

Building Arkansas

Official Magazine of the American Council of Engineering Companies of Arkansas & the Arkansas Society of Professional Engineers



New century, new leadership

It's been 100 years since Neal Garver founded the firm that bears his name, and today's associates celebrated that century by converging on Little Rock from 31 offices in 12 states. The firm marked the year with STEM projects in 100 schools, and ended it with a leadership change as Brock Hoskins, P.E., left, replaced Dan Williams, P.E., right, as CEO.

Photo courtesy of Garver.

2020 ENGINEERING EXCELLENCE AWARDS

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The ACEC's annual Engineering Excellence Awards (EEA) competition recognizes engineering firms for projects that demonstrate a high degree of achievement, value, and ingenuity.

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Building Arkansas

Official Magazine of the American Council of Engineering Companies of Arkansas & the Arkansas Society of Professional Engineers

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Brandon Guillot with Unmanned Aerial Solutions of Arkansas updated participants on drone technology advances and reminded them of their regulatory responsibilities.

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Garver brought most of its 700 full-time employees to Little Rock Oct. 16-17 to celebrate its centennial year at its annual Garver Summit, and it used the occasion to announce Brock Hoskins, P.E., is now CEO.

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"I love my job. I don't think there's a better job to have." That's how Michael Daniels, P.S., owner of Jonesboro-based Daniels Land Surveying, describes his profession.



18 Brock Hoskins, P.E., Garver's new president and CEO, right, appears on stage with Chairman Emeritus Dan Williams, P.E., Oct. 16 at the annual Garver Summit. Garver brought most of its 700 full-time employees to Little Rock to celebrate its centennial year.

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Crafton Tull

ENGINEERING **ARKANSAS**

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Everyone wins when employees engage with ACEC

The holidays are upon us. It's a time to give thanks, surround yourself with family and friends, and to help those who are less fortunate, making their holidays a celebration as well.

There are many reasons why more than 5,600 engineering firms and affiliates are ACEC members, but one of the most important is this: Employees directly benefit.

Leaders should tell them how.

ACEC provides member firm employees with both savings and security. Employees at participating firms have access to ACEC's life and health insurance plans and its retirement plan. ACEC also provides discounts for in-person and online courses that make them better engineers and fulfill their professional development requirements. True, the firm often pays for that training. But employees also know that when the firm wins, so do they.

Furthermore, ACEC membership gives employees a chance to advocate, benefitting not only their industry but also themselves. Next year's Annual Conference and Legislative Summit will be April 26-29 in Washington. Participating engineers will not only attend sessions and hear from speakers but also have a chance to lobby their congressional delegation. When engineers advocate with one voice, lawmakers listen. Obviously, that's good for engineering. But for individuals, involvement leads to empowerment, and an empowered engineer is a better engineer.

Finally, ACEC members benefit from networking opportunities. While we compete with each other for some jobs, we also employ each other for others. Much of my firm's business involves working with other firms, and some of those relationships have been cultivated through ACEC. All of our employees benefit from that.

Perhaps the best networking opportunity is the Engineering Excellence



James Montgomery, P.S.
ACEC/A President

Awards, which will be March 5 at the Governor's Mansion. That event brings together engineers from across Arkansas to celebrate our profession's best work and, more importantly, its everyday excellence. Winners get a major feather in their cap that they can feature prominently on their resume and LinkedIn page. Meanwhile, they get a chance to see the excellent work other firms

are doing, and perhaps take home some new ideas. The deadline to submit entries is January 3.

Leaders of ACEC firms know all of this, which is why they invest in the annual membership fee. But mid-career and beginning engineers and other professionals may not.

That's bad on two levels.

First, it limits the opportunities for those engineers to take advantage of ACEC's financial and career-building benefits.

Second, it reduces their appreciation of why ACEC is important. If they don't understand why they benefit, it becomes just one of many organizations the old folks are a part of. As they move into leadership positions, they may not be as active, which means ACEC won't be as effective. They may even wonder why their company keeps paying its dues.

ACEC's member list has hovered at about 50 firms the past few years. While the core remains committed and consistent, over the course of several years it will gain a few members while dropping a few others.

It should never drop any. Every ACEC member firm gains far more than it loses paying its relatively nominal annual due. If everyone – from the seasoned engineer to the young graduate – understood this, then ACEC would grow each year.

That would benefit everyone – the industry, the firms, and the individual engineers. So tell those individual engineers why ACEC matters.

I wish you all the best in 2020.

ACEC

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Engineers, let's elect more of our own

Of the 435 members of Congress, 11 are engineers, according to the Congressional Research Service.

Those include one senator and 10 House members, including Arkansas' Rep. Bruce Westerman, who is also Congress' only forester. The other 10 engineers are both Republicans and Democrats.

That's an improvement over the previous Congress, when eight members were engineers. But it still represents only 2% of Congress' membership.

Meanwhile, at least seven of Arkansas' 135 state legislators (5%) have engineering backgrounds, including Senate Majority Leader Jim Hendren, R-Gravette, and Rep. Reginald Murdock, D-Marianna. Rep. Andy Davis, R-Little Rock, shepherded Gov. Asa Hutchinson's 2,000-page government transformation bill through the Legislature this year by breaking it down into 16 smaller, digestible parts, and then reforming it into one bill.

What if the percentages of federal and state lawmakers were higher? Would our legislative bodies better serve America's and Arkansas' interests?

I think so. Engineers would take a different approach because of our training and background and because of the way we think.

