

Innovations

IN RESEARCH & CREATIVE WORKS



2023



TEXAS A&M UNIVERSITY
School of Architecture



Editorial Team

Richard Nira

Sarah Wilson

Photography

Pages 5, 8-9,12-13, 16-17, 20-21, 24-25,28-29, 30-32
John Peters

Page 6-7 Texas A&M University Division of Marketing &
Communications

Photos on Pages 26-27 provided by Nancy Klein

Art Direction and Design

John G. Rice

Front cover: Texas A&M School of Architecture researchers seek solutions for critical issues faced by our society. These solutions include innovative “green-” or “tech-” based responses to worsening natural hazard impacts on the built and natural environment, designs for positive effects on community wellness, and more.

Innovations in Research and Creative Works is published by the Texas A&M School of Architecture. Permission is granted to republish any article in this publication, provided no product, service or organization endorsement is stated or implied, and that credit is given to “Texas A&M School of Architecture.”

© 2023 Texas A&M School of Architecture



ABOUT THE SCHOOL

Creativity, innovation and scholarly pursuits are the hallmarks of our programs.

The School of Architecture offers a top-notch education in a diverse range of disciplines that address critical, complex challenges in our natural and built environments. After graduating, students are equipped to become leaders in their fields and make a difference in the world.

Our undergraduate and graduate programs in architecture, construction science, land and property development, landscape architecture, and urban planning consistently rank among the best in the nation, topping lists of the most elite schools and standing out among costly private institutions. Our curricula include the traditional fundamentals of each discipline as well as interdisciplinary collaboration and high-impact learning opportunities such as study abroad, professional internships and lifelong support from the Aggie Network.

As part of a Tier One research institution, the School of Architecture provides undergraduate and graduate students with real-life and field experience working alongside faculty researchers in their labs, research centers and institutes, focusing on a variety of areas including healthcare facility design, housing, historic preservation, hazard resilience and recovery, and leadership in the design and construction industries.

School faculty, staff and students are committed to Texas A&M University's core values of excellence, integrity, leadership, loyalty, respect and selfless service. Graduates of our programs are highly sought after by industry leaders and graduate programs across the country.

Successful people start here.

TEXAS A&M FOUNDATION

School of Architecture | 206C Coke Building | 415 Houston St. | 3137 TAMU | College Station, TX 77840

From the Executive Associate Dean

This issue of Innovations is our first as a School of Architecture. The changes the university has experienced over the past year, which include paring down the School of Architecture back to its original three departments (Architecture, Construction Science, and Landscape Architecture & Urban Planning) have given us an opportunity to focus on what our school is all about.

Our vision for the School of Architecture is as follows:

The School of Architecture will lean into Texas A&M University's role as the premier land-grant institution in the nation to be a world leader among schools of architecture by engaging voices from within communities and constituencies to co-develop solutions to the grand challenges facing the built environment, to advance equity, accessibility, resilience, health, and sustainability in our world.

The role of research, creative work, and innovation is key to our vision for developing solutions to the grand challenges of the built environment. In this issue, we feature research by School of Architecture scholars that could turn construction jobsite waste into a new, sustainable concrete; create a new way to crowdsource real-time flood data; pave the way for urban planners to anticipate outcomes by harnessing reams of data, and more.

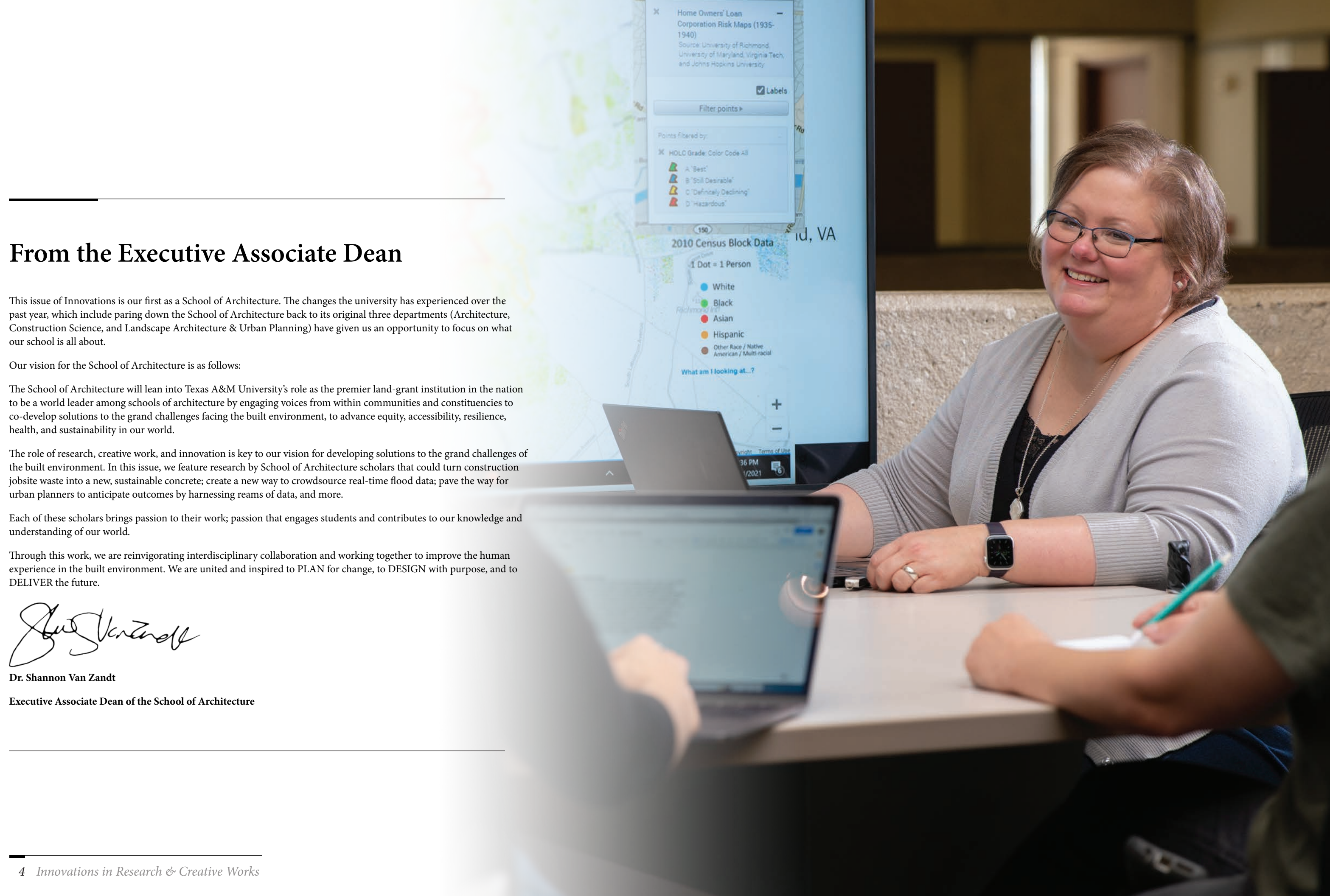
Each of these scholars brings passion to their work; passion that engages students and contributes to our knowledge and understanding of our world.

Through this work, we are reinvigorating interdisciplinary collaboration and working together to improve the human experience in the built environment. We are united and inspired to PLAN for change, to DESIGN with purpose, and to DELIVER the future.



