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Mixed-Use

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Cover photo by Elizabeta Belica
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This 10-story housing complex at the University of Houston (UH) opened in the fall of 2009, featuring a combination of studio, 1-bedroom and 2-bedroom apartments with kitchens. The living spaces include modern appliances, granite countertops, high ceilings, valet parking and a part-time concierge. Residents also enjoy the theatre lounge and a special events kitchen. The $107.8 million project was designed to meet the needs of single and married graduate and professional students as well as guest housing.

Halford Busby served as the construction consultant on this project, providing cost estimates and negotiating with the contractor and sub-contractors on the project. Learn more at https://bit.ly/2QltSIC.

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clearing in the forest. The boardwalk has brought you here, as if to show it to you. But why? What is there to see? Clearly, something dreadful happened here. So many of the trees are dead, skeletal boughs and broken stumps slanting in the bright air, sagging with vines. The ground is a riot of grasses and shrubs, trickling streams and murky puddles, decaying trunks sinking in the mud. The sun glints from leaves and water and insects, suffusing your eyes with silvery flashes of light.

The scene is mesmerizing. Is this landscape living or dying? It is both. It is in the middle of a process. It is becoming something else.

The point of the boardwalk winding this way is not to show you this scene. The point is to show you this place, over time, as it transitions into what it will be next.

The place is the recently opened Eastern Glades of Memorial Park in Houston, which has been undergoing a redevelopment — really a resuscitation — based on a master plan designed by Nelson Byrd Woltz (NBW). The exact place within this 1,500-acre urban forest is a stand of woods and wetland between the newly constructed Hines Lake and the old golf course, where a fault line creates a catchment for rain. This zone has intentionally been left in its wild condition — or, more accurately, it has been fallowed.

The truth, it seems, is that Memorial Park has not been thoroughly wild for a very long time. For centuries before European settlers arrived and altered the landscape, it was managed by pre-Colombian peoples, such as the Karankawa, who conducted periodic controlled burns to make the landscape a predominately grassy savannah, the better to plant their crops and to attract grazing herds of bison and other ungulate game, which they hunted.

Subsequently, it has been ranched, farmed, logged, made the site of a brick factory, and turned into a military base — Camp Logan — where soldiers mustered and trained for World War I. Since 1924, it has been a public park. Hare & Hare designed a master plan, of which only a fragment was built: a ring road, the golf course, and a few ballparks. By the 1950s, the undeveloped portions, which were open grassland when Camp Logan was in operation, had become thickly wooded. In 2011, a severe drought killed half of the trees.

The fallowed wooded wetland looks wild enough, but it has felt the touch of human hands. As part of NBW’s plan, invasive species of plants have been removed, native ones planted. The result will be an increase in biodiversity. It has been an empathetic, healing touch — a touch that acknowledges that the improvement of this habitat will improve the city (the human habitat); that humankind and nature are interdependent; and that we can be friends on an equal footing, instead of trapped in a disheartening master-slave relationship, what Gökhan Kodalak and Sanford Kwinter refer to in Log 49 as “an unholy bifurcation of nature and culture.”

The healing of this bifurcation is the project of the 21st century. It starts with thinking. The thought that we humans stand above nature as part of a chain of hierarchy that starts way up top with a heavenly father and then leads down through humans to animals and plants and finally to the lowly rocks in the ground has given us the rationale for exploiting the planet in the name of quick gain. The outcome of this millennia-old thought is total environmental collapse. To think of ourselves instead as ontological equals with nature presents the potential to change our way of negotiating our relationship with the environment into something more supportive and sustainable.

The fallowed wooded wetland at Memorial Park shows this sort of thinking in action — humans working to bring out the emergent properties in nature, as opposed to plundering it or imposing a vision upon it. The French landscape architect Gilles Clément suggests that zones like this — the neglected in-between places that have been ignored by human development and production — offer harbors for biodiversity in a time of mass extinction. His manifesto, “The Third Landscape: Undecided Fragment of the Planetary Garden,” likens these passed-over places to the Third Estate, which, in the French Revolution, represented everyone who was not a noble or a member of the clergy. He quotes the Abbé Sieyès: “What is the Third Estate? Everything. What has it been until now in the political order? Nothing. What does it want to be? Something.”

PHOTO BY AARON SEWARD
President’s Letter

Legacy

by Audrey Maxwell, AIA

When I became TxA president-elect a year ago, I was asked to identify a theme for the 2021 Annual Conference. It was akin to an icebreaker, when you’re asked to cite your favorite book or that one thing no one knows about you — it’s hard to boil things down to one word! I thought about my values, the issues facing our profession today, and the host city of San Antonio, and honed in on “Legacy.”

Legacy has many connotations. It speaks to achievements or inheritance. For many, it speaks to a system that has enabled the privileged to succeed while others are left behind. It can denote an emphasis on the past, an accounting of a person’s good deeds compiled once they are of reasonable age, or dead. I don’t intend it as a memorialization of the past. There is richness and value in our history, but it behooves us to look back with a critical eye.

I was confronted with this notion when I received “Since 1886: A History of the Texas Society of Architects,” a book published in 1983 that is passed down from one president-elect to the next. I had just turned one year old when the author’s note (dated June 1983) was written. Not surprisingly, mention of women and minorities is scant. One excerpt from the AIA’s journal of the time, The Octagon, chronicles a scene from the 64th AIA national convention, held in San Antonio in 1931: “The delegates of the West Texas Chapter ... enlisted the assistance of their wives, and even went so far as to engage minstrels and dancing girls to beguile us. The success of their efforts was spectacular.”

In a section on the 1950s, Alexina Watson, AIA, of Austin is afforded two sentences, one to note that she was president of the Central Texas chapter in 1950 and the other to explain that “though the field of architecture was dominated by men at this time, there were women who played important roles in the progress of TSA.” Those roles, however, are not explained. I was certain a strong female leader would appear by the 1970s, but I was mistaken.

I’m grateful I wasn’t exposed to this history when I was considering architecture school. Despite a high school friend and I joining a drafting class senior year as its second and third female students, I was naive to the profession’s demographics. Had I read this book back then, I would have found no role models like me. In fact, it wasn’t until 1997 that Jan Blackmon, FAIA, of Dallas became the Society’s first female president. Ten years passed before there was a second: Elizabeth Chu Richter, FAIA, of Corpus Christi. Fast-forward 23 years, and, by my count, I will be the 80th president of TxA and the sixth woman to hold the position. The list of minority presidents is even shorter. I say all of this not to disparage the significant contributions of our organization. I mention it to shed light on my experience and perspective as a woman, which is reflected now in roughly 20 percent of our membership.

I remain proud of the Society’s achievements. We continue to actively advocate for the profession at the State Capitol, an effort that began in 1886 when architects of Texas banded together to demand a registration law. This year will mark our 82nd Annual Conference, which has evolved into a significant member event with renowned speakers, architectural tours, and a trade show. Texas Architect magazine — launched in 1950 as a bulletin — now provides high-quality coverage of projects and architects across the state with support from a full-time editor. We have made meaningful strides toward equity, diversity, and inclusion. These are just a few of our notable accomplishments.

2020 brought a pandemic, a reckoning with racial injustice and inequality, natural disasters due to climate change, and a shift in our country’s leadership. What will the coming months produce? I worry about the financial and emotional well-being of my fellow practitioners. We are facing a legislative session like none before, with a remote Architects Day. The Society is transitioning to a new executive vice president. Much uncertainty remains, but our next step seems clear: We need to embrace this moment — embrace the disruption — and allow it to be a catalyst for change.

Which brings me back to “Legacy.” The 1886 charter of the Texas State Association of Architects reads: “The objects of this association are to unite in one common fellowship the architects of Texas.” We are now physically isolated and divided on many issues. But despite our diverse viewpoints, we share a common dedication to the architectural profession. We are in this together. I hope reflection on this theme will be forward-looking. It is intended as a prompt: What do we want our legacy to be?

Audrey Maxwell, AIA, is a principal at Malone Maxwell Dennehy Architects in Dallas, and the 2021 TxA president.
The Precision Series aluminum panels created a very affordable skin, a surface that would weather well and gave us that architectural ‘tech’ look we were trying to achieve.”

-Derrick Mozingo, AIA, Senior Partner, Design Principal, Mozingo + Wallace

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Architecture's Diversity Problem Intensifies Amid Racial Reckoning, Pandemic Strife

In 2018, the National Council of Architectural Registration Boards (NCARB) started to include data related to attrition in its yearly “NCARB by the Numbers” publication. The data revealed that minority architects were 25 to 30 percent more likely to fall off the path to registration than were their white counterparts. To begin to understand this trend, NCARB, along with the National Organization of Minority Architects (NOMA), conducted a 2020 survey, “Baseline on Belonging,” that questioned respondents on themed issues: experience, examination, education, firm culture, and career development.

The survey reveals widespread differences in the experiences of whites and people of color, with an even larger gap faced by women of color. The disproportionate difficulties are not present solely during licensure; difficulties remain in the studio culture, where leadership continues to be mostly male and mostly white. Diversity in firm leadership is an important component of firm culture and has been shown to lead to benefits such as higher employee retention and higher financial performance, among others.

Texas is a minority majority state. Why is the architecture profession not a reflection of this? How are minority and women architects supposed to be part of a profession not designed or built by or for them? And what will be the future of the profession if its demographics continue to be out of touch with the society it serves? For those active on social media, the conversation has been going on for some time, notably among minorities working at large architecture firms. The stories of two practices and how they’ve addressed these conversations are instructive.

“We are at an inflection point for the profession,” says one of the anonymous admins of @BlackatSOM, a social media page that has anonymously posted the experiences of current and previous SOM staff to shed light on systemic racism and bigotry at the firm. For all the stories that have been shared, countless more have been retracted due to fear of retaliation. “Instead of incorporating and creating positive change, the tactics used have been to scare people,” the anonymous admins say of the response from the firm. They had hoped to empower change in the profession, but instead hit walls. The admins have now resigned from SOM, or, if they were already ex-SOM, resigned from their other firms. As they wrote: “Watching and participating in this system, especially during the pandemic and social justice unrest, is heavy. We know how painful it is to love this profession while its leaders and gatekeepers consistently fail to see your worth.”

A similar account, @BlackatGensler, has also garnered a following and shared countless testimonials about workplace discrimination. “It’s jarring to commute in NYC seeing that nearly half of the demographic is nonwhite...
and walk into the office seeing mostly white faces and all white faces in leadership,” one post reads. “It’s not just Gensler, but an industry problem. But being the giant they are, Gensler should set the example. In my studio, 11 of the 12 that were laid off ‘because of COVID’ were minorities. It’s hypocritical to not be aware of that and a week later post they are ‘against racism’ and committing to recruiting a diverse staff.”

Whereas SOM stonewalled @BlackatSOM, Gensler engaged in a conversation with @BlackatGensler and published on its website a five-part “Strategies to Fight Racism,” acknowledging that while statements are critical, it is actions that will create lasting change.

Anti-discrimination and pro-diversity and equity actions are underfoot elsewhere. In 2021, Women in Architecture (WiA) groups across Texas will be providing entrepreneurial workshops targeted toward the advancement of marginalized high school and college level students by supporting their development through mentorship, fellowship, invited design competitions, design and portfolio workshops, and talks with practicing minority professionals. They will be empowering marginalized young professionals by foregrounding their accomplishments and contributions to the profession and by sponsoring licensure. By partnering with NOMA Texas chapters, WiA is also advocating for minority representation at all of its speaker event panels.

Anzilia Gilmore, FAIA, is a founding member of Houston’s NOMA chapter and the 2020 inaugural recipient of the Texas Society of Architect’s Award for Equitable Practice in Architecture in Honor of John S. Chase, Jr., FAIA. When she graduated from Prairie View A&M University in the late ‘90s, she entered a profession where very few people looked like her. She felt the lack of representation acutely and decided to take action to ensure that no black female who came after her would feel the lack of representation. “No one is seeking diversity at all costs,” she says, “What minorities are seeking is the opportunity that they have earned through their education, talent, and dedication. Firm leaders need to recognize that if a minority graduate manages to make it through an architecture program (programs that, more often than not, are actively attempting to weed them out), they are the cream of the crop. Firms should support minorities in the same way they nurture students from Harvard or Yale. The culture of schools and firms must shift so that architecture as a profession works to identify and tear down the barriers that have limited racial and cultural diversity in the profession.”

She spoke about the stigma of interviewing and hiring people from historically black colleges and universities (HBCUs) like Prairie View A&M, and about the lack of mentorship when she graduated and began working for a large firm. “I have had architects tell me how students from HBCUs have fallen short of their expectations or just disappeared. What they don’t know is that they are talking about me. I started my career as that black intern from Prairie View who quietly left the firm because I did not feel like I fit in. They never consider that I, the woman that the profession now deems worthy of accolades, left traditional practice because I was not welcome. Today, it’s our job to support the next generation. Young minorities need to know that they have a voice and that someone is listening. They cannot continue to be silent, and we cannot continue to stand by and let the silence continue.”

Dr. Lana Coble is a project executive at Tellepsen Builders and is on the faculty of the University of Houston for construction management. With experience in construction, architecture, and as an owner’s representative, she has also studied the metrics of women in the field and taught workshops for minority contractors. “The needle has not moved much in 41 years,” says Coble. “When you compare the increases of growth in healthcare, law, and IT, they are growing at a greater rate than they are in the building profession.”