Engineers serve our clients by objectively asking questions about their needs and learning how they envision success. Once that information-gathering phase is complete, we solve problems based on both established principles and creative thinking. We collaborate with members of our team and with our clients to get the job done. We communicate complex concepts



Jim Vetter, P.E.
ASPE President

to stakeholders. And we're flexible, as shown by the growing use of design-build and construction management techniques.

We're held to high standards by our clients and by the public – which is OK, because we require ourselves to reach even higher bars. When we make mistakes, we recognize them and hold ourselves accountable because we know

that the most valuable commodity we sell is trust in our workmanship and professionalism.

Can you imagine if those qualities described our lawmaking bodies – particularly Congress, which is mired in politics and partisanship? Issues like immigration, balancing the budget, and climate change would still be challenging, but at least lawmakers would approach them using effective, proven techniques. There'd be less political infighting and more problem solving.

Politics seems to always divide us into two groups: Republican vs. Democrat, liberal vs. conservative, red vs. blue. At heart, we're all Americans. Most of us want mostly the same things, which means it's possible to at least define many of the nation's problems. Once the problems are defined, then it's time to construct solutions. That's harder, but having an objective viewpoint and getting to the heart of issues is what engineers are good at. When that happens, we realize our commonalities are more important than our differences.

As we head into another election year, engineers should make electing our own a priority. Yes, we should consider if candidates are an "R" or a "D." But let's look first for other initials: P.E.

In the News

Olsson creates General Civil team in Fayetteville

Olsson has established a General Civil team in Fayetteville dedicated to serving clients in the greater region.

The move is part of the firm's plan to expand the services it provides in Fayetteville and throughout Arkansas. Olsson's Fayetteville office also provides water/wastewater, transportation, power, field operations, land development and surveying services to the Arkansas area.

"Site-civil work is an important part of our business across our geographical footprint," said Len Swartz, General Civil practice leader at Olsson. "We're excited to start offering this service in Arkansas so we can better serve our clients in this area."

A key part of Olsson's Fayetteville General Civil team is senior landscape architect Dennis Blind, a certified professional landscape architect who recently joined the firm. Blind brings decades of experience in planning, design and land development to the firm. He joins a team of engineers to provide site-civil services to Arkansas, Southwest Missouri and Eastern Oklahoma.

Blind has worked with public- and private-sector clients and nonprofit and



Arkansas Primary Elections
March 3

ASPE Annual Conference
April 16-17
Hot Springs Convention Center

ACEC Annual Conference and Legislative Summit
April 26-29
Washington, D.C.

philanthropic foundations during his 40-year career. He provided active transportation design and management expertise to several high-profile projects, including the Razorback Regional Greenway; the University of Oklahoma bicycle and pedestrian master plan; the Northwest Arkansas Regional Bicycle & Pedestrian Master Plan; bikewalkokc; the complete streets policy for Oklahoma City; and the Bella Vista Trail and Greenway Master Plan. Blind has personally developed several medical and commercial office parks in Northeast Oklahoma and Northwest Arkansas.

Prior to joining Olsson, Blind owned and operated ACTIVE Planning + Design.

Olsson maintains offices in eight states. This year, it has worked in more than 40 states from coast to coast. In 2017, Olsson established a presence in Arkansas with the acquisition of McGoodwin Williams & Yates.



GASCOIGNE MEDAL. Garver's Michael Watts, P.E., left, is pictured with Little Rock Water Reclamation Authority's Dr. Walter Collins, P.E.

Garver awarded for paper on disinfection

Garver and the Little Rock Water Reclamation Authority were recognized by the Water Environment Federation

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In the News (Cont'd)

(WEF) for researching an alternative to achieving adequate disinfection levels.

A paper highlighting the work was awarded the Gascoigne Wastewater Treatment Plant Operational Improvement Medal. The paper, "Doubling Down on Disinfection," was authored by Garver Senior Process Engineer Dr. Michael Watts, P.E.; Senior Water Project Manager Paul Strickland, P.E.; Water Project Manager Aaron Stallman, P.E. (now deceased); and the LR-WRA's Walter Collins, P.E.

By assessing the benefits of supplemental peracetic acid before the LRWRA's ultraviolet system, the pilot testing program helped address disinfection deficiencies brought on by increased flow rates.

The award was presented during the 90th annual WEFTEC, the WEF's annual meeting, held in Chicago.

Ground broken for last of Bella Vista bypass project; Crafton Tull designed, surveyed

A groundbreaking ceremony Oct. 15 signified the beginning of the last two Arkansas Department of Transportation projects in Arkansas for the Bella Vista bypass.



Crafton Tull provided all of the parcel surveys, design surveys, and right-of-way acquisition documents for the 14-mile project.

Once completed, the bypass will provide the final link to complete I-49 between Fort Smith, and Kansas City, Missouri. The bypass will improve safety, significantly reduce traffic congestion, and offer economic development opportunities.

Crafton Tull, others win Skyline Award by Fayetteville Chamber

Crafton Tull was part of the team to win the Skyline Award at the Fayetteville Chamber of Commerce Construction and Developers Banquet for its work with Ozarks Electric Cooperative.



Crafton Tull was hired to design a four-story office addition to the current OECC headquarters in Fayetteville, along with a central data building and expanded maintenance facilities. The new offices include both private and open office space, as well as collaborative informal spaces for employees to interact and hold team meetings.

Crafton Tull's Julie Kelso honored with Planner Award

Crafton Tull's Julie Luther Kelso, AICP, ASLA, vice president of planning, received the American Planning Association – Arkansas Chapter Professional Planner Award at the organization's Quad State Conference.

