Vol. 44, No.1

GOMACO WORLD®

The New GP3: The World's Most Intelligent Paver

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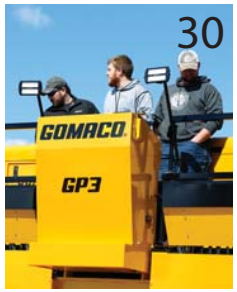
GOMACO® WORLD



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Slipforming Success with the New GOMACO GP3 Concrete Paver

Photo by Rodney Harper HW-081639 D9

The new GP3 has been used on projects all around the world, including Pittsburgh, Pennsylvania, where Swank Construction is reconstructing five miles (8 km) of Interstate 376 eastbound and westbound lanes.

GOMACO Corporation introduced the new GP3 slipform paver for widths up to 30 feet (9.14 m) at World of Concrete in Las Vegas, Nevada, and then to the international market at Bauma in Munich, Germany, earlier this year. The dual-telescoping GP3 is the first in a new family of the world's most intelligent pavers. It features Smart Frame Widening to accommodate multiple width changes, Smart Leg Positioning and Smart Steering with full-steer tracks, all controlled by the GOMACO-exclusive G+® digital control system.

The new GOMACO GP3 slipform paver has been designed to easily accommodate multiple width changes. It features a roller frame with dual-telescoping capabilities of up to seven feet (2.13 m) on each side of the paver, for a total of 14 feet (4.26 m) of automatic frame widening. Hydraulic telescoping frame members in the front and rear of the mainframe allow the dual telescoping capability. The GP3's dual-telescoping frame is the first in the industry to incorporate Smart Cylinders. The Smart Cylinders provide the width reference to the G+ controller and uses that information for steering setup and individual track speed control through radii. Automatic camber is built into the frame as it extends with the

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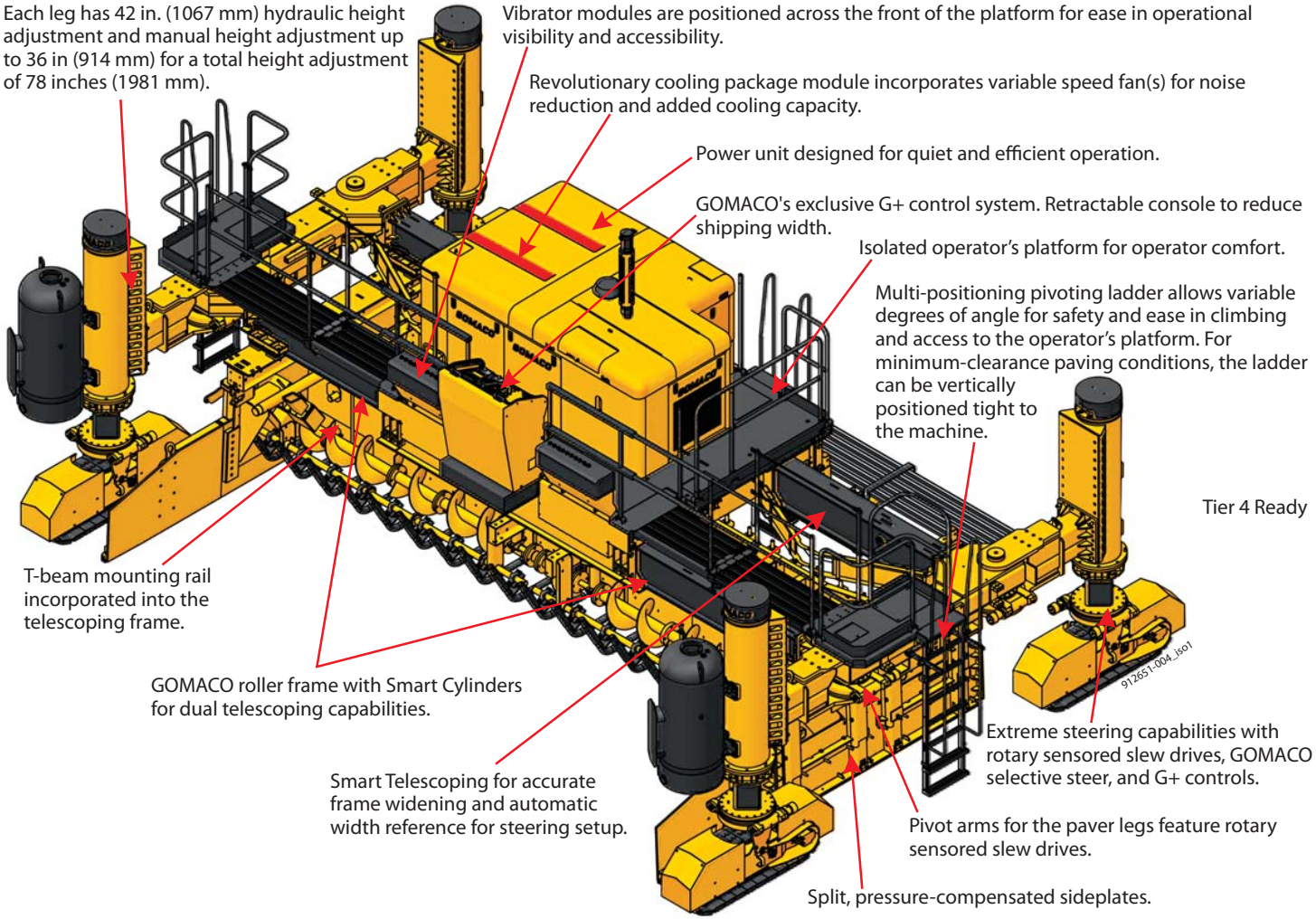
unique GOMACO roller frame. The T-beam mounting rail is incorporated into the telescoping frame.

The GP3's Smart Leg Positioning includes rotary sensored slew drives on the pivot arms of each of the paver's four legs. The Smart Pivots on the legs provide the G+ control system with information on the angle of rotation and work together with the track rotation sensors to maintain the tracks in the straight-ahead steering line. Rotary sensored slew drives are also located on each of the paver's four tracks for the ultimate in Smart Steering technology and extreme steering with the tracks having the ability to steer farther than ever before. The Smart Track Rotation provides the G+ control system with exact track location and position. The GP3 easily turns radii with Smart Leg Positioning and Smart Track Rotation. They work with the G+ control system to automatically control the direction and speed of the track travel through a radius.

The new paver has been designed for easy transport. The paver is put into the Transport Mode by simply driving the legs around to the transport position with the GP3's tracks and hydraulic rotational sensored pivot arms. With the legs in the transport position, G+ travel is switched to "Transport" for complete control. The GP3 has a retractable, sliding operator's console to reduce the shipping width of the machine. The paver has a minimum transport width of only 8.51 feet (2.59 m) and 33.3 feet (10.15 m) minimum transport length.

The GP3 was designed to be easy to operate with the G+ control system, as well as comfortable for the operator while offering a complete view of the entire job site. Vibrator modules are positioned across the front of the operator's platform for easy accessibility and operation visibility. G+ allows quiet running technology and also load-sensed hydraulics for maximum paving performance and optimized fuel efficiency. The paver has an isolated operator's platform for operator comfort during a long day of slipform paving. The platform is easy to access with multi-positioning, pivoting ladders. The ladders allow variable degrees of angle for safety and ease in climbing. For minimum-clearance paving conditions, the ladders can be vertically positioned tight against the paver.



G+ Connect™ allows all the smart accessories and guidance system for the GOMACO paver to be easily interfaced. Simply "connect" a machine guidance system, IDBI, tie bar inserter (TBI), power transition adjuster (PTA), GOMACO Smoothness Indicator (GSI®) and more to the GP3 slipform paver. The GP3 can also feature the latest in telematics and GOMACO Remote Diagnostics (GRD).

The introduction of the GP3 has been a huge success for GOMACO with the paver being sold in several different markets in the United States and internationally, as well. Contractors comment that right from the start, their new GP3s perform flawlessly to become a valuable and versatile asset to their paving operation. For two featured contractors, the GP3 is their first experience with GOMACO concrete slipform pavers.

Read more about the GP3 paver at work on the following pages of the GOMACO World...

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Photo by Zach Tromp HW-051606 D14

Swank Construction Company has a long-time roadbuilding history, and they chose the GOMACO GP3 with Trimble 3D guidance for their mainline paving projects around the Pittsburgh area of Pennsylvania.

Swank Construction Company

New Kensington, Pennsylvania

Swank Construction Company has a long and prestigious history in and around the Pittsburgh, Pennsylvania, area. They are a fourth generation family-owned construction company that traces their roots back to approximately 1930.

"No one knows exactly when we started, but we're pretty sure around 1930 my great-grandfather started business with a mule and a wagon full of bricks," Andrew Swank, an owner of Swank Construction, explained. "Most of our time has been as a concrete road and bridge constructor, so through the history of American roadbuilding, we've been there."

It wasn't until recently though, that the company decided to get into the concrete slipform paving market. They meticulously did their research on concrete slipform pavers and their different features. They knew they wanted a 3D machine guidance system with it and the paver needed to be versatile, easy to transport, and able to work in tight-clearance conditions.

After comparing the various pavers and each of their attributes, Swank Construction ultimately narrowed down their search to the new GOMACO GP3.

"Travis Brockman, our GOMACO district representative, and the whole GOMACO group were amazing and just blew everybody away, to be honest," Swank said. "They talked a big game in the sales pitch, which all salesmen do, but Travis has backed it up and so has the rest of his team. They've been out here since day one helping us, getting us familiar with the machine. It's been fantastic so far."

Swank Construction's GP3 was delivered right to the project at the intersection of Interstate 376 and the McClaren Road, Exit 4, in Pittsburgh. Swank is reconstructing five miles (8 km) of both the eastbound and westbound lanes of the interstate, which is the main access road to Pittsburgh International Airport.

The new three-lane roadway will be completed in different paving widths ranging from a 15 foot (4.6 m) wide shoulder, to a 22 foot (6.7 m) wide pass which includes a 12 foot (3.7 m) driving lane with 10 foot (3 m) shoulder. The company has also purchased an IDBI attachment to insert transverse joint bars in the new pavement on-the-go. The GP3 with IDBI will

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"One of the big problems with this project is it's so broken up and all over the place," Douglas said. "We have actually spun the paver, walked it up on a lowboy with the mold under it, moved it, and poured the same day with it because there's really no set up. Spin it, set it, set your guns, and away you go."

be paving 24 feet (7.3 m) wide. All of the pavement is 11 inches (279 mm) thick.