When she graduated at the top of her class in 1980 from Texas A&M, it was a rude awakening. “You don’t expect pushback because of your gender.” Coble spoke about adaptation/mitigation techniques to build relationships, and the business development shift as owner selection committees diversify and expect the same of project teams. “You have to look to the character of the people leading the company. The commitment has to be from the top about diversity, culture, acceptance, and inclusion, and if it’s not there, you are never going to get momentum to it. I have never felt less than or diminished because of who I am. It makes a big difference. But just because there are people driving the culture, it does not mean everyone is on board. The key to any good team is the ability to adapt in an organic world that is constantly changing and evolving. If you don’t, you will have rope burn holding too tight to the way it was.”

Florence Tang is a journalist, architectural designer, and project manager based in Houston.
Houston Team Designs Memorial to Slaves at Saint Mary’s College

In 2016, students at Saint Mary’s College of Maryland made a harrowing discovery while performing a routine archaeological survey on the proposed site of the school’s new athletic complex. Unearthed domestic slave artifacts, including tobacco pipes, pottery, and even shackles, revealed that the land that the school hoped to transform into an area of play and recreation had once been home to victims of gross injustice. This discovery aligned with the recent revelation that the university, which was founded in 1840, had indeed owned slaves.

In order to honor the lives of those imprisoned on the grounds of Saint Mary’s, the university put forth an RFQ for the design of a memorial to commemorate this buried past. A proposal titled “From Absence to Presence” by Houston-based R.Esite Studio won favor with the myriad administrators, faculty, students, residents, and government officials who weighed in on the selection.

R.Esite co-founders Shane Albritton and Norman Lee, in conjunction with project managers at Metalab Studio, proposed a small wooden cabin, measuring 22 ft by 15 ft, clad with irregular mirrored panels. The cabin assumes the form of the traditional slave quarters that are likely to have existed on the site less than 200 years ago. The mirrors serve to immerse spectators in the exhibit, inviting a moment of both literal and figurative reflection upon the structure’s historical connotations.

The artists pushed the proposal a step further by inviting poet Quentin Baker, whose work focuses on the afterlife of slavery, to compose a piece representing the history of slavery within the region. Baker combed through an archive of 243 runaway slave advertisements — often the only written records of personhood for enslaved African Americans — to create an erasure poem, which is inscribed along the mirrored panels. The poem borrows the devastating language within the ads, erasing, combining, and reconfiguring it into a powerful ode to the slaves of southern Maryland. The literary erasure is communicated physically by means of
Facing “From Absence to Presence” by RE:site memorializes slaves whose history had been erased.

Below The names of runaway slaves found in an archive of ads are featured in the poem on the installation’s exterior.

wooden planks that break up the writing along the mirrored facades. “An immersive experience such as this commemoration is asking for a dialogue and attempts to give the enslaved peoples a voice to tell their own story through Quinton’s poetry,” says Allbritton.

At night, LED lights from within the cabin illuminate the surrounding fields with Baker’s text, creating a vigil to the people who were once held captive on that very ground. The light also serves to remind visitors of the vibrant lives that existed within the four walls of such cabins — the only spaces where slaves could experience any degree of freedom.

Norman Lee noted the serendipitous culmination of this four-year project during a time of such serious national reflection upon racial equality. “We are really excited that this project can serve as a physical representation of many of the conversations and wake-up calls going on around the country.” The studio has a number of other social justice public artworks well underway, including a memorial to victims of racial violence in downtown Dallas.

Sophie Aliece Hollis is TA’s editorial assistant.

Adjaye Associates to Design New Rice Student Center

After launching an international design competition for the first time in its history, Rice University has selected Adjaye Associates from a shortlist of three firms to design a new student center for its central-Houston campus. Adjaye’s 80,000-sf concept will replace the 1940s Rice Memorial Center (RMC), retaining only the existing chapel, cloisters, and memorial, which honors 10 Navy ROTC students who lost their lives in a plane crash in 1953.

The proposal is a collection of interconnected, three-story volumes that will house the existing functions of the RMC, in addition to a new multicultural center and rooftop auditorium. Although few design details have been revealed, early renderings demonstrate a beige grid connecting the earth-toned volumes and an abundance of rooftop vegetation and solar panels.

In a statement, Rice President David Leebron says, “Sir David’s global perspective will, we are confident, result in a project that speaks not only to our community but to the broader world that increasingly sees Rice as a destination for global engagement and problem-solving.”

The announcement comes on the heels of a few other major accomplishments for the firm. In September, the Princeton University Art Museum unveiled Adjaye Associates’ design for a 144,000-sf museum complex.
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Also in September, the firm's founder and principal, Sir David Adjaye, was awarded the 2021 Royal Gold Medal, approved personally by Queen Elizabeth II on behalf of the Royal Institute of British Architects in recognition of substantial influence on the advancement of architecture.

The Rice student center is the second Texas project for Adjaye, who made waves in 2019 with his design for Ruby City, a contemporary art center in San Antonio. "We are extremely humbled and honored to have won the competition to design the new student center at Rice University," Adjaye says. "This is an important and inspiring project for Adjaye Associates, and we look forward to collaborating with Rice to imagine a new campus anchor point that engages its community in the most inclusive way possible."

Houston-based Kendall/Heaton Associates will serve as the executive architect for the project, and Tellepsen will oversee construction. The university hopes to break ground in early 2022, with completion slated for the fall of 2023.

Sophie Alice Hollis is TA's editorial assistant.
lation without naming or picturing the 45th president. “As we currently move through a ‘post-truth’ era, the question of how we consider history is already upon us,” reads the invitation letter. “In many ways, as with other moments of crisis, what we preserve as art or fiction may be just as telling to future generations as what is recorded as fact.”

The 45 Library Collective is a loosely affiliated group of design-world friends: Andy Campbell, an assistant professor of critical studies at USC Roski School of Art and Design; Juliette Cezzar, an associate professor of communication design at the New Schools' Parsons School of Design; Brendan Griffiths, a partner in the design practice Zut Alors!; and Igor Siddiqui, associate professor at The University of Texas at Austin School of Architecture.

45 Library, which is not affiliated with any institution or organization, began posting entries on its website 45 days prior to the election. Submissions range from whole building and landscape proposals, to ideas for artifacts, to notions of how it might feel to inhabit such a place, to reflections on this president's legacy generally. For example, “Folly as Symbolic Form” by Alterior Office/Zaneta Hong & Leighton Beaman pictures the library as an architectural folly, with a distinctly Slavic formal language, sitting in a members-only St. Petersburg, Florida golf course, dedicated to the “incredible, proud, and bigly men and women of the Russian Federation, the United States of America.” “1461 | A Beautiful Wall,” by Matthew Villarreal, suggests constructing the library as a chain of 1,461 parks (one for each day of this presidency) set beneath victory arches cut into the border wall where people from both sides can gather and chat free from surveillance. “Roll Call,” by Open Walls | Edlin G. Lopez and Albert Orozco, tells the story of an immigrant girl in a U.S. history class for English learners who imagines a National Library founded in 2020 after the end of 45's presidency to commemorate and document the histories of people who were dispossessed and forcibly removed from their land.

45 Library had published 42 submissions at the time of this writing, with new library proposals coming out on a rolling basis. See them all at 45library.com.

Aaron Seward is editor of Texas Architect.
Thursday 28
EVENT
Who Builds Our City?
An Online Celebration of Houston's Built Environment
Virtual
ricedesignalliance.org/calendar
Thursday 18
LECTURE
AIA Houston Historic Resources Committee Speaker Series w/ Fran Gale
Virtual
aiahouston.org

Thursday 14
EVENT
The Chase House, Remembered: Tony Chase and Saundra Chase Gray in conversation with David Heymann
Virtual
ricedesignalliance.org/calendar
Monday 25
LECTURES
UTSOA Spring 2021
Lecture Series presents Amale Andraos
Virtual
uh.edu/architecture

Thursday 21
LECTURE
AIA Houston Historic Resources Committee Speaker Series w/ Miriam Kelly
Virtual
aiahouston.org

Saturday 20
EVENT
AD EX Form Follows Fitness 5K
Klyde Warren Park
Dallas
formfollowsfitness.com

Wednesday 3
LECTURE
UTSOA Spring 2021
Lecture Series presents Grafton Architects
Virtual
soa.utexas.edu

Monday 8
LECTURES
UTSOA Spring 2021
Lecture Series presents Débora Mesa/Ensamble Studio
Virtual
soa.utexas.edu

Monday 22
ROUNDTABLE
The Life and Work of Sally Walsh
Virtual
uh.edu/architecture

Wednesday 24
LECTURE
UTSOA Spring 2021
Lecture Series presents Tredje Natur
Virtual
uh.edu/architecture

Thursad 11
EVENT
Health Symposium Exhibition & Social 2021
Virtual
aiahouston.org

This exhibit reveals Steven Holl's distinctive process of making architecture through 17 recent projects, among them the campus redevelopment master plan for the Museum of Fine Arts, Houston. The works are organized into three sections: "Thinking" captures how watercolor drawings, small exploratory models, and material fragments lead to idea generation and form the foundation of each project; "Building" reveals the process of making architecture through models, sculpture, and photographs taken during the actual construction process; and "Reflecting" presents Holl's ideas through a selection of digital films, his writings, and writings about him.

Steven Holl: Making Architecture
The Museum of Fine Arts, Houston
EXHIBITION CLOSING JANUARY 10
The Blanton Museum of Art
This exhibit reveals Steven Holl's distinctive process of making architecture through 17 recent projects, among them the campus redevelopment master plan for the Museum of Fine Arts, Houston. The works are organized into three sections: "Thinking" captures how watercolor drawings, small exploratory models, and material fragments lead to idea generation and form the foundation of each project; "Building" reveals the process of making architecture through models, sculpture, and photographs taken during the actual construction process; and "Reflecting" presents Holl's ideas through a selection of digital films, his writings, and writings about him.

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This exhibit reveals Steven Holl's distinctive process of making architecture through 17 recent projects, among them the campus redevelopment master plan for the Museum of Fine Arts, Houston. The works are organized into three sections: "Thinking" captures how watercolor drawings, small exploratory models, and material fragments lead to idea generation and form the foundation of each project; "Building" reveals the process of making architecture through models, sculpture, and photographs taken during the actual construction process; and "Reflecting" presents Holl's ideas through a selection of digital films, his writings, and writings about him.

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Wick Lamp
Graypants
graypants.com

Wick is a modern interpretation of the classic candlelight lamp. The rechargeable, adjustable, portable lamp can be used as a bright reading light or as a way to create an intimate atmosphere, indoors or out. A smooth touch sensor controls the warm 2600K LED light, toggles three lighting levels, and offers a pulse mode that mirrors the soft flicker of a candle. Wick is constructed with an aluminum body plated in satin brass and an ergonomic carrying ring that references classic candleholders.

Model 101 Pendant
Le Klint
ameico.com

The Danish lighting brand Le Klint began with Danish architect and engineer P. V. Jensen-Klint’s hand-pleated shade, which was constructed to soften the blaze of a paraffin oil lamp. The Model 101 Pendant, shown here, was designed by Kaare Klint in 1944. The pleated pendant can be hung at any height, as it shades the light source from all angles. Made of hand-folded PVC plastic or paper, the lamp comes in three sizes and uses LED or halogen bulbs. The Le Klint brand is available in North America through AMEICO.

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The Rothko Chapel
Renewal and Campus Expansion (Phase One)
Houston

by Aaron Seward

The Rothko Chapel is 50 years old this February, and it has never looked better, thanks to a studios update by Architecture Research Office. For those unfamiliar with the project, it is an essential part of one of the great high-low culture visitor experiences in Houston: an afternoon wandering the Lancaster Place subdivision, with its dream-like collection of bungalows (all painted grey, with white trim), taking in the works of art at the Menil Collection and puzzling over Rothko's enigmatic paintings within the chapel's mute brick walls, then heading down the street to drink Lone Star Beer at the West Alabama Ice House and eat spicy delicacies from the Tacos Tierra Caliente food truck, which sits in the parking lot of a grimy strip center. I can't think of a better place to contemplate the interrelationships among Etruscan amphorae, the surrealism of Rene Magritte, the seductive powers of habanero salsa (you know you shouldn't, but you do it anyway), and the social pluralism of nail salons.

But of all the cultural attractions in this condensed corner of a decentralized and far-flung metropolis, in my opinion the Rothko Chapel has the most gravity. This is in part due to the fact that it is many things at once: a consecrated interfaith chapel, an art gallery containing 14 mammoth site-specific paintings from Rothko's dark period, and a center for the promotion of global human rights and environmental justice. In spite of this manifold program, the chapel is exceptionally focused on a conceptual basis. In the context of an architectural history, it is a prime example of the mid-20th-century drive to imbue modernist abstraction with history and tradition.

Up until now, however, conceptually-focused was as far as the chapel went. In terms of execution, it left a lot to be desired. When it first opened in 1971, it was roundly panned by critics, who took issue with its common construction and the poor quality of its lighting. The structure is cinderblocks clad with St. Joe brick on the exterior, and on the interior are plaster walls and an asphalt floor, scored to look like paving blocks. (Apparently, Rothko originally wanted it to be all exposed concrete, like Louis Kahn's First Unitarian Church of Rochester.) The low-slung skylight, supported by aluminum mullions with exposed bolts, was unfiltered, letting in too much of the bright Texas sun and washing out the subtleties of the paintings. The electric lighting scheme — directional spotlights dangling down from or recessed into the ceiling — was no better, spreading light unevenly at best.

The critics' severe disappointment and harsh words (Dore Ashton described it as "a Southern minister's fundamentalist idea of sinlessness") can in part be chalked up to their high expectations for the project. The chapel's contributors, after all, were almost exclusively A-list: There was no more revered painter at the time than Rothko, and John and Dominique de Menil, the clients, were well on their way to American art patron sainthood. Philip Johnson, perhaps the most influential, if not the best, American modern architect, had a hand in the design early on, and Howard Barnstone and Eugene Aubry, who were
lesser known but nonetheless very important to the development of a regional modernism in Houston, completed it. With a team like that, how could the outcome be anything less than an unadulterated triumph?