Dr. Shannon Van Zandt

Executive Associate Dean of the School of Architecture



Contents

- 08** MESSAGE FROM SCHOOL LEADERSHIP
- 10** RESEARCH FUNDING & EXPENDITURES 2022
- 12** STOP. GATHER CRITICAL INFORMATION. PROCEED.
- 16** LIFE-THREATENING CONDITIONS IN TEXAS PRISONS
- 21** DEMOLITION WOMAN
- 25** THE PUZZLE OF THE PAST
- 28** ONE PLACE. TWO WAYS TO SEE IT.
- 33** DESIGN AS A PATH TO HEALTHIER LIVING
- 36** CHAIRS & PROFESSORSHIPS
- 39** SUPPORTING RESEARCH AND CREATIVE WORKS





TEXAS A&M UNIVERSITY
School of
Architecture

As part of a Tier One research university, our school is committed to excellence in research, teaching and outreach in a welcoming, inclusive environment where diversity thrives.


Our faculty, students, graduates and staff strive to make a difference in their disciplines and communities through innovation and exceptional work.

School Executive Leadership Team


Leslie Feigenbaum
Associate Dean for International
Programs & Facilities



Shelley Holliday
Associate Dean for
Academic Affairs


Shannon Van Zandt
Executive Associate Dean of the
School of Architecture


Patrick Suermann
Interim Dean of the
School of Architecture


Katherine Reed
Assistant Dean for
Graduate Studies


Deidra D. Davis
Assistant Dean of Diversity
& Inclusion


Chris Novosad
Assistant Dean for Finance
& Administration

Research Expenditures & Funding

2022

RESEARCH IMPACT

Faculty in the School of Architecture, part of a Tier 1 research institution, conduct world-class, interdisciplinary research that impacts individuals, communities and the nation. Their projects enhance academic excellence, creativity and innovation while providing undergraduate and graduate students with opportunities to engage in research.

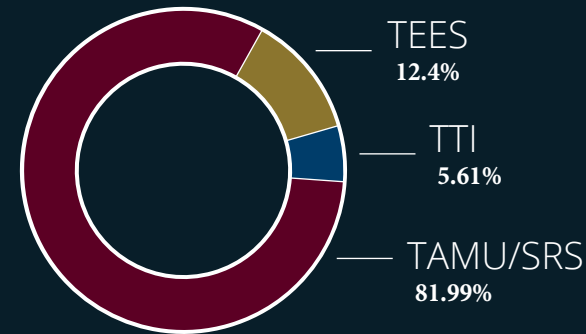
\$5M

IN RESEARCH
SPENDING

\$2.3M

IN EXTERNAL
RESEARCH FUNDING

SPENDING BY SOURCE



AGENCY	EXPENSE
Texas A&M University / Sponsored Research Services	\$4.2M
Texas A&M Engineering Experiment Station (TEES)	\$641K
Texas A&M Transportation Institute (TTI)	\$290K
Total	\$5.2M

BY DEPARTMENT

DEPARTMENT/ENTITY	SPENDING	FUNDING	TENURE/TENURE TRACK FACULTY	EXPENDITURE PER TENURE/TENURE TRACK FACULTY
Architecture	\$596K	\$829K	30	\$20K
Construction Science	\$1.3M	\$711K	14	\$95K
Landscape Architecture & Urban Planning	\$2.3M	\$746K	22	\$105K
Visualization*	\$922K	\$17K	17	\$54K
Colonias Program*	\$470K	N/A	N/A	N/A
Total	\$5.2M	\$7.7M	83	

19

FACULTY
INVESTIGATORS
RECEIVED GRANTS

31

EXTERNAL FUNDING
SOURCES

* The Department of Visualization and Colonias Program will be housed in other Texas A&M units beginning in 2022-23.

Stop. Gather Critical Information. Proceed.

A SIMPLE, INNOVATIVE IDEA TO PROVIDE REAL-TIME FLOOD DATA

Flooding tops the list of natural hazards in the United States and many parts of the world.

However, in an age when reams of data about almost everything are readily available, real-time flooding data and analysis still remains mostly a concept to first responders and the public, said Amir Behzadan, professor of construction science at Texas A&M University, who is developing a new system to collect, curate, and communicate this kind of data.

“When it comes to disaster impact, there are ‘data deserts’ — large areas in our communities in which we have very little information about the likelihood and extent of damage,” said Behzadan. “If this data is available, informed decisions can be made about immediate needs like search and rescue, as well as longer-term needs such as debris cleanup, economic recovery efforts, and where insurance companies can focus.”

Flood data gathering measures in many neighborhoods are very basic — if they exist at all, he said.

“There are flood gauges that are operated by the U.S. Geological Survey or local governments, but these have limited coverage and do not provide the full picture of how floodwaters move, especially in residential neighborhoods,” he said. “In Houston, some areas have buoys or gauges in rivers and creeks, but those only register conditions close by.”

More imprecise methods are used for large areas that don’t have these devices.

“As you move farther away from the small number of flood gathering devices we do have, you have to rely on

modeling that uses hydrological equations and other mathematical techniques. Many times, these techniques are inaccurate because floodwaters’ movement depends on many variables, such as characteristics of the terrain it’s on, which affects how much water is being absorbed and how much of it runs off,” he said.

A RESEARCH IDEA HAPPENED IN A ‘FLASH’

Behzadan, whose research aims to enhance the interface of artificial intelligence and the built environment, wondered how real-time flood data could be much more accurately gathered, analyzed, and widely distributed. As he pored over flood photos online, an idea came to him: what about an artificial intelligence-based solution that involved a standard unit of measurement that’s a common sight in neighborhoods everywhere — the stop sign?

“In a way, it’s really a very simple concept,” said Behzadan, who is heading the project with collaborators Michelle Meyer, director of the Hazard Reduction and Recovery Center, Courtney Thompson and Zhe Zhang, Texas A&M assistant professors of geography. The project is funded with a grant from the Texas Sea Grant Program from the U.S. Department of Commerce National Oceanic and Atmospheric Administration.

The system that Behzadan and his collaborators are developing works with data that can easily be captured in a flooded area.

When floodwaters strike, a resident would merely need to take a photo of the floodwaters at a stop sign with a mobile phone and upload it to Blupix, an online crowdsourcing platform that is also developed by the research team.



Amir Behzadan, professor of construction science, believes the humble, ever-present stop sign can be a major element of a real-time floodwater measurement system.



Behzadan's research addresses flooding, the top natural hazard in the U.S.

An artificial intelligence model that Behzadan and his collaborators are creating will compare the submitted floodwater photo with an existing Google Street View image of the same location, and, using the stop sign's size as a measurement benchmark, estimate the depth of floodwaters in the location of the depicted stop sign.

Because the signs have a standardized 30" diameter, the pre- and post-flood photos don't need to be from the exact same angle or time of day; the model will be able to recognize different angles and account for them as it provides the floodwater depth information.

"The application also provides a mapping interface so the floodwater information can be communicated in real time to the public, first response teams, and authorities," said Behzadan.

He envisions the popularity of posting photos to social media sites as an aid to help dramatically improve flood data gathering.

"When you think about it, how many smartphones and tablets are out there, where people post photos on social media for the fun of it?" he asked. "Imagine these devices turning into flood data collection devices," he said.

Focusing on stop signs makes the concept understandable to everyone, said Behzadan.

