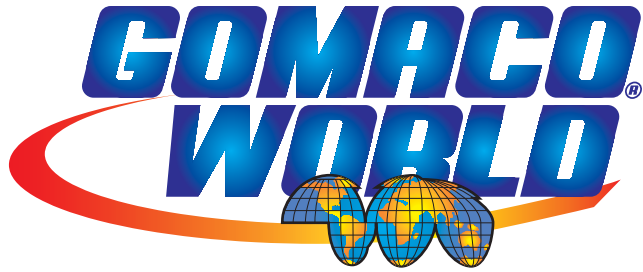


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Runway Success on a Southern Florida International Airport



The new southern runway at the Fort Lauderdale-Hollywood International Airport was built on a 60 foot (18.3 m) high man-made embankment that crosses over an existing highway and railroad line.

The Fort Lauderdale-Hollywood International Airport in Broward County, Florida, was dealing with departure delays on every single flight. The length of an existing runway, 9R-27L, just wasn't long enough anymore at 5300 feet (1615 m). The Broward County Board of County Commissioners created a plan to extend their southern runway to 8000 feet (2438 m) to accommodate the larger commercial aircraft in operation today.

The project isn't as simple as tearing out the existing runway and building a new one in its place. To create enough area for the longer runway, a new 60 foot (18.3 m) high man-made embankment had to be built. If that wasn't enough of a challenge, to the west of the new embankment, concrete bridge structures had to be built to support the runway extension and adjacent taxiway as it crossed over U.S. Highway 1 and the Florida East Coast Railroad line.

Archer Western Construction LLC, based in Tampa, Florida, won the bid for the grade work, subbase preparation, and concrete slipforming of the airport's new runway and taxiway. Due to delays on the project, they had to carry out their portion of the work while the other major contractors finished the embankment and bridge structures.

Their paver for the project was a GOMACO four-track GHP-2800 with Leica Geosystems 3D machine guidance. The GHP-2800's job-site mobility, along with it being a stringless project, would allow them to pave when and where they needed amongst the crowded project site.

"Archer Western came in and did the topping off, let's just say, of the project," Justin Cooper, Project Manager for the company, said. "It was a nice GOMACO project. For our subbase, we used the 9500 placer. On the concrete paving we used a

PS-2600 placer/spreader with a GHP-2800 paver setup at 18.75 feet (5.7 m) wide, followed by a T/C-600 texture/cure machine. We ran stringless with a Leica Geosystems setup. Then, for our hand pours, we used the 9500 and RTP-500 placers.”

Paving work on the new runway began in February last year. As grade work was completed, subbase could be placed. Archer Western used their GOMACO 9500 to place the six inch (152 mm) thick cement-treated base (CTB). Originally, the plan was to pave the new 8000 foot (2438 m) long concrete runway in 2000 foot (610 m) sections. Project phasing wouldn't allow for that and paving runs were shortened to 1500 feet (457 m) in 10 hour shifts.

The concrete for the project was mixed on site in the company's portable batch plant. Requirements called for a standard P-501 concrete, 650 flex airfield mix. The concrete had fly ash added and used manufactured sand instead of natural sand. Slump averaged 0.75 inches (19 mm). The plant batched 10 cubic yard (7.6 m³) loads and eight to 10 trucks worked to supply the concrete to the paving site.

The end-dump trucks unloaded onto the large conveyor belt mounted on the left side of their GOMACO PS-2600 placer/spreader.

“This was a basket job with dowel baskets every 20 feet (6.1 m). The dowels were 1.5 inches (38 mm) and placed on 18 inch (457 mm) centers,” Cooper

explained. “With the slump of the concrete being as low as it was, you get that initial set and the PS-2600 placer gives you a better tolerance for running that GHP-2800 behind it and achieve a smooth finish.”

Their GOMACO four-track GHP-2800 slipformed the new runway in 18.75 foot (5.7 m) wide, 16.5 inch (419 mm) thick paving passes with a standard crown down the middle. At that width and thickness, each lineal foot (305 mm) of new runway lane required nearly one cubic yard (0.8 m³) of concrete.

The paver is equipped with a Leica Geosystems 3D guidance system, eliminating stringline from the site. Since most of Archer Western's paving is done at night to accommodate the subtropical heat of southern Florida, the 3D system

offered a distinct advantage.

“There's nothing to trip over,” Cooper said. “At night we used to have to make sure we had lighting all the way up and down the project so the guys didn't run into the stringline. Now, we don't have to set up the whole lane at once. We can move the light plants along with the paving equipment. That's nice.

“It's worked out well for us. We also used our Leica Geosystems setup on the CTB placement, so we went stringless all the way from subgrade up. We had some initial setup with 3D getting things warmed up and getting the system down. We've learned to do a dry run at the beginning of each shift. We'll back the paver up 60 feet (18.3 m) prior to the actual concrete coming into place to make



Photos courtesy of Archer Western Construction LLC HW-041522 D2



Archer Western Construction LLC slipformed the new 8000 foot (2438 m) southern runway with their GOMACO PS-2600 placer/spreader, GHP-2800 paver, and T/C-600 texture/cure machine.

sure the paver is coming in at the right elevation and not making any adjustments when it gets to the start of the paving.”

Mother Nature proved challenging as well on the project. Rain showers would hit every night, sometimes twice each night, and the Archer Western crew had to be ready to cover their fresh concrete at a moment’s notice.

“This is a first for me to come pave this far south and when we were in the heat of paving, it would rain just about every day,” Cooper said. “At first we wondered how in the world are we going to pave this with all of the rain? The guys became good meteorologists out in the field at night and we did a lot of covering with plastic.”

Slipforming the runway was divided into eight paving lanes. Smoothness specifications using the two-tenths blanking band and edge slump requirements had to be met on all areas of the new concrete pavement.


“Our quality is very good on the pavement and we took no deductions for PWL (percent within limits) specifications,” Cooper said. “We were allowed a 16 foot (4.9 m) straightedge and had to use a two-tenths blanking band with a

profilograph. Seven inches per mile (110 mm/km) was the cutoff for payment and we typically ran in the two inches per mile (32 mm/km) range.

“When we ran our straightedge behind the machine, we had to ensure there was not excessive edge slump as part of our quality checks. That was the biggest challenge because that manufactured sand is a little harder to finish, but the paver handled it and built a good edge.”

A GOMACO T/C-600 texture/cure followed the paver applying a burlap drag finish and a white spray cure. Transverse joints were saw cut into the new runway every 20 feet (6.1 m).

With the project complete, the new runway’s designation changed from 9R-27L to 10R-28L and the Fort Lauderdale-Hollywood International Airport is operating more efficiently with fewer delays.

“We did a lot of concrete work in a small amount of time, basically completing the runway portion of the project in five months,” Cooper explained. “We’ve had a lot of good feedback about the new runway and the tower is very happy to have a second runway operational.” 



The GHP-2800, using a Leica Geosystems 3D guidance system, comes off the evening’s header and paves down ramps off the new 16.5 inch (419 mm) thick section of runway.



Photo by Chad Schaeffing SL-111401 D13

A GOMACO SL-750 cylinder finisher working on a Hyundai test track for their vehicles manufactured in China became the first finisher to be controlled with a 3D guidance system.

The First 3D-Controlled Cylinder Finisher Application Created for a Hyundai Test Track

Last year, GOMACO was approached by Hyundai Engineering of Korea about equipment to pave a new test track for their vehicles manufactured in China. The new track will be a 4.3 kilometer (2.67 mi) oval, with transitions from flat to up to a 43 degree angle, a 1:1 slope. The configuration of the track starts with an 862 meter (2828 ft) flat area into a 378 meter (1240 ft) transition. It stays in the curve for 609 meters (1998 ft) before transitioning back over 378 meters (1240 ft) into the second flat section. The equipment would need to be able to pave both the concrete track and the base material.

The track, because of its changing

shape, created a design challenge for GOMACO's engineering team. The equipment would have to be able to pave the flat sections and then transition into the curves with the 43 degree angle. The shape is based on the design of Ford Motor Company's William A. McConnell and the curve named after him, the McConnell Curve.

The McConnell Curve is the relationship between the horizontal radius of curvature (a specific type of spiral) and the cross slope that results in a balanced

The track's shape was constantly changing as it went from flat to curved sections. It created a very unique design challenge for GOMACO engineers.

force. In McConnell's own words, "A blindfolded passenger would not know if the car was traveling straight and flat or if it was in a curve." This shape is ideal for test tracks because it simulates long, flat, straight driving, but doesn't require a lot of ground to complete a large test track.



Photo by Chad Schaeffing SL-121450 D19

The paving solution was found using GOMACO cylinder finishing equipment normally used on bridge decks or canal paving projects. The three machines chosen for the project include a track-mounted RC Conveyor to place the concrete, a track-mounted SL-750 slope cylinder finisher, and a 4000 series Spanit[®] work bridge with rubber tires. All three pieces of equipment had to be modified for the unique requirements of the oval test track. The result ultimately led to the first 3D-controlled cylinder finisher application (patent pending) for placing both the 152 millimeters (6 in) of lean base material and the 254 millimeter (10 in) thick concrete track.