The full story of the chapel's design is convoluted, troubled, and too long to tell here. (Those in search of more detail can reference “Rothko Chapel: An Oasis for Reflection” by Pamela Smart and Stephen Fox, out now from Rizzoli.) Importantly, Rothko and his assistants made the paintings in a mock-up of the chapel they built in a former carriage house on East 69th Street in Manhattan. The mock-up was an important part of the process of achieving Rothko's intention of creating a synthesis between art and architecture. The proportions of the paintings and the proportions of the walls correlate. For example, the cutouts in the walls for ingress and egress, access to storage, etc., might be mistaken for yet more painted panels, and might signal that the paintings are themselves portals, capable of transporting one elsewhere.

The trouble can be seen right away: The daylight entering Rothko's Manhattan studio and that to be expected on an average sunny day in Houston are completely different. Johnson had wanted to place the skylight atop a pyramid soaring high above the inner sanctum, an idea that could have controlled the interior lighting condition, but which, along with the other Johnsonian idea of placing the building atop a raised berm, Rothko vetoed. This disagreement about how to handle the skylight ultimately led to Johnson's departure from the project. Rothko wanted the building to be low-lying, humble, and entered from the ground plane, much like the carriage house where he completed the paintings. As a result, the skylight rests directly atop a ceiling that is only roughly 20 ft high. This decision created precedent for the humble quality of the Menil Collection buildings, which are also low-lying and rest on the ground plane, but it presented a daylighting challenge that was not addressed in the original design.

What could you expect, though? Rothko killed himself while the chapel was under construction, and Barnstone left the project in 1968 following an episode of severe depression. The remarkable thing is that it was completed at all.

From the beginning, or at least since the critics were done chewing it up and spitting it out, the chapel has been trying to fix its daylighting problem. First a drapery was drawn across the skylight, then a scrim was employed, and then two iterations of baffles took their turn. The most recent of these, completed in 2000, was designed by Houston architect Jim McReynolds and London-based engineering firm Arup. It was among the first architectural lighting projects where a computer was used to calculate lumens, and the light levels were indeed brought within acceptable parameters. Qualitatively, however, the solution was a dud. It did not create an atmosphere conducive to the sort of spiritual communion its creators had in mind, let alone approach the benchmark set by other Texas buildings known for their deft handling of the phenomenology of sunlight: the Kimbell, the Menil, etc.

In order to address this and other shortcomings, the chapel launched a $30 million capital project called “Opening Spaces.” In 2016, it hired ARO to do a master plan with two main goals: renovate the building to bring it better in line with Rothko's intent, and support the foundation's ongoing and expanding justice mission. Programming for the latter, which includes hosting civil rights and environmental leaders from around the world for award ceremonies and lectures, had always been done in the chapel itself, adding downtime between events and increasing wear and tear. To better accommodate this component while polishing the integrity of the chapel itself, the decision was made to add more buildings to the campus, in two phases. The first phase, which opened to the public in September, includes a visitor center and an energy facility. Phase Two will add a program center, as well as an administrative and archive building, and will renovate one of the neighborhood's historic bungalows as a guest house. New landscape design was also commissioned from Nelson Byrd Woltz (NBW), which is currently involved in the refresh of Houston's Memorial Park.

ARO's handling of the chapel is impeccable. Their task was not to restore the building to its original condition, but to remake it closer to its creators' vision than at any point in the past. While fixing the lighting was a primary objective, it wasn't the only thing to be done. Preparing visitors' eyes to look at Rothko's paintings started outside, where the plaza's exposed aggregate paving was stained a slightly darker color to reduce glare. The entry sequence was also reorchestrated. A previous renovation had added glass doors between the vestibule and the chapel for humidity control. ARO removed these and shifted the airlock to the narthex, moving the existing door further out within its brick portal and adding a replica of this door deeper within.

The bookstore that had once greeted visitors in the vestibule was moved to the new visitors center across Sul Ross Street, leaving the chapel free of commerce. Acoustic plaster was used in the vestibule and within the chapel to dampen noise, and
the HVAC system was moved across the street into the new energy facility, deepening the silence inside. Paint colors within the vestibule and in the chapel itself were also toned down.

The feeling in the vestibule is very much one of sensory deprivation. Lancaster Place is by no means a raucous urban district, but entering this space immediately shifts one’s consciousness, muting such comforting distractions as bird calls and the occasional passing car and making one distinctly aware of the crashing silence that undergirds our every waking moment.

While the new entry sequence is a vast improvement, what ARO pulled off inside the chapel is even more praiseworthy. The architects teamed up with lighting designers George Sexton Associates to create a new skylight and a new supplementary electric lighting scheme. Sexton built a one-inch-equals-one-foot model on the roof of its office in Washington D.C. to try out the qualitative experience of the solution, allowing the team to test the color of the light and the color of the ceiling, which is a different grey than that of the walls. The skylight they came up with has fixed louvers in the ring around the skylight that point down, so it is made up of digital projectors embedded in the Museum in Pennsylvania. He electric lighting did something similar at the Brandywine River Museum at the National Museum of American History. To round out the lighting solution, ARO moved the back wall of the chapel’s apse, which holds the main triptych, six inches inward, which eliminated a shadow from the soffit that once cut off the top of the paintings.

Unlike the previous baffled daylighting solution, the new skylight is more connected to changes in the outside environment. The quality of the light it admits — at least on one sunny morning in August — has an almost silvery cast to it. It is cool and diffuse, much like the son of morning in August, and this often that which is removed is exactly what made the object in question so special.

Back outside, the new landscape by NBW, while still in its infancy, promises to be neater than before, though not so composed as to ruin the charming informality of the neighborhood. The designers removed the bamboo thicket from around the reflecting pool and replaced it with a cordon of river birch trees. Alleys of river birch punctuate the lawn to the east of the chapel as well, offering the building and the plaza a little screening from this side, as well as setting up a zone for contemplation among dappled light and rustling leaves.

The team decided not to add any new construction on this block so as not to complicate the relationship among the chapel, the reflecting pool, and Broken Obelisk. So all new construction either is or will be across Sul Ross Street. The first phase of the project brought us the visitors center, which is a tasteful little building, half glass and half St. Joe Brick cladding to signal its connection to the chapel — and a generous brise soleil. The energy facility, which sits behind the welcome center, is currently clad in HardiePlank, but, as it is the first part of what will become the program center, it will eventually boast a cedar jacket. That second phase building, along with the new administrative and archive building, will one day frame a public plaza, which will be a nice urban addition to the area.

The new construction does, however, come at a cost. Two of the primordial Lancaster Place bungalows have already been demolished to make way for the expanded program, and two more, the ones that currently sit next to the chapel, will go in the second phase of this block so as not to complicate the relationship among the chapel, the reflecting pool, and Broken Obelisk. So all new construction either is or will be across Sul Ross Street. The first phase of the project brought us the visitors center, which is a tasteful little building, half glass and half St. Joe Brick cladding to signal its connection to the chapel — and a generous brise soleil. The energy facility, which sits behind the welcome center, is currently clad in HardiePlank, but, as it is the first part of what will become the program center, it will eventually boast a cedar jacket. That second phase building, along with the new administrative and archive building, will one day frame a public plaza, which will be a nice urban addition to the area.

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Aaron Seward is editor of Texas Architect.
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Those who shape the built world and consider it their obligation to move humanity toward social, climate, and economic change will appreciate the analysis presented by Daniel A. Barber in his exhaustively researched book, “Modern Architecture and Climate: Design Before Air Conditioning,” published by Princeton University Press in July 2020.

Barber is an associate professor of architecture at the University of Pennsylvania Weitzman School of Design, where he is chair of the Ph.D. program. His teaching and research focus on the development of a “revisionist history of Architectural Modernism” tied directly to environmental concerns. Through his academic research, he intends to “provide a theoretical framework for architects and others to engage the climate crisis.”

The historical analysis Barber brings forward with this book could not have been released to an audience more primed to receive the message. Many of the events of 2020 have made it impossible to remain blind to the interconnectedness of our cultures, or to the link between our social and economic structures, the climate, and our health.

In prior writing, Barber has issued a very clear call to action for designers to engage their power, both material and cultural, in order to address the human relationship to climate by expanding notions of “comfort” to include those that need not be accomplished through mechanical means or by reliance on fossil fuels. Although it is present throughout “Modern Architecture and Climate,” this point does not always read clearly. In the pursuit of academic ambitions, the need to underscore this practical intent within this text has been overlooked. As a result, a reader may be left with the feeling of having read an atlas thoroughly without knowing where they are headed.

“Modern Architecture and Climate” maps the recent history of our discipline in relation to climate by re-contextualizing the significance of the facade in modern architecture. In making the argument that the development of the facade was driven by the desire to control human comfort by working with specific climatological factors, Barber provides a new way to understand where architecture stands as a cultural actor, how this reality came to be, and how this knowledge might be used to identify new ways to address both global warming caused by human-generated carbon emissions and the social and economic inequity that has resulted.

“Climate can only be understood through representation,” Barber writes. “The facade is drawn literally as a means to indicate a specific cultural relationship to climate.... The complexity of this interior/exterior relationship... was experimented with and materialized as a new kind of image — technical images that conceptualized the thermal interior and aimed to optimize the conditions of this interior according to perceptions of health and productivity, of culture and progress, and of a universal norm.”

“Modern Architecture and Climate” presents an extensively illustrated history of representational techniques developed to codify and instrumentalize normative ideas about interior comfort. Global standards for the control of interior comfort were originally based on studies done on a group of young, white European men wearing the standard office attire of the day. One consequence a reader may recognize is the standard office attire that sometimes results in portable space heaters below most frequently, women's desks. Barber makes a well-supported argument that through the propagation of this very specific set of cultural and comfort ideals, modern architecture became an instrument for globalization, economic development, and postwar colonialism.
With the book over 300 pages long, consideration of individual case studies moves well beyond illustration into detailed and focused analysis that unfolds additional considerations. "Modern Architecture and Climate" does not want to be read quickly, and the arguments are thoroughly made.

A necessary chapter is spent outlining in a thoughtful narrative the fundamental and ongoing influence of Victor and Aladar Olgyay, whose pioneering 1963 book, "Design with Climate: Bioclimatic Approach to Architectural Regionalism," was recently returned to print. Hungarian architects who emigrated to the United States in 1947, the Olgyay brothers focused their careers on researching and designing climatological architecture. Their research at MIT and Princeton represents "an apex in the midcentury interest in architecture-climate design methods."

Barber draws a single graphic line that connects Corbu’s section sketches for the unbuilt Barcelona Lotissements to Victor Olgyay’s "Schematic Bioclimatic Index" to the development of the very biased ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers) standards. Corbu’s drawings of the facade as a climate-mediating device represent the beginnings of concepts the Olgyay brothers later embraced in the development of a set of controllable scientific principles. Their experiments and representational methodologies became the foundation for the calculations embedded in our contemporary global standards.

By the time Barber finally turns to directly address the subject of mechanical air conditioning in the final chapter, "Modern Architecture and Climate" has already shown how the data generated and documented in research such as the Olgyays’ allowed for the conceptual adoption of "ideals" in interior comfort which by matter of course became mechanized. When fossil fuel energy became cheap, architectural means to mediate the climate, such as sun-shading and wind-harnessing facades, began to be evaluated against the relative cost of the energy consumed and the relative level of control conferred by mechanical means to condition interiors. The consequences of these developments form the ethic of the book: "In many ways the climatic determinists have long since won the day — a racially, geographically, and gender determined norm for climatic conditions of habitation has spread around the globe, at great cost and with epochal consequence."

In attempting to draft a new historical narrative about architecture’s recent relationship to climate, Daniel Barber delivers information architects need in order to consider pre-air conditioning ideas about comfort and responses to climate, and a history of the ways these have been represented and instrumentalized. "Modern Architecture and Climate" outlines a critical understanding of the global consequences of the imposition of a universal standard of comfort that was made possible by graphic representation, and supports the idea that there is a role architects continue to play in the creation of "new cultural desires" and the evolution of our relationship to climate.

Given the significant contribution of building climate control to the burning of fossil fuels that drive global warming and the social and economic inequity this perpetuates, this reader finds optimism in Barber’s assertion that "we are now, or soon will be, past air conditioning." He has presented a strong argument that novel architectural intentions can be found in looking again at early modern architecture’s use of the facade as a culture- and climate-mediating device.

Kristin Schuster, AIA, is founding principal of Inflection Architecture and an adjunct professor at the University of Houston College of Architecture and Design.
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PERSPECTIVASdosmil20

Now in its tenth year, AIA Austin's PERSPECTIVAS is an annual exhibit held in conjunction with National Hispanic Heritage Month to showcase the work of Latino architects and designers. Open to professionals across the state, the exhibit is organized by the chapter's Latinos in Architecture committee, with all proceeds going to the LIA Scholarship program benefiting young Latino students. While, in past years, the physical PERSPECTIVAS exhibit has travelled locally, expanding its reach, 2020's pivot to virtual is making the latest iteration, entirely online, accessible to a much wider audience. PERSPECTIVASdosmil20 was unveiled on November 16 and is viewable through the end of February at aiaaustin.org.

Texas Architect selected the following three entries for the consideration of its readers.