Kelso was honored for her many contributions to planning in Arkansas, including the City of Pine Bluff Comprehensive Plan, Hillsboro Gateway Master Plan, and Fort Chaffee Redevelopment Plan.



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McClelland designs state's first membrane bioreactor system

McClelland Consulting Engineers and the city of Decatur this February completed a \$9 million wastewater treatment plant expansion that included a process conversion from a sequencing batch reactor to Arkansas' first membrane bioreactor (MBR) system.

The progressive design-build project by MCE and Crossland Heavy Contractors increased the design capacity from 2.2 million gallons per day to 3.8 MGD (interim) and 4.6 MGD (ultimate) without increasing the plant's footprint.

Additional tasks included in the conversion were: influent pump station renovation; installation of rotary drum screen, membrane tanks, pumps, and piping; permeate pumps, tank and piping; new ultraviolet disinfection equipment; a new sludge press; existing wet well expansion; process piping; construction of a new electrical building; and equipment for fine screening, aeration, chemical injection, and biological treatment.

Innovative approaches included placing MBR tanks atop the existing SBR equalization structure, allowing for siphoning of permeate water, reducing energy consumption, and minimizing plant shutdowns; incorporating VFDs on existing equipment; implementing SCADA in order to fully automate the new plant; and conducting clean water testing before the train shutdown to make the start-up more efficient and effective.

The project enables Decatur to be in compliance with the Arkansas Department of Environmental Quality

under a repermitting of the plant effluent requirements to a stricter and more technologically advanced permit, with the ability to treat up to 4.6 MGD, a 109% increase from the initial capacity, for roughly \$4.08/gallon of treatment capacity.

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May your new year be blessed with Peace, Love, and Joy

How engineers got us to the moon

Engineers questioned moonshot but solved problems through clarity, ownership

When President John F. Kennedy proclaimed in May 1961 that Americans would reach the moon that decade, engineers at first were less than inspired.

"All the engineers that I interviewed thought that was the craziest thing they had ever heard when Kennedy pointed us at the moon," said Dr. Brandon Brown, professor of physics and astronomy at the



Brown

University of San Francisco. "They felt like it was lunacy based on how much we didn't know we needed to solve."

Brown discussed his book, "The Apollo Chronicles: Engineering America's First Moon Missions," at the Clinton School of Public Service Oct. 17.

Kennedy's exhortation came only 20 days after astronaut Alan Shepard became the first American in space. One person told Brown it was the equivalent of asking when a toddler who had just taken his first steps would be ready for a marathon.

Brown was born a few months before the moon landing and is the son of a NASA engineer. Before writing the book, he realized he knew little about his father's experiences. Books about the moon landing focused mostly on the astronauts, mission control and politics. Engineering-related books were hard to read. So he started interviewing people.

In 1961, the United States was falling behind in the space race. Kennedy's

speech came six weeks after Russia had sent cosmonaut Yuri Gagarin into orbit.

Much wasn't known about space travel. Would human organs function properly? Would debris puncture the ship's exterior? Could seams and window sealants survive space? After returning, astronauts were quarantined for weeks because scientists didn't know if they might have acquired a dormant moon virus.

Just getting into space was a challenge, which the United States overcame with the help of former Nazi scientists like Wernher von Braun. Some of the technology for making the space flight was borrowed. How to transport a rocket loaded with fuel across Florida's sands was solved thanks to a suggestion by a Kentucky strip mining contractor who overheard the problem being discussed. NASA adapted a crawler with tank treads that accomplished the task.

"Rocketry is at its best a controlled explosion. There's a tiny separation between disaster and perfect success," Brown said.

To protect the spacecraft from the sun's rays, the engineers stood the craft on its side, pointed it toward the North Star and rotated it like a top. The craft would cool as it rotated away from the sun. Engineers called this "barbecue mode."

Brown said engineers told him the following factors made success possible.

- **The clarity** of the goal.
- **Ownership** of the project. Engineers each had their own slice of the mission that they were responsible for delivering.
- **"Dirty hands management."** Key leaders like von Braun were directly involved in solving technical problems.

- **Teamwork.** Brown said individuals did not try to stake out their own turfs.

- **A lack of bureaucracy**, especially in the early 1960s. Despite more than 400,000 Americans working on the project, it remained nimble. Engineers could express misgivings and solve problems, thereby preventing a potential disaster.

"There are just tons of stories of people in their early 20s who were very low in rank ruling the day on a technical issue," he said.

These lessons came at a cost not only in money but also in lives. Among them were the three astronauts - Roger Chaffee, Ed White, and Gus Grissom - who perished in a fire during a launch rehearsal test in 1967.

"The culture changed pretty dramatically," he said. "There was this youthful exuberance, and almost, some other authors have called it almost a 'decoder ring treehouse culture' permeated NASA. And a lot of that carefree, 'smiling all day every day solving these problems' changed and became a little more grim and serious."

By the year's end, astronauts were "flying in new equipment."

The result of the Apollo effort was more than just beating the Russians to the moon. It revolutionized satellite communications. The food industry is now much safer because NASA wasn't satisfied with the industry's practice of waiting for an outbreak of a pathogen to respond. Instead, potential dangers were addressed at hazard analysis critical control points. The practice now "informs most of what we eat," Brown said. Astronauts installed reflectors on the moon's surface that are still used to measure its distance from the earth with lasers. The moon's orbit is complicated, and it is slowly receding from the planet.

As for the future, Brown expressed doubts about man's ability to live on Mars. Astronauts experience health effects as a result of their brief travels. Mars has no magnetic field, so it would be almost impossible to reform an atmosphere. Martian soil is hazardous to humans. Keeping the dust out of habitations would be challenging.