Photo by Todd Hoaglund EG-071430 D7

The RC Conveyor with telescoping tremie for placing the lean base material and concrete goes through final testing in Ida Grove, Iowa.



Photo by Bobbi Wonder EG-071406 D7

The GOMACO self-powered 4000 series Spanit work bridge is fitted with large turnbuckles that can be used to make manual slope adjustments.



Photo by Todd Hoaglund EG-081424 D16

The SL-750 finisher features a variety of innovations to help it finish the test track, including six PTAs, adjustable end cars, 3D guidance, and more.

The GOMACO Equipment

Here's a brief description of each of the three pieces of equipment:

The GOMACO RC Conveyor is a concrete placer that works on flat slabs or slopes. For this project, the receiving hopper was mounted to the end of the framework on the high side of the track so ready-mix trucks could discharge into it from the service road at the top. A diverter car on the conveyor discharges the concrete up and down the slope. It is equipped with a telescoping tremie. As the diverter car runs up and down the slope, the tremie telescopes so concrete can be placed as close to grade as possible and the tremie pivots to keep the placement perpendicular to the horizon while traveling up or down the slope.

The GOMACO SL-750 cylinder finisher is designed for widths up to 36.6 meters (120 ft). Pin-connected sections make up its mainframe and allow it the versatility to fit exact job requirements. For this project, the total width of the frame is 21.5 meters (70.5 ft). The frame can be outfitted with power transition adjusters (PTAs) that are hydraulically-operated for on-the-go grade elevation changes. The SL-750 has a finishing cylinder that operates on an undercarriage or can be equipped with an optional trimmer undercarriage assembly. Automatic advance on the SL-750 finishing passes advances it the preset limit, and starts again automatically on the next finishing pass, creating a final smooth finished surface.

The GOMACO 4000 series Spanit work bridge is also made up of pin-connected sections and is self-powered. The frame is fitted with a slope wedge to break the bridge at the top and allows for manual adjustments to closely match the profile while giving workers a secure platform to finish from.



A mast with a Leica Geosystems 3D prism and a slope sensor are used to control the rear “smart” cylinder’s vertical adjustments.

Controlling the GOMACO Equipment

With the equipment decision made, GOMACO engineers had to devise a method to steer and control the equipment through the slope and shape changes. The legs of the equipment have to always stay vertical while keeping the framework close to the surface of the new concrete for placing and finishing work.

The frame of the RC Conveyor has adjustable wedge inserts added to the top to allow its framework to break over for the loading of concrete into the hopper. The tracks are mounted to pivoting end cars so they can always stay flat on the ground. An adjustable mount on the console allows the ground crew to keep it horizontal or plumb.

The Spanit has similar modifications. It has to be adjustable on-the-go. Engineers equipped it with large turnbuckles that can be ratcheted from the top and bottom

to make manual slope adjustments to the Spanit. They help keep the work bridge similar to the profile of the changing track design without having to disassemble the frame.

The RC Conveyor and Spanit are both steered using stringline. Steer wands are placed ahead and behind the front and rear tracks on the machines to allow automatic steering in forward and reverse.

The SL-750 required the most engineering time and features several innovations to accomplish the paving of the test track. Six programmable PTAs were added, placed in between the different sections of frame at strategic areas where the frame needs to adjust to match the slope. Software was created for managing the PTAs and their on-the-go adjustments were implemented into a PTA computer mounted to the side of the SL-750.

The track on the operator’s end of the SL-750 features a sliding, self-widening end car to make necessary width adjustments. The track on top of the slope has a pivoting end car with a slope sensor. The slope sensor keeps the legs of the finisher vertical, or plumb, so they are always lifting straight up or down.

The undercarriage of this SL-750 can be equipped with either an auger for preparing the first layer of lean base or a cylinder finisher for the concrete surface. The auger is 1524 millimeters (60 in) long with a diameter of 248 millimeters (9.75 in). The finishing cylinder is 1524 millimeters (60 in) long with a diameter of 254 millimeters (10 in).

A 3D-Controlled Hydraulic Vertical Adjusting Undercarriage

All of these extra points of adjustments allow the SL-750 to match the changing profile very closely, but not exactly. To achieve the exact profile of the surface of the test track, a new

hybrid system of control needed to be created, a combination of stringline and 3D. Stringline would steer the finisher. A 3D system was created to control the undercarriage, raising and lowering it to match the surface elevation of the profile.

GOMACO’s undercarriages normally do not vertically adjust. They stay at a fixed height and the cylinder finishes as it travels back and forth across the width of the bridge deck or canal. To create a hydraulic vertical adjusting undercarriage, engineers modified “smart” cylinders normally used for a dowel bar inserter. The cylinders have 381 millimeters (15 in) of stroke to raise and lower the undercarriage.

A Leica Geosystems 3D guidance system with one mast and prism, normally used on a 9500 trimmer, was used to

control the rear “smart” cylinder’s vertical movement. Because they’re “smart” cylinders, both move in the same ratio to each other, so if the rear cylinder is raised one millimeter (.04 in), the front cylinder moves one millimeter (.04 in) as well. This can be overridden in the computer, if needed, to change the draft of the cylinder finisher.

The undercarriage is outfitted with the 3D mast with prism, as well as a slope sensor. The mast is needed to get the prism high enough for the total station to see without interference from placed concrete or workers. The sensor is needed for the slope of the mast to calculate the position of the finishing cylinder. The “smart” cylinders adjust based on the calculated position of the bottom of the drum, which



The SL-750 features an undercarriage with hydraulic vertical adjustment controlled by 3D guidance. “Smart” cylinders on the undercarriage allow it to move up and down for precision paving of the test track’s changing slope.



Photo by Chad Schaeffing SL-121438 D14

The GOMACO RC Conveyor with telescoping tremie places the lean base material onto the slope of the test track. To prepare the lean base, the SL-750's undercarriage is equipped with an auger that helps level the material. The auger is switched out to a cylinder to finish the concrete layer of the track.



Photo by Ric Moser SL-121407 D13

The SL-750's auger is 1524 millimeters (60 in) long and has a diameter of 248 millimeters (9.75 in).

is the top of the concrete surface of the new test track.

The information to move the undercarriage is collected through a series of measurements taken and computed by the Leica Geosystems components, including the prism, slope sensors as well as a total station, long-range Bluetooth® radios, and 3D computer.

The total station measures the prism and mast slope and sends it to the 3D computer to calculate the machine reference point. This information is compared against the original design data (e.g., the 3D cross section) provided by Hyundai. Corrections are sent to the undercarriage based on that comparison and the "smart" cylinders adjust up or down or stay at the correct elevation. This

process is happening 10 times per second throughout the paving day.

Daily production would average up to 100 meters (328 ft) per day so two total stations were needed for the 3D system. One controlled the SL-750 and the second was for leap frogging and grade checks behind the finisher.

Extensive Testing Before Paving in China

After each of the three machines went through the manufacturing process, they were taken to GOMACO's testing pier in Ida Grove, Iowa. The testing pier allows engineers to simulate the slope of canals, or in this case, the test track. The surface profile of the test track was created using a steel cutout. The equipment could then be closely monitored, measured and watched



Photo by Chad Schaeffing SL-121436 D18

A view from the service road at the top of the test track shows the full transition of the track, from the flat section to the full 43 degree angle, or 1:1 slope.