801 Barton Springs
Runa Workshop

801 Barton Springs in Austin celebrates an urban connection to nature with three stacked, shifting volumes inspired by local overlapping stream systems. The upper portion, which hosts several office floors, is clad in glass and metal, representing a serene pool, as if at the top of a waterfall. Windows were placed to mitigate restrictive views, capture daylight, and frame unexpected moments, such as the surrounding creek. The middle section contains parking and is wrapped in concrete panels featuring a pattern that evokes water cascading over a limestone ledge. The lower volume contains a restaurant and lobby and represents a redirect of the cascade to unite with the urban streetscape to create a splash of activity, connectivity, and promise. The building includes numerous features aimed at reducing light pollution and the heat island effect, including high-performance glazing, LED lighting, vegetated rain gardens, rainwater harvesting, and bicycle parking with lockers and showers.

24FT3 (24-Foot Cube)
Dennis Chiessa

24FT3, the 24-Foot Cube, provides a template for constructing infill accessory dwelling units on average-sized single-family lots in the Dallas-Fort Worth area. The goals of this design include affordability and a vision for working within the parameters of local residential construction labor. The house is located in a rural area populated by ranches, barns, and trailer homes, and the design avoids complicated details, allowing 24FT3 to be built using basic construction practices and relying solely on the local labor force. A compact cube with a footprint the size of a standard
two-car garage, 24FT3 has 915 sf of usable space and is constructed as a four-ft-square grid with a post in the center and beams that hold up several spaces without walls — one for sleeping, one for working, and a bridge for walking around above the ground floor; only the bathrooms are enclosed. Windows and skylights team up to allow light in from all directions. The result is that this small volume feels airy and spacious.

**Vista Residence**  
**Miró Rivera Architects**

Located in hilly West Austin on a street that runs along a ridge, Vista Residence is laid out as a cross, with the horizontal axis defined by street access on one side and the view across the hillside to downtown on the other. The resulting quadrants demarcate four outdoor spaces: a private courtyard off the master suite, the main entertainment patio, a large yard surrounding a heritage oak tree, and an auto court. The exterior features concrete, concrete panel, and metal, and distinct roof profiles provide directionality. On the interior, a three-story, plate-steel staircase serves as a hinge point for the various programs. The main level includes open kitchen, dining, and living spaces designed for large gatherings. The lower floor, built partially into the hillside, consists of two bedrooms, a shared bath, and a media/game room. Upstairs, a private office, a sitting room, and an expansive balcony provide sweeping vistas of downtown Austin and the Hill Country.
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Under Pressure

The Avenue C Fourplexes provide missing-middle housing and density without upsetting the character of Austin’s historic Hyde Park neighborhood.

Architect Thoughtbarn/Delineate Studio
General Contractor Deville Custom Homes
Structural Engineer JM Structural
Civil Engineer Southwest Engineers

by Sophie Aliece Hollis

The Hyde Park Historic District, which spans from Guadalupe to Red River between 38th and 31st streets, was built in the 1890s as Austin’s first streetcar suburb. Originally marketed by developer Monroe Martin Shipe as a self-sustaining, luxury district of intricate Queen Anne mansions on sprawling lots, Hyde Park got off to a slow start. Struggling to accrue land sales, Shipe pivoted and started marketing the area to the middle class, resulting in the charming cluster of modestly sized bungalows that exists today. The largely detached single-family, stick-frame structures were built during the housing boom of the 1920s, and the neighborhood was declared a historic district in 2010. Given historical protection, neighborhood design standards, and convoluted city zoning ordinances, introducing new construction in Hyde Park can be an arduous process.

The architects at Thoughtbarn and Delineate Studio learned this lesson quickly as they began the lengthy process of developing three adjacent properties on Avenue C in 2015. The client hoped to turn an existing single-family home and two historic duplexes with additional rear units added in the 1970s into a series of three rental fourplexes. All three properties were zoned multifamily, but because the lots were substandard in size (less than the required minimum of 8,000 sf), only the properties that were already in use as multifamily were allowed to be redeveloped as such. The single-family home continued as a relatively straightforward renovation and addition, while transforming the neighboring historic duplexes and their shoddy additions presented a far greater challenge.

The multifamily zoning designation is where the partnership of Thoughtbarn and Delineate Studio (TBDS) paid dividends. The two practices have teamed up over the years to aid one another by sharing their respective expertise. According to Delineate’s founder and principal, Bart Whatley, AIA, “TBDS combines Thoughtbarn’s sensitivity to materials and small-scale, hands-on intervention with Delineate’s knowledge of codes and practices for larger develop-
Facing and left
Although the street-facing facades were preserved, the project feels much more inviting with the removal of overgrown vegetation and the addition of a wooden fence.

Below A communal path, running from Avenue C to the alley, connects the fourplexes.
Below The pitched roofs in both the new construction (left) and historic renovation (right) allow vaulted interiors for the open-plan kitchen/living areas in most of the units.
Right This 1970s addition was a dilapidated one-story structure with no relation to the historic 1920s duplex.

Below left The new construction aligns stylistically with the reawakened duplex while incorporating a more modern roof profile and siding.

Below right Stained cedar and pops of color add warmth to the black and white design.

Facing Design standards were far more lenient for the alley frontage, allowing for a facade that more closely aligns with Thoughtborn’s repertoire.
And there could be no project more apt for this combination than the fourplexes on Avenue C. Under the International Building Code, multifamily-zoned projects require fire-rated walls and floors between units, individual sprinkler systems, separate water meters, ADA parking and accessibility, and more. Although the lots were already smaller than is typical for multifamily zoning, the project still had to abide by 15-ft compatibility setbacks, which are considerably larger than residential. The designers used this provision to their advantage, however, by creating private side yards in the setbacks for each of the alley-facing ground-floor units.

In addition to the zoning hurdles, the project faced further constraints. The Hyde Park Preservation Plan and Design Standards required that the existing duplexes maintain their original street-facing facades. Also, because of a City of Austin tree preservation ordinance, the three large heritage trees on the site could not be moved or removed. The rest of the design was at the mercy of the Hyde Park Neighborhood Association, which pushed back on certain elements they felt were too modern, namely asymmetrical gables and long, skinny windows.

Despite, or perhaps because of, the myriad forces acting against the TBDS team, the architects turned out a successful, respectful design. The eight units are connected by a shared pathway that leads from Avenue C to the alley containing parking and entrances to the rear-facing apartments. As per the design guidelines, the historic facades were restored with the original double-hung windows and wooden siding, while new foundations were carefully laid without damaging the existing buildings.

The rest of the project was a complete strip renovation and addition. The front bungalows were reconfigured to create more favorable one- and two-bedroom layouts. These side-by-side apartments are backed by two-story additions with one unit per floor, each clad in white fiber-cement boards with black steel accents to complement the renovated bungalows. Light-stained cedar clads entry recesses, adding warmth to the alley elevation, where design restrictions were far less stringent. Skylights and vaulted ceilings were incorporated into units, where possible, rendering the interiors bright and airy.

Although restrained and fairly conventional, the Avenue C Fourplexes succeed not only in introducing elements of modernity to a primarily historical neighborhood, but also in diversifying housing options in this predominately single-family area. "I think healthy neighborhoods need a mix of homeownership and rentals," says Lucy Begg, AIA, co-director of Thoughtbarn. "We developed three properties, one four-bedroom single-family home that sold above asking price, and two that are rental apartments for people making median-income salaries. To me, that is the sweet spot of the project, that folks on a mix of incomes are able to live on a nice street in Hyde Park."

Sophie Aliece Hollis is TA's editorial assistant.
Texas, we are here.
Architecture's products don't only satisfy definitive ends; they are also set in space as mere appearances that provoke the imagination of the viewers. It is true that this effect is not under the control of the architects. They can plan the uses of a building as a place for specific activities. They can even plan the look that the occupants cast on its facade; but they cannot plan the way in which outside viewers will complete a building by emptying it and making it a support for reverie and imagination.

— Jacques Rancière, interviewed by Frank Burridge, Log 49

“That's not what I meant. You're projecting.” Ever hear that one? Yeah? How about from a building? Evidently, they're griping about it all the time. And then there are the people who design them — architects, presumably — who try their very best to do their own job of projecting a vision into the world that will say something, do something, somehow change the future for the betterment of the environment and all humankind, or at least their client's ego and pocketbook.

In this issue of Texas Architect, we try our hand at the art of projection, in four scenes. First, we project some contemporary ideas on a projection from 1936; namely, the built legacy of the Texas Centennial celebration. Then, we visit with a group of folks who are masters of projection — transportation planners — to learn about the major mobility projects that are shaping the future of Texas. Next, we project ourselves out of this world with a profile on a company that's 3-D printing buildings for extraterrestrial sites and affordable housing developments. And, lastly, we learn about the latest design talent on the block, someone who will certainly be receiving a lot of projections from the architecture community: artificial intelligence.

Projections
Past Imperfect

Texas celebrated its Centennial in 1936 with a spate of monument building. These structures memorialized a limited version of history that would define perceptions of the state for decades to come. How are we to interpret them today?

by Brantley Hightower, AIA

A hundred years after Sam Houston emerged victorious from the field of battle at San Jacinto, Texas threw itself a birthday party. The Texas Centennial celebration was big — that was to be expected from a state then known primarily for its size — but what was unusual about the 1936 festivities was the outsized role played by architecture. Yes, there were parades and speeches and reenactments, but there were also structures of limestone and granite and bronze. From the exposition halls lining the Esplanade of State at Fair Park in Dallas to over a thousand grey granite historical markers erected throughout the state, Texas chose to commemorate its history by building museums and memorials where that history took place.

This act of building to honor the state’s past was also designed to define its future. For its first 100 years, Texas had been a mostly poor, rural expanse. The Centennial represented a conscious effort to change both that perception and that reality. To that end, the large building campaign in Texas was paired
with an expansive marketing campaign outside of it to advertise the state to the nation in an effort to encourage tourism and business development.

The exposition buildings of Fair Park, designed by George Dahl et al., are the best-known built artifacts of the 1936 celebration. Indeed, the Texas Centennial Exposition held there in 1936 served as the year's signature event. But to tell the history of the state in the places where that history occurred, nine memorial museums were built throughout the state. These range in scale from the imposing Texas Memorial Museum designed by Paul Cret and John F. Staub on the campus of The University of Texas at Austin, to more modestly scaled museums located in places as far afield as Alpine and Corpus Christi. Many of these museums expressed a stripped Classical Moderne style, although regional variations also came into play. The El Paso Memorial Museum designed by Percy McGhee, for example, was fashioned in the Dzung architectural style of Bhutan that defined the campus of the College of Mines and Metallurgy where it was located.

In addition to the memorial museums, a handful of park improvements and five community centers were constructed in the name of the centenary of Texas Independence. Regarding the latter, it is worth remembering that 1936 was not so far removed from the history it was celebrating. The Texas Pioneers – Trail Drivers – Rangers Memorial designed by Phelps & Dewees and Ayres & Ayres in San Antonio was, as its name suggests, built as a memorial to those who drove the cattle and pioneered the frontier. When built, many of these trail drivers and pioneers were still very much alive. The Mediterranean Revival-style structure included meeting rooms so that those who were not yet in need of memorialization could gather to tell stories of their exploits.

Given San Antonio's central role in the history of the state, multiple Centennial projects came to be built in the city. Sixteen historical structures were restored as part of the Centennial, and two of those — Mission San Jose and the Alamo — are located in San Antonio. The latter of these restored missions also received one of the Centennial's memorial museums, which was designed by Henry T. Phelps.

Despite previous attempts to honor the men who died defending the Alamo, it took the Centennial to build a permanent monument. Pompeo Coppini, the Italian-born San Antonio sculptor responsible for the George Washington statue at The University of Texas at Austin as well as the Littlefield statues at the opposite end of the South Mall, was tapped to carve the likenesses of Travis, Bowie, Crockett, and the rest. Technically named "The Spirit of Sacrifice," the boot-shaped monument rises 60 feet from its base. Carved of marble imported from Georgia, it features high-relief sculptures of the more well-known Alamo personalities, as well as the names of the other Alamo defenders. The site for what came to be known as the "Alamo Cenotaph" was chosen not because it held any historical significance — contrary to popular belief, it does not mark the location of the Alamo funeral pyre — but because it was the only undeveloped space available in the middle of the original mission footprint. It was also not actually built in time for the Centennial: The monument was completed four years later, in 1940.

The building projects associated with the Texas Centennial were beset by the same budget and schedule issues that any other construction effort faces. Only the central portion of the Memorial Museum in Austin was completed, as funds for the large gallery wings never materialized. The Texas Centen-
Right The Texas Pioneers—Trail Drives—Rangers Memorial was relocated and renamed as the South Texas Heritage Center Museum by Ford, Procell & Carson and is now part of the Witte Museum in San Antonio.

Below The El Paso Memorial Museum (now the Centennial Museum and Chihuahuan Desert Gardens) is located on what is now the campus of The University of Texas at El Paso.

Facing The Alamo Museum mimicked details of the nearby Alamo chapel while displaying the “relics and records” owned by the Daughters of the Republic of Texas, who were acting as the custodians of the Alamo.
nial occurred during some of the worst years of the Great Depression, and the vast scale of the building associated with it was only possible because of the involvement of the federal government. Various New Deal programs matched state and local funds to either pay workers directly (Works Progress Administration, or WPA) or else hire private firms who would then pay workers (Public Works Administration, or PWA). Some projects would use funds from multiple “alphabet” agencies. Alfred C. Finn’s towering San Jacinto Monument that marked the site where Texas independence was secured was a PWA project, while the terraces, reflection pool, and other site improvements came as a result of WPA funding. None of it was completed in time for the actual Centennial.