The GP3 has been equipped with a Trimble Navigation Ltd. 3D machine guidance system eliminating stringline from the project. In fact, the whole project is being constructed using the Trimble system, from milling to grade preparation to final concrete paving.

During construction, traffic flow must be maintained on the major artery into the city. Swank Construction began work on the westbound lanes of Interstate 376 earlier this year. As traffic continues to flow on two existing lanes of the interstate, they have removed and are replacing the existing inside shoulder, the first phase of the project. The new roadway is being built to last from the ground up.

"There's 24 inches (610 mm) of stone with a four inch (102 mm) asphalt permeable base placed over the rock," Lou Schultheis, Construction Manager for Swank Construction, said. "We put 11 inches (279 mm) of concrete on top of that, three lanes wide for five miles (8 km) east and five miles (8 km) west."

Concrete for the project is a Pennsylvania Department of Transportation (PennDOT) double A mix with a slump averaging two inches (51 mm). Swank's batch plant is located approximately 12 minutes away and concrete is delivered in tri-axle dump trucks, each carrying a 12 cubic yard (9.2 m^3) load. The concrete is dumped directly onto grade in front of the GP3 slipform paver.

The GOMACO GP3 is equipped with a 5400 series paving mold featuring a 54 inch (1372 mm) finishing length from front to back, edge slump adjustment, and a self-supported transition adjuster (TA). The 5400 series mold also has hydraulic vertical hinged sideplates that are self-contained inside the mold for track clearance.

"We decided on the GP3 because of the stringless and the paver just seems more advanced, more maneuverable. This job has a lot of tight applications and tight quarters," Pete Douglas, Superintendent for Swank Construction, said. "For this first phase, we only have about 2.5 feet (0.8 m) from existing edge of old concrete to new concrete. We need just enough room for the track to fit. The pivoting legs and the GP3 come in handy."

Trimble's PCS900 paving control system uses total stations, sensors on the paver, and their software to guide the GP3. The 3D model of the construction site is prepared using their Business Center - HCE software. It has a virtual "drive through" feature allowing contractors to address any potential issues with the model before concrete paving begins. Swank uses three to four total stations to control the alignment of the paver during slipforming with precise millimeter control of the mold. When its time to switch from one total station to the next, the system will automatically and instantly transition to the next total station. The feature is called a "hot swap" and there's no need to stop the paver. The same tolerance between total

Photos by Kelly Krueger HW-061619 D1

No stringline is necessary on Swank's project. The paver is sensing off the existing slab for elevation control on this add-on lane and the G+ controller maintains the four percent cross slope.

HW-061621 D14

A steer wand sensing off a steel plate bolted to the back leg of the GP3 controls rear steering and grade. The GP3's two right-side legs are locked to grade.

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HW-061621 D5

Swank's GP3 paver is equipped with a GOMACO 5400 series mold with a self-supported transition adjuster (TA). The 5400 series mold is also equipped with hydraulic vertical hinged sideplates for track clearance on this project with tight-clearance paving conditions.

When scab-on paving, the GP3's steering wand on the front of the paver is sensing off the existing slab for grade and steering.

stations is automatically maintained for a smooth transition from one point to the next.

"We've been trying to keep total station distance around 300 feet (91.4 m), but we have a lot of light poles along here and they become a giant obstacle when you start setting the guns up," Douglas said. "More often then not, we find ourselves putting the guns a lot closer just because of obstacles. Our surveyor stays busy just because we don't have the luxury of open real estate beside us. It's a rehab, not a new job."

PennDOT uses the International Roughness Index (IRI) as their standard for pavement rideability. The specification requires an IRI of 70 or below. Anything over 70 requires corrective action. The GP3 is equipped with mold-mounted GSI® (GOMACO Smoothness Indicator) units constantly measuring and reporting the smoothness of the new pavement.

"We were in the 30s last week,"

HW-061612 D4

G+ Ground Control is available on the GP3. It's a remote operator's screen that can be positioned anywhere on the paver and allows the ground crew to see the same image that's on the G+ controls at the operator's station. The crew can monitor their GSI readings, Trimble information and G+ operating status. Ground control also allows the ground crew to fine tune the paver and make adjustments to the settings.

HW-061612 D14

The GSI smoothness readings can be viewed on the GSI display (right monitor), as well as on the new G+ Ground Control display screen (left monitor).

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Douglas said. "We're milling subgrade with the Trimble system on our model and we're seeing each layer come back flat and nice and it's coming back in the ride. I've only worked around stringline before, so it's all new to me. I am extremely impressed."

Swank can monitor their GSI readings, along with Trimble 3D and G+ information all from ground displays located within eye level of personnel. The G+ features a remote operator's screen with the same graphical display as the operator's station. It's called G+ Ground Control and allows ground personnel to see everything on the screen that the operator does on top of the paver. Ground Control also gives them the ability to fine tune the paver and make settings adjustments.

"Typically we have the three boxes on the side of the paver," Douglas explained. "We have the box that's basically the reflected image of what the operator sees, which we have some control on that. Then, we have the Trimble box which is all run from the ground, trading guns on and off, and then we have the GSI box for the ride spec."

Portions of the 15 foot (4.6 m) wide shoulder with four percent cross slope are scabbed onto the existing two lane roadway. Even for the scab-on work, Swank Construction is remaining stringless. G+ controls allows them the added versatility with various sensoring capabilities.

"We're running grade and steering off the existing slab and running cross slope with the paver locking the other two legs," Douglas explained. "We're actually running off sensors, no stringline. We have a sensor on the slab and then we took a steel plate, bolted it to the back leg, and that runs our back grade and the back steering."

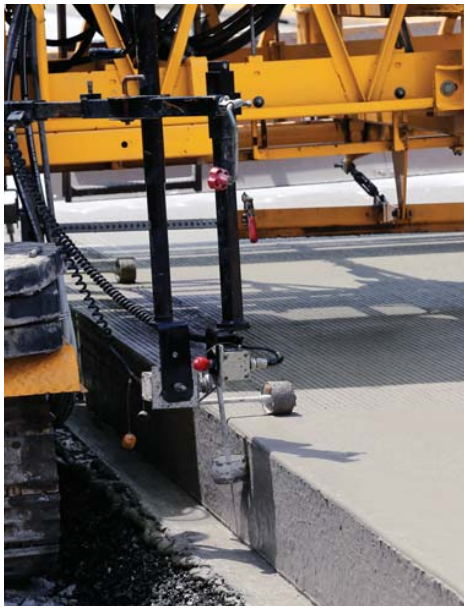
A GOMACO T/C-600 texture/cure machine follows the GP3 applying a longitudinal tine and white spray cure. Wheels attached to the sensors on the texture/cure machine allow steering to be referenced off the side of the new slab and grade control to be referenced off the top for this stringless project.

The new concrete slipformers are quickly becoming experienced veterans as they continue the shoulder work on the project and progress to the driving lanes and eventually outfit their GP3 with the IDBI attachment. The GP3 and its versatility has proven itself already in the tight project conditions. It's transportability has also been a major factor. Even though it hasn't moved off the interstate, it's been loaded up and moved several times along the length of the project.

"One of the big problems with this project is it's so broken up and all over the place," Douglas said. "We have actually spun the paver, walked it up on a lowboy with the mold under it, moved it, and poured the same day with it because there's really no set up. Spin it, set it, set your guns, and away you go."

Swank Construction's GP3 paver is the third one manufactured by GOMACO, with serial number 912600-003. Sometimes, the company has hesitated in the past with buying a new model.

"I have hesitated before buying the newest model of something, but didn't really hesitate here except maybe in the back of my mind and thinking I hope this thing works fine just like the rest of the GOMACO fleet," Swank said. "If they're selling you, they're being honest with you. They do follow through. They're not blowing smoke. It's been great and we're probably still rookies, but we're fast turning into experienced pavers now. We're getting down the road." GOMACO



HW-061618 D9

The GOMACO T/C-600 texture/cure machine has wheels attached to the sensors to steer it on the stringless project. Steering is referenced off the side and grade control is referenced off the top of the new concrete roadway.

HW-061618 D3

The T/C-600 machine applies a white spray cure and longitudinal tine finish to the new Interstate 376.

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Photos by Kelly Krueger HW-081609 D13

Charles Vrana & Son Construction Company

Omaha, Nebraska

Charles Vrana and Son Construction Company, based out of Omaha, Nebraska, have been actively building a variety of construction projects large and small since 1909. They're a family-held business and one of their specialties is civil and heavy highway construction. They have owned several GOMACO 9500 trimmer/placers through the years and they are now the proud owners of a GOMACO GP3. It's the first GOMACO concrete slipform paver in their extensive fleet of roadbuilding equipment.

Don Sell, Equipment Manager for Vrana, was very involved with the ordering of the new paver, specifying the mold, and other paving attachments. The list of requirements included a telescoping mold, a front bar inserter, and a machine that could be easily transported with the paving mold still attached.

"We went with the GP3 with a 5400 series mold spec'd out to 26 feet (7.9 m) wide," Sell said. "The mold has telescoping end sections in it because we do a lot of paver width changes from one job to the next with one or two foot (0.3 to 0.6 m) increments. The versatility of not having to drop that mold to make a paver width change is something we can do in an hour versus half a day."

The GP3 is also outfitted with a rear loading and front inserting 5400 series bar inserter. The inserter uses a bar loading chain system so the bars travel in a flat, straight path for maximum placing efficiency. A bar box mounted on the rear of the GP3 holds extra bars for easy access and loading of the inserter's bar magazine. A G+ control box for the 5400 series bar inserter is mounted to the rear of the paver and manages the bar placements.

One of the first projects the GP3 was put to work on is a new commercial development in Sarpy County on Schram Road and 140th Street, south of the city of Omaha. The paver is being used to slipform new roadway, as well as the entrance into the development.

"It's booming in Sarpy County right now and for this 40 acre (16.2 ha) site we're paving 3200 feet (975 m) on Schram Road and we have 2100 feet (640 m) on 150th Street," Jarrod Ryan, Project Superintendent for Vrana, said. "On Schram Road we're paving 25 feet (7.6 m) wide with integral curb on the right. When we go down 150th Street, we have a 42 foot (12.8 m) wide slab, but we're going to break it into two 21 foot (6.4 m) pours for the crowning. We're also going to pour the entrance for the development while we're here and that's 26 feet (7.9 m) wide and a third width."

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On the GP3's first pour on the new development, Vrana slipformed 1600 feet (487.7 m) of 25 feet (7.6 m) wide, nine inch (229 mm) thick pavement with a six inch (152 mm) integral curb. Paving production averaged up to 250 cubic yards (191 m^3) per hour, which is the production limit of the ready-mix plant.

