A jack-of-all-trades is good at some things but great at nothing. That’s why at Hitachi, we stay on course specializing in excavators. By not getting sidetracked, we make exactly what you want. Great, reliable excavators. THAT’S ALL.
Hitachi Dash-5 Excavators are powered by fuel-efficient Isuzu Interim Tier 4-certified engines. As a result, the Dash-5s are more productive than ever. Operators will also like them for their wider cabs with improved visibility. See your Hitachi dealer today and discover why specializing in excavators results in such reliable machines.

See your Hitachi dealer today about the exciting new crop of Dash-5 excavators.

www.hitachiconstruction.com
Hitachi construction excavators typically offer one boom length and two or three arm lengths, depending on the excavator size.

An underground contractor and basement digger will usually buy a long arm for reach and the best productivity. A cross-country pipeliner or a land-clearing contractor will buy medium arms for stability and the best productivity. A mass-excavation contractor will buy a short arm for arm force and the best productivity.

The best way to calculate the differences in crowd and arm forces between booms is by referring to the spec sheet or operator’s manual. The difference will be listed under arm forces.

There are many things to consider when sizing the bucket — application, material density, production required, etc. The best advice is to consult the dealer and the product literature. The literature will give a basic idea for the bucket size based on material density and arm length. However, if a coupler or thumb has been installed on the machine, the bucket might need to be downsized to maximize performance. If the customer is loading trucks from a bench with limited reach, a larger bucket might be a consideration. Talk with the dealer or a product specialist to determine the best configuration to meet the contractor’s needs.

**IMPACT OF BOOM AND ARM LENGTHS ON ATTACHMENTS**

Attachments can be installed on excavator depending on the weight of the attachment and the hydraulic flow needed to operate it. Adding an attachment is like sizing a bucket for the excavator, and depends on weight and lift over the side.

Hitachi offers super-long fronts for the midsize ZX210LC-5, 250LC-5, 290LC-5, and 350LC-5 Excavators. The package comes with new longer boom and arm, plus extra counterweight, new lift and maintenance charts, and new operational labels. These long fronts are used in special applications such as handling green (light) material or cleaning ditches. They also are used to place rip-rap, and contractors appreciate the reach in these applications.

Here is a list of jobs where super-long-front excavators are used:

- Handling rip-rap and placement on slopes or in the bottom of waterways
- Cleaning eroded material out of ponds or along riverbanks
- Handling green material such as glass in swampy areas
- Unloading barges or loading trucks
- Finishing steep slopes
- Dredging lakes, rivers, ponds, or drainage ditches; casting material out and away from the water and placing it to dry or be hauled away
- Demolition used for reach and sometimes with a concrete crusher
- Attachment for mowing, mulching, or brush cutting for weed control and drainage management
- Handling construction materials such as ready-mix concrete, gravel, or/and sand
- Scrap handling
- Reaching confined areas like across the pipe on cross-country pipeline jobs

Most super-long-front excavators are equipped with lightweight buckets that are usually wide for cleaning purposes, or with attachments for special operations.

**Super-long-front excavators should not be used for:**

- Excavating heavy/hard material
- Sweeping or swinging sideways to level ridges/high areas
- Extreme side loading
- Tamping to compact or using the cutting edge on the bucket to break hard material

Contractors who dig around water should be careful not to dig under the machine and slide into the water.

If you have any questions about the best combination of arm length and front attachments for your next project, contact your local Hitachi dealer.
A first-of-its kind fast-track event involving three outstanding Toronto-based contractors and a slew of Hitachi excavators took place over Canada’s Thanksgiving weekend. Over the course of three hectic October days, a very busy, four-track railroad-grade crossing was transformed into a much safer roadway underpass. Called the King Road Grade Separation, the project was a joint venture between the City of Burlington, Ontario, a Toronto suburb, and the Canadian National Railway (CNR). It was budgeted to cost C$24,515,000.

THE BIG IDEA

Since CNR is the primary/almost-only east-west rail transportation across Canada, it was critical that disruptions of service be held to a minimum.

