less than 3 m (10 ft).

The electric-powered TMS 320 Metal Separator

As the International Media Partner of the European Demolition Association (EDA), ***Demolition & Recycling International*** brings you the latest EDA news in a dedicated part of the magazine.

EDA launches new edition of yearbook

Although this has been a tough year for everyone, the European Demolition Association (EDA) has redoubled its efforts and worked hard to carry out different initiatives to continue with the dissemination of the activities and the knowledge related to demolition.

In the same vein, EDA has launched a new edition of its yearbook to collect the expertise and knowledge of the demolition, decontamination and recycling.

The aim of this special publication is to promote the best practice and to be a reference document to get a feel of the state of the sector and know more about the national associations that are involved in EDA.

Companies all over the world, national associations and entities of the construction sector have collaborated in the publication, giving their vision on DDR (Demolition, Decontamination and Recycling).

The EDA Yearbook also collect the main activities carried out by the association, the projects planned for the future and the highlights of the year (because, despite the strange year we have lived, there are milestones to mention).

Companies a and national associations have collaborated in the yearbook to give their vision on demolition, dismantling and recycling

Taking advantage of the celebration of the 12th World Demolition Summit and the participation of EDA as a partner, the association offered the possibility of requesting priority access to the publication before its launching to the attendees who visited the virtual stand that EDA had during the event.

The EDA Yearbook 2020 is supported by 20 sponsors without whom this publication would not have been possible.

The publication is available for free in digital format (for online consultation) and in hard copy through the EDA website (www.europeandemolition.org/yearbook). ■

Priestly joins member list

Canadian contractor Priestly Demolition is the latest company to join the European Demolition Association (EDA).

With over 25 years of industry experience, Priestly Demolition is one of the largest, and best-known demolition contractors in Canada. It has offices in both Canada and the USA, with plans to expand even further.

The EDA said that in the past few years Priestly Demolition has made several large investments in the team, new technology, in-house engineering capabilities, health and safety department and COR Certification.

EDA members are drawn from Europe and other parts of the world, as the addition of Priestly to the list demonstrates. ■

Priestly has over 25 years of demolition experience

About the EDA

The European Demolition Association (EDA) was founded in 1978 and is the European platform for national demolition associations, demolition contractors and suppliers. It organises annual events to bring together the demolition industry from all over Europe. The most important one is the Annual Convention, a meeting that includes technical presentations about key topics as well as optional leisure activities. The EDA represents thousands of companies through its national associations and direct memberships. Demolition & Recycling International is the international media partner of the EDA.

■ For more details, please visit: www.europeandemolition.org

EDA partners with RILEM

The International Union of Laboratories and Experts in Construction Materials Systems and Structures (RILEM) has signed an international partnership agreement with the EDA to collaborate and co-operate together to use of construction and demolition waste as a resource.

The purpose of the agreement is improving technical understanding and practical applications related to the use of construction and demolition waste as a resource for the production of construction materials by making technical expertise of RILEM and EDA available through publications, meetings, conferences, internet links, and any other activity as mutually agreed.

This way, active engagement between RILEM and industry partners associated with the EDA is encouraged, to facilitate the successful exchange of information between research and practice.

Especially important is the Working Group on the Circular Economy.

Its goal is to produce a double deliverable: a short guide about how to make the circular economy happen in the construction sector, and a dedicated website.

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Closing the door on a chaotic year

Richard Vann, managing director of international RVA Group and *D&Ri* columnist, reflects on a year dominated by Covid-19.

It is always hard to write a reflection on the year without tripping into cliché territory. The same can be said when it comes to predicting what the next 12 months might hold in store, because nobody can ever say with true certainty what lies ahead.

All of this is undoubtedly compounded further still when you consider what 2020 has thrown up. Most of us are tired of reading about "unprecedented times" and, in truth, for many people – on both a personal and professional level – any words will simply feel trite. But it has been a year of great distress and reflect we must.