"Stop signs are everywhere," he said. "Even a very young child would be able to find a stop sign in their neighborhood, but if you asked someone to locate a nearby flood gauge they very likely wouldn't know."

In Bryan/College Station area, there only a few USGS-operated flood gauges. "But how many stop signs are there?" asked Behzadan.

A POTENTIALLY LIFE-SAVING PROJECT

A system with real-time flooding information could save lives, he said.

"When a hurricane strikes or there's a flooding event, the majority of people who lose their lives aren't those who are directly affected by the hurricane or by rainfall-related flooding," said Behzadan. "It's people who are driving or walking on flooded roads."

These are ordinary people, he said, that don't know that lethal floodwaters could be 50 or 100 feet in front of them.

"We're working on providing this kind of life-saving information in real time, so that everyone, from first responders to the general public, will know where and when flooding is occurring," he said.

HOW HIGH IS THE WATER?

The level of floodwaters is also vital information to first responders, who need precise information to make decisions about rescues.

"You ask five different people in the same apartment complex, how high did it flood? You will get five different answers," said Matthew Marchetti, co-founder of Crowd Source Rescue, one of the nonprofit organizations collaborating with the Texas A&M researchers. "Is the floodwater two feet, is it six feet? There's a big difference between those two numbers, because it's the difference between a truck and a boat," he said.

"At the end of the day it helps save more lives, if we can get first responders better and faster information," Marchetti told KHOU-TV in a story about Behzadan's project.

The crowdsourced photos could also help increase the accuracy of floodplain maps, while reducing the time it takes to update them, particularly in areas where less flood data has been historically collected, said Behzadan,

"FEMA flood maps are widely used to determine flood risk, vulnerability, and insurance cost," said Behzadan. "But the process of creating and updating these maps is very complex. 75 percent of these maps are older than five years, leaving many U.S. communities with no or outdated flood maps."

Behzadan believes the crowdsourced flood data concept, when it's "up and running," could be particularly helpful in underserved areas, most of which lack even rudimentary flood data gathering measures.

"Many of the communities that are flood prone in Houston, Galveston or Port Arthur are underserved to begin

with and don't have the same level of flood mitigation infrastructure that other communities do," he said. "These are often communities of color, some of which have large immigrant populations, and they are often disproportionately affected by flooding."

To spread the word about the project, Behzadan is working with organizations in the Texas Gulf Coast region that work in underserved communities, attending meetings and explaining the simple way for members that live in these neighborhoods to help bolster real-time flood data collection where they live.

"The more photos that are uploaded to the site from these communities, the more accurate the flood data gathering will be," said Behzadan."

By Richard Nira

Life-Threatening Conditions in Texas Prisons

TRIPLE-DIGIT TEMPERATURES IN TEXAS PRISONS CAN BE DEADLY FOR INCARCERATED PEOPLE AND PRISON STAFF DURING HEAT WAVES.

Texas is one of at least 13 states without universal air conditioning in its state prisons.

The units regularly reach extreme temperatures of over 110 degrees, with at least one unit recording a heat index of 149 degrees, putting incarcerated people and prison staff at risk for illness and even death.

“It’s part of the sentence in Texas that you’re being punished additionally with life-threatening temperature conditions,” said J. Carlee Purdum, a research assistant professor in the Department of Landscape Architecture and Urban Planning and the Hazard Reduction and Recovery Center, who studies how hazards and disasters affect those incarcerated. “With climate change, A/C is a right to life.”

With about 70 percent of the prisons in the Texas Department of Criminal Justice operating without full air conditioning, and with state heat records met and broken annually, Purdum is trying to bring legal change and

awareness for what she calls “a hugely overlooked area of human rights.”

“It’s a really dangerous situation. We have very crowded prisons — hundreds or thousands of people facing extreme temperatures in units that are made of materials that will trap heat,” she said. “Incarcerated people have higher rates of mental and physical illness. They’re vulnerable populations.”

THE POLITICS OF PRISON

The reasons Texas prisons aren’t air conditioned are primarily political and financial, said Purdum.

“The argument is that it’s too expensive,” she said.

But current conditions are costing them too. Purdum says the state is potentially on the hook for millions of dollars in class action lawsuits from the families of people who have died from heat-related illness and conditions. What’s really happening, she said, is lawmakers and citizens don’t want to spend money on upgrading prisons.

J. Carlee Purdum, a research associate professor, believes all Texas prisons should be retrofitted with air conditioning.





“There is this idea that incarcerated people are undeserving of air conditioning,” said Purdum. “Prisons are the only institutions where people are in state custody, think hospitals or schools, where people aren’t broadly air conditioned.”

Purdum said many people consider these conditions cruel and unusual punishment, a potential constitutional violation, and argue it reduces the stature of the U. S. and Texas around the world.

“It’s extremely embarrassing nationally and internationally,” Purdum said. “Someone was recently refused extradition from a Scottish court to Texas because their courts considered our conditions inhumane.”

A CALL FOR CHANGE

Purdum testified at a Texas House Appropriations Committee meeting in June with the grim results of a report she authored with Benika Dixon, visiting assistant professor at the School of Public Health and Faculty Fellow of the Texas A&M Hazard Reduction and Recovery Center, and Amite Dominick the Director of Texas Prisons Community Advocates, a nonprofit organization.

Informed by surveys of over 300 incarcerated people, the report describes the shortcomings of the Texas prison system’s heat mitigation efforts and policies, especially during

COVID-19. Current heat mitigation policies, which were formalized following a 2018 lawsuit include:

- identifying those who are most at risk for a heat-related illness and housing those people in areas with A/C,
- having water and ice constantly available,
- additional showers when needed,
- having respite areas available when requested,
- and selling cooling items such as fans, cooling towels and drinks with electrolytes available for purchase in the prison commissary.

“The policies are ineffective and inefficient,” she said. “It impacts the safety of the incarcerated, their families and the correctional officers.”

NOT ENOUGH

Purdum said the efforts aren’t always implemented and are not “nearly enough” and that many incarcerated people don’t have access to those resources.

One example, said Purdum, is how Texas prison system officials have said that system policies prioritize the most vulnerable incarcerated people for access to air-conditioned beds. However, said Purdum, the

most recently available data from 2020 showed that 22 percent of those designated as most vulnerable in the prison system, about 2,615 incarcerated persons, did not have access to air-conditioned beds despite the agency’s efforts. The “cool bed priority offenders” are described as generally including those suffering from “heart disease, mental health disorders, dementia/Alzheimer’s disease, developmental disability, are 65 years or older, are also prescribed certain medications or have certain medical conditions.”

Other policies, she said, were followed to a degree but offered other dangers to prisoners.

“Water is often distributed in common areas, but there’s only one cooler for say 70 individuals,” said Purdum. “The coolers are constantly getting dirty and not cleaned. Insects, dirt and even vermin were found in the water. About a third of our survey participants had concerns about the water quality, which discouraged people from drinking in the summer.”

With a massive staffing shortage across Texas prisons, corrections officers are also unfairly stressed. They have to also work in the same heat and attempt to implement the policies, while also dealing with more violence and suicide due to the deteriorating conditions in the units.

“It’s up to them to make sure the prisoners are going to respite areas, getting water refills, but if someone gets injured it can be blamed on staff when it might be a structural mitigation issue,” she said.

Additionally, incarcerated persons are not paid for their labor, so many cannot purchase cooling items.