So the consulting team of Hatch Mott MacDonald and AMEC Earth and Environmental Consulting Engineers promoted four ideas in order to do as much work as possible before the Thanksgiving weekend. First, divert all possible electrical, telephone, and drainage services while not disturbing the rail or roadways. Second, excavate an area beside the railway, in line with the ultimate underpass and parallel to the existing roadway. Third, build the new roadway as far as possible, short of the actual underpass. And fourth, pre-build the concrete underpass structure, slide it into place under the railway route at the appropriate time, then immediately reinstall the tracks.

“The scope of our project,” explains Ennio Liorti, President of Metric Contracting Services Corporation, “was to remove the rail track, excavate approximately 8000 m³ (10,464 cu. yd.), and build the concrete pads for the underpass bridge to slide on into place. Another company did the actual jacking of the structure. And once it was in place, we did the backfilling and CNR reinstalled the tracks.”

Sounds straightforward enough, but the contract included a multitude of restrictions and a very real-time deadline. Start time was 11:59 Friday night, and it all had to be finished by 11:59

Because rail traffic is nearly nonstop, the underpass structure was built beside the track to be slid in place at the opportune time.

Excavation under the railway and all construction had to be done over a long holiday weekend.

Rail traffic resumed before deadline.
Monday night in order to handle the first roar of the early trains. The result was a very intensive 72 hours.

**WHAT DOES IT TAKE TO MOVE A FIVE-MILLION-POUND BRIDGE?**

The concrete underpass Dufferin Construction constructed weighed 2,395,008 kg (5,280,000 lb.) and had to be moved 27 meters (90 ft.) to be precisely placed not only under the railway but also in line with the new roadway. The way it was moved was amazing to watch. An incredible amount of work had to be completed within a 72-hour period which included the bridge move.

Metric used their ZX350LC-5 with a special attachment to lift the existing rail-track sections one by one — with the wood ties in place — in a numbered sequence. They then trolleyed them back to a secure location, keeping them in the proper order. At the same time, other Metric-owned Hitachi excavators began digging away at the edges of the railway. The spoil was hauled to a nearby spot by their articulated trucks for reuse in their backfilling effort.

“We were notified about three weeks before the project start date that we had won the bid for our part,” explains Liorti. “So, within those three weeks, we needed to assemble about 25 pieces of equipment and organize 30 employees per shift — divided between operators, laborers, and truck drivers —
for a total of about 60 people. We could divert most of our equipment needs from other jobs for the long weekend, but we did rent a couple of wheel loaders.”

After the excavation was completed in the late afternoon hours of Saturday, the trolley pads were set up and poured. They had to be extremely level, and holes had to be precisely placed for use by hydraulic jacks that would help move the underpass. “Another company, Western Hydraulics, had the bid for actually moving the structure. Our goal was to provide the level pad for it to move on and the correct bore holes for their machines to sink their pins for traction.”

Using hydraulic jacks, with high-pressure air nozzled to the bottom of each square meter of the bridge, the transport company worked to raise the structure a few millimeters. Grease was lavishly applied to the Metric pads.

AND, THE STRUCTURE ROSE

“We were excited about the execution of this,” says Liorti. “We laid the grease and then watched the structure move into position. It was both amazing to see and a real comfort to realize the plans were being executed as expected.”

On schedule, the Dufferin-built structure moved without mishap, taking nearly five hours to be pushed into place by twin hydraulic rams controlled by remote joysticks.

“After the structure was in place, which again was an amazing feat, we back-filled the bridge structure and then CNR re-laid the tracks we had removed.”

WHY METRIC?

“Honestly, we were the low bid,” explains Liorti. “But, of course, that suggests a lot of effort on our end to be part of the bidding package.”

Metric was started in 1978 with brother Frank Liorti. “I started working with my father before I was 16. He was a good contractor and did good work. He inspired us to reach for bigger projects and to work for ourselves.

