



## **Cutting Carbon: What Memphis Companies Are Doing to Reduce Their Footprint**

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Over the past few years, a group of architects in Memphis has quietly achieved a landmark: creating the first two internationally recognized net-zero carbon emission and energy use buildings in the world. The two projects by Memphis architecture firm archimania, including its headquarters on Cooper Street, have been certified in those areas by the International Future Living Institute.

Recently, archimania also won awards from Metropolis magazine and the American Institute of Architects for those projects and others. And while the awards are meaningful in and of themselves, they also help spread the message that net-zero building can be done. And if this can be done in Memphis it can be done anywhere, and without breaking the bank, said archimania partner Barry Yoakum.

"We're not a huge group but we're making an impact that's worldwide, I believe," he said. "We're getting more calls out of town than in town."

For Yoakum, part of the hope is also that these projects could start discussions on - and pave the way for - how to reduce the environmental impact of the built environment in Memphis and elsewhere. The built environment generally refers to human-created portions of the environment encompassing things from homes to commercial buildings to sidewalks.

"What most of America's doing, they just build more of the cruddy stuff because they're not thinking about it. I'm not sure people want it yet because they don't know they should want it or that it's possible," Yoakum said.

With a renewed focus on climate action after the COP26 United Nations climate change conference and promises made by President Joe Biden's administration, governments and companies across the world are embarking on, or doubling down on, plans to limit emissions. And archimania is not the only company operating in Memphis considering its environmental impact.

Memphis is the Americas hub for Agilent Technologies, an analytical instrumentation development and manufacturing company that last year announced a commitment to get to net-zero carbon emissions by 2050. Environmental mitigation is not new to Agilent, and the company has a phased approach that includes moving away from diesel generators and pivoting to renewable energy sources, among many other measures.

2050 is far out, said Neil Rees, vice president of workplace services organization for the company. Right now, they've implemented 2030 goals because it's much more likely for staff

and management to be there at that point. And there are many incremental goals along the way between now and 2050.

A large part of the efforts, Rees said, will also be encouraging all of the company's supply chain partners to work toward net-zero emissions as well.

"It's the right thing to do for the planet and for the communities we live in," he said.

Rees said there were also knock-on effects from striving for carbon neutrality. People increasingly want to work for environmentally-conscious employers, and customers and other businesses increasingly want to buy from and work with eco-friendly organizations.

While Memphis itself, and West Tennessee more broadly, isn't directly responsible for the same level of carbon emissions as major metropolises around the world, what happens in Memphis in various sectors has an influence outside Shelby County, Yoakum said.

The city is, after all, one of the logistics capitals of the world.

### **FedEx and Ford**

FedEx announced in March a commitment to reach carbon-neutral operations by 2040 through steps including replacing its parcel pickup and delivery fleet with electric vehicles. Last month, the company received the first five of an order of 500 electric Light Commercial Vehicles from General Motors.

The company has also said it will focus on sustainable fuels, fuel conservation and aircraft modernization. Among the other steps the company is pursuing is carbon sequestration, the process of capturing and storing atmospheric carbon dioxide.

"We have a responsibility to take bold action in addressing climate challenges," Chairman and CEO Fred Smith said in a statement.

FedEx said in March it has committed an initial investment of more than \$2 billion toward achieving its goals, an amount that includes \$100 million to help Yale University establish the Yale Center for Natural Carbon Capture.

FedEx and Ford are two of the largest companies with current or planned future operations in West Tennessee that have promised to curb emissions.

In the coming years, Ford will become one of the largest regional manufacturers when it opens an electric battery manufacturing facility with SK Innovation and an assembly plant for electric F-150s at the Megasite of West Tennessee. The company plans to invest \$5.6 billion in the site, which is set to open by 2025.

Ford has publicly announced a commitment to achieve carbon neutrality no later than 2050, focusing specifically on three areas that account for roughly 95% of its CO2 emissions: vehicle use, operations and supply base.

Ford also credits revamped energy efficiency and conservation initiatives to generate 40% less carbon from its facilities and manufacturing processes around the world. An additional goal for

Ford is to use 100% locally sourced, renewable electricity at all Ford plants, including the future Haywood County site, by 2035.

The company has also established interim carbon-neutrality targets for substantial reductions in greenhouse gas emissions from operations and products by 2035.

Achieving those goals, not simply promising to, will make a difference, said David S. N. Rupke, associate professor of physics at Rhodes College. Rupke has lectured on climate change and been involved in environmental advocacy.