Despite the delayed openings and partial realizations, the Texas Centennial was a success. Visitors to Texas may have been lured by the stories of the past, but they were intrigued by the future that lay in store for the state. According to Kenneth Ragsdale’s book, “The Year America Discovered Texas,” first-time visitors found the token cowboys they expected, but they also learned that Texas was quickly modernizing and offered “virtually untapped resource potential.” The great media blitz associated with the Centennial helped establish Texas on the national scene. As the 20th century progressed, industry took advantage of that resource potential Texas offered and helped the state transform into the economic powerhouse it is today.

For those already living in Texas, the Centennial offered a variety of free or inexpensive activities at a time of great economic instability. The construction of buildings of the Texas Centennial also offered federally-funded jobs at a time when the state was still recovering from unemployment rates that neared 30 percent. It taught Texans to be proud of their state and its history. The teaching of that history would become mandatory in Texas public schools a decade later, but the museums, monuments, memorials, and markers associated with the Centennial served as an extensive and permanent record of the history of the state for all Texans.

Or at least some Texans.

History is inexorably influenced by those who tell it. Those responsible for the Texas Centennial were predominantly white males, and so the story of Texas was told from that perspective. The role of Tejanos in the Texas Revolution was minimized. Of the 20 statues erected as part of the Centennial, only one (José Antonio Navarro) features a non-Anglo. Although a “Hall of Negro Life” was constructed at the Texas Centennial Exposition, the first such recognition at a world’s fair, the experience of Black Texans was otherwise mostly ignored. This targeted exclusion also included white immigrant groups, such as Germans, whose role was minimized due to their unpopularity in the time between the World Wars. Descriptions of Native Americans were particularly one-sided and often made use of racist language and stereotypes to describe the systematic eradication of the original inhabitants of Texas.

Even as contemporary historical research has revealed the people and events associated with Texas history to be considerably more complicated, the simple, “good versus evil” narratives told by the Texas Centennial celebration have proven to be resilient. Nowhere is this more apparent than at the Alamo.
The chapel with the bell-shaped parapet that most people think of as “The Alamo” is only one small part of the larger Spanish mission complex dating from the 1740s. Stone walls once encircled the plaza that sits to the west of the chapel, where the majority of the 1836 battle took place. Those walls were removed almost immediately after the battle, and as San Antonio grew, it encroached on the original mission footprint. In the years after the Centennial, the Alamo became a major tourist attraction, as its story was told and retold on TV and in film. Over time, the buildings facing the plaza in front of the Alamo filled with a wax museum, bars, and souvenir shops selling T-shirts and coonskin caps.

Several plans to overhaul the plaza have been proposed over the years. The most recent effort began in 2014 and culminated in a plan calling for the closing of existing streets, the construction of a new museum to be designed by Machado Silvetti, and the implementation of a landscape strategy for the plaza by Reed Hilderbrand. Several aspects of the plan proved to be controversial, but none more so than the proposal to relocate the Alamo Cenotaph commissioned as part of the 1936 Centennial.

Proponents of moving the monument 500 feet to the south say it is necessary to recreate a more historic feel for the space within the boundaries of the original mission. Opponents argue that the move is an attempt to erase history. The fight over the Cenotaph culminated in October of last year, when Lieutenant Governor Dan Patrick took the unprecedented step of speaking before the Texas Historical Commission to argue against moving

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Facing top The 364-ft-tall San Jacinto Monument (three feet taller than the Washington Monument) commemorates the battle of San Jacinto, which secured Texas independence.

Facing bottom The museums, monuments, memorials, and markers associated with the Centennial served as a permanent record of the history of the state for all Texans.

Left Protesters (some of them armed) gather in 2019 to show their support for keeping the Alamo Cenotaph in place. An editorial in the San Antonio Express-News later penned by Patrick accused local elected leaders of conspiring to “erase the history of the Alamo battle.” The Historical Commission ultimately voted to deny the permit request from the City of San Antonio to relocate the structure. Considered a key part of the plan for the redevelopment of Alamo Plaza, the project’s future is now in doubt.

The debate over the Alamo Cenotaph is emblematic of larger cultural debates about which version of history is to be told. Further complications arise when historic fact becomes intertwined with legend. For better or worse, the “story” of the Alamo now includes the actions of Fess Parker and John Wayne as well as those of William Travis and Davy Crockett.

The actual historic truth of Travis, Crockett, and the rest is, to use a popular euphemism, “complex.” This is also true of Sam Houston, whose victory in 1836 started it all. It is accurate that Houston proved to be a capable (if somewhat lucky) military tactician on the marshy battlefield of San Jacinto, where he and his men won freedom for Texas. At the same time, Houston owned enslaved people. Slavery was a major factor leading to the fight for Texas independence after Mexico effectively abolished it in 1829. The legal enslavement of humans was later enshrined in the Constitution of the Republic of Texas. After Texas had been granted statehood, Houston vehemently opposed secession and was removed from office as Governor after refusing to swear an oath of loyalty to the Confederacy. He could be an important advocate for Native Americans while at the same time describing people of Mexican descent using repugnant and racist language.

Houston was, to use that word again, “complex.”

The story of Texas is complex as well. The individuals at the center of that story are more nuanced — and thus more human — than what was etched into granite historical markers back in 1936.

The Centennial celebration offered a projection of the future of Texas by telling a story of its past. But that story was incomplete. It left out important chapters of the state’s history by ignoring the role played by Latinos, Blacks, Native Americans, and yes, even Germans. As can be seen in the ongoing debate about Confederate memorials, there is still no clear understanding of the best way to tell the full version of history when other versions have already been cast in stone.

As the state closes in on its bicentennial, it is worth considering how to best celebrate its second century. Much has happened since 1936, and no doubt much will change between now and 2036. That celebration will represent an opportunity to revisit the museums and memorials built for the Centennial. Many of these now 80-year-old structures are already in dire need of attention. As with any other human construct, these buildings were not perfect when they were new, and time has somewhat tarnished their appearance. But these imperfect structures are certainly worth preserving, even if they require some updating and rehabilitation.

The same is true of our understanding of the people and events they were built to memorialize. Exactly how this can be done remains an open-ended question, but it is a question worthy of debate. That debate needs to start now. We only have 15 years left to figure out an answer.

Brantley Hightower, AIA, is the founding partner of HiWorks in San Antonio and the author of “The Courthouses of Central Texas.”
The Houston-Galveston Area Council maintains something called the Regional Travel Demand Model. It divides five counties in the Houston region into more than 5,000 zones, some as small as a single block. It tabulates trips from each of these zones to every other zone — some 2.5 million trip combinations. From a little 20-block section of Montrose, it says, there are 3.07 trips to Rice University, 2.19 trips to the Pennzoil Place tower, and 1.20 trips to a subdivision on the north side of Hughes Ranch Road, in Pearland. And then it projects this information forward by 2.5 years. The model asserts that it knows where people in that neighborhood will work, where they will eat, where they will shop, and where their friends will live in 2045.

This kind of projection seems audacious. But that is the nature of transportation. The infrastructure we design today will take years, even decades, to build, and it likely will last far longer. Every dollar we spend on a road, a sidewalk, or a rail line is a prediction of the future: an assumption of what future Texans will want or need.

In Austin, such a projection is being expressed on PowerPoint slides. The region, TxDOT asserts, is projected to grow more than 70 percent by 2045, and therefore: “Annual average traffic along I-35 from U.S. 290 East to SH-71/Ben White Boulevard is more than 200,000 vehicles per day. By 2045, it is expected to reach more than 300,000 vehicles per day, an increase of more than 45 percent.” The presentation is part of a public meeting — virtual, in these COVID-19 times — for a new project that could spend $7.5 billion on widening 27 miles of I-35. This is the scoping phase, the time in the federally required analysis process where an agency states the “purpose
and need" for a project and identifies alternatives. TxDOT has developed three options for rebuilding the highway. The first would add four managed lanes in a tunnel. The second would add four managed lanes next to the freeway lanes. The third would add four managed lanes sometimes next to the freeway lanes and sometimes on an overpass. Every option (other than the "no-build" alternative included as part of any environmental impact statement) adds lanes; the typical section that TxDOT is posting shows a 12-lane highway becoming a 20-lane highway.

The widening of I-35 in Austin is an assertion that traffic will inevitably continue to increase, and that the only way to handle that is to add traffic lanes. This is a direct projection from the past, a continuation of a decades-long strategy used as Austin grew from 130,000 people in the 1950s to 978,000 today. I-35 was built in the 1960s along the old East Avenue, a six-lane road. The original highway had four lanes, two in each direction. In the 1970s, four lanes were added in an elevated structure. Meanwhile, MoPac got new managed lanes; State Highway 71 and U.S. Routes 290 and 183 have been rebuilt as freeways; and State Highways 130 and Loop 360 have been built to bypass Austin on both sides. Even with all this new infrastructure, traffic on these roads increased. The distance the average resident of the Austin region drives increased for decades. TxDOT sees a freeway where traffic travels at 15 mph at rush hour and concludes that the only reasonable response is to add lanes. The question this workshop poses is what the best way is to add those four new lanes, and how to minimize the impacts those lanes will inevitably have on the city.

However, those additional highways have been as much a cause of additional driving as they have been a result of it. While the change in the Austin skyline is dramatic, the biggest change has been in the suburbs, where rolling countryside has been transformed into subdivisions, office parks, and power centers. In the past decade, the city itself grew by 180,000 people, and the rest of the region by 320,000. Infrastructure may try to respond to travel patterns, but as soon as it's built, it changes travel patterns. If we build more traffic capacity, people make different decisions on where to live, where to work, where to eat, even when to travel. Adding capacity adds more trips. In Houston, the widening of the Katy Freeway from 10 lanes to as many as 26 decreased peak-hour travel times by 25 percent — but then traffic started slowing down again. Six years later, traffic speeds were back to where they had been, because traffic on the freeway nearly doubled. In Austin, the numbers show that traffic on I-35 isn't, in fact, going up — it's been steady for a decade. But more lanes will almost surely mean that more people will use the freeway.

The proposed I-35 project isn't really a strategy for reducing traffic congestion; it's a strategy for growth. It's a statement that the Austin of the future should be a city in which it's easier for more people to drive farther, one in which new growth is car-oriented. Projects across the state encapsulate this vision: Interstate 820 is spurting new logistics development on the north side of Fort Worth, and the Grand Parkway is enabling Exxon to move its headquarters to a new suburban campus and sprinkling new subdivision across the Katy Prairie. 1950s highway planners drew lines for freeways through areas that barely had enough existing traffic demand for two-lane highways. As a state, Texas grew and prospered in the world those highways created.

But highway expansion is only one possible future. Highways have enabled Austin and its economy to grow, but they were not necessary. Some
Bayou Greenway
Houston, TX

U.S. cities—including cities like San Francisco and Cambridge that Austin competes with for jobs and talent—did not build freeways through their downtowns. Others, like Seattle, have largely stopped widening them.

In Texas, too, we can see alternate visions for a transportation future. On the Texas Central website, a video follows a business traveler on a future trip from Houston to Dallas, 90 minutes by high speed train. Texas seems like an odd spot for the first full high-speed rail line in the Western Hemisphere. But these two cities are the perfect distance apart: far enough for an easy drive, but close enough that a train can actually beat the airport curb to airport curb travel times for a plane. The project is premised on the prediction that business travelers will pick the train over Southwest Airlines, and that seems likely. It’s also a bet that having this connection will change the nature of Texas, that creating a fast, reliable connection between two of the 10 largest metro areas in the country will enable people to make shorter trips more often, increasing the business links between them and making the Texas Triangle more of a megalopolis.

On November 3, 67 percent of Austin voters voted for a $7.5 billion transit plan; last fall, a massive Houston transit plan passed with 68 percent of the vote. While this is small compared to highway funding (each city has a single highway project that matches the cost of the entire transit plan), it is clearly a vision for transit playing a larger role. It’s not just the spending that’s significant; it’s where the transit goes. Many of the cities that expanded rail systems in the 1990s—Denver, Dallas, Salt Lake City—were focused on suburban commuters going to downtown, expanding the transit network outwards, building big park-and-ride lots and routing trains along existing rail corridors to speed up long trips. The Houston and Austin plans, though, will improve and intensify transit in the heart of the city. In Houston, new lines will connect the city’s multiple activity centers to each other and run through the center of some of the city’s densest neighborhoods. In Austin, rail will run down the South Congress-Guadalupe-Lamar spine and out along the rapidly densifying Riverside corridor. Both cities recently redesigned their bus networks, and both of these transit plans build on these redesigns, upgrading busy bus routes to rail or bus rapid transit in dedicated lanes, and creating connections where crosstown bus routes intersect. Where earlier rail lines were designed for people to arrive in cars (DART has 24,000 parking spaces), these plans are designed for people to walk to the stations, or to catch a local bus. They are also designed to improve the trips of current transit riders, many of whom are low-income people of color. Houston’s plan includes new lines that connect predominantly Black and Hispanic neighborhoods to jobs and colleges, crossing the city’s east-west divide. Austin’s transit plan includes $300 million for anti-displacement measures, including the development and maintenance of affordable housing and financial assistance for homeownership. Both plans have major investment in improved bus stops and sidewalks. Both Houston and Austin are projecting a future where the city is not only more transit-oriented, but more equitable.