"But we have solved more difficult problems before, absolutely," he said.



In the News (Cont'd)



APRIL LESTER is a lab supervisor for MCE.

McClelland expands materials lab to its Little Rock office

McClelland Consulting Engineers has expanded its materials laboratory capabilities to include the firm's Little Rock office.

The firm's geotechnical and materials laboratory services have historically been

provided through its Fayetteville office. MCE now provides construction materials testing and special inspections services in Little Rock, which include cast-in-place concrete testing, soil and base density testing, reinforcing bar observation, and subgrade/earthwork recommendations, among others. Laboratory testing capabilities include relevant tests on soils, aggregate, concrete, and asphalt.

The Little Rock materials lab is currently staffed by Jason Smith, supervisor/construction observer; April Lester, lab supervisor; and Ean Collie and Clayton Zimmerman, field/lab technicians.

"We are excited to announce the services being provided by our Little Rock lab operations. This is something that has been discussed for some time, and we are very optimistic about the future opportunity it brings to the company," said Steven Head, P.E., principal and Geotechnical Department head.

Mash joins MCE as project designer



Clinton Mash has joined McClelland Consulting Engineers as a project designer in the Water/Wastewater Department at the firm's Fayetteville office.

Mash is a graduate of the University of Arkansas, Fayetteville, where he earned a bachelor's degree in physics and a master's degree in environmental engineering. He also interned at Beaver Water District, where he assisted with the operation of the "pilot plant."

He joins the Fayetteville office to assist with its water and wastewater engineering needs.

In the News continues on page 21

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Arkansas Industry Update

ARDOT: State, cities, counties need tax

Tudor says state's highways would see \$205 million for preservation, construction

Continuing the half-cent sales tax currently funding the Connecting Arkansas Program would provide \$205 million annually to the Arkansas Department of Transportation for system preservation and construction and \$43 million each to cities and counties.

That message was shared by Lorie Tudor, P.E., ARDOT's deputy director and chief operating officer, at the ACEC/A's annual Arkansas Industry Update at ARDOT's headquarters Nov. 6.

The Agency Update gave participants a chance to hear from nine speakers, most of them leading officials with state agencies. Among the speakers were political consultant Robert Coon with Impact Management; Dr. Michael Pakko, chief economist and state economic forecaster at the University of Arkansas at Little Rock's Arkansas Economic Development Institute; and drone expert Brandon Guillot.

Participants earned four professional development credit hours.

Led by Gov. Asa Hutchinson, legislators this year voted to refer a constitutional amendment to voters next November that will make permanent the half-cent sales tax currently funding the Connecting Arkansas Program. That tax was approved by more than 58% of the voters in 2012.

ACEC is part of a Roads and Bridges Coalition supporting the campaign.



ENGINEERING BETTER HIGHWAYS. Lorie Tudor, P.E., ARDOT's deputy director and chief operating officer, explains how the proposed permanent half-cent sales tax exemption would increase road funding at state and local levels.

Members include the Arkansas State Chamber of Commerce, the Arkansas Municipal League, Association of Arkansas Counties, the Good Roads Foundation, Arkansas Farm Bureau and others. The department is planning regional public meetings throughout the state starting in January.

If the amendment passes, ARDOT would have \$300 million a year more in construction funding than it otherwise would have had before this year's legislative session. That's because Hutchinson and lawmakers also passed \$95 million in system preservation funding through a motor fuels tax, electric and hybrid vehicle registration fees, and casino revenues. Of the \$300 million, 76% would be dedicated to system preservation and 24% would be for capital and congestion relief.

The \$300 million added to the current \$440 million would give ARDOT \$740 million in total construction funding. Over 10 years, ARDOT would spend \$3

billion on preservation, \$1.1 billion on bridge improvements and preservation, \$1 billion on interstate maintenance, \$5 billion on safety improvements, and \$1.8 billion on a second Connecting Arkansas Program. Over 20 years, that second CAP would include \$1.45 billion in congestion relief, \$1.55 billion for capital improvements, and half a billion for partnering arrangements with local governments for regional projects.

If the amendment doesn't pass, ARDOT will have to "manage the decline" of the highway system, Tudor said. Passage of the amendment is crucial for cities and counties, both of which would see state funding decrease from \$156 million in 2023 to \$113 million in 2024.

"Over 10 years, the cities and counties have gotten pretty used to that additional money for their roads and bridges," she said. "If that half-cent sales tax does not



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INDUSTRY UPDATERS. Speakers at the Arkansas Industry Update included, from left, Daniel Phillips, P.S., with Arkansas GIS; ADEQ's Bob Blanz, P.h.D., P.E.; State Fire Marshall Major Lindsey Williams; State Architect Nathan Alderson, AIA; and Lance Jones, P.E., chief engineer of the Arkansas Department of Health Engineering Section.

pass, they're going to be facing about a 30% reduction in their turnback funds."

During his presentation on Arkansas politics, political consultant Robert Coon with Impact Management said he was optimistic the amendment will pass, but supporters should run a thoughtful campaign that shows voters concrete examples of how they will benefit. He is not aware of a monied interest opposing the amendment. He expects a "loud ideological group" to oppose the tax, but he believes it will represent a minority of voters.

"I think over the course of the last decade or so, Arkansas voters have demonstrated they're generally agreeable when it comes to investing dollars in transportation infrastructure," he said. "I think they just fundamentally view roads and infrastructure as a core function of govern-

"I think (voters) just fundamentally view roads and infrastructure as a core function of government, and they understand that to have good roads, you have to pay for them."
- Robert Coon

ment, and they understand that to have good roads, you have to pay for them."