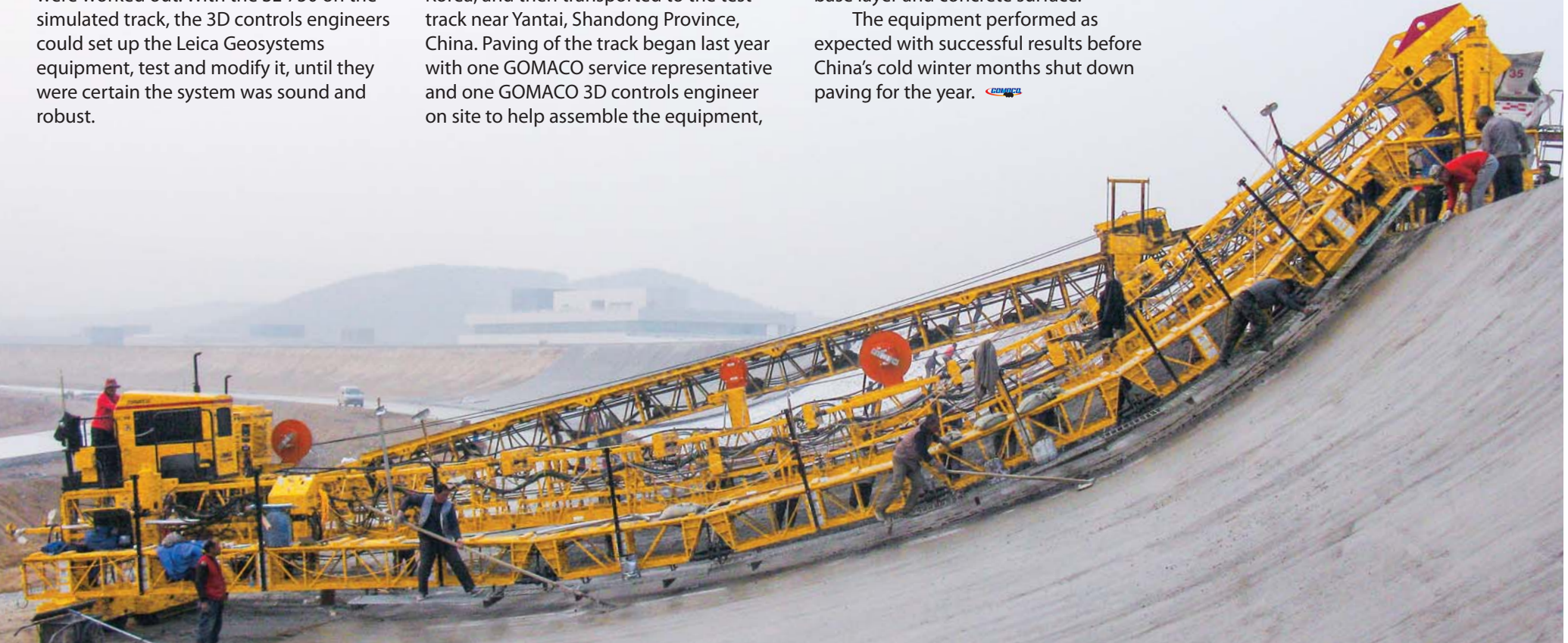
as they shape-shifted to match the profile.

The testing pier is also where the final details of the 3D control system were worked out. With the SL-750 on the simulated track, the 3D controls engineers could set up the Leica Geosystems equipment, test and modify it, until they were certain the system was sound and robust.

After testing, the machines were disassembled, packed into containers, and sent on their long voyage to Hyundai in Korea, and then transported to the test track near Yantai, Shandong Province, China. Paving of the track began last year with one GOMACO service representative and one GOMACO 3D controls engineer on site to help assemble the equipment,

train the workers on both the finishing equipment and 3D stringless guidance system, and monitor the first paving of the base layer and concrete surface.

The equipment performed as expected with successful results before China's cold winter months shut down paving for the year. 



A New Commander III for the Next Generation of Valley



Valley Curbing Ltd. started out in business as a company named Okanagan Paving Stones and Curbing Ltd. in 1988 in Kelowna, British Columbia, Canada, by three original owners, Peter Layhew, Robert Oliver, and Lloyed Brandner. They have since retired, but the company has stayed family-owned. The current owners include Doug Valentino (Peter's son-in-law), Gary Brandner (Lloyed's brother) and new junior partners Chad Valentino (Doug's son) and Jesse Oliver (Robert's son).

The company has always owned GOMACO three-track Commander IIIs for their curb and gutter and sidewalk projects. After the new junior partners joined Valley Curbing they set their sights on a new machine and collaborated with the existing owners to spec out their own Next Generation Commander III. They worked with their local GOMACO distributor in British Columbia, Lonetrack Equipment Inc., to purchase the new machine.

"The next generation of Valley Curbing, Chad and I, we were the ones who chose the Next Generation Commander III because of its new features and technology," Jesse Oliver, Partner/Foreman for Valley Curbing, said. "We have always run a Commander III. It has the power that is required for us on a lot of these demanding jobs. Its durability is key. We can't be in a small community in southern British Columbia, hours away from necessary parts, and have it breakdown. That just can't happen and that's never been a problem with the Commander III."

To prepare for the arrival of the new machine, Oliver and three others from his company traveled to GOMACO University for the week-long three-track

Jesse Oliver, Partner/Foreman for Valley Curbing, operates the company's new Next Generation Commander III on its first project simultaneously trimming and slipforming rollover curb and gutter at the Lakes Subdivision in the lake country of Winfield, British Columbia, Canada.

Commander III class early this winter. The courses combine classroom time with hands-on shop experience. This trip was Oliver's third time attending GOMACO University.

"Even if you're running an older machine, you learn little things just by talking and listening to other contractors," Oliver said. "The classes always give a good foundation of knowledge for us to build on. It really makes my guys feel good to go down and just be a part of it, and I think it gives them a sense of professionalism when they go to the school."

Valley Curbing's Next Generation Commander III made a stop in Las Vegas, Nevada, and was one of the featured machines in GOMACO's World of Concrete booth in February. From Las Vegas, it was delivered to Kelowna and immediately put to work on the Lakes Subdivision in the lake country of Winfield, British Columbia. It's a new development that sits up high

overlooking Okanagan Lake, Kalamalka Lake, and Wood Lake.

For their first project with their new machine, Valley Curbing simultaneously trimmed through 20 millimeters (0.8 in) of crushed gravel while slipforming a 450 millimeter (17.7 in) wide rollover curb and gutter profile.

"I'd just like to commend the GOMACO service representative who helped us with that first pour. He did such a great job and I really liked him. In fact, I've even invited him to my wedding," Oliver said. "We took it easy off the start, but it's a very operator-friendly machine and by the end of that first day, we were trimming and pouring over 200 lineal meters (656 ft) per hour. We dumped out six cubic meter (7.8 yd³) loads in under eight minutes on a few occasions. That works out to about seven lineal meters per minute (23 ft/min)."

Concrete for their projects is a 32 MPa (4650 psi) mix with six to nine percent air entrainment. Slump averages




Valley Curbing visited their new machine on display at World of Concrete 2015.

CV-021507 DT

diagnose the machine with all of the feedback available.

"I like the fact that I can just hit the button and with Cruise Control, the machine will rev itself down. I don't have to jog the throttle down, I just track it and the machine remembers what speed it was at before it stopped. That works great. Its smoothness of travel is just really good and the machine holds tight to the line."

Valley Curbing has kept their Next Generation Commander III busy since its arrival on several different projects slipforming a variety of curb and gutter profiles in British Columbia.

"It's really a user-friendly machine and after just one day with it, we've been at full comfort level and full production capacity," Oliver said. "I've been running GOMACO machines for 15 plus years and I won't go anywhere but GOMACO. GOMACO is a great company and so is their distributor here in British Columbia, Lonetrack Equipment." 

between 15 to 25 millimeters (0.6-1 in). Behind the machine, a broom finish is applied to the curb and gutter and joints are tooled in every three meters (9.8 ft).

"The Next Generation Commander III is smooth," Oliver said. "Smooth and very user friendly. I love the new G+ control system, its screen, control dials and buttons. Plus, the G+ diagnostics are really good. I can go in and easily



CG-031514 D10

Valley Curbing likes the user-friendliness of their Next Generation Commander III, along with its smoothness of travel and easy diagnostics with the GOMACO-exclusive G+ control system.



CG-031513 D11

First days production rates reached as high as seven lineal meters per minute (23 ft/min) with Valley Curbing emptying a six cubic meter (7.8 yd³) ready-mix truck in under eight minutes.

Workload Creates Demand for a New Paver in Wisconsin



Photos by Kelly Krueger CG-101409 D19

J&A Pohl Construction's Next Generation Commander III is one of the first of its model to be operating out in the field. The new machine was introduced for the first time at CONEXPO-CON/AGG 2014.



CG-101411 D10

One of the machine's first projects is slipforming four miles (6.4 km) of sidewalk in Wales, Wisconsin.

J&A Pohl Construction has been operating GOMACO equipment since they started their own slipforming company in 1992 in Brookfield, Wisconsin. A used GT-3600 was their first GOMACO, and as the company grew, so did their inventory of machines. They upgraded to Commander IIIs, eventually adding two new generations to their fleet. Last year, Dan Pohl, president of J&A Pohl, decided it was time for another machine, and traded in one of his new generations for a Next Generation Commander III. His paver was the second Next Generation Commander III

off the GOMACO manufacturing line.

"It's a funny story, because I was at the trade show with my friend last year," Pohl explained. "The GOMACO exhibit is always pretty popular and there were so many people looking at the new machine. I wasn't really in the market to buy anything, so we moved on. In the spring, I started to think about it, about my age, how long I've got left, and the fact that our first machine was 13 years old. I'm always big on updating equipment, so I called up American State Equipment Company, my GOMACO dealer here. We went through

the negotiating period and came to an agreement.

"The purchase made sense and now that the market is coming back, we're going to have the work for it so it will pay for itself."

J&A Pohl specializes in several different paving applications, including curb and gutter, sidewalk and mainline paving. The Commander III offers them the versatility they need for all of their applications, while offering them a heavier machine.

"We do parking lots and a lot of



CG-101402 D4

GBoxes on every leg of the Next Generation Commander III accommodate improved steering and grade with the G+ control system.

Department of Transportation roadwork so our projects are different all of the time... different, but the same," Pohl said. "The Next Generation will do most of the bull work, the high-production roadwork and subdivision work. It just pours out a good product being the bigger machine.