Not all projections are as infrastructural as a freeway tunnel, a rail viaduct, or a bus rapid transit (BRT) station. In Houston, a new vision of the city has taken shape by means of 10-ft strips of concrete. A decade ago, the Houston Parks Board floated a vision: 130 miles of pedestrian and bike trails along Houston’s bayous. In some cases, these would be upgrades of existing paths, but half would be new paths on land that had previously been closed to public access. In 2012, the voters put $100 million in bonds alongside $120 million in private funding, and this year the vision is largely complete. The greenways literally create an alternate connectivity for the city, going where roads and sidewalks don’t. At freeways, they cross under mainlines and frontage roads. They cross under railroads, bridging barriers that otherwise divide neighborhoods. The Houston Bike Plan calls these “high-comfort bikeways,” but that doesn’t fully capture the experience of passing through Houston surrounded by greenspace, going for miles without encountering a car, and feeling like people on bikes are not just being accommodated, but welcomed.
Unlike on I-35, there was no existing traffic to count along the bayou. Bayou Greenways was a vision of people moving through Houston in a new way, a projection that people all over Houston — not just those in old, walkable neighborhoods but also those in the postwar sprawl outside the loop — would want to walk or bike. That projection seems to have been borne out: Every day, there are people out on the greenways, and through the summer of 2020, with indoor recreation limited, the bayous were full of people. The Houston BCycle bike share set usage records, even in 90-degree weather, and the stations along the bayous were among the busiest. Creating a new kind of transportation infrastructure changes how people travel.

The transportation network that most directly shapes Texans’ daily lives is local streets. Traffic engineers have long classified streets in terms of a balance of through traffic and local access: Local streets are predominantly access; highways are predominantly through traffic; and collectors and thoroughfares fall in between. Streets carry people in cars, in buses, on bikes, and on foot. They also facilitate emergency response, parking, deliveries, drainage, green space, and gathering — and they provide a front-door context for buildings. Over the past 50 years, in Texas and across the United States, most of these uses have been made secondary to through traffic: Parking lanes have been converted to through lanes, sidewalks have been narrowed to the minimum, and trees have been cut down to make more room for lanes and minimize hazards to moving cars. Cities have been designed for moving through, not pausing.
In Dallas, though, Greenville Avenue expresses a different vision: the city's new complete streets policy. Where there had been two traffic lanes in each direction, there is now one. There are on-street parking spaces in front of business. At the intersections, curbs extend out, shortening cross walks and providing space for bike racks. Trees line the sidewalks for shade, and benches invite pausing to watch the world go by. All these modifications also create another change that is more subtle: Drivers will not go as fast when there is visual complexity and lanes are constricted. This street is designed as a destination, not as something to pass through. It's designed to work for people, not just for drivers.

Greenville is also designed to be safer. All of the state's major cities have now adopted “Vision Zero” policies — pledges to aim to have no deaths in traffic. That seems like an obvious goal, but it is not. Street design standards have generally prioritized traffic capacity and speed over human lives. Right turn on red is dangerous for cars and pedestrians alike, but it increases how many cars can make it through the intersection in each signal cycle, so we allow it. The times that pedestrian signals are on ‘walk’ are set so short that studies show some elderly pedestrians cannot make it across in time, and yet longer signal timing would hold up cars. City thoroughfare plans mandate a minimum spacing between traffic signals so that they don’t slow down cars, forcing pedestrians to detour or make a dangerous dash across an intersection with no traffic signal. In fact, national standards require five crashes within 12 months in an intersection before a signal can be installed based on safety.

The traffic design standards that Vision Zero is taking on masquerade as technical, but they are in fact value judgments. A traffic model can calculate how much converting a car lane into a bike lane might slow down cars (though those models are imprecise). A traffic engineering standard can assign that level of delay the designation of “Level of Service D.” But those calculations cannot decide how important slightly faster trips for people in cars are, compared to safer trips for people on bikes. They cannot decide what an “acceptable” level of delay or safety is. Transportation decisions are not laws of physics; they’re value decisions.

Just outside Downtown Houston, the White Oak Bayou Greenway runs alongside I-10 and I-45, crosses under freight rail and the occasional Amtrak, and offers views of light rail trains along Main Street. The families biking along on a Saturday afternoon, the pickup trucks speeding on the highway, the transit riders commuting in from the Near North Side, the engineer bringing in a train from Los Angeles: All are experiencing different cities, different visions that coexist in the same space.

So what will this place look like in the future? As part of its North Houston Highway Improvement Project, TxDOT is proposing to widen the highway, adding more lanes, taking up more space, blocking some of the views from the greenway. Meanwhile, METRO is proposing BRT lines to Uptown and Greenspoint; the Houston Parks Board and Buffalo Bayou Partnership are working to extend the greenway to the Near North Side and the East End; Harris County is building bike lanes; the City of Houston is adopting a Vision Zero plan; and the University of Houston-Downtown is planning its campus expansion. Some of these projects are complementary — those greenways will connect to the BRT stations — but others conflict directly, literally trying to use the same space concurrently for different purposes. Travel demand models hide this reality. The “need” to add traffic lanes is no more fundamental than improving transit, creating comfortable bike facilities, or expanding a university. Widening a highway is a decision, just as building BRT or a greenway is.

We can also ask what projects are being forgotten. The freight trains that pass through here, for example, are frequently delayed for hours by Tower 26, an at-grade crossing a mile to the east. Railroads are more
economic and have lower environmental impact than do 18-wheelers. But, because railroads are private, for-profit corporations, while highway infrastructure is subsidized by taxpayers, outdated infrastructure delays trains and impacts the neighborhoods that those trains pass through. Some places have tried to improve this situation — in the 1940s, El Paso built a trench through downtown, allowing trains to move more smoothly while eliminating downtown street crossings — but such projects have been rare.

Wrapped up in every transportation project are questions of who we build infrastructure for and who pays the cost. This summer, competing visions of the infrastructural future were out in stark relief in the streets of Texas cities as Black Lives Matter protests responded to the killing of George Floyd. It was notable that the most aggressive police responses came when protestors tried to block highways. Activists point out that policing, too, is part of our transportation system, that we can’t talk about complete streets and street safety without addressing the fact that streets are often not a safe place for Black people.

Narrowly viewed, these are all simply projects, infrastructure to be built and designed. But all are visions for what kind of place Texas will be, statements about what we value. Transportation is political, and it always has been. The Interstate Highway System garnered bipartisan support, but it did not work for everyone. Highways were bulldozed through Black and Hispanic neighborhoods — the same neighborhoods redlined by government housing policies — in order to speed commuters to newly created suburbs and resulting in the re-segregation of metropolitan areas. That dynamic is still in play, today. For example, 12 local elected officials (mainly Democrats) around the I-45 project signed a letter to TxDOT asking the agency to reconsider its plans, and both the Mayor of Houston and the Harris County Commissioners Court oppose it in its current form. Meanwhile, 16 other (mainly Republican) elected officials from suburban districts, none of which actually touch the project boundaries, signed a letter urging TxDOT to move forward.

Christof Spieler is a vice president and director of planning at Huitt-Zollars and a lecturer in architecture and engineering at Rice University. He lives in Houston.
Far Out!

What is the relationship between housing equity and space architecture? Not sure? Just consider the new frontiers of 3-D-printed buildings.

by Jessie Temple and Greg Esparza

"HUMANITY'S RETURN TO THE MOON." That's the headline on NASA's Artemis project landing page, emblazoned over a rendering of the arcing surface of the moon in the foreground with the sphere of Mars peering over the horizon like a nosy neighbor. The Artemis project can effectively be understood as the long-awaited sequel to NASA's first blockbuster, the Apollo program, and you can almost hear the gravelly voice-over in the background: "We're going back... and this time, it's for keeps." 2024 is the Artemis program's most widely publicized milestone, when NASA will be sending the first humans to the surface of the moon since 1972, but this historic return is only, well, one small step towards interplanetary colonization. The moon, with its craters full of oxygen-rich ice, will serve as a fueling station; the next stop, as the logo suggests, is Mars.

Space programs are by nature highly collaborative and technical endeavors, and NASA's reliance on private sector innovation has grown significantly in the decades since Apollo. From the Johnson Space Center in Houston to the SpaceX launch site in Boca Chica, Texans will once again be playing critical roles in this next space launch. Perhaps unexpectedly, however, an Austin-based construction technology company, ICON, is at the forefront of establishing the first permanent architecture on the moon. In October of this year, ICON announced the NASA-funded Project Olympus, a research and development effort to create a "space-based construction system" that builds upon the company's 3-D printing technology. To bring critical architectural expertise to the project team, Bjarke Ingels Group and SEArch+ (Space Exploration Architecture) have been engaged as partners.
How does a building technology company get from Austin to the moon? The previous business experiences of ICON’s founders trace an ongoing engagement with advancing broader social good through transformative technology and industry disruption. Two of ICON’s co-founders, Jason Ballard and Evan Loomis, previously started TreeHouse, a chain of home improvement outlets that sought to spark a green revolution from the front lines of retail. Modeled on the example of Whole Foods, TreeHouse first opened an Austin store in 2011. After an expansion to the Dallas market and a few strategic pivots, the company folded at the end of 2018. Dmitri Julius, vice president of operations at ICON, who previously oversaw sales at TreeHouse, explains: “The goal [of TreeHouse] was to make housing incrementally better than what existed. But it was always in the back of our minds that in order to make housing fundamentally better, the structure itself would need to become better. So you could improve the windows or improve the doors or make other incremental improvements, but ultimately, if you could effectively alter the envelope, you’d have a better overall condition. So as TreeHouse was making its exit from the market, Evan, Jason, and Alex [Le Roux, the third co-founder and now CTO of ICON] started permeating the idea of printing at scale.”

The home construction industry is ripe for disruption, Julius says, not just because it’s a multi-trillion dollar industry, and not just because of its significant environmental impacts, but because it’s not actively working to house people. Creating dignified housing for people who are unhoused has been central to ICON’s mission from the outset. “I’ll tell you, every executive meeting we have starts with the same opening slides about the 1.2 billion people that are actively homeless or home-insecure,” Julius says. “That’s something that leaves our line of sight, ever.”

The ICON founders found compelling the concept of a single monolithic wall that could eliminate a slew of less resilient materials, like sheetrock, framing, and siding, and their associated labor and cut-off waste. After a year and change developing a prototype 3-D printer by using personal funds, ICON emerged with a printer (the Vulcan), coding, and a proprietary 6,000-PSI concrete mix, Lavacrete, that is compatible with the unique technical requirements of the printer and adaptable to different climatic conditions. In 2018, they came out swinging at SXSW with a proof of concept: a 3-D-printed, 350-sf house, building permit approved, in East Austin. (Andrew Logan of Logan Architecture was the architect, Sam Covey of Fort Structures, the engineer, and Alchemy Builders completed the finish out of the home.)

Next, the ICON team needed a larger project to test their technology’s potential. Community First! Village, a nonprofit providing permanent housing and a supportive community for formerly homeless residents, offered the perfect launching pad for the next round of ICON prototypes: The Village (under the leadership of staff architect Sarah Satterlee, AIA) has worked with an impressive lineup of local design and construction talent to create housing and other structures. ICON again collaborated with Logan Architecture and Fort Structures to design and print six 400-sf tiny homes for residents and a 500-sf welcome center. The same team worked together to launch a project with housing nonprofit New Story to 3-D print a community of homes in Tabasco, Mexico. That project is still underway.

As for the architectural possibilities of ICON’s technology, the dimensional constraints of the print area are the primary limiting factor. Currently, the Vulcan printer is set up to print walls (it prints curves as easily as straight lines) up to nine feet high by printing 1-in-tall-by-2-in-wide Lavacrete beads, one on top of the other, at about six inches per second. The Lavacrete walls are generally a foot thick and include a proprietary wall system in the cavity of the wall, visually reminiscent of a truss on its side, and rough openings are framed by hand with dimensional lumber. Logan’s elegantly simple designs use a conventional roof structure, but eventually the goal is to be able to easily customize and print the entire house envelope, from foundation to roof, with precisely calibrated window and door rough-in openings. Says Logan: “It’s an ongoing feedback loop, with us designing stuff, and the structural
engineer saying, ‘Well, maybe,’ and then going to the ICON guys and then coding it and coming back to us to say, ‘The code doesn’t work that way; we need a place to break the wall.’” Or, as Julius puts it, “With every customer, we learn something new about the tech.” Julius is currently overseeing the development of an open-source platform that will allow more collaboration with structural engineers, builders, and architects; ideally, this will drive the technology even further. (The permitting, Logan notes, was not a particularly big hurdle: “It was just a straightforward structural review.” Mortgage lenders, however, may still balk at financing a 3-D-printed house, something that ICON is working to address, via partnerships with lenders, as they move into the mid-range housing market.

Andrew Logan met Jason Ballard and Evan Loomis when they were all students at Texas A&M (future researchers of humanity on the moon may trace a connection to the Aggie Men’s Club). Logan says of Ballard: “He’s a super idealistic and philosophically driven guy. ICON has a product that’s really attractive, but they want to figure out how to make the world a better place while they’re utilizing that product.” Logan is also interested in the material possibilities of the technology. “What does the wall want to be?” he asks, echoing Louis Kahn. “It’s basically like frosting coming out of a nozzle. Really expensive frosting.” Currently, the materiality is expressed through the rounded beads of concrete — the lines of frosting, as it were — that give
Facing top The size of the print area (6.5' x 28') is the primary constraint in designing with the technology, although the Vulcan can print several structures along a linear path in a single swoop.

Facing bottom "What seems to be the tech race in the 3-D printing world is the materiality," says Logan. "Like, who's developing the best concrete or other product that's going to create the widest array of design ability and variation?"

Left A recent prototype project with the U.S. Marine Corps provided an opportunity to print a continuous wall-to-roof structure that was then tilted into place with a crane. But "the jam," says Logan, "will be being able to print the roof," that is, print the entire structure in one go, no tilt-up required.

the wall texture and that, in Logan's designs, are carefully coordinated with window and door heights. But, says Logan: "You think of really old masonry buildings in Europe, where the stone is rusticated in some places and smooth in others and they’ve carved in handrails. The humanistic experience of that is so wonderful, in my opinion, and relatable. You could accomplish the same thing with 3-D printing if you put enough thought into it." The compound curves that Logan shows in the Mines Martian renderings are not quite within the capabilities of the Vulcan printer — that is, not yet. But with every loop of feedback, more possibilities become reality.