CONDITIONS WORSENER BY COVID-19

Pandemic lockdowns exacerbated all these issues, said Purdum, making conditions a “living hell” as described by those incarcerated.

She believes heat was a contributing factor to many COVID-19 prison deaths and made it more difficult for the infected to recover from the virus. Lockdowns made access to water and cooling rooms or respite areas rarer, and officers further restricted movement, access and interaction for fear of spreading the virus or becoming sick themselves.

Since 1998, at least 23 incarcerated persons have died from heat illness in Texas, but Purdum said that number doesn’t include many for whom the heat amplified or exacerbated their conditions.

“A person who dies of a heart attack may not have died from heat exposure

directly, but continuous exposure to excessive heat will degrade their health over time,” she said. “That person may not have died if they weren’t in hazardous conditions every day.”

NEXT STEPS

The next phase of her research is funded by a \$20,000 Texas A&M Innovation X-Grant, which will allow the research team to map risks in Texas prisons and learn how extreme temperatures affect populations including women, the elderly, people with disabilities, and women who are pregnant.

In addition to more surveying and mapping, they’ll be helping families of the incarcerated learn how they can help with community workshops that will teach them how to advocate for people inside.

“We want to educate the public on what the policies are, how they can advocate and affect change,” Purdum said. “We’ll be able to support the Texas Prison Community Advocates in their work, put on community workshops and help family members understand the policies and learn to advocate for themselves and their loved one.”

“It affects everyone when these systems aren’t safe,” she said.

Purdum hopes to convince policymakers that reducing heat exposure by adding air conditioning to all Texas prisons to bring temperatures down is more cost-effective and humane than trying to mitigate the impacts of excessive heat.

“People don’t understand how much of an issue this is, and it has enormous spillover effects for our prison systems and our communities,” she said. “We’re not talking about a luxury – it’s a necessity. We’re talking about a human right – the right to live and the right to be in a safe place.”

By Sarah Wilson



Julie Hartell, assistant professor of construction science, is working on an innovative new process to transform construction debris into new, sustainable concrete.

Demolition Woman

PROFESSOR SEEKS TO TURN TRASH INTO NEW, SUSTAINABLE STRUCTURES

Buildings that face demolition could soon be transformed into a new type of concrete that would be used to create new structures, an approach that reduces landfill waste and creates jobs.

It's the revolutionary vision of Julie Hartell, an assistant professor of construction science, who is poised to give old building materials a new lease on life with her work in the Center for Infrastructure Renewal Lab at Texas A&M.

Inspired by her experience as a structural engineer working on urban structures with durability issues in her hometown of Montreal, Hartell pursued a master's degree in infrastructure rehabilitation and then a Ph.D. focusing on concrete material durability and sustainability.

Her research and newfound passion led her to teach at American universities, where she realized that a massive solution was necessary to reduce waste in the industry.

"As much as I love concrete, it is a wasteful material, because we don't have adequate recycling technologies yet," she said.

A 500 MILLION-TON PROBLEM

"Construction and demolition waste is the number one waste producer in the United States," said Hartell. "Our industry, I hate to say it, is a massive polluter and it's a big problem. Every municipality with a landfill is adversely affected by the accumulation of construction and demolition waste."

The creation of concrete materials is also terrible for the environment, as it's one of the largest contributors in terms of carbon emissions and carbon footprint.

"We're looking at over 150 million tons of material that's being disposed in landfills per year," she said. "This represents a viable source for aggregates that we could incorporate into new concrete mixtures."

Destruction from natural hazards such as hurricanes and tornados adds more building debris to landfills.

While teaching at Oklahoma State University, Hartell saw the devastation caused by hurricanes in Texas and nearby coastal regions. "I could not believe that the only solution we had was to landfill everything and do it all again from scratch," she said.

THE DESTRUCTION DILEMMA

Current processes for reusing materials from existing structures aren't viable for most construction projects due to extensive time, effort and costs associated with salvaging usable pieces.

To reuse elements of a structure, workers either salvage usable pieces like doors, windows and material before demolition, or sort through the debris afterwards to recover elements like steel and concrete for recycling. But getting materials to the point where they can be re-utilized can be more effort than it's worth.

"Steel is a high-dollar value recycling material, so you want to remove as much steel as possible, but you also have to separate it from the concrete," Hartell said. "It takes time, effort, different types of equipment, and there is cost associated with that and in sorting the debris."

This cost ends up making products from recycling materials about 40 percent higher than just using new products, said Hartell. If buying new is the cheaper option,



there’s no incentive for consumers or the industry to deal with the waste.

GLOBAL PROBLEM, CIRCULAR SOLUTION

Hartell thinks she has a solution to reuse without the extensive sorting or legwork — just pulverize the whole thing.

“We’d smash it,” Hartell said with a grin.

“Everything. The building, the doors, the carpets, the lighting, the ceramic, the toilet — we’d take it all, crush it and nothing goes to landfill. We’d smash and smash and smash until we have a very, very, very small particle the same size as sand.”

Like a granular circle of life, everything has a purpose and goes on to become renewed. The sand-size particles, in Hartell’s scenario, would have water, cement and chemicals added to them to create a new concrete material.

Some of the crushing technology already exists, but it hasn’t been used in this way due to the varying components in existing concrete mixes. Also, advances in chemistry

would be needed to create an effective, stable concrete or other material with the aggregate.

To pin down the processing, Hartell and her research team are using a \$25,000 grant from the Texas A&M Construction Industry Advisory Council to explore large-scale equipment that could process different parts of a structure down to a desirable shape and size.

“We may come up with brand new equipment or use something already on the market,” she said. “It’s really fun to explore the scholarly side of how to go about this and make the desired end product low cost.”

SALVAGE STIGMA

Another battle they’ll have to face is the general stigma associated with reusing materials, as many consumers assume that recycled products will be of lesser quality.

“There’s wear and tear, there’s potential durability issues. It’s very hard to control the end quality and have a really good understanding of what that aggregate is,” said Hartell. “The different compositions of materials mean that extensive testing

needs to be done to prevent chemical interactions, volumetric or durability issues. It’s like a really big chemistry problem.”

But advancing technology and the potential net positives for the environment, cost, and waste streams make now the perfect time to conduct this research and help shape the future of the industry, she said.

“There’s a future where we can not only limit waste, but also reduce carbon footprint because we no longer have to transport all the material,” she said. “We use fewer raw materials, less energy, less water. It extends the life cycle of existing materials and prevents potential pollutants from going into our environment because we’re rebinding them and securing them in a new building block.”

LOCATION, LOCATION

Hartell’s vision eliminates transport cost and associated emissions by doing all the processing of materials and creation of new concrete on the demolition site.

“The building is demolished on site and we have a processing plant on

site,” she said. “We can bring in a mobile plant to make new concrete units from the demolished buildings, and then we can rebuild on site.”

The work of processing the materials, doing the calculations and science to create a stable aggregate and mixing the new concrete could also create an entire new market of recycling/construction industry jobs.

“This is a new product that can lower the cost of construction and can be scaled up in every single municipality. We’re looking at the creation of a potential new, trillion-dollar economy for the United States and a new workforce,” she said. “According to a recent Environmental Protection Act report, currently a worker in the recycling industry makes approximately \$70,000 a year. For every 1000 tons, you need a person, so that would potentially be several hundred thousand good-paying jobs.”

SAVING MONEY, MAKING MONEY

Because companies currently have to pay to load, haul, drive and dump construction waste at landfills, Hartell says a huge advantage to her concept is that the demo material will be

nearly free to use, at least at first.