"The weight of the machine was one of the selling factors for me," Pohl said. "In talking with my finishers, weight allows you to pour a flatter product and they're telling me this is the best sidewalk we've ever poured. I've heard nothing but good things about the machine from them."

Size was just one of the factors in purchasing the new GOMACO. Other considerations included upgrading to the new G+ control system, new design features for operator comfort, and the Next Generation's quiet operation. The Commander III has a new optimized cooling package with the hydraulic fan controlled by G+ to adapt cooling needs to job-site conditions for both a quiet and efficient operation. Fuel efficiency is obtained with a power-optimized engine and load-sensed hydraulic circuits. Excellent fuel efficiency combined with an increased fuel capacity allows an uninterrupted day of paving on the project.

"The isolation of the operator's

platform is a huge improvement because it just makes for operator comfort," Pohl said. "The noise reduction is a very good thing, too. I got on this new machine and tried to turn the throttle all the way up because I thought it was just idling it was so quiet. It was at 2200 rpms, full throttle, so that's a huge plus to all of the guys."

One of the first projects they put their new machine to work on is a Wisconsin Department of Transportation roadway expansion in Wales, Wisconsin. The project has approximately 55,000 feet (16,764 m) of curb and gutter, with an additional four miles (6.4 km) of sidewalk to be completed in multiple phases.

For the sidewalk portion of the project, J&A Pohl is simultaneously trimming with the Next Generation Commander III's powerful, sectionalized six foot (1.8 m) wide trimmerhead while slipforming. The sidewalk profile is five foot (1.5 m) wide and five inches (127 mm) thick. It is slipformed next to the new curb and gutter, and at each intersection, the paver has to be tracked over and out of the curb.

"One of the things I did on this machine that I've never done before is I got the rubber grousers on there, the pads, and it's made a huge difference," Pohl said. "We do a lot of in and out of the hole and

we usually take tires or wood blocking or whatever and it takes two or three people at a time to do it. Now, you can just make a ramp and walk right out. A project like this shows the capability of the machine, coming in and out of the hole, and the versatility of it."

The concrete for the sidewalk is a Wisconsin DOT specified 28 day mix with a 4000 psi (30 MPa). Zignego Ready Mix supplies the project from one of two plants, each located approximately 20 miles (32.2 km) away from the site.

Production on the project is limited by the short runs and ready-mix supply. Finishing work behind the Commander III is kept to a minimum, with just a bull-float finish and joints cut into the new sidewalk every five feet (1.5 m).

"We've done quite a bit of what I'd call more difficult logistical projects and we've used all GOMACOs," Pohl said. "We've been all the way back from the Analog to where we are now. It's a familiarity. It's a comfort level. It's a support level. I've got the history with GOMACO and American State to lean on a little bit.

"I'm big on upgrading machines, but I don't just upgrade them for any reason and this is a substantial technological change, I would say. When I did the math on what I have... the trade in value versus the cost and how many years I had it, then it was a no-brainer. I didn't even realize how cost-effective it was. We have work for it, too. This is the first year in 10 years that we're actually in a little bit of trouble. The market is back unbelievably and I'm turning down work, which I haven't done in 10 years."

J&A Pohl has slipformed curb and gutter and sidewalk applications with their Next Generation Commander III so far. They are looking forward to a busy schedule and putting more hours on their new GOMACO.

– continued on next page –



CG-101409 D5

The Next Generation Commander III features improved



operation with the redesigned operator's platform with a pivoting console, relocated vibrator circuits control panel, isolated platform and more.

The Next Generation Commander III from an Operator's Perspective

Neal Ellenberg, an operator for J&A Pohl Construction, has been working with the company and GOMACO equipment for the last 15 years. He started out on a GT-6300 with Analog controls and has worked his way through the GOMACO control systems to today's G+® controller on the company's Next Generation Commander III.

We had the opportunity to visit with him on the job site in Wales, Wisconsin, as they waited in-between ready-mix trucks.

How has the adjustment been for you with the G+?

G+ is pretty nice. I like it. It has a lot of old school on there and new school with the controls, which is very friendly towards an operator.

What do you like about G+ and the new control?

The machine is very quiet and you can definitely feel the power on it. The entire machine is extremely smooth and with the G+, its speed control is more incremental instead of just jumping up in speed. You can really ease into a pour.

That's the hardest thing to describe, isn't it? Just the whole smoothness of the travel with G+...

Yes, it's almost that when the machine is adjusting, I can hardly feel it sometimes. It's just when I go over a bump or something like that. I feel it more on the tilting of it versus actually seeing the corrections being made.

What about the travel dial? Do you like how that operates?

The travel dial is very nice. It's very incremental so you can just ease into a pour. The first couple of numbers or so you can see your percentage and how fast you're going instead of trying to look at a number one through 10. It helps you go a little bit slower, more accurate, and you can adjust your speed a lot easier that way.

What about setup?

Setup is very easy. If I would have the mold on, I could take it off the lowboy and probably start pouring within 15 minutes.

When the machine comes off stringline, it just stops.

Yes, when the grade wand gets bumped and comes off line, the entire machine stops... conveyor, trimmer, everything. Everything stops and it gives me the chance to find out what the problem was, correct it, reset everything, and then keep on going instead of going on with a longer handset. It's definitely a great feature.

Do you notice a difference in the isolated platform?

Yes, I do. Driving home after work I definitely notice it in my feet. I don't have that tired feeling I used to. You're still tired, because you're standing on your feet all day, but you don't have that fuzzy feeling that most operators know what I'm talking about.

Did you have any reservations when you switched from the old machine to this Next Generation Commander III?

The GOMACO service representative was here and walked me through the G+. It was very easy with how to guide through the thing, and of course there are a lot more features in there with troubleshooting.

Operator Neal Ellenberg with J&A Pohl works at the Next Generation Commander III's pivoting operator's control console.



The isolated operator's platform eliminates vibration creating a more comfortable operating experience throughout the day.

One of the features I really like is to find out what faults you have. I have a fault history, which is very important so you can see what's going on. The service rep helped immensely and I'll give him credit. He answered any questions I had. That's what I always like about GOMACO. They never refuse service and never refuse to answer any questions. It's always 1-800-GOMACO, I say. That's a major selling point with GOMACO is their service. The more we use the Next Generation, the more I like. It is a great machine.

You attended GOMACO University this winter and took the G+ Diagnostics class for curb and gutter machines and pavers. Was that class a great learning experience?

It definitely was. I'm a big fan of the school and the education you receive there. I've learned a lot of great tips in the classroom that I can share with the other operators here at J&A Pohl. The shop portion is always good and gave us the chance to work through the controller hands on. You learn from the instructors at the University and the other students as well. This is my seventh time at GOMACO University and I would recommend other operators attend.



The Commander III Adapts for High-Production Trimming



Photo by Jim Hayward CG-071415 D8

Marmot Concrete's three-track Commander III high-production trimmer features a powerful trimmer to cut through the clay-based and rocky soil found in Calgary, Alberta, Canada, for monolithic sidewalk profiles.

Marmot Concrete Services Ltd. in Calgary, Alberta, Canada, is a family-owned company that got its start in 1978 with just 15 employees. Today, the company averages approximately 160 employees and specializes in new subdivisions working with developers on slipformed curb and gutter, sidewalk, and other applications. They complete approximately 200,000 lineal meters

(656,168 ft) of structure annually and use GOMACO Commander IIIs for all of their machine pours.

"It has always been GOMACO and the Commander III for us since day one," Gerry Babb, Vice President of Operations for Marmot Concrete, explained. "We prefer the Commander III because it does what we need it to do. Its size and its weight work for our needs, and it does

exactly what we want it to do."

The company is always innovating, trying new applications, and looking for ways to improve their grade preparation and slipforming production. Two of their recent accomplishments involved modifying Commander IIIs. Marmot Concrete worked closely with GOMACO to help create the new Commander III trimmer for high-production sidewalk

trimming capabilities up to 3.4 meters (11 ft) wide. It can trim both flat or monolithic sidewalk and curb and gutter profiles. Their second innovation involved adding a second conveyor to one of their Commander IIIs to help slipform a large retaining wall with sidewalk profile at the Mahogany Central Beach site in Calgary.



Photos courtesy of Marmot Concrete CG-071502 D3

The Commander III trimmer has the ability to discharge the trimmed material to either side of the machine, either into the center of the roadway or over the stringline.

The Commander III Trimmer

Marmot Concrete slipforms a variety of monolithic sidewalk and curb and gutter profiles. Alberta's soil is mostly clay-based and very rocky, which makes simultaneous sidewalk trimming and pouring not possible. They've been looking for a three-track trimming solution because the placement of the three tracks would prevent the monolithic berm from being disturbed.

"We contacted Jim Hayward and GOMACO and have been working together to create something that could go through the rock and take the abuse while keeping our berm working," Babb said.