To date, these questions of refined tectonic expression are fascinating for architects and, one suspects, mystifying at best for space engineers, who are trying to solve a number of life-or-death problems largely unrelated to aesthetics. Christine Tiballi, a Sci-Arc-trained designer whose interest in space led her to a Master of Science (MSc) program at the International Space University in Strasbourg, describes some of those challenges: "a), you’re in the vacuum of space; b), you’re at a sixth of the gravity of earth; and c) you’re dealing with lunar dust, called regolith, with particles that are extremely sharp, so they’re a total hazard for humans to inhale." (Printing with accessible on-site materials like regolith is one of Project Olympus’s core challenges.) On top of that, there’s cost: "One of the biggest impediments to space travel is that you have to get equipment off the planet, and that’s expensive. You’ve got mass/volume trade-offs, because you’ve got the shape of the rocket, which has limited payload capacity, so you have to fit the equipment in there, but you’re also dealing with weight vs. fuel requirements." Getting one pound of material off the planet, she estimates, currently costs between $6,000 (unmanned) and $31,000 (manned). 'This helps to explain why astronauts have freeze-dried ice cream instead of, say, keg beer. And if the sharp-edged regolith particles weren’t enough, the moon is also bombarded by galactic cosmic radiation and solar particle events. "You have to shield any work or habitation element from that," Tiballi says. "And one of the best ways to do that is to use that lunar regolith and either construct a shield or bury whatever architectural element into a crater or into a lava tube. It’s pretty nuts." Hence, the appeal of a 3-D-printed mass wall — though Tiballi says most people are envisioning that as "some kind of radiation shielding element, almost like a bandshell, built around an inflatable" structure. The promise of ICON's technology for a lunar construction system is clear: 3-D printing is precise, requires minimal human assembly, and can utilize the heavy raw materials that are already on the moon.

While colonial forces throughout history have used architecture as a means of expressing a dominant culture and ideology, the absence of architects in space is notable. While a few architects — Bjarke Ingels and SOM among them — have tried to play a bigger role in space, architects currently play a very niche role in forming a human culture on other planets. "Have you ever seen a picture of the inside of the International Space Station?" Tiballi asks. "Wires everywhere, equipment everywhere. People are in there for six months, packed like sardines, with little personal space. These
people are basically in a highly-engineered can circling the earth. It's hard, really hard, on all the people who go up there.” As space travel becomes more common, however, more space programs are starting to look anew at design — even if only virtually. “Architects would say, ‘Look, this is really stressful,’” Tiballi says. “Maybe you ought to add a few elements that would help people deal with their time there? Things like lighting or colors or textures or materials might change things just enough … and I think most of the space programs are starting to say, ‘Okay, long term, we really do have to focus on this.’ They’re starting to integrate things like VR and AR to give people alternate options for their psychological well-being.”

At the other extreme, meanwhile, more and more companies are starting to look at space as the future of hospitality, with the ISS being considered as a possible rest stop. But tourists be warned: “There’s a really small margin of error,” Tiballi says. “If things go wrong, you could die. And people are paying a lot of money to be there, but you’re asking people not to put the windows down, and these are people who want to put the windows down. So how do you keep their arms in on the ride?” Look out, moon — here comes humanity.

At least one member of the Project Olympus team has been working for years on exploring the psychological aspects of the human experience in space. Melodie Yashar, cofounder of Space Exploration Architecture (SEArch+), is a multidisciplinary designer with graduate degrees in architecture and human-computer interaction with an emphasis in robotics. SEArch+’s work developing construction techniques specific to potential lunar and Mars habitation emphasizes that it enables humans “to not only live, but thrive in space environments beyond Earth.” SEArch+ has won a number of NASA Habitat awards, including, in partnership with Russia-based 3-D printing company Apis Cor, a prize for a dual-shell housing module inspired by Alvar Aalto’s sculptural capturing of natural light at the Church of the Assumption of Mary. SEArch+’s renderings also show, among other furnishings, what appears to be a Saarinen Tulip chair. It’s a funny detail, but it illustrates a point: What does it mean to live well off-Earth? And who is designing furniture for space?

ICON is working slowly and steadily on new prototypes for off-Earth construction. Back on this planet, however, they feel a greater sense of urgency. “There need to be individuals that are reading this article that need to be thinking about housing and the built environment in ways that are different from the ways that got us to this place,” Julius says. “All the reasons why the global housing crisis is a crisis are all the reasons why everyone needs to be working on a solution. We all need to be thinking about how to act in our own spheres and in our own backyards.” For inspiration, Ballard suggests, just look up.

Jessie Temple is an architect and writer in Austin. Greg Esparza is a partner at Moontower Design Build, also in Austin.
Facing. New Story, a nonprofit committed to ending global homelessness, teamed up with ICON to build 500-sf homes in Tabasco, Mexico. Each home takes about 24 hours of print time across several days to complete.

Above Community First! Village in Austin offered the perfect launching pad to demonstrate the potential of ICON’s technology.

Left Interiors at the Community First! visitors’ center were styled by Austin-based designer Claire Zinnecker. In this space, interior design is not currently a priority—but that may change.
**Architect in the Machine**

Artificial intelligence is coming for design, presenting both opportunities and perils for the future of architecture.

by Davis Richardson

Today, architecture as a discipline finds itself in a moment of crisis and opportunity. The phrase “intelligent design” — not to be confused with the creationist-inspired, culture-warrior sense in which the term was used not so long ago! — has come to find direct relevance in the field of architecture — not in a theological way; not in a science curriculum way; but, rather, in a technological way. The term “artificial intelligence” (or AI), as we understand it today, was coined in 1956. It reemerged with real potential in the public imagination when IBM’s Deep Blue defeated chess grandmaster Garry Kasparov in 1997. Research has progressed rapidly in the last 20 or more years, particularly in the last decade, as big data access to massive datasets and the ability to easily store them in the cloud, GPU performance, and processing power have all improved significantly. Architecture, also, underwent massive changes during this time period due to technology — from the adoption of free-form digital modeling software like CATIA, popularized by Frank Gehry and Greg Lynn, to the ubiquity of building information modeling (BIM).

Today, artificial intelligence is a broad umbrella term for various types of computer algorithms and models that mimic human intelligence. The most common subtype of AI with relevance to our field is machine learning, a term that describes various types of networks and models that attempt to teach themselves or “learn” from datasets with which they’re provided in an attempt to automate or optimize some output. It’s also important to distinguish between parametric, or generative, design scripting — simulations that have been used in the field for over a decade — and intelligent computational processes. Mike Haley, senior director of AI and robotics at Autodesk, gives an example to help illustrate the difference: A generative design program could take a series of parameters and inputs and give the designer 1000+ iterations from which to choose; AI can then take all those options, sort and group them by different traits or characteristics or even by which is “best,” if one can define it, to make reviewing and choosing a desired option much easier for the designer. While this is
much faster and more convenient for the designer, it is also apparent that AI could potentially replace the designer and her labor completely in this scenario: The AI could simply be trained to evaluate and weigh certain characteristics and decide the best option(s) all on its own.

While the allied disciplines of real estate and construction have seen earlier adoptions of AI into their working processes — Katerra is using AI in its cross-laminated timber production factories to evaluate and optimize raw material; a Chinese startup that branched out of OMA, appropriately named X-KOOL, is using AI to automate yield studies and property potentials — the topic is still ripe for discussion on how it could be utilized by architects and designers.

Though AI is a long way from becoming widely adopted in architectural practice in the role that more mainstream software types such as BIM enjoy, researchers at both the corporate and academic levels see the promise of intelligence in design and are exploring it in a variety of scales and applications. One popular model of machine learning for image production and manipulation is known as a generative adversarial network (GAN), which is made of two neural networks that “compete” against one another in order to create imagery, where the “creator” network “creates” images that often begin as arbitrary distributions of pixels and are refined through a second “discriminator” network that uses a provided dataset to learn what types of images it should be looking for. These two networks then take turns looping back and forth, in creation and discrimination, until the discriminator can no longer tell what is a “real,” or provided, image and what is a “fake,” or created, image. HDR’s Data-Driven Design Group, in a relatively simple example, has developed a GAN called “GANHouse,” which can turn a quick hand-sketch into a more realistic-looking and detailed image of a building. The image exhibits a blurriness and unresolved nature that more closely resembles a watercolor than a photorealistic rendering, carrying obvious traces or glitches of an intelligent but unspecific process that makes the application simultaneously intriguing yet limited in its range of uses.

Renowned research units at other notable, large practices, such as Zaha Hadid Architects Computation and Design Group (ZHA/CODE) and Foster + Partners Applied Research and Development (ARD), have been heavily invested in exploring machine learning applications for architectural design, in tasks such as environmental and performance simulation, building optimization, spatial configuration, and visual connectivity. Thus far, however, while they have made important strides, these research projects have tended to be about discrete tasks or design studies rather than more encompassing, intelligently led design processes. A recent paper on the Foster + Partners ARD work on complex spatial planning concludes that:

> Research in optimization, classification, sorting, and machine learning more generally are only possible today within those practices and institutions that can allow investment, in terms of time and resources, into computational research. This tends to occur on a centralized level (research centers, universities, and large design consultancy companies), and is much more difficult (and rare) for small-medium design practices, start-ups, and individuals to engage in.

In addition to limited resources and time to invest in AI research, another potential barrier to more widespread research has to do with accessibility and computational expertise: While some architectural designers are familiar with visual scripting plug-ins such as Grasshopper for Rhino(oceros), fewer are fluent in more traditional coding languages like Python, in which much AI-for-design is currently developed and tested. Sweden-based Finch 3-D is a tool seeking to bridge that knowledge gap by building a plug-in for Rhino that functions like an extension of existing tools, with no knowledge of Grasshopper (much less of coding itself) required for designing. What is fascinating about Finch is how the intuitive tools and workflows they currently provide span a range from banal to potentially groundbreaking tasks. In some ways, this gives BIM-like functionality to Rhino at an earlier stage of the design process: Stairs are stairs, rather than components of extrusions whose rise and run must be manually calculated; polylines become building massings that adapt to site topography with parametric operability for number of floors, floor-to-floor height, roof types, etc.; and other processes which automate the minutiae of building modeling and speed up iteration time. At its most powerful, though, machine learning is combined with evolutionary solvers in order to determine how to most efficiently divide freeform buildings into desired area sizes, and it creates adaptive floor plans for residential unit interiors.
based on a bounding outline. This algorithm can determine not only where bedrooms, bathrooms, living rooms, and kitchens should be located, but also whether the kitchen has room for an island, a kitchen table, and a full dining space, or how many bedrooms can be efficiently fitted into the given space. Pamela Nunez Wallgren, co-founder of Finch, sees the future of AI as liberating for designers: “With new software like Finch assisting us with a lot of the technical aspects of the profession, the role of the architect will become more creative and focused on designing great spaces, adding value to the project inhabitants and our cities more widely.”

As of this writing, Finch continues to be developed in beta with the hopes of rolling out more algorithms and tools that can speed up and offer new solutions in the design process.

Perhaps the most interesting and promising strides — at least, those that are openly shared and publicly available — are coming through the work of the academic studio project that is investigating and speculating on the application of AI in the design process. At The University of Texas at Austin School of Architecture, Assistant Professor in Architecture Computation Dr. Daniel Koehler is leading a series of design studios, called “Paperclip Studio,” that investigates the use of machine learning and computation on new paradigms of housing and urban form. Koehler sees the promise of AI as offering the ability to completely rethink our modes of living in the city, synchronous with technological developments like urban farming and rapid, automated construction. Throughout history, Koehler says, there has been a divide between urbanism and agriculture where, when we thought “city,” we were thinking about something separated from but dependent upon the production of our food. Urban farming has fundamentally redefined that, allowing us to completely rethink the form of the city. He says:

What comes with automation or digitizing food-production [is that] the whole image of the city [as separate from agriculture] can fundamentally change. What was really successful about [the Paperclip Studio] was what a building looks like when you’re living with food development, when you live with [the urban and the rural] together. What mode of living comes when there’s no hinterland?

The result is a forestlike aggregation of “building parts” that consider totally new architectural super-components and relationships among them — ineligible aggregations and a high density of units that share open-air terraces, neighborhood gardens, and community amenities. These aggregations address the question of what the organization of architecture itself — rather than the solutions of engineers and sustainability consultants — can contribute to ecological thinking through intelligent computation. “Of course, [things like] insulation and solar panels on a building are really important, but in the end, those are technical add-ons. What could you contribute as an architect?” Koehler asks. “It is clear AI is interesting because you can render the whole building [itself] as an ecology of building parts — like a forest — with openness and pluralities of entities, autonomous from one another but being able to communicate.” For the Paperclip Studio, the form of these buildings is something of an accelerated Habitat 67 by Moshe Safdie with the idiosyncratic detailing of Carlo Scarpa, created with intelligent computational design. Koehler says “with an artificial network, you search for coherences, new insights, higher variability, or for
things you could not think before. [You] can compute or generate ventilation patterns; [you] can create a building assembly in a way that it produces artificial wind flow. [You] can incentivize an ecology of building parts.”

For Koehler, artificial intelligence allows designers to create not only new types of buildings, but entirely new ways of thinking about ecologies and what they mean in the Anthropocene, especially when facing building typologies, like urban housing, that have too often been the result of mass-produced solutions. “Why this looks like a forest, partly, is because we [require] every room to have a certain amount of sunlight — very banal at first, but it's exactly these banalities that are necessary for housing that leads to reductionist designs.... Compare a tree with a mono-surface of a roof. A tree can absorb or buffer more energy because it has 1000 times more surfaces, more envelope. So as a designer, I'm really suspect of saying, 'We have to limit the form of the building.'”