Coon said the Legislature's changes this year to the state's procurement law did not include changes to the qualifications-based selection process. He thinks the issue is largely settled for now and doesn't expect it to be revisited in 2021.

Other Arkansas Industry Update speakers included Daniel Phillips, P.S., with Arkansas Geographic Information Systems Office; Bob Blanz, Ph.D., P.E., with the Arkansas Department of Envi-



ronmental Quality; Arkansas State Fire Marshall Major Lindsey Williams; Arkansas Division of Building Authority State Architect Nathan Alderson, AIA; and Lance Jones, P.E., chief engineer of the Arkansas Department of Health Engineering Section.

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Pakko: State's manufacturing jobs growing

But overall gains are concentrated in NWA, Little Rock and Jonesboro

Manufacturing jobs in Arkansas have been growing faster than in the rest of the economy the past 18-20 months, while overall job growth has occurred mostly in Northwest Arkansas, central Arkansas and Jonesboro.

That's according to Dr. Michael Pakko, chief economist and state economic forecaster at the University of Arkansas at Little Rock's Arkansas Economic Development Institute. Pakko spoke at the ACEC/A's Arkansas Industry Update Nov. 6.

Pakko said manufacturing job growth is good news for certain parts of the state. While the more prosperous Northwest Arkansas and Little Rock metropolitan areas are characterized by service sector jobs, manufacturing jobs are more evenly dispersed around Arkansas.

Manufacturing lost 35,000 jobs from 2007 to 2018, while the service sector grew. But in the most recent period from 2013 to 2019, manufacturing and construction jobs have increased along with other sectors other than mining and logging. And in the last 18-20 months, manufacturing employment growth has outpaced growth in the rest of the economy.

"There's a more balanced growth that we're seeing now than we did in the first five years of this expansion, and (that's) a trend that I expect to continue," he said.

Pakko said Arkansas' economy has been on a steady growth trend since 2014 after it experienced a double dip recession in 2012-13.

But job growth has been concentrated in the state's most prosperous areas. The number of jobs has increased 28% in Northwest Arkansas since before the recession, 22% in Jonesboro, and 5% in Little Rock. But fewer people are working in other metro areas, and Pine Bluff is down 13.5% from pre-recession levels. Forty-two counties have lower employment today than they did at the onset of the decade. From 2013 to 2018, 53.9% of the state's job growth was in Northwest Arkansas, 29.5% was in Little Rock, and 9.3% was in Jonesboro. The rest of the



STATE ECONOMIC FORECASTER Dr. Michael Pakko said Arkansas is enjoying balanced growth in manufacturing and other sectors.

Uneven prosperity

About 93% of jobs created in Arkansas from 2013-18 were in the Northwest, Central and Jonesboro metropolitan areas.

Northwest metro: **53.9%**
Central metro: **29.5%**
Jonesboro metro: **9.3%**
Rest of state: About **7%**

state, which has 45% of the jobs, saw only about 7% of total job growth.

The U.S. economic expansion has reached 10 years and is the longest in modern American history, but it's been characterized by moderate, not rapid growth. Pakko expects growth to settle in the 2-2.5% range over the next couple of years.

Arkansas is growing more slowly than the rest of the nation. The U.S. economy has grown an average of 2.6% over the last five years, while Arkansas' has grown 1%.

One reason for the gap is that Arkansas' population is growing half as fast as the U.S. population – .35% annually vs. .7%. Pakko said only 26 of the state's 75 counties experienced population growth from the last census in 2010 to 2018, while 49 counties are shrinking.

He said personal income in Arkansas has grown 4.2% annually in Arkansas, almost as fast as the national average of 4.4%.

But that growth is concentrated among wealthier Arkansans. Dividends, interest and rent incomes have been growing 8.2% annually the past eight years here, compared to 6.5% nationwide. In wages

and salaries, Arkansas has seen only 3.5% growth, compared to a national rate of 4.5%. The slower rate of wage and salary growth has been a drag on consumption spending growth in Arkansas.

Pakko said Arkansas' unemployment rate has been holding steady at about 3.5%, an unprecedented low.

But the unemployment rate does not take into account individuals who have stopped looking for jobs and have left the labor force. The labor force participation rate in Arkansas has dropped from 63% in about 2008 to 58%, while nationally it has dropped from 66% to 63%.

Pakko said the best measurement for labor market slack is the employment-population ratio – how many people have jobs compared to the entire population. In Arkansas, that number has fallen from 60% in 2007 to 56% now.

"So about 4% of Arkansas' population was working before the recession and is not working now," he said.

Drones advancing, but know the regulations

Brandon Guillot with Unmanned Aerial Solutions of Arkansas updated participants on drone technology advances and reminded them of their regulatory responsibilities at the Arkansas Industry Update Nov. 6.

He said drones are increasingly replacing manned aircraft because of their lower costs, efficiency and safety advantages. A drone with photo software can be purchased for \$2,000. He displayed a high-definition 3.5-acre map of the old Saline County airport that he photographed in seven minutes using a drone set to automatic flight. Drones can fly through pipes, inspect power lines and windmills, and be used in rescue operations. They even could be used as flying defibrillators that could quickly arrive at the scene of a cardiac arrest.

"Folks, some of the things you're seeing today are terrifying the manned pilots," he said. "There are entire national

organizations and companies that are grounding their manned programs."

He started his presentation by asking how many firms in the audience were using drones.