The high-production Commander III trimmer was created. It utilizes the same framework as a Commander III curb and gutter machine, but with modifications. It features the most powerful trimmer to ever be put on a Commander III, with 85 kilowatts (114 hp) of the total

engine power dedicated to the trimmer. Engineers removed the vibrator hydraulics used in paving applications and replaced them with a larger, closed-loop trimmer pump to increase power. The trimmerhead is equipped with three air shocks to keep it stable during trimming. If it would happen to hit a large rock, the air shocks reduce some of the force of impact into the Commander III's mainframe.

"This new trimmer has tons of power," Babb said. "We'll trim for monolithic profiles that are two meters (6.6 ft) wide with a 550 millimeter (21.7 in) curb added on and it never slows down. The air-ride system that's on the trimmerhead absorbs the shock of it all, so it doesn't bounce around and we have a nice trimmed profile with the monolithic berm intact."

Two conveyors move the material through the machine and away from the trimmed grade. The transfer conveyor is located on the front of the machine and moves material from the trimmerhead

towards the discharge conveyor at the back. Each belt is 508 millimeters (20 in) wide and 3.4 meters (11 ft) long. The discharge conveyor has 2.1 meters (7 ft) of sliding capabilities to give contractors the choice of discharging into the center of the roadway or placing the material over the stringline.

"We've used the discharge conveyor both ways, depending on which job site we're on," Babb said. "On some jobs, it needs a lot of dirt behind the stringline. Then, on other jobs, it's already too high so we put the trimmed material out into the road so it can be picked up."

Marmot Concrete finally has the three-track trimmer they've been searching for these past few years. It trims the grade cleanly and moves the material efficiently to either side of the trimmer. And production? Yes, grade preparation

production has increased drastically, as well.

"With our old method of trimming, we were trying to achieve 500 lineal meters (1640 ft) per day, per machine," Babb said. "With the new Commander III trimmer that we have now, we're doing about 800 to 1000 lineal meters (2625 to 3281 ft), doubling our old per day production."

The Mahogany Central Beach Site

The Mahogany Central Beach site is a new lake community in the city of Calgary. It's the site of Calgary's largest freshwater lake and includes lake and beach-front access. Developers were having the issue, though, of their sand blowing off the beach and up onto the grassy areas.

"They wanted to make the sand stay on the beach so they needed a wall," Babb said. "The profile that was created has a



The Mahogany Central Beach site is a new community in Calgary, Alberta, Canada, and features lake and beach-front access for its residents.

CG-071504 D13



“It has always been GOMACO and the Commander III for us since day one,” Gerry Babb, Vice President of Operations for Marmot Concrete, explained. “We prefer the Commander III because it does what we need it to do. Its size and its weight work for our needs, and it does exactly what we want it to do.”

2.5 meter (8.2 ft) wide sidewalk with an 800 millimeter (31.5 in) face on it, and at the base of that is where the sand is. We handformed the first 200 lineal meters (656 ft) and it took us a long time because there’s a liner underneath that we couldn’t pound pins into. We actually had to use concrete blocks to brace all of the forms.

“It took us 4500 man-hours to form it. We knew we had another site and 800 lineal meters (2625 ft) more of this profile to come. We had to figure out a better way to do it otherwise it would take us an entire year just to form it.”

They set up stringline in their company’s yard and started conducting tests with their Commander III. Supplying concrete for that large of a profile proved to be their biggest challenge. Two cubic meters (2.6 yd³) of concrete were needed to slipform one lineal meter (3.3 ft) of the profile. They tried dumping concrete on the ground in front of the paver, but that didn’t work. A single conveyor also couldn’t keep up with the concrete demand. They decided the only way they could get enough concrete into the mold would be to mount a second conveyor to the Commander III and dump two ready-mix trucks at one time.

“We didn’t need the trimmerhead for this project, so we bolted a base to where the trimmerhead would attach, and put the conveyor on that,” Babb said. “That would allow us to move the conveyor around to where we needed it to be using the trimmerhead’s hoses and hydraulics. It worked really well.”

Marmot Concrete used their three-track Commander III, with an extra concrete conveyor, to slipform 800 lineal meters (2625 ft) of the unique profile. It was their first time slipforming this profile and they completed the work in just 10 days, working 12 hour shifts.



CG-071503 D12

Two conveyor belts mounted to the Commander III were needed to supply enough concrete to the mold for the unique profile around the lake's edge at the Mahogany Central Beach site.


With testing successfully concluded in Marmot's yard, it was time to move the Commander III to the Mahogany Beach site and begin work on the project. Just ten days later, the 800 lineal meters (2625 ft) of retaining wall with sidewalk was completed.

The concrete for the project was a 32 MPa (4641 psi) city of Calgary mix design with an average slump of 10 to 15 millimeters (0.4 to 0.6 in). Since the profile wasn't slipformed over any steel reinforcing, fiber was added to the concrete. Twelve ready-mix trucks, two trucks every 20 minutes, carried eight cubic meter (10.5 yd³) loads to keep the Commander III supplied.

"The Commander III slipforms such a nice product," Babb said. "When we handformed that first section, we just couldn't seem to get a consistent

vibration using the hand-held vibrators. This time around, using the machine and having the vibrators set up, we didn't have any cracks. The machine creates such a better product than by hand."

It's much faster, too. What Marmot Concrete had estimated could take up to a year to complete, the Commander III and its crew finished off in just 10 days, each day a 12-hour shift.

"The owners were excited because we were able to lower the price substantially just by eliminating all of those man-hours and we were also able to give them a better finished product," Babb said. "These Commander IIIs are capable of doing just about anything, so be innovative and try things. You just have to think outside the box, try it, and it will work." 



CG-071504 D9

The profile is a 2.5 meter (8.2 ft) wide sidewalk with an 800 millimeter (31.5 in) face that prevents the sand from blowing into the grass at the new development.

4400 Slipforms Parapet At 108 Foot (33 m) Elevation

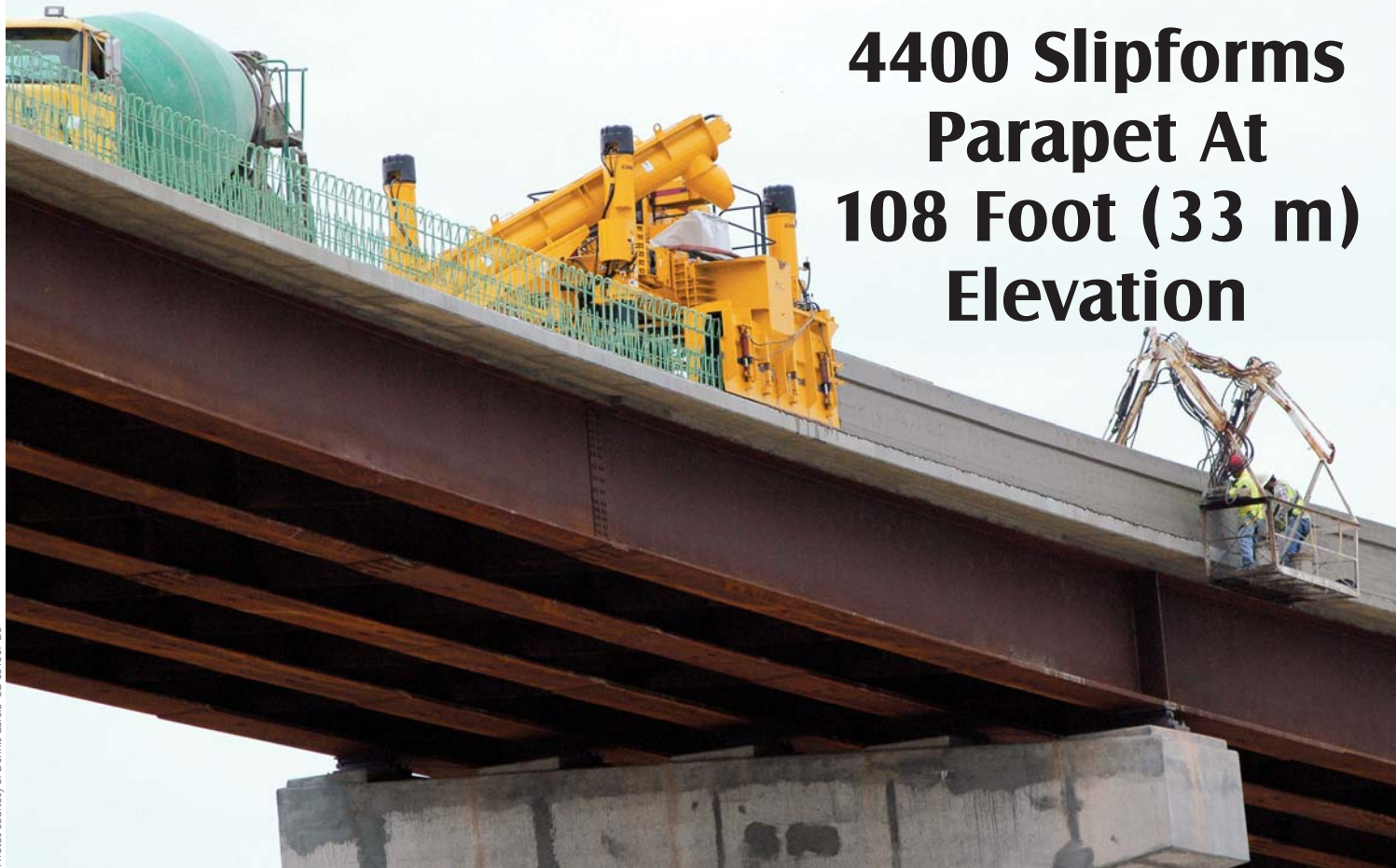
left-side pours.