“We have worked hard to be a very good subcontractor to the very best big, heavy contractors like Dufferin. So this is far from our first effort with Dufferin. And we’ve worked to have a very good team of workers supported by the best equipment we can obtain for multiple jobs throughout Ontario.”

Metric has become an industry leader in excavating, grading, and site preparation through their aggressive attention to the details of highly competitive bidding, project follow-through, well-trained employees, and a well-maintained and current equipment fleet.

“Our work is focused on heavy earthmoving and underground services in southern Ontario,” explains Liorti. “Recently, we’ve been involved with a number of hospital startups by providing their initial site preparation. We’ve also been a part of multiple earthmoving projects for the Ontario provincial government as new roads and bypasses have been developed. Right now, we’re working in downtown Toronto, providing specialized earthmoving work as the city prepares new buildings for the 2015 Pan-American Games.”

AND HITACHI EXCAVATORS?

“We bought our first Hitachi in ’87, just nine years after we started,” says Liorti. “And we’ve had 16 or 18 Hitachi excavators since then. Just prior to the King Road job, we purchased eight — and I think five of those new ones were on that job. We’ve always had great success with the Hitachi brand.

“Since the very beginning, Hitachi has always been a very good machine. We like owning Hitachi excavators, and the Wajax branch in Mississauga has done a good job supporting us.”

Metric Contracting Services Corporation is serviced by Wajax Equipment, Mississauga, Ontario.
Unlike many other manufacturers, Hitachi doesn’t build every kind of earthmoving equipment. Instead we specialize in excavators and haul trucks, concentrating on building the best possible machines. As a result, Hitachi products are loaded with customer-driven features and enhancements to make them even more durable, productive, and easy to maintain.

This is especially true with the new Zaxis 245USLC-5 Ultrashort. Whether the work is urban renewal, street repair, or underground utilities, this easy-to-transport reduced-tail-swing excavator opens up a wide range of possibilities since it can work in and around obstacles, and on congested jobsites.

Machine specs have been improved in a variety of ways. In particular, increased weight and arm and dig forces provide noticeably more muscle than its predecessor.

The ZX245USLC-5 features 5,000-hour oil-change intervals, power dig, auto power lift, two-speed propel with automatic shift, arm and boom regeneration to save fuel and prevent oil cavitations, and 10-micron full-flow return filters. The next-generation Isuzu EPA Interim Tier 4 (IT4)/EU Stage IIIIB engine quietly goes about its business, getting the most out of every drop of fuel while meeting rigid emission standards — so you can work anywhere there’s work, including nonattainment areas.

This close-quarter specialist delivers the same multifunction capability and smooth responsiveness operators have come to expect from all Hitachi excavators. Our machines also provide big productivity without sacrificing control, giving operators the finesse they need for finish grading and placing pipe. The ZX245USLC-5 utilizes three pumps and a new hydraulic valve to improve both productivity and smoothness.

Three work modes allow an operator to choose a digging style that fits the job. High Productivity (HP) delivers more power and faster hydraulic response. Power (P) delivers a balance of power, speed, and fuel economy for normal operation. And Economy (E) maximizes fuel efficiency by reducing top speed while delivering an enhanced level of productivity. A button located on the right-hand control gives you extra power to muscle through tough spots. And changing hydraulic flow is also push-button easy, done right from the seat.

A wide variety of track widths, bucket sizes, high-flow auxiliary hydraulic packages, and other options are available, including a heated air-suspension seat. As a bonus, a rearview camera is standard.

The ZX245USLC-5 Excavator comes standard equipped with three years of ZXLink™ Ultimate, providing 24/7 online access to machine location, health, utilization, fuel consumption, and other valuable information — so you can better understand costs and jobsite performance.

To learn more about the Hitachi ZX245USLC-5, visit us online at www.hitachiamericas.com or visit your local Hitachi dealer.
STEEL to REAL in eight days
ince 1998, the Kernersville, North Carolina, plant has been building complete models from plate steel up — sourcing components globally including Hitachi Construction Machinery, Japan,” explains Bryan Swerbinsky, Vice President and Chief Financial Officer. “And about every two years since 2000, we’ve added a new model to the lineup of models built here for North, Central and South America. That lineup now stands at eight — from the ZX130-5 to the ZX380-5 — and the corresponding Deere-model designations.