“In our current business model, if we can take the material off their hands for less than they’d pay to dispose of the materials, then they save money and don’t have to deal with it,” said Hartell. “Meeting with various demolition companies, they said they’d be willing to give it away for free or cheap and think it’s a fantastic idea.”

She said that would help immensely with the initial costs of processing and creating a new material at a low cost, but if her initiatives are successful, she said demolition companies would almost inevitably opt to charge for the debris.

“There always has to be someone out of the gate. First there was Netflix and now there’s everybody else,” she said. “But if you’re suddenly bringing value to waste, that’s a good thing. It means you’re disrupting the current disposal cycle and there are going to be fewer people sending things to landfill if that waste can be reused.”

Hartell says she’ll start showing the public and industry that this unconventional material can be used, while strategizing to create a business

model over time.

“The goal is to bring the cost at least to parity with new aggregate,” she said. “We need to push the construction industry more towards concepts of sustainability.”

FROM SCRAP TO SHELVES

Funded by several grants from the National Science Foundation’s I-Corps program, VentureWell, and private entities, Hartell hopes to progress from their current research to prototyping, scaling, and implementation within the next decade.

“We are hoping to be able to increase the proof of concept to viable product in the following two to three years,” she said. “And, and then with that, in the next phases of development, to have an implementable product/process in about a five to ten-year range.”

By Sarah Wilson

The Puzzle of the Past

Classical archaeologist and architecture historian Nancy Klein has spent 20 years reconstructing stone fragments to document and better understand the rich history of the Acropolis.

PIECING TOGETHER THE ANCIENT SACRED ARCHITECTURE OF THE ACROPOLIS

A handful of years after Indiana Jones inspired a new generation of adventure-driven archaeologists, Nancy Klein was a young college student in Greece, excavating ancient settlements.

“You’re digging in the ground, and you find something that is hundreds or thousands of years old,” said Klein, now a Texas A&M associate professor of architecture. “One of the most common things we find is pottery. You realize as you’re holding it that it was made by a human, and the connection you feel is striking and tangible.”

Pottery, she said, is amazing because it’s handmade and virtually unbreakable, so you can often find finger or thumbprints perfectly preserved within the clay.

“There’s this thing you just can’t resist doing,” she said. “Everybody always puts their fingers in the print to see if it fits. Do I fit? Do I have something in common with this person from so long ago? Touching something like that instantly connects you.”

ASKING ARCHITECTURE

As a classical archaeologist and architectural historian, things intentionally designed and built by human hands to last, like temples and monuments, and how they evolved with people’s needs, fascinate Klein.

“It doesn’t matter if you spent a dollar or billions to build it, architecture speaks to your concerns, your community and your cultural priorities,” she said. “In my architecture history classes, we talk about ‘interrogating’

architecture as a way of understanding the people who built it. If they didn’t leave us written sources, the artifacts and architecture are really our best source for asking questions.”

ANCIENT HISTORY

“What were you before?” is the question Klein asks in her current project, which is nearly complete after almost two decades of work.

She has spent thousands of hours deep in an Acropolis storeroom studying stone architectural fragments from the 6th and 5th centuries B.C. in an attempt to understand the architectural history of the Acropolis.

“Most people are familiar with the Parthenon, this majestic temple on the Acropolis that dates back to the 5th century B.C.,” Klein said. “It figures very large in our understanding and appreciation of Greek culture because it survives. But before that temple was built, there was a sanctuary on the Acropolis that began about 150 years before the Parthenon.”

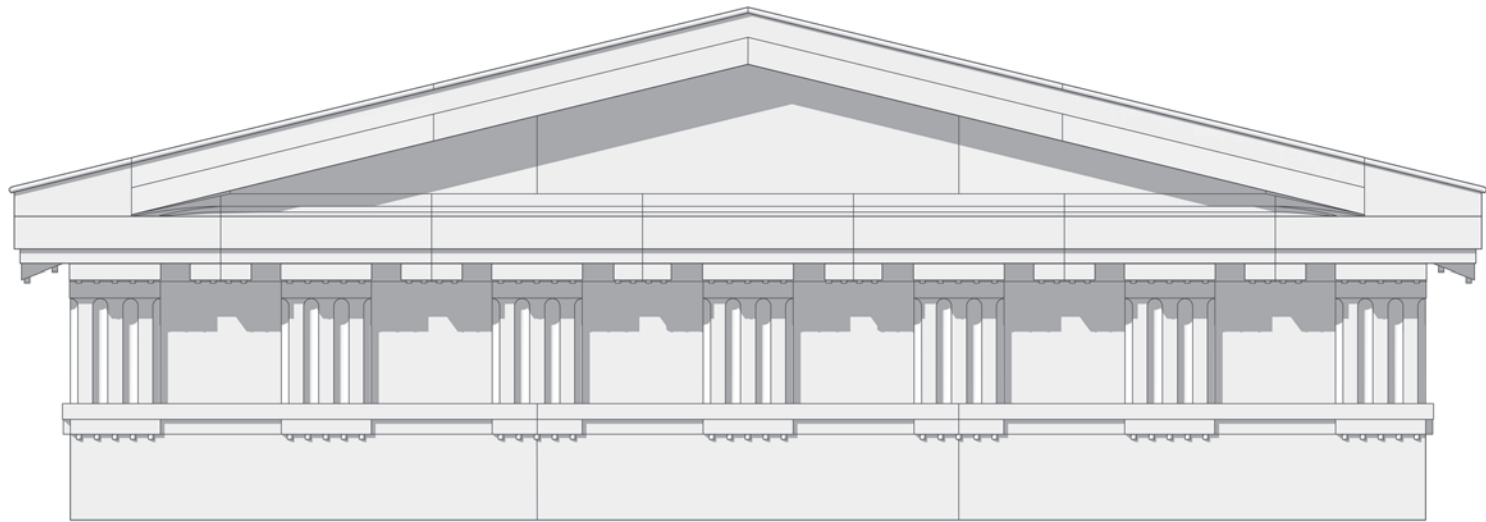
Klein said the real beginnings of monumental architecture in Athens started on the Acropolis, where the Athenians built temples and a variety of sanctuary structures to honor their patron goddess Athena.

“The reason we don’t know much about these is because in the 6th century B.C., the Greeks began a series of battles against the Persians,” Klein said. “They fought an important battle, the Battle of Marathon in 490 B.C., where they defeated the Persian army, which was unheard of. If you’ve seen the movie ‘300’ you know that the Persians were this seemingly invincible force. But the Greeks won.”

Klein said the Greeks took the riches left by the Persians and tore down one of their own temples to build a newer, bigger one. But then just ten years later, in 480 B.C. the Persians returned and defeated the Greeks. In revenge for their earlier defeat, the Persians burned and destroyed all the sanctuaries on the Acropolis.

Later, when the Greeks defeated the Persians again, they rebuilt on the ruins of their previous temples, reusing what they could and burying the rest in the ground to honor their history.

“They built into the fabric, the foundations and the walls, objects from earlier buildings,” Klein said. “Then they built the Parthenon and all the beautiful structures that remain today.”



LOST AND FOUND

Fast forward to the 19th century: Greece gained its independence from the Ottoman Empire and made the Acropolis the symbol of their new nation. They began removing older, non-classical Greek remains and excavated down to the bedrock, finding all these old sculptures and pieces of architecture buried in the 5th century B.C.