It's the company's first machine to feature GOMACO's proprietary G+® control system. The tractive system on the 4400 allows for the minimum speed and smooth crawl necessary for a vertical wall. The G+ speed dial turns to adjust in one percent increments and a speed display feedback allows for smooth, precision paving speed control.

Since the 4400 joined the company, it has been at work on the I-40/240 interchange and other projects in the Memphis area. One of the more challenging pours was slipforming the TDOT standard 620-05.01 concrete single slope parapet on the eastbound I-40 flyover. The 4400 and its crew worked on a flyover 108 feet (33 m) above ground level slipforming the new parapet.

"I'll admit it was a little nerve wracking to approach the edge of the flyover and look down towards the ground," Garcia said. "We took extra safety precautions on the project. For example, the guys finishing the outside face of the wall, we only let them

Parapet production averages 800 feet (244 m) during a six-hour day.



Photos courtesy of Dennis Garcia CG-051507 D6

WMC Contracting's crew slipforms new bridge parapet on a flyover for the Memphis I-40/240 interchange project. They are working 108 feet (33 m) above ground level with their GOMACO 4400 barrier paver.

The I-40/240 interchange in Memphis, Tennessee, currently handles 200,000 vehicles per day and has turned into a congested mess because of continued growth on the east side of the city. And it just keeps getting busier. That number is expected to increase to 350,000 in the next 20 years. On September 20, 2013, the Tennessee Department of Transportation (TDOT) let project number CNM305, the Memphis I-40/240 Interchange, to ease congestion and increase traffic flow on I-240 and I-40 and also the local roads connecting into the interstate system. It is the largest project ever awarded by TDOT.

WMC Contracting Company in Trenton,

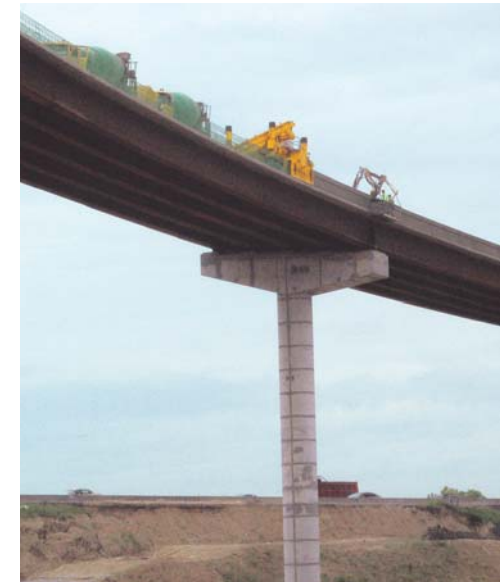
Tennessee, specializes in several different concrete applications including barrier and parapet wall. When the company learned they would be slipforming over 40,000 feet (12,192 m) of four different wall profiles on the Memphis I-40/240 interchange, they knew they wanted to add a new slipform paver to their fleet. The company has always owned GOMACO GT-3600s and Commander IIIs, but for the barrier work, WMC Contracting's president Dennis Garcia wanted a GOMACO 4400 barrier paver.

"What we really wanted with the 4400 was the capability to pour wall with the direction of traffic," Garcia explained. "Plus, I like the 4400's size, the fact that it's

equipped with an auger, and the way it's built to be a barrier machine."

The 4400's 16 inch (406 mm) auger was designed specifically for the low-slump concrete used for barrier applications. It has four-way hydraulic positioning to place the auger perfectly for receiving the concrete and the delivery to the mold which can be placed on either side of the four-track paver.

The operator's platform has a unique U-shape that puts the operator on top of the action and provides a 360 degree view of the entire paving operation. The control console slides from side-to-side to quickly and easily accommodate right-side and



CG-051507 D8

work that in two hour shifts so there was no chance for fatigue to set in. We wanted the guys to stay sharp.”

The I-40 eastbound flyover is the fourth level of the interchange. It’s the first of its kind in West Tennessee and stands over Sam Cooper Boulevard, I-240 northbound and the I-240 southbound ramp bridge. The flyover is 2321 foot (707 m) long, so WMC Concrete had 4642 feet (1415 m) of parapet to slipform on the structure.

The single slope parapet is 36 inches (914 mm) tall, with a seven inch (178 mm) top cap, and 30 inch (762 mm) bottom width. Federal regulations limit the size of the ready-mix loads to 5.5 cubic yards (4.2 m³) per truck so WMC Contracting, instead of running the normal four truck rotation, increased to between six to eight trucks to keep the 4400 supplied with concrete.

The concrete for the project is a state of Tennessee 3000 psi (20.7 MPa) Class A slipform mix design with four to

six percent air content. Concrete slump averages 1.5 inches (38 mm).

Production on the wall averages 800 feet (244 m) of parapet and 90 cubic yards (68.8 m³) of concrete during a six hour day of slipforming. Finishing work is kept to a minimum behind the paver, with a broom finish applied, a clear spray cure, and joints saw cut into the wall at 10 foot (3 m) intervals.

“The 4400 is performing really well,” Garcia said. “On a project like this, with so many things to coordinate, we haven’t had to worry about our new machine’s performance at all. That 4400 is just so smooth. The smoother a machine operates, the smoother the finish will be on the wall, and you only have to look at the wall to see how nice it is.”

WMC Contracting Company continues to work on the project slipforming their different profiles of wall using the 4400’s right-side and left-side slipforming capability. The entire I-40/240 Interchange has a project completion date of July 2017.



“That 4400 is just so smooth,” Garcia said. “The smoother a machine operates, the smoother the finish will be on the wall, and you only have to look at the wall to see how nice it is.”



WMC Contracting slipformed 4642 feet (1415 m) of 36 inch (914 mm) tall single slope parapet on the flyover.



WMC Contracting will be slipforming over 40,000 feet (12,192 m) of four different wall profiles on the Memphis I-40/240 project.

Paving Trends: UDOT, Municipal Agencies Effectively Utilizing Concrete and Asphalt Throughout Utah’s Roadway System

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Concrete was the material of choice for the state of Utah’s I-15 Corridor Expansion Project that replaced 24 miles (38.6 km) of Interstate 15 between Lehi and Spanish Fork.

Good roads are essential to Utah’s future economic growth. That said, whether it is concrete paving or asphalt paving, municipal agencies think long and hard about which surface will provide the most bang for the buck, both initially and long-term.

“Everybody has their own opinions,” Randy Park, Project Development Director at the Utah Department of Transportation (UDOT), says when comparing concrete vs. asphalt. “They both have their place. We have great pavements of both types that have served us well. There is always a personal difference. We look at different material types based on the inconvenience to the traveling public for maintenance.”

Concrete paving is preferred by UDOT and other municipalities for major urban arterials with heavy traffic - including large trucks/diesels and all heavy vehicles - as it offers a longer life span and less maintenance. Park said recent and future concrete paving projects, including I-15

CORE in Utah County and the new ‘The Point’ project from Draper to Lehi, are designed for 40-plus-year life spans, with special concrete mixes that can withstand Utah’s harsh winters.

“Most urban pavements we put down are concrete with 40- to 50-year life cycles,” said Park, who has been with UDOT for 23 years. “Maintenance cycles (for concrete) are less. Asphalt is better on rural I-15 or I-80 as it is not as impactful to the traveling public. The majority of pavement in the state is still asphalt. Concrete was more durable in the past for heavy loads, but that is not the case with SuperPave asphalts. We have pretty much eliminated rutting issues on Utah roads with polymer-modified asphalts over the last 15 years.”

An example of concrete’s durability is I-80 in Salt Lake from 1300 East to Parley’s Canyon, a pavement was initially laid in 1964. Park says UDOT is not looking at replacing that section, since it’s completely serviceable

and in really good overall condition. "As long as we keep up with rehab and maintenance it's fine," he said.

Comparable Initial Costs

While asphalt has typically been less expensive on initial costs, it is not considered as big of a discrepancy as it once was, said Jason Simmons, UDOT Region 2 Pavement Engineer. A 20-year asphalt pavement design - with eight inches (203 mm) on top of a 26 inch (660 mm) base, calculates out to \$43/SY. A 40-year concrete pavement design, with 10 inches (254 mm) of Portland Cement Concrete, four inches (102 mm) of lean concrete base and a 16 inch (406 mm) road base is approximately \$55/SY. Current major pavement projects utilizing concrete include I-15 South Davis project, I-80 from Silver Creek to Wanship, and SR-201 from 5600 West to 9200 West.