"We have 15 ready-mix trucks supplying us and we're shooting for 250 cubic yards (191 m^3) an hour," Ryan said. "That's the best ready-mix can do, but we can go faster than that with this paver. The paver, I guarantee, will go faster than that."

The ready-mix trucks dump the concrete into the hopper of a GOMACO 9500 placer working from the haul road in front of the GP3 paver. The concrete mix design is a city of Omaha standard 6.5 sack mix. Slump averages 2.5 inches (64 mm).

The 5400 series bar inserter is placing a 30 inch (762 mm) long, #5 bar every 33 inches (838 mm) into the new slab.

"We like the bar inserter and it hasn't missed a bar on any of the pours we've used it on," Sell said.

HW-081614 D1

The operator of the 9500 uses the placer's remote control to move the placing belt as it puts concrete on the grade in front of the GP3 paver.

The road is being built with future expansion in mind. The left side of slab has a keyway so dowel bars can be drilled and inserted to scab-on an additional two lanes. The 25 foot (7.6 m) wide pavement has a six foot (1.8 m) offset crown and the 21 foot (6.4 m) wide pavement will have an eight foot (2.4 m) offset crown to accommodate the future lanes. The offset crowns are managed with the 5400 series mold's self-supported, computerized power transition adjuster (PTA).

The GP3 with 5400 series mold is producing an outstanding new roadway. The pavement edges are sharp and the keyway design unblemished. According to Sell, it's a variety of factors that combine to create a great edge.

"It's your concrete mix, your slump, and the machine itself, that allows us to get that real crisp, sharp edge," he said. "It's a perfect edge, the keyway and everything on it. The curb is the best curb I've seen in 20 years of paving. We're happy with the final product of the paver and our yields have been excellent."

Finishers working behind the GP3 have very little to do. Most of the time, bull floats are left alone along the side of the new pavement. A burlap drag finish is all that's necessary. A white cure is hand sprayed behind the paver.

"We don't have a smoothness specification on this project and I really wish we did right now because it's looking good," Ryan said. "We would have no issues meeting it, I guarantee you that."

"The technology of the machine is phenomenal," Sell added. "Ten years ago, I would have never thought of something like this, but it has come a long way."

Part of that technology includes telematics and the GOMACO Remote Diagnostics (GRD). It allows GOMACO's service technicians in Ida Grove, Iowa, to

HW-081616 D7

Vrana has equipped their GP3 with a 5400 series mold and bar inserter. The rear-loading, front inserting bar inserter is placing a 30 inch (762 mm) #5 bar every 33 inches (838 mm) into the new roadway.

HW-081615 D10

The new GP3 with 5400 series mold produces a smooth, clean and sharp edge and keyway on this new roadway project for a commercial development in Sarpy County, Nebraska.

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"I like the versatility of the machine and the ease of mobility on site where you can counter-rotate the machine right in its own tracks," Sell said. "The slew drives on the steering and those pivot arms are phenomenal. It just gives us so much more room to negotiate the machine around a job site, especially at 25 feet (7.6 m) wide."

monitor and troubleshoot machines in the field. It was a helpful feature for Vrana when they were preparing the GP3 for a pour and a steer sensor went out on them. GOMACO was able to troubleshoot and diagnose their issue and then have a new sensor in Vrana's hands in Omaha within two hours.

"I can't say enough about the GOMACO support, they have been very helpful with us," Sell said. "This is our first GOMACO paver and their field technicians are on top of their game. They do whatever it takes to get it done."

Vrana has several projects planned for the GP3 within and around their home base of Omaha, along with more work in Sarpy County. They'll be moving the paver around a lot on job sites and loading it up on a lowboy for it to be trucked from project to project. The loading is made easier with the GP3's Transport Mode. The operator just drives the paver's four legs and tracks around to the transport position, and then switches G+ from travel to transport for complete control.

"I like the versatility of the machine and the ease of mobility on site where you can counter-rotate the machine right in its own tracks," Sell said. "The slew drives on the steering and those pivot arms are phenomenal. It just gives us so much more room to negotiate the machine around a job site, especially at 25 feet (7.6 m) wide.

"When it's time to transport it, we just fold it up into transport mode. We swing the legs, walk them right around, switch from pave mode to transport, and load it on the lowboy. It takes us about 15 minutes tops to get it from pave to transport mode. We're able to transport it with the mold underneath it. All we do is fold up the work bridge, swing the wings in, and we're ready to go and legally haul it for width and height." **GW**

HW-081613.D17

Vrana has to make one or two foot (0.3 to 0.6 m) width changes on many of their projects so they equipped their 5400 series mold with telescoping end sections to make the changes faster and easier.

HW-081616.D7

The new roadway is 25 feet (7.6 m) wide with integral curb on the right side. Very little hand finishing work is done behind the GP3 because of the smooth finish the paver produces.

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Photos by Kelly Krueger HW-081626 D7

Hawkins Construction Company

Omaha, Nebraska

At the beginning of this concrete paving season, Hawkins Construction Company was in the market for a new concrete slipform paver. The paver would need to be versatile, capable of paving at different widths, fit inside urban restraints, and be easily transportable from one job site to the next around the city of Omaha. Representatives from Hawkins visited GOMACO for a first-hand look at the new GP3 paver. After seeing it in person, they knew it was the paver they needed.

"When we visited GOMACO, we looked at the GP3 and saw that it would fit our needs for this year, as well as being very compatible for future use," Todd Allen, Paving Superintendent for Hawkins Construction, said. "Having a smaller mainline paver that can pave four feet (1.2 m) wide in an urban area was very attractive to us. Then, we can go to 26 feet (7.9 m) wide with the same machine, no frame extensions to put in or take out. The machine with the G+® system works together as a cohesive unit, it's very mobile, and gives us the ability to use 3D, GPS and sonar."

Hawkins uses two different kinds of stringless guidance systems with their paver, Leica Geosystems and Trimble GPS. G+ Connect™ seamlessly integrates both systems with the G+ control system. The Trimble system uses a paver-mounted Trimble GPS receiver with GOMACO sonic sensors. They work with the G+® controller and its digital slope system to steer the paver and allow the mold to match the existing pavement. Hawkins Construction uses the 3D solution on their shoulder scab-on projects. The Leica 3D system with total stations is used on their free-standing pours.

The company also was in the market to purchase a texture/cure machine. Again, they went for the newest technology and purchased the GOMACO four-track T/C-5600 with the G+ control system. It has a four-track design with each track having 90 degree turn capabilities for easy width changes and easy transport, while G+ provides electronic-over-hydraulic steering and grade control for tining accuracy.

Both GOMACO machines, featuring tracks with 90 degree turn capabilities, allow Hawkins to quickly and easily move the equipment around in difficult job-site conditions. They also eliminate support equipment necessary to transport them. The paver and the texture/cure machine can just swing their tracks to the transport mode and drive right onto the trailer for transport. No ramps or other extra equipment is needed.

Hawkins Construction took delivery of their new GP3 paver on Thursday, June 16.

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The next morning, June 17, at 7 a.m., they were up and paving 26 feet (7.9 m) wide with a six inch (152 mm) integral curb on both sides of the new roadway. The GP3 is equipped with a GOMACO 3100 series open-front mold with a telescoping diverter plow instead of an auger out front to move the concrete.

"It takes the auger out of the equation for quick width changes," Allen explained. "We are constantly changing widths on the machine and the plow takes the auger out of the mud box to facilitate quicker and smoother width changes. The plow also can be easily adjusted to the width we need. Plus, we're familiar with the plow and feel we can put more concrete in the areas we need and knock down the concrete pile quicker before it gets to the mold."

> ***"Basically, the GP3 is used on every single one of our jobs in one way or another," Allen said. "Our bread and butter is the ability to move the paver around to what suits our needs, where we're paving at, and we're constantly limited. The ease and ability of this machine to go from paving to transport to the new job, and back to paving is a very key element."***

The GP3's first paving project was on Q Street on the west side of the city of Omaha. Hawkins used their Leica 3D guidance system on the project. The paver was also equipped with a 5400 series bar inserter. They slipformed a 2300 foot (701 m) long portion of Q Street.

"At least 50 percent of our work has some kind of four or six inch (102 or 152 mm) integral curb application," Allen said. "Our mold is built with two foot (0.6 m) left-hand and right-hand mold inserts that we can swap out with the different curb inserts to make those changes easier."

Hawkins paves with a typical state of Nebraska concrete mix design. Slump averages two inches (51 mm).

"The GP3 puts out a really nice slab," Allen said. "We've used it more for urban, non-profilograph jobs this season, but we're sure we're going to get a good ride out of the machine once we start working on some slabs with decent lengths. Next year we're looking at some job where we'll be doing some full width profilograph work."

This year, Hawkins has kept the GP3 busy half-width paving and slipping shoulders, with the occasional 26 foot (7.9 m) wide mainline project. Production has been very good with the new GP3.

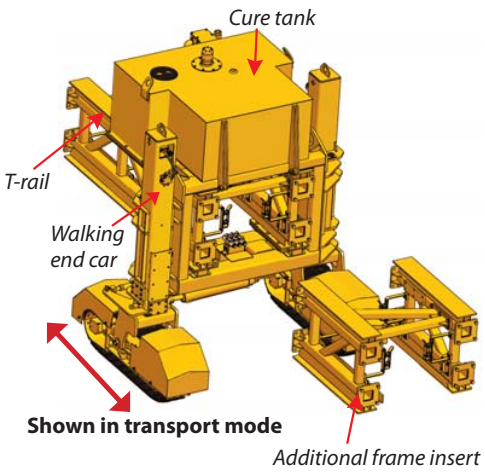
"On one shoulder paving project, we used the Trimble GPS with GOMACO sonic sensors to pave. With that shoulder solution, we did 11,000 feet (3353 m) of five foot (1.5 m) wide shoulder in a 10 hour period, so it's effective for our usages."

Its versatility and ability to pave such a variety of widths has made it an indispensable tool for the company.

"Basically, the GP3 is used on every single one of our jobs in one way or another," Allen said. "Our bread and butter is the ability to move the paver around to what suits our needs, where we're paving at, and we're constantly limited. The ease

CL-081604 D18

The new four-track T/C-5600 features patented technology along with GOMACO Tracer Texture Control to produce and maintain consistent tining depth.



The T/C-5600 features easy width changing abilities. Frame sections can be added or removed by turning the four tracks to 90 degrees and walking the end car to the required width.

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The GP3 is equipped with either a Leica Geosystems 3D guidance system or with a paver-mounted Trimble GPS system incorporating GOMACO sonic sensors.