“It made international headlines,” Klein said. “People were amazed as they pulled up these marble statues of

women who still had vivid paint on them because they were buried after only a couple of decades. Those are now in the Acropolis Museum.”

Klein said some of the architecture that was unearthed is on display, but much of what was uncovered — thousands of stone blocks and fragments — is in storage.

“I describe this project to people like if someone threw dozens of puzzle boxes full of pieces on the ground and then threw out the box lids with the pictures on them,” she said. “Well

if you know that one is a picture of a garden and one is of a house; you can start separating them out.”

DETECTIVE WORK

She describes her approach to processing the blocks as “mind-numbingly slow.” It involves inspecting each piece to observe the size, characteristics and dimensions, calculating scale from known Greek architecture and using her knowledge of what type of features buildings from different eras had, and other innovative approaches to document

A digital illustration of how Klein believes an ancient building she studied should be reconstructed.



Klein photographs a limestone architectural fragment in the Acropolis storerooms in December 2017.



The Parthenon in Athens, Greece.

and interpret the fragments to recreate the buildings.

“Remember, we probably lost a couple pieces when vacuuming the floor, so we don’t have the whole thing,” joked Klein. “But we have enough.”

Supported at Texas A&M with funding from the Melbern G. Glasscock Center for Humanities Research, the Department of Architecture, and external grants from the National Endowment for the Humanities and the Fulbright Foundation, she’s traveled annually to Greece, except during COVID-19, to continue her work.

Klein said she has to navigate a complex permit system every time she goes to Greece to conduct her research and has to be monitored while in the Acropolis storerooms as a foreign scholar at work. Combined with the meticulous task of individually measuring, inspecting and attempting to fit pieces together, that’s why the research has taken so long.

“I have to take the fragments and make a compelling argument for how they go together and then fit in to the building to which they probably belong,” Klein said. “I also have to make sure that I’m reassembling the building in a way that allows other scholars of architecture to follow my line of reasoning and the evidence that I have to support it. I then create the reconstructions.”

THE FINAL PRODUCT

Klein is combining her discoveries and research into a single-author book currently set to be completed in 2023-24 that’s tentatively titled “The Architecture of the Acropolis before the Parthenon.”

“In addition to the history of pre-Parthenon monuments, it will cover the early foundations of architecture and the exploratory steps and experiments taken in early monumental stone buildings,” Klein said.

Meant to serve as a primary and functional contribution to Greek architectural history, it will also

explore ancient Greek religion and the history of scholarship, building on the work of earlier generations, she said.

“I think anyone who is interested in those subjects will be able to pick up the book and find a new understanding that isn’t possible without this work,” Klein said.

Once it’s published, Klein says she has dozens of other architectural research projects waiting in the wings to pursue.

“I’m not sure I have another 20-year research project in my future just in terms of complexity,” Klein said. “But as you’re researching one topic, you end up reading widely and find a lot of things that catch your attention. You have to tell yourself not to fall down the rabbit hole. But I’m looking forward to following up on some things I wanted to explore further.”

By Sarah Wilson

One Place. Two Ways to See It.

RESEARCHER ESTABLISHING A NEW WAY FOR URBAN PLANNERS TO SEE A COMMUNITY

Texas is growing.

Quickly.

The Lone Star State welcomed 850 new residents every day between June 2020 and June 2021, said the U.S. Census Bureau.

“We have lots of challenges and opportunities connected to this growth,” said Xinyue Ye, the Harold L. Adams Endowed Professor of Urban Planning and an American Association of Geographers Fellow.

Growth of this magnitude is accompanied by rising demands for housing, transportation, and parks — some of the crucial elements of a community that urban planners consider as they seek to create a vision for a community’s future.

The planning field, ever eager to harness the growth and ubiquity of technology, is at the early stages of a new way to understand and observe how cities work, and how people’s daily activities affect them, said Ye, who is also the associate director of the Texas A&M Center for Housing and Urban Development.

It’s a concept called “digital twinning.” At its heart, it’s a virtual model of a physical object, infused with continuously updated datasets. In the urban planning

realm, a digital twin could be rendered as a 3D model of a community that contains reams and reams of data — housing, transportation, socioeconomic, crime, zoning and a vast amount of additional data from a variety of public agencies, remote sensors and perhaps even information volunteered by citizens via their mobile phones.

Ye is one of the scholars at the forefront of establishing digital twins of cities and regions and exploring how the concept can be translated into widespread reality.

He is leading a team of scholars who are developing a digital twin of Galveston and portions of other Texas coastal communities in a National Science Foundation-funded study. The researchers are creating the twin to funnel the areas’ natural hazard resilience efforts from numerous federal, state, and local agencies into a cohesive strategy.

Digital twinning, said Ye, is the future of urban planning-related informatics — the analysis of reams of real-time data to anticipate planning outcomes and improve data-driven decisions of all types made by policymakers in cities and smaller communities. It’s an option that has previously not existed for planners.

Consider, for example, a digital twin of a busy intersection, something similar to where Texas Avenue

Xinyue Ye is at the forefront of creating a new way for urban planners to understand and observe how communities work.





A digital, real-time system will help emergency managers and citizens make decisions when severe conditions approach.

and University Avenue meet in College Station.

A digital twin of this intersection would consist of comprehensive, real-time intersection data gathered from sensors and public agencies.

Data would be collected on the signal light cycle — the length of red lights, green lights, left turn lights, as well as the number of cars at the intersection, the length of time cars sit at the intersection, how long pedestrians need to wait at the intersection, and the pedestrian crossing signals.

Then, imagine access to this kind of data all along Texas Avenue and University Avenue, and on streets throughout Bryan/College Station, continuously updated in real-time, all archived and downloadable.

With access to all this data, transportation planners in the two communities might be able to work together to help the local traffic move more smoothly.

Then add more data. Where are residential, business, and industrial areas located? Where is road construction taking place? Where are new developments being planned?

Planners can then, for example, create simulations that would demonstrate

solutions to the area’s ever-worsening traffic problems.

How much would traffic be decreased if land use patterns that reduced people’s reliance on cars were adopted in Bryan and College Station? If new housing were built atop existing one-story shopping areas, instead of further and further south in College Station? If traffic light cycles were changed and coordinated?

“We could have a virtual, digital twin to test transportation efficiency,” said Ye. “In other words, if it functions in a model, then we have the evidence-based option to use it in the real world instantly.”

It also promises significantly improved disaster planning and response capabilities.

When a storm strikes, accurate information is vital to emergency responders.

“Effective disaster response means that in a very short time, society needs coordinators at various municipal departments and private citizen groups to respond to emergencies,” said Ye. “Many decisions that may have life-or-death consequences need to be made immediately.”

But in a natural disaster there’s really no time to gather experts to make decisions.

“In a digital twin scenario, we could have lots of real time, integrated data flow on first responder resources, flooding levels, passable roads, and power availability, among many other things,” said Ye.

In some cases, digital twinning has already reached a point where a system can quickly suggest actions based on existing/new data, actions taken or not taken in the past, and the consequences of those actions, said Ye.

Some policymakers and citizens might be concerned that machines will be making these critical decisions.

“I want to emphasize that digital twinning, and the suggestions the systems make, doesn’t just run automatically without humans’ intervention,” said Ye. “Trained and experienced emergency managers will still be in charge. We need human beings to make these kinds of decisions.”