In regards to maintenance, Simmons said UDOT has a statewide budget of \$34.3 million for preservation projects and \$103.1 million for rehabilitation projects. "Maintenance repair costs vary depending on the type of project," said Simmons. "If we are doing preservation, we can chip seal a road from about \$1.75/SY or \$6.00/SY for a thin asphalt overlay. When we do a rehabilitation project we usually include three inches (76 mm) of asphalt with a surface treatment, between \$13-17/SY.

"We're always trying to improve durability and life-cycle costs," he added. Ad mixtures and chemicals make concrete cure fast, but reduce durability. We want to improve products to make it cure faster but have the same durability. In regards to asphalt, we're turning our attention to low temperature mixes and testing to see how asphalt reacts when it's cold along with other improvements. If concrete is only 20-25 percent more (initially), when you run a life-cycle cost concrete wins almost every thing."

"We have a number of paving products

that work remarkably well for our state," said Rich Thorn, President/CEO of the Associated General Contractors (AGC) of Utah. "We support educated owners in the selection of the product that is best suited for their particular need. Our members pave the majority of roads in Utah, and we have great firms on both sides. Rather than legislate, we need to spend more energy on helping owners make educated decisions."

Friendly Association Competition

The two major local paving associations are the Utah Asphalt Paving Association (UAPA) and the Utah Chapter of the American Concrete Paving Association (ACPA). Both chapter executive directors say they are committed to working together for the betterment of the entire construction industry, not just their chapter members.

"It should be about what makes sense for the taxpayer community," said Mitzi McIntyre, Executive Director Utah ACPA Chapter. "Concrete has benefits, asphalt has benefits. Engineers need to make that decision on what is the best solution. When you have a healthy pavement competition it is better for a DOT or municipal agency because they get the best price possible. We do not try and be adversarial with (UAPA). It's in everyone's best interest to work together at building better roads."

"I agree and appreciate Mitzi for taking that approach," said Reed Ryan, Executive Director of UAPA. "That is also the approach of our association. We will never attack concrete paving. What we want to do is build better roads through education and training. Approximately 90 percent of roads in Utah are asphalt and that carries a heavy responsibility to work together and be better stewards at what we do."

Better Mix Design; Night Paving

A key project nearing completion is 1300 South in Salt Lake City, one of the busiest roads in the state that runs past Salt

Lake Bees Stadium. The project is being done with concrete for greater durability and less maintenance repairs.

Bill Brown, Pavement Manager for Salt Lake City Corp., said City Engineers and consultants go over multiple factors to ensure best cost, least impact to public, greatest durability, etc.


"This evaluation includes whether the pavement is new construction or rehabilitation, our available project funding, projected maintenance requirements of the pavement, and traffic volumes and loads," Brown said. He added that advantages of asphalt include speed of construction, typically a lower cost of initial installation, better ride quality, and less difficult utility repairs. Concrete offers better durability, little ongoing maintenance, and a reduction in urban heat islands.

"Both pavement types perform well when properly constructed and maintained," Brown added. "Asphalt makes more sense when rehabilitating existing asphalt streets and where funding restrictions require it. Concrete makes more sense when long-term durability and minimal maintenance is desired."

The 1300 South project, being built

by Geneva Rock of Salt Lake, will likely be completed at the end of September, roughly 90 days from beginning, according to Cody Preston, Concrete Paving Manager. This project is unique, he said, because there is a lean concrete layer on top of stabilized road base. Also, none of the utilities are being replaced, and most of the curb and gutter will also remain intact. Major paving operations have been occurring at night from 11:00 p.m. to 7:00 a.m., part of the City's preference to mitigate traffic impacts.

Jay Ritche, Vice President of Geneva's Concrete Division, said this mix design includes one inch (25 mm) to 1.5 inch (38 mm) aggregate, 6.5 bags of cements, 20 percent fly ash replacement of the cementitious materials, low amount of water for minimal slump, and air entrainment chemical additives for freeze/thaw durability.

"We collaborate to make it the absolutely most durable concrete we can make," said Ritchie. "We like as much large aggregate as we can get and still have enough paste to give you a good finish. In concrete paving, it's very stiff (mix) and all handled by the (paving) machine. There is minimal contact with the workers, which contributes to higher durability." 



HW407 209 DZ

The concrete used to pave I-15 CORE project has a 40-year pavement design. It's a 6.5 sack mix design, 60 coarse, 40 fine, with a typical air entrainment of five to seven percent.



“I’ve Seen a lot of Innovations in 50 Years...”

Gary Godbersen, GOMACO’s President and CEO, reflects on the “The First 50 Years”

I guess you could say construction runs in Godbersen blood... and it is where the story of GOMACO ultimately starts. Harold Godbersen, my father, started his own construction firm in Ida Grove, Iowa, USA, in 1938. It would grow to become Godbersen-Smith Construction Company in 1946, and established a solid foundation in the field of heavy construction on both Federal and State projects. As the company grew so did their expertise, and as they learned they perfected the craft of bridge building.

In the early 1960s, a bridge deck project in Minnesota required a mechanical bridge deck finisher and the deck had to be completed end-to-end in one continuous pour. Godbersen-Smith rented a machine, the only one in existence, and used it to finish the deck. After that, Harold started the development of his own double oscillating screed finisher in the workshop at Godbersen-Smith Construction Company. He felt his machine should be a self-propelled unit, completely hydraulically operated, easily adjustable for various widths of bridges, and have built-in versatility to allow it to finish all types of concrete slabs.

The first machines were built by hand and featured a strike-off with two oscillating screeds working in opposite directions. It ran on rails that could be adjusted to the proper elevation. Pneumatic wheels and a hitch were also features that could be added to make it easily transported from one project to the next. The first deck finished with one

of the machines was on Highway 30 near Denison, Iowa, in 1962. It was a success and Highway Commission engineers on-site that day said it was “one of a kind.”

Five of the machines, what would later be named the GOMACO F-500, were built during Iowa’s cold winter months. The machines were rented to Iowa contractors for concrete bridge deck finishing during the paving season. Their popularity grew so much, that whenever Godbersen-Smith

actually wanted to use one of the F-500s on their own projects, they were always rented out elsewhere. Then, when Iowa incorporated the use of the finishers into state specifications, regional contractors began buying the machines, not just renting them, and a new market was created.

GOMACO Corporation, an acronym for Godbersen Manufacturing Company, officially began selling equipment in 1965. The company manufactured and marketed three original products, the RC-120 side discharge conveyor, F-500 double oscillating screed finisher (USA patent

number 3,299,786) and the Spanit® Work Bridge.

Sales of the GOMACO F-500 were concentrated in the state of Iowa at first, but it didn’t take us long to branch out. Soon, the first finisher was sold out of state and into Missouri when they wrote their specifications. I had been building bridges in Minnesota for my company, Highway Bridge. I came back that winter with the intention of helping with drawings, so they could build more machines that winter. But with the machine sale into Missouri, I never made it back to Minnesota. Not long after, we sold into California and the concept of skewability was introduced to GOMACO.

In 1966, GOMACO developed a cone drum or cylinder finisher to meet the needs for skewability and finishing wider bridge decks for freeways. It was introduced as the predecessor of today’s C-450. Of all the machines manufactured by GOMACO, the C-450 concrete finisher made GOMACO a recognized name in the construction industry in the late 1960s.

In 1969, GOMACO expanded into city street and secondary paving markets with the development of the 550 slipform paver, which was an enlarged C-450 on tracks.

In the early 1970s, a fine grade trimmer was introduced and we also began work on a curb and gutter machine, introducing the GT-6000 curb and gutter trimmer/slipformer in 1970.

At the time, contractors were forming curb and gutter by hand with a daily production of 200 feet (61 m). The



A prototype double oscillating screed bridge deck finisher was first used on a bridge deck in Denison, Iowa, in October 1962.

GT-6000 allowed contractors to slipform that amount in 30 minutes! The GT-6000 expanded into other applications, including barrier and monolithic sidewalk and curb and gutter.

GOMACO International Inc. was created in 1973 to develop the worldwide market. For the complete history of GOMACO International, see page 26.

The GOMACO Commander III three-track (GT-6300) was introduced in 1974. It has gone on to become the world's most versatile slipform paver. For over 30 years, it has been recognized around the world as the elite multi-application slipform paver in the concrete construction industry.

It was realized early on that educating contractors about our equipment and its usage was very important for everyone's success. GOMACO University was started in 1975 to help GOMACO machine owners successfully, profitably, and safely operate their equipment. In the past 40 years, over 17,000 students have traveled to the University to attend one of its specialized week-long classes.

In the company's second decade, new pavers were built for the interstate and

mainline paving markets. These pavers included the full-width GP-2500 in 1980 and in 1984, the GP-5000 for mainline and airports. It was the world's largest paver ever built and could pave up to 50 feet (15.2 m) wide.

In addition to larger equipment, the '80s also brought the advancement of computer technology. This was the start of what has now become GOMACO's own propriety G+[®] operating system.