PAUSING TO TAKE STOCK

In the early parts of 2020, many projects slowed or were suspended entirely – at least temporarily – while consultants, contractors and clients alike paused to take stock. For most, some agile schedule adjustments and roll outs of new site protocols meant "normality" could resume quickly. For others, especially those working internationally, ongoing travel restrictions have presented the need to reconsider how assignments can be tackled.

However, as with most unexpected events, the initial periods are the most challenging. So of course, the ongoing uncertainty posed by Covid-19 is not pleasant, and anxieties remain high for many colleagues, which requires considerate support from business leaders. But I have seen many industry professionals – particularly company owners – move on and now default to problem solving mode.

Because yes, Covid-19 has been a massive – and tragic – event. But the only way we can deal with it, certainly at management level, is to treat it as another set of circumstances to navigate as best we can.

We may well pass through the bulk of 2021 before we see any glimmers of life reverting to "normal". But demolition projects will continue, and in truth, more work may arise if economic conditions accelerate asset rationalisation exercises.

Organisations are now relying on technology more than ever before, accelerated of course by the need to work from home when isolating. The firms who digitally transformed their businesses some time ago – and migrated from paper-based systems to cloud communications – adapted to lockdown relatively effortlessly. Others have found it tough, as much for cultural reasons as opposed to anything tech-related.

But some employers have been almost forced to trust that their teams can be productive when they are away from the traditional working environment, and this is now widely regarded as the norm.

It is difficult not to lose a sense of camaraderie when working disparately, so managers have had to don their "employee engagement officer" hat to keep colleagues psychologically connected, not just practically in touch with each other. I don't think this is a bad thing. "The way things have always been done" is perhaps no longer acceptable.

I think many of us in the demolition industry have consequently re-assessed our working practices. Of course, there are instances where physical boots on the ground are needed. But an 800 km (500 mile) round-trip to meet a client for two hours perhaps isn't one. When the cost of time, travel and accommodation has been calculated – as well as the carbon impact of otherwise avoidable journeys – the rationale for some site visits no longer stacks up. The same can be said for internal meetings with colleagues located throughout the country.

TEAMWORK AND INNOVATION

Away from Covid-19, and I have seen some great examples of teamwork, collaboration and innovation throughout 2020. At a conference in Europe at the turn of the year, for instance, I heard how one demolition firm encapsulated an entire cooling tower with a moveable sheeted framework to minimise dust. It will have probably cost millions, but protecting the environment – and the company's reputation – was the priority. This meant that the use of explosives was not chosen for this structure, as would perhaps have ordinarily been expected.

That is not to say the explosives industry is becoming staid. Many of us will have recently read about the use of military-grade "kick and cut" charges, to bring down structures at a quarry. By removing the need for pre-weakening techniques, this approach presented potential safety advantages for site personnel, although it will – as with all other specialist approaches – have limitations. This technique arguably may not be suitable on a site located in the heart of a community, for example. However, it is important to recognise the innovation, and – where the structure, application and surroundings permit – it is a great example of developing a solution to fit a specific set of circumstances.

Staying with explosives engineering, the ever-depleting level of talent within this niche discipline causes me mounting worry – to the extent where I wonder if we have gone past the point of no return. I'm not suggesting we won't see explosives being used on sites over the next three to five years – of course we will, and there are some world-renowned specialists who will play a part in such projects. It is also not to say that there aren't any examples of formal learning and development programmes in progress, worldwide – there are, certainly at company level. But I fear the number of people entering the profession, simply isn't sufficient to keep a critical mass and avoid this demolition technique largely disappearing in the medium-term future.

THE POINT OF NO RETURN?

Therefore 2021 will be a crucial year for lots of reasons, but while Covid-19 poses the severity of risk that it currently does, the health and safety of us all must remain the priority. For demolition firms, this mindset goes without saying anyway. I look forward to seeing how the industry's professionals collaborate, share knowledge, progress and develop, together, as the months unfold. ■

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