It’s similar, said Ye, to a pilot’s relationship to the automated systems on a commercial airliner.

“An airplane utilizes a digital navigation system, but of course we still need a pilot to fly it,” said Ye. “We don’t trust our lives to an airplane without anyone to monitor it. The same goes for a digital twin system.”

In the initial stage of his two-year, \$300K Galveston and coastal digital twinning study, Ye is working with collaborators at Texas A&M-Galveston to study the city’s buyout program for property below sea level, or property that carries another type of risk.

“We are creating 3-D simulations of

scenarios to envision potential futures in different parts of the city,” said Ye. “We are investigating, for example, the difference between Galveston’s property values if the city builds or does not build certain infrastructure in different parts of the city.”

The research team, which includes scholars in construction science, geography, landscape architecture, marine and coastal environmental science, and urban planning, are also studying natural disasters’ impact on business and transportation on the island.

The team is creating scenarios based on storm length and intensity, and their effects on businesses. This could help businesses safely prepare for when to close before a storm and anticipate the economic impact of remaining closed for a period of time after the storm.

Ye and his fellow scholars hope to help make the concept of digital twinning a widespread mainstay in communities of all sizes.

By Richard Nira



Xuemei Zhu, professor of architecture, is documenting how urban design influences physical activity, a major factor in public health.

Design as a Path to Healthier Living

SCHOOL SCHOLAR JOINS FELLOW RESEARCHERS WHO FOUND THAT A SUBDIVISION'S DESIGN IMPACTS RESIDENTS' PHYSICAL AND SOCIAL ACTIVITY

After World War II, many Americans left the inner city.

Before World War II, only 13 percent of U.S. residents lived in suburbs. In 2010, more than half of all Americans lived there.

This migration resulted in many shifts — not all of them good ones — of a corresponding magnitude, said Xuemei Zhu, professor of architecture, who studies healthy community design, nonmotorized transportation, and public health.

“We began to see unintended consequences of this kind of urbanism,” said Zhu. “An hour long or longer work commutes became typical in Houston and other cities. Most suburbs were also designed with car use as a priority, which made them unfriendly for pedestrians and bicyclists.”

Many of these subdivisions were zoned in such a way that residences were strictly separated from commercial areas. In other words, in most of these developments, a car is required for a trip, even something as simple as getting a loaf of bread or a bottle of aspirin. Car trips replaced walking or biking as a practical mode of transportation. Researchers found that this situation contributed to the U.S.’ rising rates of obesity in adults and adolescents, which contributed to rising cases of type 2 diabetes, high blood pressure, heart disease, strokes, and more.

Physical activity is a primary factor in three major dimensions of health: physical, mental, and social. The typical postwar U.S. subdivision design had the unintended, yet direct effect of reducing its residents’ physical activity.

A NEW RESEARCH OPPORTUNITY

Zhu, who studies how urban design can either increase or decrease physical activity, saw a tremendous research opportunity in Mueller, an Austin subdivision that welcomed its first resident in 2007. Mueller’s planners and designers embraced a design that is friendly to pedestrians and bicycles; a place where people could feel comfortable walking from place to place; a subdivision that wasn’t designed primarily to move cars. She sought to learn whether the subdivision’s design would improve its residents’ health by increasing their physical activity.

The subdivision’s history began as Robert Mueller Municipal Airport, which opened in 1930. For the next 69 years, it served as the growing capital city’s air link to Texas’ major cities and beyond. When a new, larger airport opened on Austin’s southeast side, more than 700 acres of real estate less than 5 miles from downtown Austin became available.

The development’s planners emphasized what’s known as a mixed-use concept —locating places where people gather, such as parks, retail shops and restaurants, within easy walking distance of single-family homes and apartment buildings to create a walkable community.

CAN A SUBDIVISION'S DESIGN AFFECT RESIDENTS' PHYSICAL ACTIVITY?

But did Mueller’s design actually affect how much people walk vs. how much they drive? This is what Zhu sought to learn in a study, funded with \$2,684,000 by the National Institutes of Health. She is one of the study’s co-leaders, with Chanam Lee, a professor in the Department

of Landscape Architecture and Urban Planning, and Marcia G. Ory, Regents and Distinguished Professor of the Texas A&M Health Science Center School of Public Health. The research team includes faculty and students from multiple disciplines — architecture, landscape architecture, urban planning, public health, kinesiology, computer science, statistics — as well as field coordinators in Austin.

Zhu and her fellow researchers are examining people who moved to the Mueller community from less activity-friendly neighborhoods, including more traditionally designed suburban subdivisions. They’re examining both short- and long-term changes in Mueller residents’ activity levels and determining what design features, such as sidewalks, walking/ hiking paths, water features, and parks, lead to changes in physical and social activities.

“Study participants completed surveys and wore accelerometers and global positioning system units for one week, which allowed us to clearly determine how active they are, and when and where they are active,” said Lee. “Through these measures, we are able to isolate the

roles of neighborhood environments in fostering or deterring active living.” We are also able to assess how health and quality of life affects and is affected by physical activity levels,” adds Ory, who focuses on how the environment interacts with health and aging.

The researchers’ preliminary findings showed positive environmental effects. When comparing participants moving to Mueller with the matched participants who did not move, participants who moved to Mueller increased their moderate and vigorous physical activity by 53.2 minutes per week, while the comparison participants had a decrease of 23.1 minutes per week, which is a typical trend as people age.

These preliminary findings support a 2015 pilot study in Mueller that Zhu led which was based on self-reported, retrospective survey data. In that study, which was funded by grants from the American Institute of Architects and the Global Obesity Prevention Center at Johns Hopkins University, Zhu found that new Mueller residents had significantly higher levels of self-reported physical activity such as walking and jogging, more social interactions with

neighbors, and a greater sense of neighborhood cohesion than they did in their previous, traditionally designed suburban subdivisions. The NIH study addressed issues of self-selection which are common in physical activity and environment studies that do not have before and after comparison groups.

ANOTHER MUELLER DESIGN BENEFIT

Zhu and her collaborators’ study is showing that Mueller’s design isn’t just raising its residents’ physical activity.

“We’re also seeing a huge and even greater change in the level of their social interactions,” she said. “Residents in Mueller talk to their neighbors much more often, and they feel that they live in a much more close-knit community than their previous subdivision.”

Mueller also features a housing concept that’s very popular in the subdivision, but unknown in typical neighborhoods — courtyard housing.

“In this arrangement, the back porches of 10 or so houses face a common courtyard,” said Zhu. “It’s



Zhu and her research team are finding that residents will indeed get out of their cars to use pedestrian-friendly spaces.

a very popular type of housing, especially if families have children, because it’s like having a park for a backyard. Parents often sit on their back porch and see their children playing, often with other children from neighboring houses.”

Typically, she added, parents don’t feel as comfortable with their children playing outside alone in a standard suburban neighborhood design, as soccer balls or their children might dash into the street, but courtyard housing avoids these hazards. Additionally, in this design, there’s several sets of eyes on children, and an additional opportunity to interact with neighbors.

Mueller’s design guidelines also address a standard location in the suburbs: a garage as the most prominent part of the front of a home.

“At Mueller, no single-family residence can have a garage facing the street, as an additional design attempt to encourage neighborhood interactions,” said Zhu. “In most suburban residences, we drive into

our garage, we shut our garage door, and we don’t use the street space to interact with the neighbors. In Mueller, all of the single-family residences and townhouses have front porches, instead of garages, facing the street to encourage greater community interaction.”