Many were. However, engineers can't simply buy a drone at Best Buy and start using it for their operations. Guillot said drones must be treated as aircraft under Federal Aviation Administration rules adopted in 2012, which is why it's a federal offense to shoot one flying over your house. Anyone wanting to use a drone for anything other than recreation must



Guillot

have a remote pilot certificate. The drone must be registered but the cost is only \$5; watch out for scam organizations that charge more. Operators must pass a 60-question multiple choice written examination, which costs \$150 per attempt.

Drone operators must be able to visually see the aircraft, must fly it only during the day, cannot fly it over anyone, cannot fly it more than 100 miles per hour, and must not fly it above 400 feet, which is 100 feet below the lowest altitude allowed for manned aircraft. They should understand the national airspace system, aviation weather, and how to communicate with air traffic control towers. Issues to consider include privacy concerns, potential property damage and injuries from crashes, and maintaining separation from manned aircraft.

"What I tell everyone is, when you look at one of these, don't think 'toy,'" he said.



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TWO PRESIDENTS, ONE STAGE. Brock Hoskins, P.E., Garver's new president and CEO, appears on stage at the concluding State of the Firm event with Chairman Emeritus Dan Williams, P.E. Photo courtesy of Garver.

Garver marks 100th with new CEO

The firm celebrates its centennial with leadership change, Chain Reaction Challenge

By Steve Brawner
Editor

Garver brought most of its 700 full-time employees to Little Rock Oct. 16-17 to celebrate its centennial year at its annual Garver Summit, and it used the occasion to announce it has a new CEO.

Brock Hoskins, P.E., who already was president, officially became Garver's ninth president and CEO, while former CEO Dan Williams, P.E., is now chairman emeritus.

The changeover became effective Thursday, Oct. 17. The move was announced that evening at the Garver Summit's closing event, the State of the Firm, at the First Security Amphitheater alongside the Arkansas River.

The company previously had announced the change would occur as part of its succession plan. Williams is retiring in December.

Hoskins started working for Garver full-time Oct. 1, 1990, and has never worked for another firm. Asked why he has stayed at Garver, he said, "People and opportunities. I get to work with the best people on the planet, some of my best friends, and have been blessed with mentoring from great leaders. This company has given me great opportunities to develop my career and has rewarded me for my performance and commitment."

Garver began hosting the annual summits in 2011 but stopped bringing all of its employees to Little Rock in 2014 as the firm grew. This year it paid for 648 full-time employees to attend. The firm also reached out to retirees and members of the Garver family. Employees could par-

ticipate in professional development sessions or in about 35 excursions.

"A lot of offices had to lock their doors because everybody was coming here," said Guy Choate, communication team manager.

The North Little Rock-based firm is enjoying a period of rapid growth, having hired 193 full-time employees this year through September while expanding to 31 offices in 12 states.

The company set two goals in 2015 to achieve by 2019, Williams said from the stage at the State of the Firm event. One was reaching \$100 million in revenues. It achieved that goal in 2017 and is on pace this year to reach \$150 million.

The other was to be ranked in the top 125 among Engineering News-Record magazine's top design firms based on revenues. In 2015, Garver was 192. Describing it as an ambitious goal, Williams said

the firm's ranking in April 2019 was 138. While it fell short, it did climb 54 spots in four years. And he pointed out that current rankings are based on previous year's revenues, so the firm might reach its goal next year.

The firm plans to keep growing, Williams said in his office Sept. 3.

"Frankly it's just more fun," he said. "It gives our folks opportunities. It builds some excitement. I tell people we don't have a terminal plan. You know, we're not trying to grow to a certain size. We're not trying to grow to be a target for acquisition. We want to keep doing what we're doing. But we think to be who we are, we've got to continue to grow."

This year, for the second year in a row and third time in the last four years, Garver was listed by the Zweig Group as the best firm to work for in the 200-or-more-employee category. The award is the result of surveys where employees describe their company and, in the process, provide valuable feedback. For Garver,

those surveys have been a tool for improving the company. A previous survey showed employees were dissatisfied with Garver's maternity/paternity leave policies. The company found that Garver's policies were not up to industry standards, so it added days to the leave time, Williams said.

Garver Chain Reaction Challenge

To celebrate the centennial, the firm created the Chain Reaction Challenge. One hundred schools in the Garver footprint, including 43 in Arkansas, were given \$300 and STEM (science, technology, engineering, math) kits with dominoes and other items. They were tasked with creating "Rube Goldberg" contraptions that ingeniously accomplish simple tasks in complicated ways, and then video recording the results. Garver representatives delivered the kits. Almost 50 schools submitted videos displaying their work, and nine winning schools received \$1,000. The three Arkansas winners were

Henderson Middle School in Little Rock, Butterfield Trail Middle School in Van Buren, and Russellville Middle School.

Williams said young people don't often interact with engineers like they do with other professions. The Chain Reaction Challenge offered a chance to use science and math skills in a fun way. Staff members embraced the Challenge. Some employees reconnected with their favorite science teacher.

"We had people show up to activities that had never been involved in the community stuff before because we gave them an easy avenue to make that happen," he said.

One of the goals was to find future Garver engineers. Williams said the firm has about 100 openings, primarily civil engineers in transportation, water and wastewater and aviation. The hardest jobs to fill are those requiring five to 15 years of experience; beginning engineers are actually easier to find.

Continues on next page

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The project purposely targeted middle school students so they could plan their high school courses. Garver will have to wait 10 years before those young people have graduated engineering school. But that's OK.

"I mean, we've been here for a hundred years. We've got to be long-term thinkers," Williams said.