Hawkins Construction's GP3 features a telescoping spreader plow on the front of the paver to move the concrete and to facilitate quicker width changes.

and ability of this machine to go from paving to transport to the new job, and back to paving is a very key element."

The GP3 is easy to transport with its retractable, sliding console that reduces the overall shipping width. It features a transport mode by simply driving the legs around to the transport position. Once the legs are in transport position, G+ travel is switched to "transport" for complete operator control. The operator can switch the GP3 into transport mode in minutes without help from the ground crew.

"The control system ties everything together nicely," Allen said. "It's simple to transport this paver. We pull it out of the slip, power wash and clean it off, rotate it sideways, swing the legs around, and walk it onto the lowboy sitting right there. We fold the wings in and leave the mold underneath it. Once we've moved it to the new site, without any drastic changes to the paver, we can be up and paving again in 30 minutes.

"The GP3 is a cohesive unit with all the systems working together nicely, so there's no third party issues to deal with as far as the stringless or anything else. It gives us the opportunity to do such different jobs and broadens our paving operation. The addition of that paver has also eased a lot of pressure on adjusting crew time and where the crews need to be because of the ease of transporting the paver to different jobs."

Transportability and easy width changes were also key factors in Hawkins Construction's purchase of the T/C-5600 texture/cure machine. The T/C-5600 is being kept as busy as the GP3 paver, but the two have rarely worked together yet this paving season. They just meet each other during transport around the city of Omaha.

Hawkins ordered their T/C-5600 at 36 feet (11 m) wide with a 30 foot (9.1 m) wide longitudinal tining attachment. The texture/cure machine does have the ability to finish at 56 feet (17.1 m) wide. It has the ability to run without stringline and is equipped with sonic sensors to control steering, elevation and grade.

Easy width changes are accomplished with the T/C-5600's new walking end car with cure tank. Frame sections can be added or removed by turning the machine's four tracks 90 degrees and walking the end car to the required width.

"With the T/C-5600, we were looking for a machine to replace our other tiners while having the flexibility of width changes and pulling frame sections out," Allen said. "We had to get to different widths on jobs with tighter clearances. It's worked out well for us. The adjustability to just drive it in, slide the rack over, and get it set up for another job tining and curing has been extremely easy."

The T/C-5600 features the all new GOMACO Tracer Texture Control for tining depth accuracy. Sonic sensors trace the slab with the travel of the machine.

The GP3 slipforms a scab-on, tapered slab with integral curb in traffic in urban conditions.

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"We're always looking at the consistency of the tining and this machine does a fantastic job of keeping the tining depth consistent," Allen said.

The texture/cure machine is guided by sonic sensors on Hawkins' stringless projects. Sensors are covered and mounted to the front and back and follow the edge of the new slab for steering. Two sonic sensors are mounted on the front of the machine and two on the back. They are covered with a circular spray guard to protect them from getting covered by the spray cure. These sonic sensors control the elevation and the crowning adjustments.

"The sonics take away any need for manual adjustments going in and out of crown sections. It does it for you," Allen explained. "The consistency is far greater than anything you could do manually going in and out of those transitions. We also have very consistent tining depth. The sonic option on that machine works extremely well."

CL-081622 D1

Sonic sensors on the T/C-5600, protected by black spray guards, control the machine's elevation and crowning adjustments on this stringless paving project in Omaha, Nebraska.

In the construction world, first the texture/cure machine tines the slab, then backs down the length of tined slab and repeats the pass putting down the white spray cure. The T/C-5600 is a one-pass operation saving time, labor and fuel on projects.

"At the rate the machine runs with the tiner, we can cure and tine at the same time. It takes obviously one less pass out of the equation," Allen said. "There are a lot of positives about this machine and that's a major one."

Time, labor and support equipment are also saved when it comes time to transport the machine to the next project. The machine's tracks are turned to 90 degrees and it can be driven right onto a trailer and hauled away. Ramps are not necessary to get the T/C-5600 on or off a trailer.

Overall, Hawkins is pleased with their new GOMACO equipment and look forward to finishing a busy paving schedule this season. GOMACO will be there to support them from just two hours away.

"It's been great support from GOMACO," Allen said. "Hawkins is somewhat non-traditional compared to other companies, as far as how we move around and everything else. GOMACO has been willing to work with us and even redesigned some things for us to the way we like. We have a very good relationship with them." GOMACO

Photo by Bryan Beck. HW-101604 D3

The first pour with the GP3 was slipformed 26 feet (7.9 m) wide with integral curb on both sides of the slab. The machine was delivered in the afternoon and early the very next morning was paving this project.

CL-081605 D13

One pass texturing and curing is possible with the four-track T/C-5600. Covered sensors on the texture/cure machine follow the edge of the slab to steer it down the length of new interstate.

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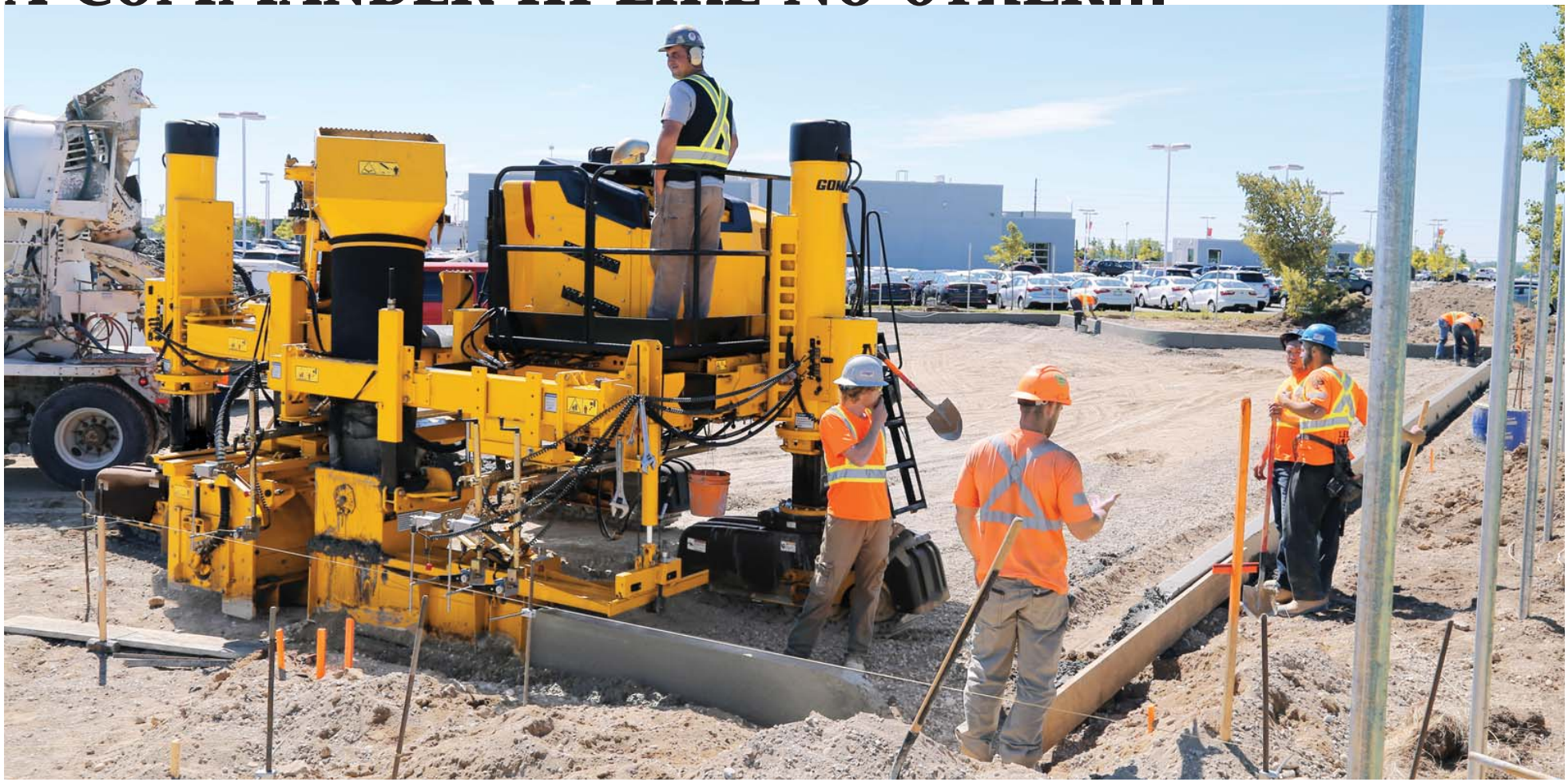
A Commander III Like No Other...



Piccoli's new Commander III features all the latest in GOMACO technology, including rotary-sensored slew drives and GOMACO Remote Diagnostics (GRD) for machine monitoring and software changes or upgrades.

N. Piccoli Construction Ltd. was created in 1983 by Nick Piccoli in London, Ontario, Canada. In 1984, he bought his company's first GOMACO Commander III and it has been nothing but Commander IIIs ever since. At 80 years old, Nick still visits job sites and checks on the crews, but the day-to-day operation of the company is managed by his son, Mario. Piccoli Construction specializes in curb and gutter and sidewalk on road reconstruction projects and subdivisions.

They are meticulous about creating a superior product for their customers and take pride in slipforming the straightest curb and gutter possible. Piccolis are not afraid of tight radius work in their parking lot projects.

They have always pushed the limits of their Commanders and along the way have created some innovative new ways to get things accomplished on their job sites, from six foot (1.8 m) radii to a new style of driveway depressor for their molds.

The company's newest Commander III, delivered earlier this year, is like no other Commander III ever built by GOMACO. It features rotary-sensored slew drives on each of the three tracks. The slew drives now allow the Commander III to slipform a 24 inch (610 mm) radius. The curb and gutter machine also features new radius software that allows the operator to program the size of the radius into the G+ controller. As the Commander III approaches that radius, with the values

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already dialed in, the operator flips a switch activating the tight radius program and the machine slipforms around the radius.

Sensor inputs on the sideshifting mold help ensure proper positioning traveling through the radius. G+ also manages the speed of the three-tracks so each of them is traveling at the necessary speed.

"That's all incorporated with the slew drives," Mario Piccoli, owner of Piccoli Construction, said. "When doing a tight radius, our operator is aware of the size of the radius and he adjusts that into the controller. The controller automatically knows what angle to set the tracks at and the machine pours around the radius flawlessly. You can do that on the fly, as well. If there's multiple radii, if we go from a 20 foot (6.1 m) into a 10 foot (3 m) into a five foot (1.5 m), just a weird shape, he can adjust as he's going without ever having to stop the machine for any reason. It can do it all on the fly.