In the early 1990s, we developed the GT-3600 curb and gutter machine capable of slipforming a 24 inch (610 mm) radius. Three steer sensors on the GT-3600 automatically adjust trajectory in and out of tight radii. It also introduced the concept of a sideshifting and vertical adjusting trimmerhead and mold that is now found on our curb and gutter machines.

On the paver side, we developed both the GHP-2800 four-track paver ("H" for its hydrostatic design), and the two-track and four-track GP-4000 slipform paver. The GOMACO IDBI (In-The-Pan Dowel Bar Inserter) for placing dowel bars across the concrete slab on-the-go, and a two-lift paving mold was created soon after for

the GP-4000. Then, GOMACO went from creating one of its largest pavers to its smaller, little curb and gutter machine, the GT-3200.

GOMACO would end the millennium in a memorable fashion. The new generation Commander III, designed for paving in the 21st century was debuted in February. On March 10, 1999, a GOMACO GT-3600 with a three-dimensional (3D) guidance system successfully slipformed the first curb and gutter radius without the use of stringline on a project in Alabama. Then, on September 14 of that year, Forrest Avenue in Ida Grove, Iowa, became the first street in the United States to be trimmed to grade and slipformed with 3D guidance. A GOMACO 9000 trimmer prepared grade and a GP-2600 two-track paver slipformed the new street 27 feet (8.2 m) wide with an integral curb.

Other innovations followed, from new placers, slipform pavers, barrier pavers, sidewalk pavers, trimmers, the GOMACO Smoothness Indicator (GSI[®]), the G+ control system, the advancement of 3D guidance, and more. GOMACO has always strongly supported its Engineering and



CG-097412 #2

The first Commander III (GT-6300) went to work in 1974 on a curb and gutter project in Milwaukee, Wisconsin.

Research and Development teams giving them the resources necessary to innovate. It's with great passion and determination that GOMACO has been and continues to remain the worldwide leader in concrete paving technology.

GOMACO has always taken great pride in the relationships it has with our contractors, our customers. Some of GOMACO's greatest innovations have been a result of contractor ideas, working together on them, and creating the machine to fulfill their specific requirements.

We're at work on a complete corporate history that will be published later this year. It's impossible to cover our entire history in just two pages of the *GOMACO World* magazine. Perhaps the most important thing to take away from 50 years... For all of us at GOMACO, there is nothing we enjoy more than visiting with our friends about concrete paving. It has been an honor to work with our customers, distributors, suppliers, and media personnel through "The First 50 Years." Thank you. We sincerely look forward to all the innovations yet to be created for concrete paving in our next 50 years.

Harry



HW-118405 #15A

The GOMACO GP-5000, built in 1984, was the world's largest paver and had the ability to slipform 50 feet (15.2 m) wide. It was outfitted with a diverter plow and strike-off plate, two tie-bar inserters, and an automatic dowel bar placer for slipforming a project on the German Autobahn.



HW-117408 #4

Harold (left) and I discuss a paving project in November 1974.

A New Direction for GOMACO's International Department

Kent Godbersen, GOMACO Corporation's Vice President of Worldwide Sales and Marketing, has announced the appointment of Randy Bean as the new Director of International Sales, effective May 1, 2015. The appointment is the result of Bryan Schwartzkopf retiring after completing 41 years of service to the company.

Bean has been with GOMACO for 27 years. He started with the company in 1987 in the Production Control department. In 1993, he joined the International Department when he was named International Sales Coordinator.

"Randy has been a part of our succession planning and has played a major role in international sales for several years," Godbersen said. "He is a part of the GOMACO culture and has the attention to detail and the work ethic that we are known for here in the Heartland of the United States. Randy has coordinated a large number of projects with our worldwide distributor network and has provided guidance in specifying equipment for highways, canals, tunnels and other concrete applications. He will now have a leadership role in our directive to provide our customer base throughout the world with the leading sales and service support that our international team is recognized for in the concrete paving industry."

Schwartzkopf became Director of International Sales in 1987 and officially retired from GOMACO on May 1.

"Bryan has been a part of the GOMACO family for as long as I can remember," said Godbersen. "His knowledge, dedication and professionalism are well known throughout the construction industry. We are grateful for

his four decades of service to our customers and our distributors around the world and wish him all the best in his retirement."

Philip Holst has joined GOMACO, taking Bean's former position as the International Sales Coordinator. He is a graduate of the University of Iowa with a bachelor's degree in business administration and finance. He will be responsible for coordinating with international sales representatives on technical questions and quotes, processing factory orders and change orders for international customers, and coordinating shipping.

GOMACO first created its international division, GOMACO International Inc., in 1973 with the goal of further developing product distribution and expanding exports in worldwide markets. In 1977, the GOMACO International marketing program included development of the markets of Mexico, Central and South America and the establishment of a GOMACO distributor organization.

From there, GOMACO continued forward and expanded into the European market establishing distributors in Germany (1980), Belgium, and France (both in 1983). GOMACO International Ltd. was established in the United Kingdom in 1983 as the European sales, service, and parts headquarters of GOMACO Corporation. Their original office was located in Slough, Berkshire, England.


Early marketing efforts were a success. GOMACO Corporation was honored in 1980 as a national recipient of the President's "E" Award, an honor for international export excellence administered by the U.S. Department of Commerce. Then, in 1984, GOMACO International was honored as

a national recipient of the "E Star" Award for continued expansion of exports. It is the highest export award to be conferred on a U.S. firm. The award was presented to GOMACO International in a special presentation by President Ronald Reagan at the White House in Washington, D.C.

GOMACO's international distributor network and presence continued to grow throughout the 1990s and into 2000. GOMACO International Ltd. had outgrown their space in Slough and in February 2010, they purchased a new facility and moved their offices to Witney, Oxford, England. The larger facility with a storage yard allows them to provide better customer service, including an increased parts inventory and additional space to stock paving equipment for quicker delivery, and an expanded shop area to service equipment.

GOMACO International Ltd.'s offices are located at Units 14 & 15, Avenue 1, Station Lane, Witney, Oxford, OX28 4XZ, England. They provide sales and support for the United Kingdom, as well as for GOMACO distributors in Europe, Russia, Africa, and the Middle East.

GOMACO's International Department provides sales and support for GOMACO distributors and customers in Mexico, Central and South America, Asia-Pacific, and Australia. They also assist, as needed, with the GOMACO International Ltd. offices.

GOMACO has sent equipment to over 125 countries in the world and has been involved in the major concrete paving projects, including airports, tunnels, canals, motorways, as well as other specialty paving applications. 



Randy Bean is the new Director of International Sales. He has been with GOMACO for 27 years.



Philip Holst joins GOMACO as the new International Sales Coordinator.



Bryan Schwartzkopf has retired from GOMACO after 41 years of service to the company.

GOMACO® Snapshots



A GOMACO RTP-500 places concrete in front of a GHP-2800 paver at work on the Baltimore/Washington International Thurgood Marshall Airport in Baltimore, Maryland. A complete listing of airports that GOMACO equipment has been on can be found at www.gomaco.com/airports.



A GOMACO C-450 with a power transition adjuster (PTA) finishes a bridge deck 64 feet (19.5 m) wide in Dickinson, North Dakota.



Ten foot (3 m) wide sidewalk is slipformed with the GOMACO GT-3200 sidewalk paver in a new development in St. Peter, Minnesota.



A GOMACO GT-3600 slipforms 810 millimeter (31.9 in) tall barrier wall on a project in Santo Domingo, Dominican Republic.



A GOMACO GHP-2800 with a 5400 series mold and Topcon 3D guidance slipforms a 25 feet (7.6 m) wide, 22 inch (559 mm) thick taxiway on a project in Goldsboro, North Carolina.



A GOMACO GP-2400 with 5400 series bar inserter follows a PS-2600 placer/spreader on a project in Hamburg, Pennsylvania.



A GOMACO GHP-2800 with IDBI and two paver-mounted GSI® units slipforms Highway 67 with a Topcon 3D guidance system between Cash and Walnut Ridge, Arkansas.



A GOMACO GT-3600 slipforms curb and gutter for a new street in Zingem, East Flanders, Belgium.

HW-051509 D13

CG-101418 D2

HW-061502 D11

HW-041511 D14

CG-011503 D2

CL-061501 D8

HW-061506 D3

CG-011506 D16



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GP-4000 with G+® Controls Goes to Work on the Denver International Airport



One of the first GOMACO GP-4000 pavers to feature the exclusive G+ control system is at work on the Denver International Airport in Denver, Colorado, for Villalobos Concrete Company. The four-track GP-4000 is slipforming paving passes 25 feet (7.6 m) wide and 18 inches (457 mm) thick on the new runway. It is equipped with a Leica Geosystems

3D guidance system. It's the first time stringless paving for Villalobos Concrete and they have adapted well to the new system and its many advantages.

Villalobos Concrete is based out of Denver and are currently at work on several high-profile projects in the area with their large inventory of GOMACO pavers and concrete paving support equipment.