The existing facility was purchased in 1988 after formation of the Deere and Hitachi joint venture to manufacture in the U.S. Here the company cuts, forms, welds, and machines plate steel, then paints and assembles complete excavators. They have won numerous awards for safety performance — low incidents and accidents.

“This facility builds all of the excavators sold in North, Central and South America for the product models we make,” says Kimio Katsuki, past Executive Vice President and now Technical Advisor to the operation. “Although everything we make here is originally designed by our parent companies, Deere-Hitachi modifies the design to meet the needs of the American market without sacrificing or compromising the performance designed by our parent companies. Our design is based on the needs and interests of the American market. Additionally, there are differences between the Deere and Hitachi models of the same size class.”

Hitachi models exclusively feature the Isuzu engine and corresponding cooling and EPA Interim Tier 4 (IT4)/EU Stage IIIIB technology, while Deere models feature the Deere engine with its corresponding cooling and IT4 technology. As a result, there are real performance differences between the two brands. Breakout will let owners of each brand debate the respective merits.

“Fortunately,” says Swerbinsky, “the combined Deere and Hitachi brand market share continues to grow, and our parent companies are enjoying new successes in the Central and South American markets. So, in order to maintain our ‘Steel to Real in Eight Days’ target, we have to expand our capacity. We’ve been able to raise the capital required and justify the expenses to make a significant expansion.”

60% CAPACITY INCREASE

“The $97 million we’ve allocated for our capacity increase will be spent in a number of ways,” notes Swerbinsky. “We’re nearly doubling our land mass to 118 acres. We’re breaking ground on 46 300-m² (498,000 sq. ft.) of new manufacturing buildings. Our new assembly building will ultimately...

Kimio Katsuki, Technical Advisor, and Bryan W. Swerbinsky, Vice President, both of Deere-Hitachi Construction Machinery Corporation, Kernersville, North Carolina, look at the new construction now underway.

Multiple finished excavators are completed each hour.
“We’re increasing our capacity by about 60 percent, so we need to purchase the latest machining and robotic technology. And as our workforce is key, we’ll hire more welders, machinists, and skilled technicians for fabrication.”

— Dwight Laginess, Operations Manager, Fabrication, Deere-Hitachi

become our East Campus, and is within walking distance of our existing facility, which will become our West Campus.

“We’ve purchased a 23,040-m² (248,000 sq. ft.) warehouse we had been leasing.

“And we’re buying state-of-the-industry robotic equipment and welding machinery to enable our expanded capacity and also replace many of the robotic machines once considered state-of-the-industry eight years ago when we bought them for our existing facility.”

“To make these new machines work and to fill our expanded facility with 24-hour productivity, we are also committed to hire and train 340 additional employees. After all, it is our workforce who really makes things happen.”

BUILDING EFFICIENTLY

There are four major weldments or fabrications in any excavator: arm, boom, mainframe, and track frame. With the expansion, all of the weldments will be cut, formed, welded, machined, and painted at the West Campus.

“Our process is based on orders sold,” notes Katsuki. “That means we fabricate the next order in line and not by batching together orders of the same model. We gain this efficiency with the computerized cutting, forming, and welding equipment. Our jigs are designed for quick changing from one model to another. Our expansion to create more fabricating lines within the West Campus will allow us to substantially increase the number of orders a day for which we can provide weldments.”

After hours of paint curing, the four weldments per excavator will then be transported to the East Campus in finished form ready for assembly. Each weldment is delivered to the correct assembly line in proper sequence.

All excavators are made to order and not in batch. So the computerized cutting machines might cut components for a ZX130, then a ZX350.

After each weldment is jigged-up and spot-welded by hand, the remaining 80 percent of the welding is robotically performed.