"It does a great job. Before, we would have to manipulate the machine to do the tight radii, but now its just flip the switch, away it goes, and we don't even have to think about it. We've done four foot (1.2 m), five foot (1.5 m) radii, no problem."

CG-061632 D8

On the job site, from left, Travis Brockman, GOMACO's District Manager for the Northeast and Canada, Mario and Nick Piccoli, owners of Piccoli Construction.

The tracks with rotary-sensored slew drives also make slipforming curb and gutter in tough parking lot conditions much easier. The tracks can turn at 90 degree angles to crab steer towards or away from the stringline in tight operating conditions. The feature was put to the test on a small parking lot project in London. The project required only 200 meters (656 ft) of curb, but included several 90 degree corners, a driveway entrance, and only short slipforming runs inside the fenced-in area.

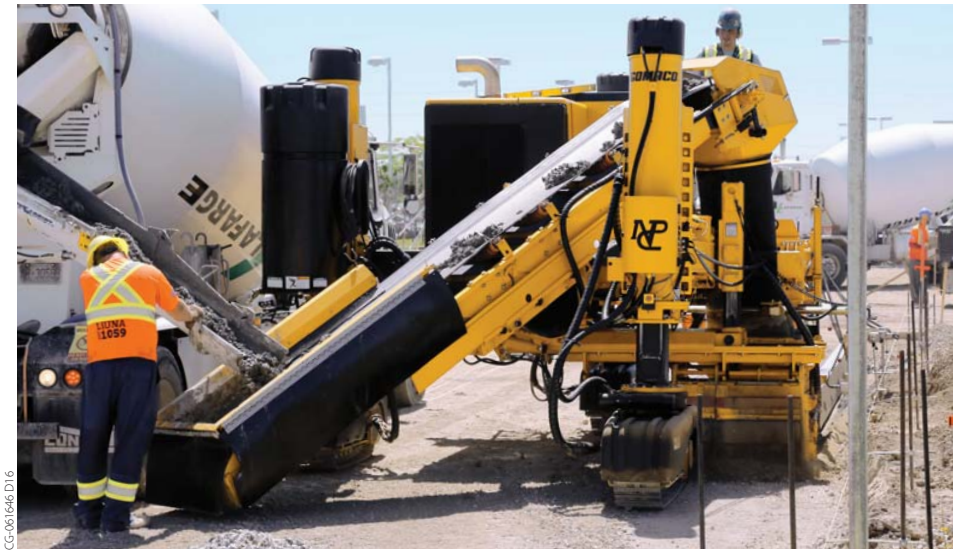
> ***"When doing a tight radius, our operator is aware of the size of the radius and he adjusts that into the controller. The controller automatically knows what angle to set the tracks at and the machine pours around the radius flawlessly," Piccoli said.***

"In a parking lot like this, it helps out quite a bit when you can turn the tracks that tight, spin the machine right on a dime and negotiate the tight corners and tricky scenarios," Piccoli said.

This Commander III's tight-turning capabilities led to some software developments and upgrades to better accommodate its abilities. Three upgrades, to be precise, and all of the software modifications have been accomplished telematically using GOMACO Remote Diagnostics (GRD). The G+ and its steering system were modified to better react to the turning abilities of the rotary-sensored slew drives. Icons on the G+ screen were also made larger, just as a matter of operator preference. The software changes were written at GOMACO's corporate headquarters in Ida Grove, Iowa, USA, and sent to London, Ontario, Canada, using GRD. GOMACO's Service Department, and Piccoli himself, also have the ability to monitor Piccoli's machine using GRD.

"We've had three upgrades already through telematics and that technology is amazing," Piccoli said. "We called GOMACO with an idea and 30 minutes later, it's been updated. It's also kind of cool talking to DeWayne Krayenhagen (GOMACO's service/warranty manager) in service and him knowing exactly where my machine is at any given time, knowing all the

Photos by Kelly Krueger CG-061645 D1



CG-061646 D16

Piccoli uses the Commander III's powerful trimmerhead to trim the compacted gravel to final grade as the machine simultaneously slipforms the new curb on the parking lot project.

CG-061636 D3

This parking lot project in London, Ontario, was a great test for the new Commander III and its tight turning abilities as it was maneuvered into and out of short curb runs in tight-clearance conditions.

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CG-061641 D1

Straight curb is always the goal of Piccoli Construction, and the new Commander III has produced some of the straightest curb the company has ever slipformed.

functions and what the parameters are, what everything is set at, and what it's running at. If we ever have an issue, I can see that being pretty useful."

Piccoli Construction knew the rotary-slew drives would help them turn a tight radius, but they're finding an added bonus. The curb and gutter that they've poured with their Commander III with rotary-slew drives is the straightest the company has ever slipformed.

"We've always prided ourselves on putting down straight curb, but I've never put down straighter curb than this," Piccoli said. "Never. It's amazing, and this machine can do a radius like nothing. You'd think that maybe the straight curb would get sacrificed, but it isn't. I'm almost happy with just the fact that it does perfectly straight curb, but it also has the ability to turn a really tight radius."

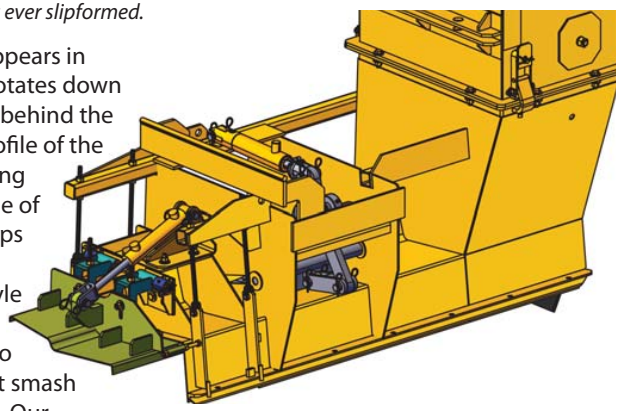
The company has plenty of work already lined up for their new machine, including three different subdivisions around London. One of the subdivisions features six kilometers (3.7 mi) of curb during the first phase, and an additional seven kilometers (4.3 mi) of curb for the second phase. The subdivisions contain several driveway and sidewalk blockouts.

Piccoli, with their engineering capabilities and drive to innovate, have created their own patented movable finishing plate that works in conjunction with the GOMACO California-style curb depressor. The hydraulic-powered driveway depressor is used in curb and gutter molds to help eliminate wasted concrete when slipforming through driveways. Piccoli's invention is an auxiliary stainless finishing plate attached to the back of the curb mold that can be hydraulically raised or lowered to finish the depressed curb.

"We developed the finishing plate based on the internal blade," Piccoli explained. "Once the notch appears in the curb, our finishing plate rotates down and provides a new tail piece behind the existing tail piece with the profile of the driveway. Basically, our finishing plate is providing a new profile of the driveway depression. It slips right on the money.

"GOMACO's California-style cutout provides an opening for the depressor to rotate into place. Otherwise, it would just smash the curb down as it rotated in. Our finishing plate rotates into place, and when we're not using it, it rotates back out of place."

Piccoli's new Commander III with rotary-slew drives is operating well and the company is impressed with their new machine's abilities and versatility. GOMACO set out to build a Commander III capable of slipforming a 24 inch (610 mm) radius. The machine does that and more.



GOMACO has created a hydraulically-adjustable finishing plate based on Piccoli's patent. The optional plate can bolt onto the back of a GOMACO mold featuring a California-style curb depressor.

"They did a great job on this machine," Piccoli said. "It does what it was designed to do and then some. We built a machine to do a tight radius and the side effect was actually doing even straighter curb. Go figure." **GW**

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Photo by Bobbi Wonder EG-111509 D4

Photo by Bobbi Wonder EG-111510 D1

Photo by Bobbi Wonder EG-111511 D19

Photo by Bobbi Wonder EG-111512 D18

Turning a 24 inch (610 mm) radius -- The Commander III with rotary slew drives and extreme steering will turn a 24 inch (610 mm) radius or less. It's been proven in concrete at the GOMACO testing grounds in Ida Grove, Iowa.

The rotary slew drives can turn the tracks at 90 degree angles to crab steer towards or away from stringline or other obstacles on a curb and gutter project.

CG-061642 D8

The operator and ground crew monitor the progress of the Commander III as it slipforms around a radius in the parking lot.

CG-061643 D14

Piccoli's Commander III can slipform a 24 inch (610 mm) radius. The G+ controller, rotary-sensored slew drives, sensors on the sideshifting mold, and new radius software work together to easily slipform it.

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Photo by Jim Hayward CG-031623 D4

The New

Northern Nevada Concrete Inc. specializes in road improvements to the public right of way, including curb and gutter and sidewalk projects. Last year, the company slipformed approximately 122,000 lineal feet (37,186 m) of curb and gutter utilizing their three-track Commander III slipform paver. They have approximately 20 different mold profiles in their inventory to accommodate their home city of Sparks, Nevada, as well as other municipalities within their 25 mile (40 km) work radius. They added a new three-track Commander III to their company in April of this year and have already put it to work on eight different curb and gutter projects in Nevada. Projects include a 12,000 foot (3658 m) rollover curb job at the Schulz Ranch subdivision in Carson City, as well as 30,000 feet (9144 m) of a different profile of rollover curb at the Damonte Ranch planned community in Reno.

"Everybody wants something different up here," George Sperry, Project Manager for Northern Nevada Concrete, said. "We have the Orange Book, where all the agencies got together to make everything uniform, and then each agency went ahead and put in their own little subsection. The roll curb has become popular. It makes it easier for

Extreme temperatures and high winds create paving challenges for Northern Nevada Concrete.

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Commander III - Faster, Smoother, Higher Production

the developer to place any house on any lot and not worry about where the driveway cut is. In the city of Sparks, they predominantly use a Type 1 curb and gutter. It's an L-curb, 24 inches (610 mm) wide and six inch (152 mm) curb."

Slipforming in the mountains of Nevada presents challenges with temperatures that can reach over 100 degrees F (37.8˚ C) or high winds that can start to blow early each afternoon. Northern Nevada Concrete's slipform crew averages approximately 600 lineal feet (183 m) of curb and gutter per hour while they can work. Finishers work behind the Commander III troweling and brooming the new curb, and applying a spray cure finish. The crew also installs control joints every 10 feet (3 m) to help control any cracking caused by the high winds or hot temperatures.