The most important ways to combat climate change are to stop extracting and stop burning fossil fuels. And as some of the largest emitters, large-scale changes by major international corporations will have some of the most significant impacts, he said.

"A company like FedEx, which has a lot of airplanes that are flying and putting carbon dioxide into the atmosphere... whatever they can do to limit their fossil fuel usage... is not only good for their bottom line, but also good for the atmosphere, good for the world," he said.

### **The built environment**

Systemic changes made at a national level - or an international level - are essential.

"Countries, large institutions like multinational corporations, are all going to have to work to make systematic changes. That will get us to that goal," Rupke said.

But decisions nominally made to reduce carbon output are not always as simple as they seem, he said. The impact of some decisions are difficult to quantify or predict.

Building operations, materials and construction account for almost 40% of annual global carbon dioxide emissions, according to Architecture 2030, a nonprofit advocating and providing solutions for climate action in the building sector. Rupke said with building, for example, it's not just about the construction itself or what happens in the building after construction, but how the materials for building are extracted.

Those aspects have to be considered.

But Architecture 2030 estimates about two-thirds of the buildings that have already been constructed will remain in 2040. So diminishing environmental impact in the built environment cannot rely solely on new construction. Yoakum said archimania's work also shows it's possible to transform existing building stock to make it eco-friendly.

For the firm, it was important to walk the walk on environmentally conscious architecture and building, he said. archimania left their offices on South Main Street and instead of building something new, they decided to reinvent an existing building. They were intentional, Yoakum said, and that yielded results.

"We were going down the path of inventing and what we discovered, we said, 'Let's go reinvent,' because it's perhaps even a better way to accomplish climate restitution," Yoakum said.

### **Public sector**

Local officials have also made pledges or put programs in place to chip away at local carbon emissions from various sources. Transportation, in car-centric Memphis, has been one of the main areas.

The Memphis Area Transit Authority received \$2.1 million from the state to replace three diesel buses with electric buses and to purchase and install the necessary charging technology. Gov. Bill Lee, David Sayers, commissioner of the Tennessee Department of Environment & Conservation, and MATA CEO Gary Rosenfeld all said the vehicles would cut emissions and improve air quality, thus improving the quality of life for Memphians.

"These buses will run entirely on electric power which will significantly reduce the transit authority's carbon footprint, improve air quality and reduce operating costs," Rosenfeld said when the grant was announced.

Bike rental operations like My City Rides and Explore and rideshare options, including Groove on Demand, a collaboration between MATA, the Downtown Memphis Commission and the Memphis Medical District Collaborative, have provided alternative options for short-range trips.

And anyone who has been Downtown in the past few years has seen the nearly ubiquitous electric scooters. Bird recently announced its new Bird Three scooter, which was designed to have a longer-lasting battery life to require fewer charges, had debuted in Memphis.

Bird said the estimated 1.1 million gallons of gas not used as people chose Bird scooters over cars in 2021 could have equated to up to 10,000 metric tons of carbon dioxide not entering the atmosphere. That figure was calculated with guidance from the Environmental Protection Agency.

"Bird's mission is to make cities more livable by reducing car trips, traffic and carbon emissions," a Bird spokesperson said. "We are honored to continue our long-standing partnership with the city of Memphis to provide an eco-friendly transportation option that supports spending at local businesses."

The city of Memphis and Shelby County in January 2020 also released a joint Memphis Area Climate Action Plan, which outlines actions that could decrease the area's greenhouse gas emissions by over 70% by 2050 as well as the importance of doing so.

"The Memphis area faces several climate threats - such as flooding, extreme heat and drought, and damaging wind - that are projected to become more frequent and more severe over the next 50 years. These events can have substantial impacts on our community related to property damage, compromised public health, environmental degradation, and lost economic activity," according to the plan.

Among the solutions presented are implementing green building standards and incentivizing green building design, enhancing public transit and making walking and cycling more practical as well as "encouraging" electric vehicle adoption and the development of charging infrastructure.

Efforts to reduce global greenhouse emissions don't always seem obvious, Rupke said.

The website [drawdown.org](http://drawdown.org) lists ways individuals, governments and corporations can reduce carbon dioxide output including seemingly unrelated things like improving literacy.

At the end of the day, Rupke said, everyone is an individual within a system. Changes individuals make matter, but the changes they can prompt larger systems to make can have an even greater impact.

"The good news is that even individuals, but certainly companies, whatever they do, if what they're doing is really reducing the amount of carbon dioxide in the atmosphere, that's part of the equation," he said. "Once we add up all those changes, then we get what we need."

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