Cutting-edge machining robots precisely drill all of the holes according to their preprogrammed instructions.

Multiple finished excavators are completed each hour.
In 1988, Deere & Company and Hitachi Construction Machinery Ltd. created a joint venture that set a new standard for quality and performance in the heavy-equipment industry.

Based in Kernersville, North Carolina, the plant is sole provider of eight primary construction-sized Hitachi and Deere models for North, Central and South America.

A $97-million expansion is now underway. It includes both additional manufacturing space and new, robotic equipment.

There are 750 employees now with 340 additional to be hired.

“The expansion is going to enable us to increase our assembly and paint capacities, and minimize the distance and number of part moves. Assembly time will be reduced providing the ability to achieve greater efficiency, flexibility, throughput, and improvement in quality.”

— David Hunt, Operations Manager, Paint and Assembly, Deere-Hitachi
Working the Allegheny Forest
For 20 years, Steve Dyne, his wife Kerri, and his employees have been helping make the Allegheny Forest one of two profitably sustainable national forests in the U.S..

**NORTHWEST PENNSYLVANIA**

Dyne Excavating works in the heart of the Allegheny National Forest in Kane, Pennsylvania. Kane is where owner Steve Dyne grew up, graduated from high school, and went to work doing construction work in the surrounding forest. And it’s the forest where Dyne has hunted and explored since he was a grade schooler.

But the Allegheny National Forest is unique and much different from the national forests and parks of the West, full of well-preserved virgin timber and untouched rivers.

It was in the Allegheny National Forest region where the first successful oil well — the Drake Well — was executed in 1859. It was in the Allegheny National Forest where some of the best timber was harvested back in the day for the growing lumber needs of the East Coast. And it was in the Allegheny National Forest where burgeoning paper mills flourished along the rivers flowing all over the Allegheny region.

By the 1920s, the forest was essentially gone. As a result, the area around Kane became one of the first recipients of federal funds dedicated to the development of U.S. Government-managed national forests — creating the Allegheny National Forest in 1923.

But there was only enough federal money to buy the surface area of the forest, not the mineral rights. Since the forest essentially surrounds or borders the thriving oil industry that followed the Drake #1, 93 percent of all mineral rights under the 2074-km² (801 sq. mile)/207,611-hectare (513,000 acre) forest are still owned and actively worked by private citizens. As a result, this quasi-federally owned national forest continues to be actively worked by both the timber companies (second growth since 1940) and petroleum companies (continuously since 1859).

Amazingly, for the past 70 years, the wood-pulp mills, the maple-veneer furniture makers, and the mineral owners of the area’s prime Pennsylvania crude oil have worked out a productive relationship with the U.S. Forest Service. Companies have prospered, and the
forest has not only regained outstanding health after the heartbreak of the ’20s, but is strong and self-sustaining.

**HELLO! TODAY’S REGULATIONS**

“We’re working in probably one of the most restricted and regulated areas of wide-open forest there ever could be,” says Dyne. “I know that other companies in urban areas probably have much more to deal with than me, but still, it’s amazing.”

Dyne Excavating has founded a business around building and reworking timber and petroleum projects throughout the Allegheny National Forest.

“We build the roads, drill pads, disposal pits, and final landing pads for the petroleum pump jacks or natural-gas gathering stations. And we do pretty much the same thing for the timber industry.

“I grew up here, and I’m proud of what we’re doing in the Allegheny National Forest. I’m proud this forest is paying its way and more. I understand the history here, and I’m glad the government is managing this forest in a way that not only provides prudent timber harvesting and continued oil, but now also natural-gas development. I do get a bit overwhelmed sometimes with the volume of new regulations. And I get frustrated with how general regulations get interpreted into detailed requirements that are almost impossible to fulfill.”

That’s where Steve’s wife, Kerri, comes in.

“Even though we’re small, working in the National Forest sets us up for meeting the most stringent regulations of performance and protection of the environment,” explains Kerri. “I’ve learned how to respond to the most comprehensive questionnaires possible! But we carry on, and it works.”