"The city agencies we work for in this area, especially Sparks and Reno, hold us to high expectations on the finished quality of their projects," Sperry said. "Life in the mountains, though, you just never know what you'll get for weather. We deliver every day with the best operator in the area, a good crew, and the Commander III. We love the Commander III and our operator is just ecstatic with it and its smooth operation."

The new Commander III features the GOMACO-exclusive G+ control system for easy and quiet operation. When Northern Nevada's Equipment Operator Tim Hall first climbed onto the machine, he didn't know what to expect from the new technology.

"I was thinking it might be a little bit over my head, but I've been on a GOMACO since 1992, so I've seen the changes along the way," Hall said. "I like the G+ and its display screen. I can look at the screen and see all the information the machine has to offer. You just have to have a little faith, get used to it, and it's good as gold. GOMACO is the only machine I've ever run and I have no desire to run anything else. They are so reliable and pretty hard to beat."

The new paver has an optimized cooling package with a hydraulic fan controlled by G+ to adapt cooling needs to job-site conditions for quiet and efficient operation. The operator's console pivots and allows hands-on control and visibility. The platform is also isolated to eliminate vibration.

"I feel like I've customized the operator's console to me with how I have the placement of the console and other controls. It's so quiet, too. I can talk to everyone around the machine as we work," Hall said. "Our new Commander III is just so smooth. You wouldn't believe how quiet and smooth it is until you climb on the machine and experience it for yourself."

> ***"Our new Commander III is just so smooth. You wouldn't believe how quiet and smooth it is until you climb on the machine and experience it for yourself," Hall said.***

One of the advantages he has noticed is an increase in the overall travel speed of the new machine, which makes it faster to move around a job site. The next generation Commander III's redesign includes improved efficiency in the hydraulic system. Northern Nevada Concrete pretrims most of their curb and gutter projects. Hall also likes the trimmerhead and says it provides him faster production.

"I just feel that we're going faster... pouring faster, trimming faster," Hall said. "This machine reacts fast and we just get a better product. I'd say our 2003 Commander III operates in inches and this new one is operating in 64ths. It's just so smooth and words don't do enough to explain that, or I just haven't found the right ones yet."

Northern Nevada Concrete is on track to once again slipform over 120,000 lineal feet (36,576 m) of curb and gutter this year. Their new Commander III will be kept busy.

"We like the Commander III," Hall said. "They're just big and beefy. We use them pretty hard. They can take what we give them and can handle almost anything. It has all the power we need in one really reliable machine." GOMACO

Photo courtesy of Terry Equipment CG-031623 D1

Northern Nevada took delivery of their new Commander III earlier this year and have already put it to work on several curb and gutter projects in Nevada.

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A Lifetime of GOMACO Equipment

At 70 years old and a lifetime spent in the construction industry, Greg Di Pietro has seen a lot of changes and worked with a lot of GOMACO equipment and control systems slipforming thousands of kilometers/miles of curb and gutter and sidewalk in Canada. His first GOMACO machine was a GT-6000 purchased in 1972, and the company was called Weldon McEachen. The GT-6000 featured the Analog system, a proportional control system consisting of a sensor, amplifier and servo valve.

"The GT-6000 was the first curb and gutter machine GOMACO put out," Di Pietro said. "It only had two tracks and was still experimental in Canada. It was a little bit of fun to work with it."

Di Pietro wanted to learn more about the GOMACO machines he was operating, so in the late 1970s he attended his first classes at the GOMACO Education Center, what would go on to become the present day GOMACO University.

"Dennis Clausen (GOMACO University's Director of Training) was a young guy then," he explained. "The University wasn't where it is now. It was in a little shop and just a small classroom, no bigger then a double-car garage. I have been back many times since then and we've sent other guys from the company, too. It's a good school."

As GOMACO machines evolved, so did Di Pietro's skills as an operator and company manager. His present company, Curbside Construction Ltd., was created in 1987 with him and three other partners specializing in concrete projects, specifically curb and gutter and sidewalk. They purchased a new GOMACO three-track Commander III for their slipforming projects. This Commander III is still owned and operated by Curbside today. As the company grew, so did their inventory of GOMACO curb and gutter machines, more GT-6300s and a GT-3600.

The opportunity to purchase Curbside Construction presented itself in 2007. Curbside became a family-owned company when Di Pietro purchased it along with his two sons, Gerry and Larry. Gerry works in the field as a machine operator and Larry serves as general manager. Both of them grew up working with their father as summer laborers and have known GOMACO equipment from very young ages.

Staying competitive, looking for advantages, and growing the company in a competitive market have been the main focus for Curbside in the last 10 years. Beyond curb and gutter, they're looking for unique applications and new machines to make their sidewalk operation more efficient.

One of their more unique projects is currently underway in Toronto, Ontario, Canada, at a newly constructed distribution center. Curbside is on site slipforming 10.2 kilometers (6.3 mi) of dolly pads for the semi trailers to park on, as well as eight kilometers (5 mi) of barrier curb around the perimeter of the facility.

"It's one of the largest Industrial Commercial Institutional (ICI) projects Toronto has seen in the last 20 years and we're happy to be on it and a part of it," Larry Di Pietro said. "Basically, there's over 500,000 tons of crushed ground limestone on the site, 100,000 tons of hot mix asphalt, and over 10.2 kilometers (6.3 mi) of dolly pads which are three meters (9.8 ft) wide. It gives you a little bit of an idea of the enormity of the site. Lastly, there are over 30,000 square meters (322,928 ft^2) of concrete apron, so quite the size of a job for a private company."

Curbside is using their GOMACO GT-6300 with new 3100 series mold to

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Photos by Kelly Krueger CG-0616 D8

Curbside Construction is using their GOMACO GT-6300 with new 3100 series mold to slipform over 10 kilometers (6.2 mi) of three meter (9.8 ft) wide white dolly pads at a newly constructed distribution center in Toronto, Ontario, Canada.

slipform the dolly pads. Each pad is 500 meters (1640 ft) long, 200 millimeters (7.9 in) thick, with welded wire mesh hand-placed on the grade.

During slipforming, the GT-6300 is constantly adjusting for changing slope and correct drainage for each dolly pad. Water has to flow correctly across the huge facility.

"It's a challenge because on every catch basin we have to change the slope of the pad," Greg said. "We go from level to one percent, 2.5 percent or three percent, so we keep dialing in and out the different slopes as we follow the slope of the parking lot. The GT-6300 is working exactly as we anticipated with no problems at all."

The crew easily slipforms approximately 350 cubic meters (458 yd^3) or one 500 meter (1640 ft) long dolly pad each day they pour. It's good production considering project developers had specified handforming the dolly pads in the original bid.

"Originally the project was spec'd with double-layer rebar and the pads were to be hand poured," Larry explained. "Thanks to GOMACO, one of the ways we were able to get this job and be the low bid was to offer a value engineering proposal with slipformed dolly pads with wire mesh. Everyone is looking to get the work, so you always have to find ways to save money, ways to edge out the competition."

The company is using their GOMACO GT-3600 to slipform the project's curb and gutter. The site has approximately eight kilometers (5 mi) of curb on the project. Around the perimeter of the facility is a 410 to 610 millimeters (16 to 24 in) tall barrier curb. A portion of the barrier curb was slipformed using the Topcon mmGPS machine guidance system. It was a demo Topcon setup for them to test out the stringless guidance system. The slipforming went well and Curbside is considering a system for next season.

Curbside runs a total of four crews each day, three crews work on mainline curb and gutter with the GOMACO equipment, and a fourth crew is in charge of sidewalk. It is because of Curbside's continuing quest to offer their customers the best product possible at the most economical price that led them to the GOMACO GT-3200 sidewalk paver with the G+® control system.

"I saw it in a video and I knew we had to get it," Gerry Di Pietro, operator of the GT-3200 sidewalk paver, said. "We monitored projects where we could use it and talked to inspectors here and there, and then we decided to take the plunge and buy it."

"It's a nice machine and is saving us a lot of work," Greg said. "We have to convince a lot of the municipalities that we're doing a good job with it and they have to accept it. It takes a little bit of time for the municipalities to come on board and say okay. But, I go back, when we started using the curbing machine for curb, it was the same way. Even though it's a better job, we have to convince other people that we are doing a better job."

Their GT-3200 sidewalk paver is outfitted with a 1.8 meter (5.9 ft) rock placing mold or a minimum-clearance

"I think without GOMACO we wouldn't be able to be as successful. We constantly converse with them, with our distributor, as well as the head office and are constantly bouncing ideas off each other. I think it's been a great team so far."

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trimmer. Often times, the sidewalk projects in their region require a 102 millimeter (4 in) rock base which they place with the GT-3200 and rock placing mold. Then, they remove the mold and equip the paver with their trimmerhead to trim any excess base as they slipform the sidewalk.

The widths of their slipformed sidewalk vary between 1.49 and 1.79 meters (4.9 and 5.9 ft) wide. Production and quality have improved with the new GT-3200.

"The precision is like no other, obviously," Larry said. "We've had some really good production days. We poured 190 cubic meters (248.5 yd^3) in one day in Lindsey, Ontario, last year. It was a nice, large project with nothing in the way and we put down over 2000 square meters (21,528.5 ft^2) of sidewalk. By hand, you're probably looking at 300-400 square meters (3229-4306 ft^2) a day."

"That's like a week's worth of work," Gerry added. "We did that in a day... a week in one day. That's incredible. It's a better product, too. It's a flat sidewalk."

Curbside Construction is a proud family-owned company with deep roots in the construction industry in Canada. As Larry and Gerry take over more of the day-to-day operation of the company, Greg is freed up to enjoy his time on their job sites, helping out where necessary, confident in knowing his company is in good hands. As new opportunities arise, Curbside will be there providing the quality end product to their customers. The GOMACO family will be there providing their slipforming equipment.

"GOMACO has been true to our family and to our heart for many years," Larry said. "My Dad, since I was a little baby, he'd be running off to GOMACO's head office for the training courses. I've seen him running a machine for years. Again, it's up to us to grow. I think without GOMACO we wouldn't be able to be as successful. We constantly converse with them, with our distributor, as well as the head office and are constantly bouncing ideas off each other. I think it's been a great team so far."

GW

CV-037808 #11

Greg Di Pietro, pictured third from the left in the top row, and his classmates pose for a class photo during the Commander III class at the GOMACO Education Center in March 1978.

Photo by Rodney Harper CG-041610 D12

Curbside Construction is using their GT-3600 to slipform approximately eight kilometers (5 mi) of barrier curb around the perimeter of the distribution center.

CG-061619 D5

Curbside Construction says the GT-3200 sidewalk paver produces a high quality and precise sidewalk at a production rate far higher than what could be built by handforming.