At the State of the Firm event at the Riverfront Amphitheater, Garver revealed that the Texas School for the Blind and Visually Impaired was given a Special Judges Award of \$5,000 for its video, "The Gong Show Chain Reaction." That school's Rube Goldberg contraption incorporated sound and texture and ended with the banging of a gong. The \$5,000 award will be used to create a designated maker space for students to work on STEM projects. Garver also enlisted the school to help create STEM kits for other schools for the visually impaired.

Participants learned about the firm's history during a day seminar at the Garver Summit. Former president Bill Driggers appeared on stage with Williams.

Started by Neal Garver in 1919

Neal Garver founded the company in 1919. A bridge professor at the University of Illinois, he had come to Little Rock after volunteering for war work during World War I. He was brought to the city to oversee construction of a picric acid plant used in munitions. The war ended as the plant was coming online, but Garver decided to stay in Arkansas because of the lack of engineers here, and he served as the Highway Commission's first bridge engineer. He put his stamp on more than 2,000 bridges, many of which still stand, Choate said.

His son, Mark Garver, became Little Rock's first traffic engineer and joined the firm in 1954.

Driggers said when he joined the firm in February 1959, it was composed of about 10 individuals occupying a small suite of offices. Times were good for new engineering college graduates. He had five or six job offers, and Garver's was the lowest salary offered, but he accepted it because of its potential. Neal Garver was still active in the company and insisted on taking personal responsibility for the firm's work.



SHARING HISTORY. Former Garver President Bill Driggers, right, discusses Garver's history along with Garver Chairman Emeritus Dan Williams, P.E.

"Every set of plans we turned out for the longest time that I was with Garver had Neal Garver's stamp on it," he said. "A lot of them he probably didn't know a whole lot about the project, but he insisted as head man he'd stamp everything. And he did. My stamp didn't get used for a long time."

The firm doesn't have any documentation related to Neal Garver's original vision for the firm. In recorded remarks, former president Sanford Wilbourn said, "Garver Sr. was an absolute personification of integrity. He was ethically and morally straight as a dye, and he expected other people to do likewise, pretty much. Mark Garver was more relaxed and not quite so conservative as his father was, but they were both very careful engineers, and both of course had almost a lifetime of experience before I came with them. They were completely fair."

Williams: 'A brand new chapter'

Williams, 61, is retiring at the end of this year, a move that is timed for the 100-year celebration. After almost 38 years, he said it would be anticlimactic to continue working at the firm. He and

wife Ellen plan to travel and spend time with their grandchildren, one of whom lives in Denver. For the past year, he's stepped away from day-to-day executive leadership and focused on being a brand ambassador and on the centennial celebration.

"This wraps up a chapter, and we're going to start a brand new chapter," he said.

Hoskins was pleased with the yearlong celebration.

"It was amazing to witness the enthusiasm and widespread participation among our people as they connected with the communities we serve in a very tangible way," he said.

"The investments we made in so many students and schools were more impactful on them – and on us – than I expected. We initially set out to inspire students to explore engineering as a career, but what we didn't anticipate was how much they would inspire us. Then, our annual Summit meeting brought our entire company together at one time to culminate our centennial celebration. It was a once-in-a-lifetime experience to celebrate our first 100 years, while also looking toward the future."

In the News (Cont'd)



Ground broken for Mid-America hall; B&F, Brown helped design

B & F Engineering, Inc. celebrated the groundbreaking ceremony Oct. 7 for the highly anticipated Traveling Exhibit Hall at Mid-America Science Museum in Hot Springs.

B&F is the owner's representative and project lead. It performed surveying, civil and structural engineering design, and overall contract administration.

Construction is scheduled to be completed by April 30. The building will serve as a multi-functioning space to showcase exhibits that travel the country to carefully chosen venues. With a large, open, flexible space, Mid-America can attract exhibits such as those offered by the Smithsonian Institution Traveling Exhibit Service. Previous selections have included "Hometown Teams – How Sports Shape America"; "Crossroads – Change in Rural America"; an aggressive T. rex skeleton gnawing on a triceratops; "Outbreak: Epidemics in a Connected World"; and "SPACE: A Journey to Our Future."

In September 2018, Hot Springs voters approved \$2 million in bonds to fund the Traveling Exhibit Hall. The bonds will be repaid using revenues from the city's existing 3-cent advertising and promotion tax on prepared food and lodging.

The design team was composed of French Architects of Hot Springs for ar-

chitectural design; Brown Engineers, LLC for mechanical, electrical, and plumbing design; GTS, Inc. for geotechnical services, and Integrity Construction of Arkansas as general contractor.

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ACEC/A Member Spotlight

Daniels enjoys surveying history

Jonesboro-based firm works with Fish and Wildlife Service in four Southeast states

"I love my job. I don't think there's a better job to have."

That's how Michael Daniels, P.S., owner of Jonesboro-based Daniels Land Surveying, describes his profession.

Daniels started his company in 2016 and now employs two part-time surveyors. His major client is the U.S. Fish and Wildlife Service, for whom he's retracing sections and determining boundaries for newly acquired National Wildlife Refuge System properties. His contract with the agency's southeastern region takes him to projects in Arkansas, Tennessee, Mississippi and Kentucky. He's doing a lot of work along the Cache River.

The Paragould native started surveying as part of a field crew in 1997. He quickly fell in love with the profession.

"Man, I just started it because I knew somebody that worked on a survey crew, and I thought that sounded interesting, and I started working, and just kind of fell into it and fell in love with it, and that's been my main focus since that day," he said.

His career next took him to Haywood Kenward Bare and Associates in Jonesboro, then Hot Springs-based B & F Engineering, then back to Haywood Kenward Bare. He was working for the Fish and Wildlife Service when he started his own firm.