A REAL ESTATE WINNER

In addition to more physical activity and neighborhood interactions, property values are also higher at Mueller, and houses there also sell quicker, said Zhu.

“Dr. Minjie Xu, one of our post-docs, compared houses in Mueller with similarly matched homes in Austin,” said Zhu. “His research found that Mueller homes sold faster and for higher prices.”

Although Mueller has turned out to be a real estate success story, developers weren’t so sure at the project’s outset.

“As part of the research, we interviewed developers and talked with builders and many other

stakeholders. Some of the people we interviewed didn’t think the design would work from their standpoint,” said Zhu. “In particular, I recall one developer who was suspicious about the project’s financial return and decided not to participate in Mueller’s development initially, but regretted it later when they saw how successful it was.”

When the study is completed soon, there will be plenty of data that shows how a walkable design benefits people in terms of promoting healthy behaviors, improving quality of life, and facilitating social interactions, said Zhu.

“I see Mueller as a showcase for this kind of development,” she said. “It’s a blueprint for a healthier society.”

By Richard Nira



Mueller’s mix of restaurant, retail and residential spaces reduces the necessity to use a car for everyday activities.

Chairs & Professorships

Chairs and professorships in the School of Architecture serve as distinctions of the highest honor for professors with outstanding records of teaching, service, and innovation in research. Created to honor both the holder and the donor, these awards recognize exceptionally driven, passionate, and inventive members of the university faculty. Those awarded demonstrate undeniably remarkable achievements within their discipline, expanding knowledge and pursuing solutions on both a national and international scale.

The funding provided by these endowments encourages strong leadership, interdisciplinary research, innovative teaching methods, and discovery activities related to the natural, built, and virtual environment, while the awards themselves serve to recognize the value of these professors' contributions to their students, industries, and communities of practice alike.

We seek to honor and recognize the holders of these chairs and professorships whose excellence in research, creative works and scholarship help set us apart as one of the most innovative schools of its kind in the country.



DR. AHMED ALI

Ali holds the Harold L. Adams '61 Interdisciplinary Professorship in Architecture.



DR. AMIR BEHZADNAN

Behzadan holds the Clark Construction Group, Inc. Endowed Professorship in Construction Science.



RANDY BIRDWELL

Birdwell holds the George W. Seagraves '80 Faculty Fellowship in Residential Construction.



DR. KC CHOI

Choi holds the Cecil O. Windsor, Jr. '66 Professorship in Construction Science.



DR. MARK CLAYTON

Clayton holds the William M. Pena Endowed Professorship in Information Management.



DR. CHARLES CULP

Culp holds the Liz and Nelson Mitchell Professorship in Residential Design.



DR. BRUCE DVORAK

Dvorak holds the Landscape Architecture and Urban Planning Schob Scholar Professorship.



LARRY FICKEL

Fickel holds the Donna Beth and Jim Thompson '68 Leadership Professorship.



DR. YOUNGJIB HAM

Ham holds the History Maker Homes Endowed Professorship in Construction Science.



DR. WEILING HE

Hamilton holds the Rodney Hill Creativity Professorship.



DR. DAVID JEONG

Jeong holds the James C. Smith '70 Professorship in Construction Science.



DR. PHIL LEWIS

Lewis holds the Merry Raba '84 and William Raba '86 Professorship.



DR. GREGORY LUHAN

Luhan holds the Ward V. Wells Professorship in Architecture.



DR. GALEN NEWMAN

Galen holds the Nicole and Kevin Youngblood Professorship in Residential Land Development.



MICHAEL O'BRIEN

O'Brien holds the Wallie E. Scott, Jr. Endowed Professorship in Architectural Practice and Management.



DR. WALTER GILLIS PEACOCK

Peacock holds the Sandy and Bryan Mitchell Master Builder Chair.



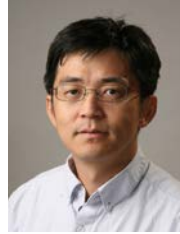
DR. RAY PENTECOST

Pentecost holds the Ronald L. Skaggs and Joseph G. Sprague Chair in Health Facilities Design.



DR. ZOFIA RYBKOWSKI

Rybkowski holds the Harold L. Adams '61 Interdisciplinary Professorship in Construction Science.



DR. WEI YAN

Dr. Wei Yan holds the Mattia Flabiano III, AIA/Page Southerland Page Design Professorship.



DR. COURTNEY STARRETT

Starrett holds the Harold L. Adams '61 Interdisciplinary Professorship in Visualization.



DR. ANDREW TRIPP

Tripp holds the John Only Greer Architectural Heritage Professorship.



DR. XINYUE YE

Ye holds the Harold L. Adams '61 Interdisciplinary Professorship in Landscape Architecture & Urban Planning.



DR. XUEMEI ZHU

Zhu holds the James M. Singleton IV '66, FAIA Educational Architecture Professorship.

Supporting Research and Creative Works

The School of Architecture delivers the highest quality of education for our students and provides them with the tools they need to Plan >Design > Deliver for their communities in Texas and beyond.

The crucial component to providing an exceptional learning experience is the recruitment, retention, and professional development of our world-class faculty members. As the state's preeminent School of Architecture, we are dedicated to giving our professors the resources they need to prepare the next generation of leaders for the design, planning, construction, and land development professions.

Fellowships, professorships, and chairs are a great way to honor the commitments of our educators while investing in the success of our students. The professionals who hold these fellowships, professorships, and chairs are among our high-achieving scholars, researchers, and educators. Beyond the recognition they bestow on their recipients, these endowments generate much-needed funds to support our faculty on their missions to educate, research, and engage with their community partners as well as recruit and retain the highest caliber of academics.

Texas A&M University and the School of Architecture ask that you please consider supporting our faculty members by establishing a faculty fellowship, professorship, or chair for a discipline or research initiative for which you are passionate. These endowments can be funded immediately, over a period of up to five years, or through a planned gift such as a bequest or real estate gift. You may designate a department or research initiative, or it can be awarded based on merit.

Supporting education, research, and outreach with a fellowship, professorship, or chair is a critical priority for the School of Architecture and a great way to honor yourself, your firm, or a loved one. Thank you for considering this investment in our educators and our students.

SUPPORTING RESEARCH AND CREATIVE WORKS

- Fellowship — permanent endowed gift of \$150,000+
- Professorship — permanent endowed gift of \$350,000+
- Chair — permanent endowed gift of \$1,000,000+

Please contact a member of our development team if you have any questions or to learn more about ways to support the School of Architecture. Thank you and Gig 'em!

School of Architecture Development Team



Erik Baker

Senior Director of Development
979.862.5765

ebaker@txamfoundation.com



Deanna Cowan

Development Coordinator
979.458.0400

dcowan@txamfoundation.com



Jennifer Hester

Gift Planning Officer
979.862.7479

jhester@txamfoundation.com



Heather Sauber

Senior Director of Development
979.845.0939

hsauber@txamfoundation.com

TEXAS A&M FOUNDATION

School of Architecture | 202 Langford A | 3137 TAMU, College Station, TX 77843-3137
txamfoundation.com

giving.tamu.edu

*"Where **passion** finds **purpose**"*



TEXAS A&M UNIVERSITY

School of Architecture

arch.tamu.edu