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CG-061608 D16

Curbside Construction purchased their first Commander III (GT-6300) in 1987 and the company still uses it today on different projects. Their inventory of GOMACO equipment has grown over the years to include not only GT-6300s, but multiple GT-3600 curb and gutter machines and a GT-3200 sidewalk paver.

CG-061630 D4

Curbside has three curb and gutter crews at work on a daily basis slipforming a variety of profiles. Here, a GT-3600 slipforms the curb and gutter portion of two-stage curb on a new road for a subdivision.

CG-061616 D15

"I saw it in a video and I knew we had to get it," said Gerry Di Pietro, the operator of the GT-3200 sidewalk paver. Curbside Construction purchased the sidewalk paver last year, in 2015.

CG-061617 D16

Curbside is a proud, family-owned company. From left, Gerry, Greg, and Larry Di Pietro each fulfill an integral part of the day-to-day operation of a successful and growing concrete slipforming company.

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Spirit of St. Louis Airport Variable Thickness Concrete Overlay Proven A Success

Reprinted with Permission from CP ROAD MAP, ROAD MAPTRACK 7

Introduction

The use of Portland cement concrete (concrete) to resurface existing pavements, both hot-mix asphalt (HMA) and concrete, has been documented as far back as the early 1900s. Many of the early concrete overlays performed very well, but it was only in the mid-1980s that concrete overlay technology began to gain national acceptance with agencies and engineers.

Early in the 1990s, concrete overlay technology advancements made it possible for concrete overlays two to four inches (51 to102 mm) thick over existing HMA to be used for various applications, including those subjected to heavy axle/wheel loadings. This technology was coined Ultra-Thin Whitetopping (UTW) (now referred to as Bonded Concrete Overlay on Asphalt Pavements) which incorporated the design concepts of "short" concrete panel size (two to six foot (0.6 to 1.8 m)) with "bonding" to the existing prepared asphalt surface.

One of the first and largest projects in the country to incorporate UTW technology was at the Spirit of St. Louis Airport in Chesterfield, Missouri. The Spirit of St Louis Airport is a busy general aviation facility serving as the home base of over 100 corporate jets.

In addition, as the designated reliever to Lambert International, it accommodates a wide range of aircraft sizes and weights. The six-acre airfield apron pavements were originally constructed with asphalt in the 1960s to accommodate anticipated light aircraft.

As overflow from Lambert International increased, the apron, near the terminal and administration building, frequently became the parking area for aircraft as heavy as 727s. The heavy wheel loadings eventually took a toll on the asphalt apron, causing severe deterioration. Exposure to jet fuel led to asphalt stripping, which contributed to the distress. To further aggravate the damage and constant repairs needed, the entire area was submerged under nine feet (2.7 m) of water during the flood of 1993. It was time to bring the apron up to the strength required.

Choosing the Concrete Overlay Alternative

In order to address the severely deteriorated condition of the airfield apron pavement and accommodate the need for additional structural capacity in areas to carry the heavy anticipated aircraft loadings, design options were developed to include both complete reconstruction and overlaying with concrete or asphalt.

After considering the options, it became apparent that a traditional overlay would require thicknesses that would make it difficult, if not impossible, to address drainage away from the existing buildings and terminal, which operated adjacent to the 45,000 square yard (37,625 m^2) apron. Working with CRD Engineering, Inc., a local design firm in St. Louis, the airport went through a feasibility study process that considered several options including a variable thickness concrete overlay.

Concrete Overlay Design

The result of the feasibility study was a design that utilized three basic thicknesses of concrete overlay (figure 1). This approach met all the design criteria and was also found to be very cost effective when compared to the remove and replace option.

The three concrete thicknesses range from 3.5 to 10 inches (89 to 254 mm). The 10 inch thick (254 mm) overlay in the heavy areas accommodates aircraft up to the 120,000 pound (54,432 kg) 727s while the eight inch (203 mm) overlay for the medium strength areas accommodates 70,000 pound (31,752 kg) aircraft. Both of these areas used traditional joint spacing, 12.5 feet (3.8 m), with steel transfer dowels.

The lightweight area, which handles up to 12,500 pound (5670 kg) aircraft, departed from tradition in that a thin concrete overlay was used with a joint spacing of 4.2 feet (1.3 m). The concrete mix design for the UTW was designed to meet a minimum of 675 psi (4.65 MPa) flexural strength and included three pounds (1.4 kg) of polypropylene fibers per cubic yard of concrete. The high flexural strength was required to address the predicted stresses and helped with strength gain during the colder winter months (overlay was placed during the winter). The addition of fiber reinforcement helped minimize the potential for shrinkage cracking and

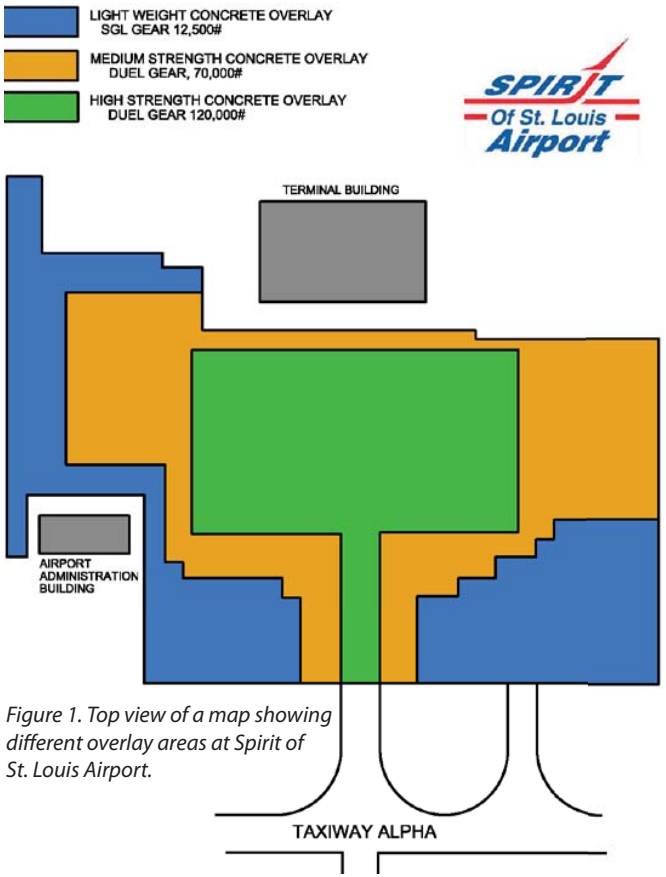

Figure 1. Top view of a map showing different overlay areas at Spirit of St. Louis Airport.

Figure 2. Photo from original construction of the concrete overlay at Spirit of St. Louis Airport in 1994.

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aided aggregate interlock at the joints.

The idea for the UTW for the "light-load" aircraft came from CRD Cambell president Carl Rapp. Carl had become familiar with the concept of UTW through his involvement with the Transportation Research Board Committee on Portland Cement Concrete Construction and the experimental project constructed in Louisville, Kentucky, in the early 1990s. Incorporating the concepts of short joint spacing with bonding the overlay to the prepared existing asphalt surface allowed the 3.5 inches (89 mm) of concrete to support the intended aircraft loadings and facility vehicle traffic.

A unique aspect of the project was that the UTW joints were required to be sealed to alleviate the potential for aircraft fuels to penetrate the overlay and "strip" the underlying asphalt (UTW joints are typically left unsealed). If this occurred, the bond would be lost between the concrete overlay and existing asphalt, eliminating the benefits of the composite section.

Concrete Overlay Construction

Prior to placement of the concrete overlays, the existing asphalt apron was cold milled to the necessary grade and air blasted to clean the surface. Cold milling the surface increased the surface area and exposed aggregate in the asphalt to enhance the bond between the concrete and asphalt necessary for the UTW.

Vee-Jay Cement Contractors, Inc., out of St. Louis constructed the concrete overlays with a slipform paver that could adapt to the varying overlays thicknesses (figures 2 and 3). Paving began on December 4, 1994, and the concrete resurfaced apron was open to aircraft traffic in three months. Due to the high surface to volume ratio of the UTW, twice the normal application of curing compound was used (minimum one gallon per 100 square feet).

Concrete Overlay Performance

At the time of construction, Dick Hrabco, Director of Aviation for the Spirit of St. Louis Airport, said, "The whitetopping has tripled the life of the ramp pavement." Recent field inspection of the conventional and UTW overlays in June of 2015 (after 20 years of service) indicates that Director Hrabco's prediction was spot on.

Robert Heine, current Airport Engineer, notes that "since its completion in 1994, the apron has performed well above expectations with minimal maintenance required. In addition to initial cost savings by placing the thick overlay only where it was needed, the concrete surface has proved to be much more forgiving when it comes to aviation fueling and deicing operations. The joint sealant has also performed well. With routine maintenance by the airport staff we expect to get many more years beyond the original 20 year design life."

Technical Writers: Todd LaTorella, Executive Director Missouri/ Kansas chapter, ACPA and Robert Heine, Airport Engineer, Spirit of St. Louis Airport. Editor: Sabrina Shields-Cook. www.cproadmap.org

Figure 5. Current pavement condition (June 2015).

Figure 3. Photo of the completed concrete overlay at Spirit of St. Louis Airport in 1994.

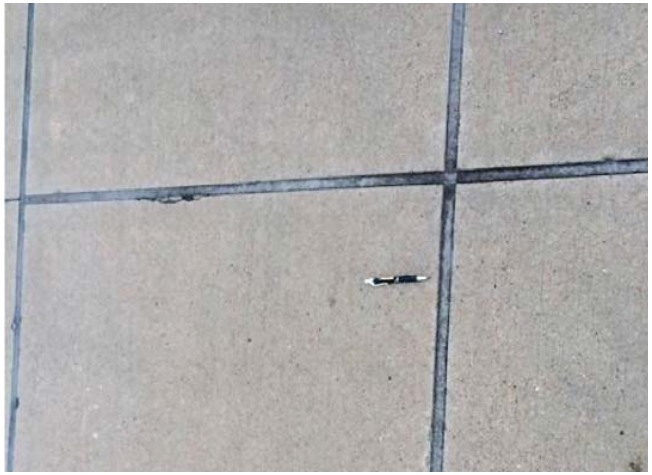

Figure 4. Current pavement condition (June 2015).

Figure 6. Typical ramp usage on a daily basis (June 2015).