"It was time," he said. "I just wanted to provide some specific services, kind of focus my practice, and I thought the best way to do that was to do it on my own."

His career has given him an opportunity to work on some interesting, important projects. He helped identify Jonesboro's original section corners. He did surveying work for Highway 67 from Highway 226 to Tuckerman, about an eight-mile stretch. He's been a part of just about every recent industrial development in Jonesboro and Craighead County, including the area's Nestle and Unilever facilities. He did surveying work for retail stores including Home Depot and



MICHAEL DANIELS, P.S., started Daniels Land Surveying in 2016. His biggest client is the U.S. Fish and Wildlife Service.

Lowe's. He's worked for Garver, on cell towers for out of town engineering firms, and on Corps of Engineers ditch projects. He's also the Craighead County surveyor.

Daniels enjoys working with people, likes being involved in projects on the ground floor, and enjoys the science of measurement and the historical research involved in surveying. He said he thinks about the historical importance of his work "every day."

"It's really neat that I can tell you about the lives and careers of surveyors that worked over the past hundred years in this general area, and it's neat to know that people a hundred years from now

will be hopefully following my work and know a little bit about me," he said.

He's an Arkansas Society of Professional Surveyors board member and joined ACEC/A a few months ago.

"We joined ACEC because we understand the importance of these associations, and we're really big on just being involved," he said. "The attacks on licensure and QBS are important to us, so that's why we participate."

He and wife Jessica have two daughters ages 11 and 8.

"We chase them around," he said. "Our lives are dedicated to soccer, gymnastics and volleyball."

In the News (Cont'd)

The exhibit space can also be utilized by Mid-America for conferences, presentations, and other similar events. The building will have 5,180 square feet dedicated to exhibit space.



Michael Baker helps celebrate opening of Maumelle I-40 access

Michael Baker International joined numerous public officials Nov. 6 for the ribbon-cutting for a new interstate access off Highway 100, otherwise known as the Maumelle Boulevard.

Michael Baker completed the design and the final stages of the environmental study and documentation for this project.

Since about 1991, Maumelle officials have pursued an additional interstate access to the city to relieve traffic on the Maumelle Boulevard. After years of struggling with funding and environmental issues, the city celebrated the opening of the new Interstate 40 interchange approximately 30 days ahead of schedule.

Also on hand were current and former mayors of the city of Maumelle, North Little Rock's mayor, and numerous local and state representatives including Lt. Gov. Tim Griffin, and representatives from ARDOT and the Arkansas State Highway Commission. As noted by the various speakers at the ceremony, this new interchange is expected to significantly improve access, reduce congestion, improve driver safety, generate economic development, and improve the quality of life for the citizens of Maumelle and surrounding communities.

Signs of the benefits of this project are already evident along the recently constructed White Oak Crossing, which now connects to the new interchange. Numerous residential and commercial developments have already begun along this roadway in anticipation of the connection to Interstate 40.

Crow Group renovates Coca-Cola plant as new headquarters

The Crow Group, Inc. has completed renovations to the historic Coca-Cola bottling plant in downtown Morrilton, its new corporate headquarters.

The building, originally constructed in 1929, was also the site of the original Morrilton Walmart Number 8 Store in



the 1960s and most recently served as Morrilton City Hall and the Morrilton Police Department. Crow purchased the property in 2018 and has worked with the National Park Service to preserve the historic architecture while modernizing the facility for use as the home office for Crow's construction and engineering services.

Crow President Brian Rohlman said the building's history as a site for innovation is a precursor for things to come from the Crow Group, formerly known as Crow Paving, Inc.

"We are taking on new and challenging projects every day, and we are marrying the engineering and design side with the construction execution piece internally," he said. "It's really exciting, and it's bringing great value to our clients."

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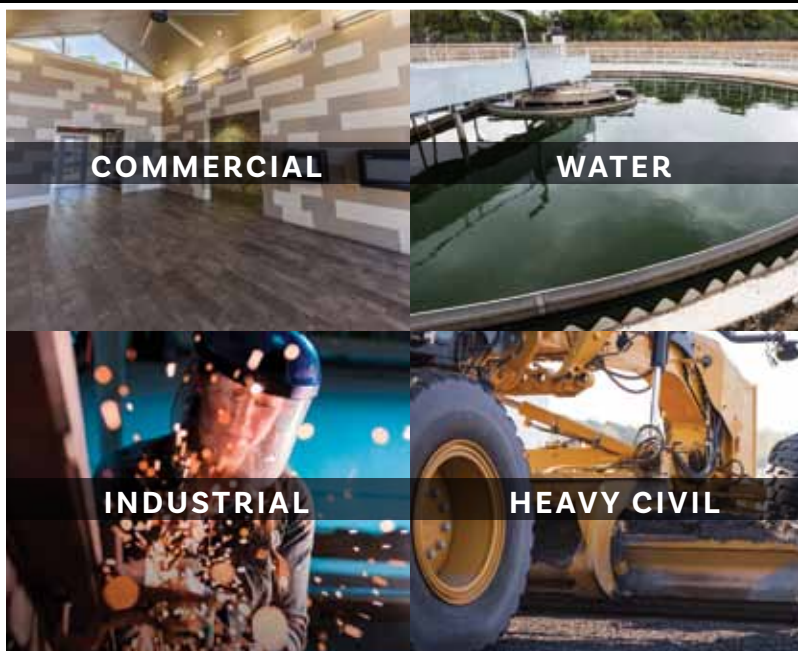


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