**ENTER HITACHI EXCAVATORS**

“I started with a backhoe and a dump truck,” says Dyne. “It was easy to go with the flow of buying a used yellow excavator from the nearest dealer. After a few years of running my first excavator, Pat Maurer, our Rudd Equipment salesman, stopped by and offered a demo of their newest Hitachi series excavator. I said ‘Okay, but if I keep it very long, it will only be as a rental.’ I wanted to be honest.”

But right away, it was clear the machine wasn’t going back.

“The guys running the Hitachi were pretty excited. They said it worked better and smoother. So, I worked it myself. And I was impressed. I bought the EX160 I had rented and an EX200. That was 12 years ago. Since then, I’ve never thought about any other brand.

“I really like what Rudd and my salesman Pat have brought to the table. It’s not that we haven’t had issues with the Hitachi excavators — we have. But I think there are issues with all equipment; I don’t believe anybody builds a perfect machine. The important question is, do the dealer you’ve built a relationship with and the particular manufacturer have a strong attitude toward dealing with the issues that come up? Thankfully, Rudd and Hitachi do. So although we’re small, we’ve bought a total of 13 Hitachi excavators to complement our dozers, wheel loaders, and over-the-road truck fleet as the sales package we offer our customers.”

**ZX160: A NO-PERMIT MACHINE**

“We’re part construction, part re-work to best serve our customers,” explains Dyne. “So it’s important that much of our fleet is easily transportable without the need for permits. The Hitachi ZX160 has been an excellent machine for us because it is within the legal limits of being towed without a permit, and it delivers outstanding productivity.”

Dyne Excavating finds the ZX160 combined with one of their dump trucks is a perfect package for many of their jobs, with their bulldozers and ZX200s put on larger jobs where they may work for more than a few weeks.

*Dyne Excavating, LLC is serviced by Rudd Equipment, Clearfield, Pennsylvania.*

*View more about this story at www.hitachiconstruction.com/dyne*
Hitachi Dash-5 Excavators are powered by fuel-efficient Isuzu Interim Tier 4-certified engines. As a result, the Dash-5s are more productive than ever. Operators will also like them for their wider cabs with improved visibility. See your Hitachi dealer today and discover why specializing in excavators results in such reliable machines.

See your Hitachi dealer today about the exciting new crop of Dash-5 excavators.

www.hitachiconstruction.com

ON the INSIDE

HITACHI IS GROWING!

As you’ve seen in our ads, “We Dig. We Haul. That’s All.” To reinforce our commitment to excavator and rigid-frame haul-truck excellence, we are significantly expanding two of our manufacturing plants here in North America.

In North Carolina, we’re investing over $97 million in our Kernersville plant, and will be adding over 300 new jobs over a four-year period to bolster the current workforce of 743. We are purchasing approximately 60 acres of land adjacent to the current facility, buying a building that will be expanded for manufacturing and warehouse space, and expanding the existing factory with state-of-the-art technology. This investment will increase capacity on currently manufactured machine models, plus add production capability for additional mid-sized excavator models.

In Guelph, Ontario, we are adding 13,294 m² (143,100 sq. ft.) to our Hitachi truck plant. It will manufacture 190–300-metric-ton loading-capacity rigid-frame haul trucks for sale primarily in North, Central, and South America. The plant will also continue to manufacture EH1100-3 and EH1700-3 trucks for global distribution. The workforce should double in size, and output should be raised to 280 units a year.

Additionally, Hitachi in Japan is expanding two existing plants and will construct more as necessary to significantly boost production capacity for large and ultra-large hydraulic excavators and haul trucks.

For more information about the Kernersville plant expansion, be sure to read the article in this issue.

We like orange! And it’s obvious you do, too, since you are making these investments possible. Thanks.
A jack-of-all-trades is good at some things but great at nothing. That’s why at Hitachi, we stay on course specializing in excavators. By not getting sidetracked, we make exactly what you want. Great, reliable excavators. THAT’S ALL.

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