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WORLD OF CONCRETE®

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GOMACO's Taking it to the Limit During the 2017 Show Season

Every three years the construction industry brings their newest innovations to the city of Las Vegas for the largest domestic trade show in the industry, CONEXPO-CON/AGG. GOMACO will once again be in the Central Hall of the Las Vegas Convention Center with the largest display of concrete paving and support equipment we've ever taken to a show before. We're taking it to the limit.

If you can't wait until March to see all of GOMACO's new equipment innovations, visit World of Concrete in January. A variety of equipment will be on display there, as well. For either show, make your plans now to attend, because flights to Las Vegas and hotel rooms are at a premium.

You'll see exciting innovations to make your jobs more productive and profitable in 2017. You've never seen a Commander III like the one that will be on display. See how it's now able to pour a 24 inch (610 mm) radius!

The new GP3 paver has been a huge success this past year with contractors across the globe putting them to work. The stories at the beginning of this edition of *GOMACO World* prove just how well the GP3 is performing. It will be on display at both shows.

The newly redesigned 3300, which we introduced at Bauma 2016 in Munich, Germany, will be on display for the first time ever at a domestic show. The GOMACO 3300 is the world's most intelligent multi-application paver designed for right-side and left-side pours.

There's just too much equipment to cover here. You need to see it all in person. Stop by the GOMACO booth at either show to discuss your upcoming concrete paving needs with our paving and 3D experts.

Visit www.gomaco.com to register today. The American Concrete Pavement Association is offering a $20 exhibits-only admission only when you register on line for World of Concrete. Use promo code, A14. For CONEXPO-CON/AGG, use GOMACO's discount code 1F3400 for $79 show admission, which is 50 percent off the regular price.

Make your plans today to visit the GOMACO booth at World of Concrete and CONEXPO-CON/AGG 2017 and talk with our paving experts about your upcoming needs for the new paving season. We can't wait to see you there... GOMACO

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Jim Hayward is retiring from GOMACO after over 40 years of service to the company.

Logan Mohr is the new District Sales Manager for the Western United States.

Travis Brockman's territory as District Manager now includes the western provinces of Canada.

Hakan Bulur joins GOMACO International Ltd. as a new Regional Sales Consultant.

Hayward to Retire, New Salesmen Appointed for United States, Canada and International Territories

GOMACO's domestic and international sales force has recently undergone changes. Longtime Western District Sales Manager Jim Hayward has announced his retirement after over 40 years with our company.

Hayward first started at GOMACO working in the Hydraulics Department and then quickly moved into Service. From Service he transferred into Sales and became a District Sales Manager.

He will be replaced by Logan Mohr in the western United States. Mohr's new territory includes Washington, Oregon, California, Idaho, Utah, Montana, Nevada, Arizona, western Wyoming, Alaska, and Hawaii. He will be responsible for the sales and support of GOMACO's full line of concrete construction products and managing the distributor network within his territory.

Mohr started at GOMACO in the 3D Machine Controls Department as a field service technician. He has traveled extensively in North America setting up 3D guidance systems on all models of GOMACO equipment and has worked directly with GOMACO customers.

"Jim has always worked hard for our GOMACO customers ensuring their needs were met, their questions answered, and was always willing to climb aboard the equipment and help troubleshoot. We wish him only the best in retirement," Kent Godbersen, GOMACO's Vice President of Worldwide Sales and Marketing, said. "Logan brings a unique blend of qualifications to the position with his engineering and 3D background. We're sure he'll build on Jim's success in the western United States."

Travis Brockman, GOMACO's District Manager for the northeast United States and eastern Canada, will now be responsible for the entire country of Canada. Brockman's territory as a GOMACO District Manager previously included the provinces of Newfoundland, Nova Scotia, New Brunswick, Quebec, and Ontario. He will now be responsible for the northeast United States and western Canada as well as the provinces of Manitoba, Saskatchewan, Alberta, and British Columbia.

Brockman has been with GOMACO since 2005 when he joined the company as a field service technician. He was promoted to Sales in 2013 when he took over the northeastern United States and eastern Canada territory as a District Manager. He is responsible for the sales and support of GOMACO's full line of concrete construction products, as well as managing the territory's distributor network.

"Travis has been responsible for sales success and distributor development in the northeastern United States and his provinces in eastern Canada," Godbersen said. "His service background along with his sales and support skills have earned him an impressive reputation among our GOMACO customers, and we have no doubt his skills and product knowledge will serve our customers in western Canada as well."

Hakan Bulur from Ankara, Turkey, has joined GOMACO International Ltd. as a Regional Sales Consultant and will be responsible for the Middle East, parts of the Indian Sub-Continent and Eastern Europe. The appointment was made by Rory Keogh, Managing Director of GOMACO International Ltd.

Bulur will be responsible for the sales and after-sales support of GOMACO's full line of concrete construction products and managing the distributor network within his territory. Prior to joining GOMACO, Bulur had worked since 2008 as the GOMACO Concrete Paver Specialist and Foreign Trade Manager for GOKER, GOMACO's distributor in Turkey.

"Hakan brings a thorough knowledge of GOMACO equipment, as well as valuable language skills to GOMACO International Ltd. and the position of Regional Sales Consultant," Rory Keogh, Managing Director of GOMACO International Ltd., said. "We are very pleased to have Hakan strengthen our international team and know he will be a valuable asset to developing GOMACO's future business in the region. **GW**

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Go to School and Get Ready for the Next Paving Season

C-450: March 21-24 at the Paving Center. The course will cover controls, setup, operation, maintenance, and diagnostics.

GT-3600 Operation: January 24-27, February 7-10, March 28-31 at the University. The course will cover controls, setup and operation of the GT-3600.

Three-Track Commander III Operation: January 10-13, February 21-24, March 14-17 at the University. The course will cover controls, setup and operation of the three-track Commander III.

Four-Track Commander III Operation: January 31-February 3, February 14-17 at the University. The course will cover controls, four-track barrier and paver setup and operation, and paving to profilograph specifications.

G+ Diagnostics: January 17-20 (University), February 7-10 (Paving Center), April 11-14 (University). The course will cover maintenance and diagnostics for curb & gutter machines and pavers equipped with G+® control systems.

G21 & G22 Diagnostics for Curb & Gutter: February 28-March 3 at the University. The course will cover maintenance and diagnostics for machines equipped with G21 & G22 control systems. Micro and Network systems will be discussed as needed.

Trimmers: January 17-20 at the Paving Center, April 4-7 at the University. The course will cover controls, setup, operation, maintenance and advanced diagnostics.

Two-Track and Four-Track Paver Operation: January 3-6 at the University. February 21-24, March 14-17, March 28-21 at the Paving Center. The course will cover controls, setup, operation, optional attachments (excluding the IDBI), and paving to profilograph specifications.

G21 & G22 Paver Diagnostics: February 28-March 3 at the Paving Center. The course will cover maintenance and advanced diagnostics for G21 & G22 control systems. Micro and Network systems will be discussed as needed.

Concrete Mix Design: January 25-27, February 1-3 at the Paving Center. The class will include basic concrete mix design, and move into advanced topics. Items being discussed include mix materials, the mix design process, the optimization of mixes, compatibility, edge slump, setting time problems, troubleshooting, and how mix design can affect rideability. The session will be taught by Mr. Mike Ayers, who is well known in the industry for his knowledge of concrete mixes.

IDBI: January 3-6 at the Paving Center. The course will cover controls, setup, operation, maintenance, and diagnostics.

GOMACO/Leica Pavesmart Training: January 10-13 (Paving Center), February 14-17 (Paving Center), March 21-24 (University). The course will cover use of Leica's Pavesmart 3D software for concrete slipform paving. Class includes software setup, maintenance, and operation along with use on placer/spreaders and curb and gutter. The course will also cover the Leica handheld rover with VIVA software. Basic grade checking, stakeout, volumes and areas, data import and export will be covered. Diagnostics will conclude the course.

GOMACO/Trimble Training: April 4-7 at the Paving Center. The course will cover use of Trimble's PCS900 software for concrete slipform paving. Includes machine setup and operation as well as use of Trimble's data collection software. Diagnostics will conclude the course.

GOMACO/Topcon Training: April 11-14 at the Paving Center. The course will cover use of Topcon's mmGPS solution for concrete curb and gutter paving. Includes machine operation as well as data collection and grade verification. Diagnostics will conclude the course.

Note: Additional classes will be scheduled as required.

Your week at GOMACO University includes time in the classroom with various presentations and question and answer sessions.

GOMACO service personnel work with students during hands-on learning with University trainers or actual pavers like the GP3 pictured above.

For More Information, or to Register Online, Visit
http://www.gomaco.com/university
or contact the GOMACO Training Department at 712-364-4781 or email: gomacou@gomaco.com.

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CG-071613 D4

A GT-3600 slipforms variable barrier ranging in height between 885 to 1335 millimeter (34.8 to 52.6 in) on a project in Perth, Australia.

CG-081602 D1

A GT-3200 with Topcon 3D guidance slipforms curb and gutter on a project in Glenfield, New South Wales, Australia.

CG-081607 D9

Twelve inch (305 mm) stand-up curb for a new apartment complex is slipformed with a GT-3600 and Topcon 3D guidance in Halifax, Nova Scotia, Canada.

GOMACO around the world

CG-081601 D12

A GT-3600 with a center-mounted sidewalk mold is at work slipforming on a new project in Brest, Belarus, close to the border with the country of Poland.

SL-031609 D12

A new vehicle test track is under construction in Seosan, South Korea, using an RC Conveyor, SL-750 slope cylinder finisher, and 4000 series Spanit® work bridge. The undercarriage with finishing cylinder on the SL-750 is controlled with a Leica 3D guidance system. This is the second track they've finished with the equipment, with the first one built near Yantai, Shandong Province, China.

CG-071629 D4

A 9500 placer works in front of a 4400 barrier paver on a project in southern Russia. The project is the M4 Don Federal Highway between the cities of Rostov-on-Don and Karasnodar in southern Russia.

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GREATER AUSTIN DEVELOPMENT **GT 3600**

Thank You Greater Austin for #14!

We appreciate your business and loyalty.

#14. GOMACO has delivered 14 machines to Greater Austin Development in Austin, Texas, since the company was founded in 1993. Bobby Finley, President of Greater Austin Development, bought his first GT-3600 then and has never looked anywhere else for a quality curb and gutter machine and world-class support. The company is so proud of their newest GT-3600, they created a special commemorative cap for the occasion prominently featuring the #14 on the front, with Greater Austin Development, Closner Equipment Company Inc., and GOMACO's logo on either side. Bobby was kind enough to share some of his hats with his friends at GOMACO. Thank you, Bobby. The hats are great and we thank you for your pride of ownership and your commitment to quality concrete paving.

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