While built projects with clear markers of artificial intelligence baked into the design process are few and far between, a recently shortlisted competition proposal by Mark Foster Gage Architects (MFGA) paints a possibility. MFGA proposed a luxuriously detailed desert resort in the Middle East which was built into the existing rock formations of the site where possible. The design was developed with AI, but not so much for the purpose of technological novelty as for aesthetics: The goal was a solution that wouldn’t oversimplify the source of inspiration. Gage describes their reasoning: “This region has a rich history of using patterns in weaving, jewelry, tile work, etc., so we wanted to tap into that. But we also didn’t want to do the ‘contemporary’ thing, where you just laser-cut historic patterns or abstractions of them into metal panels and use it as a screen.”

Gage has been critical in the past of oversimplified diagrams or metaphors in contemporary architecture and sees AI as a potential tool for achieving
a level of inherent complexity that is currently too intensive or cumbersome for designers to wrap their heads around. “We wanted to, in a sense, splice the genetics of this pattern material in a way that you couldn’t tell where one [left off] and the other began. The only way we could think to do this was with AI, as humans tend to abstract things when confronted with complexity, and we didn’t want to lose the complexity, the richness, of either [the historic material or our architectural ambitions]. AI is great at patterns.” This pragmatic approach to the technology is consistent with his broader outlook on the application of AI; he says he’s “far more interested in what people do with it than the fact that they used it.”

Gage’s words seem to track with how researchers and computational design experts are viewing the future of intelligence in design, including concerns about the possible downsides. “I’m sure some people will do interesting things with AI in architecture in the future, but I anticipate that most of AI’s influence in architecture will be used for efficiency, building performance, and making buildings even cheaper,” Gage says. AI’s adoption by neoliberal capital in the name of efficiency, bottom line, and the ostracization of labor instead of for an aesthetic goal of a more beautiful world, as Gage sees its potential, is a concern for many. Of course, Gage’s use of the technology in designing a luxuriously gilded, secluded, and secretive Middle Eastern resort raises questions about when architects are participating in late neoliberal capitalism rather than resisting it: This sort of resistance has been a topic of his writings for years.
Galo Canizares, a lecturer at the Texas Tech University College of Architecture and author of “Digital Fabrications: Designer Stories for a Software-Based Planet,” shares the outlook that AI might not currently be a catalyst for architectural revolution. Canizares describes AI as essentially a hyper-advanced version of parametric design software — which architects have already mostly integrated into their workflows — and says it therefore isn’t likely to make massive changes to the industry in the near future. “All of the things we consider world-changing end up being boring and normal eventually, like plastic or voice recognition…. AI will revolutionize how we fight wars before it changes how we build houses.”

Still, it is a fact that technological upheavals have always changed how architects design and propose new worlds. AI is going to disrupt, automate, and streamline countless industries (and jobs) in the coming decades. Whether architecture itself is created by artificially intelligent machines in lieu of the traditional “master-builder” architect certainly remains to be seen, but architecture will be dealing with the way automation and intelligence change the city and our built environments, regardless. Koehler explains the necessity for architecture to address intelligence because of its ramifications on climate change and the potential for non-human solutions: “When you really accept there’s a limit to human thinking and how you address problems as a human — because, in the end, it was [modernist] humanism that brought this ecological mess — what if you [let] data generation reflect back into your process and let the machine offer [new solutions]? … There’s a critical role of research in architecture through design. Who, if not architects, are proposing new alternatives?” In other words, the world (and the technology that creates it) continues to evolve; if architects — those of us who have been trained to imagine the near future — don’t adapt and lead in projecting a vision of the possibilities for better in that world, who will? Will we leave it to Big Tech executives and venture capitalists who see dollar signs in disruption (especially in the relative dinosaur that is the AEC industry)? Or could we actually use intelligent design to promote an evolution of something better?

Davis Richardson is a designer with Perkins&Will in Austin and founder of DROOPI.
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The architectural profession has — over the past 20 or so years — woken up and smelled the urban bacon, come to the realization that most of what we prize in our climax metropolis, like Manhattan, comes from formal strategies in which the urban ground is favored over the architectural figure.


Thirty-five years after Michael Sorkin tipped his readers to architecture’s postmodern rediscovery of urbanism, already old then, Texas developers are hot on the trail! Even in the tabula-rasa vastness of the exurbs, where the prairie is being paved over as fast as TxDOT can pour concrete, mixed-use developments that attempt to manifest urban street experiences — albeit with lots of structured parking and small armies of mall cops — have apparently become the fastest way to make a buck.

In this issue of Texas Architect, we consider three mixed-use developments that instead work respectfully within the context of historic urban environments: The Epic, in Dallas, presents a showy architectural figure while opening up its transitional site between downtown and Deep Ellum with streets and paseos. Music Lane, in Austin’s trendy South Congress neighborhood, clusters a group of tectonically accurate “industrial loft” buildings around heritage trees to form cozy patio spaces. And Mule Alley, in the Fort Worth Stockyards, makes the gentlest architectural gesture, sensitively adapting a series of early-20th-century barns and stables for use as restaurants, retail, and offices.
Transitioning

The Epic development in Dallas negotiates the boundary between downtown and Deep Ellum through form, material, and urban design.

Architect: Perkins&Will
Preservation Architect: Skotnicki Studio
General Contractor: Balfour Beatty US
Civil Engineer: Kimley-Horn
Structural Engineer: Thornton Tomasetti
MEP Engineer: Schmidt & Stacy
Landscape Architect: Talley Associates
Interior Designer: Busta Studio

by Alyssa Kazew

The Epic is a mixed-use development located on Elm Street between Downtown Dallas and Deep Ellum. With a master plan designed by Perkins&Will for Westdale Real Estate Investment and Management, it consists of two commercial high-rises, a residential high-rise, and a hotel. The project deploys materials and forms to create a considered transition between the skyscrapers of downtown and the low-lying, brick, historic fabric to the east. The development’s two office towers, for example, are glass-clad, while the residential tower and hotel, which includes an adapted historic structure, are wrapped primarily in brick. The buildings also step down in height from west to east — the high-rises standing at around half the average height of downtown’s towers, while the hotel, which is on the eastern edge of the site, is seven stories tall.

While this negotiated scale change is a nice feature of the project, what it does at the
Facing The Epic’s first phase includes an office tower, a residential tower, and a boutique hotel.

Left The shifting box design of Epic 1 breaks up the mass of the building, smoothing the transition between downtown and Deep Ellum.

Bottom The parking garage for Epic 1 creates the platform for a sizeable rooftop garden. This building, the residential tower, and the forthcoming Epic 2 all have outdoor terraces on the seventh level.
Facing Sited on the edge of a primarily low-level district, Epic 1 is pricy to sweeping views of downtown Dallas.

Left The Pittman Hotel transitions from a careful historic preservation to a modern, yet sympathetic addition.

Bottom The 1916 structure, built for the Colored Knights of Pythias of Texas, had been almost entirely stripped of historical indicators. The preservation architect relied on historic photos to reconstruct the facade.

Ground plane is more impactful. The architects opened up streets and paseos through the site, integrating the development within the urban fabric, as opposed to sealing it off within its own privatized mega-block. The choice ensures a comfortable pedestrian experience and frontage for retailers, setting up a framework for vibrant urbanism. “The internal street widths were sized to match the sizes of existing Deep Ellum street widths, so that scale and proportion felt familiar and seamless,” says Ron Stelmarski, AIA, Perkins&Will design director for Texas.

Epic 1, the first of the two office towers to be completed, is designed as a series of four stacked boxes totaling 16 stories that are shifted in elevation and plan. It was “a multifaceted decision in the spirit of ‘one move can address multiple situations,’” says Stelmarski. The move somewhat mitigates the tower’s mass, offers some advantageous solar orientation, opens up exterior balconies on certain levels, and directs views to either side of Epic 2, which is rising just to the west.
The shifted box scheme bears a passing resemblance to a number of recent tower projects by OMA, not to mention SANAA's New Museum, especially considering that expanded metal mesh was also used on Epic 1. It wraps the parking garage and covers the soffits beneath the overhangs. One appealing feature of this material as it is deployed here is that it appears as opaque or transparent depending on the angle of view. The mesh is also used on the ceiling of the lobby and in the elevators, establishing a connection between inside and out.

The parking garage forms a podium that sets up a roof garden on the seventh floor. Perkins&Will's master plan establishes podium and roof gardens on all buildings in the development on this same level, including The Hamilton, the 26-story, brick residential tower, which was designed by StreetLights Residential with LRK. It's a nice touch that creates a second ground plane. The outdoor experience is epic, to say the least. The view from this amenity sums up the goals of the development as a whole, as the viewer is able to simultaneously experience downtown and Deep Ellum, seeing in one glance murals on century-old buildings and glittering high-rises, while listening to the ambient hum of the freeway beneath the overarching sky. The experience is similar within the offices, enclosed as they are in transparent floor-to-ceiling glass, without, of course, the sound of the freeway.

Of all the structures in the Epic development, the 164-room Pittman Hotel includes the only historic building on site and is perhaps the most pivotal. It is on the historic register and was originally built in 1916 for the Knights of Pythias of Texas, an African American fraternal organization, and was designed by William Sydney Pittman, who was the first black architect to receive a federal commission. The old structure was in a highly dilapidated condition when the project began. Preservation architect Gary Skotnicki, AIA, referenced old photos, of which there were precious few, to redraw the facade as it originally appeared, since the storefront had been ripped out and replaced long ago. An old window, entombed in an interior wall, provided a blueprint for recreating the historic glazing. The hotel's contextual modern addition is respectfully separated from the existing building by a glass connector. Its brick walls and punched windows create a staccato rhythm along the edge of the site that is sensitive to the historic context without mimicking it. As the addition reaches the north end of the site, farthest from the Knights of Pythias building and closest to Epic 1, the brick cladding transitions to metal panel, signaling that here, too, a transition is being negotiated with sensitivity. If such good intentions prevail, hopefully Deep Ellum, which is itself undergoing the transition of gentrification, will also find itself in the future both preserved and renewed.

Alyssa Kazew is an artist based in Austin.
Facing The addition employs sympathetic formal and material language, though it is more streamlined and less symmetrical.

Left The hotel's interiors, designed by Busta Studio, tend to favor the contemporary.

Below The development creates a middle ground of scale between the squat skyline of Deep Ellum and the high-rises of downtown.
Strolling South Congress to peruse its quirky boutiques and shady brunch spots has become an Austin experience as typical as counting cranes on the skyline or languishing in traffic on the upper deck of I-35. Tourists and locals alike flock to the district to take advantage of its myriad retail and entertainment offerings, as well as its proximity to Town Lake, greenbelt parks, and downtown.

Since the first local businesses started populating the corridor in the early ’90s, “SoCo” has enjoyed the same incremental growth and sustained boom periods that have defined Austin’s own rapid expansion and emergence on the global stage. Accelerated growth is often at odds with thoughtful growth, and Austin’s built environment is poindmarked by examples of middling mixed-use projects that prioritize short-term investor returns over good design. In this respect, Lake|Flato’s recently completed Music Lane development is an instant standout.

A collection of discrete buildings is organized around a continuous — and genuinely interesting — pedestrian circuit that pulls window shoppers into a series of well-propor-
Facing Lush plantings define a pleasant boundary between street traffic and the adjacent pedestrian experience.

Above Terraces and balconies offer abundant outdoor space across all building programs. Varied massing and material treatments avoid homogeneity and dullness.
Above Terraces and balconies offer abundant outdoor space across all building programs.

Right Substantial heritage trees were carefully protected, visually anchoring the public tree-court on axis with the narrow, pedestrian path.
tional, lush urban spaces set back from noisy street traffic. The walkable path is intuitive, aligned axially with two majestic heritage trees whose canopies lend a blanket of dappled light to a pocket courtyard that accommodates intimate outdoor dining.

Supported by tidy storefronts, sensitive daylighting techniques, and a masterful material palette, the development is perhaps most notable for how authentically "Austin" it actually feels. As one meanders through its rich and varied spaces, the vibe feels like a true extension of SoCo's already vibrant and thriving identity, not a dilated, focus-grouped "Disneyland" version of this identity.

Creating such a quintessentially Austin experience instead of a *Quintessentially Austin Experience*™ relies, not surprisingly, upon a visionary client as much as an excellent design team. Music Lane was developed by Turnbridge Equities, partnering with local developer Austin Pfiester of Lost Herd Enterprises. "It's simple," says Christopher Krueger, AIA, project architect at Lake|Flato. "These developers cared. From the beginning they were on board with us trying to create a timeless architecture. They didn't want anything too stylized or trendy, and they knew it needed to be adaptable over time. The project became less about architecture and more about placemaking."

That commitment is evidenced by the decision to completely submerge the property's four levels of parking below grade, requiring extensive cut and fill. Additionally, despite a 17-ft grade change across the site, the pedestrian experience is maintained at the South Congress level, allowing for continuous, two-sided retail frontage at a variety of scales and densities.

Inspiration was taken from successful pedestrian-oriented cities in Europe and North America. Exceptional urban spaces are often defined by a mixture of scale and materiality, so the massing and facade treatments of the site's buildings take special care to avoid dullness and homogeneity. To accomplish this, the designers took a subtractive approach to the buildable footprint to carve the building envelopes in a way that would provide deep access to the site's outdoor spaces while also maximizing the site's floor area ratio.

Aesthetically, the team sought to imbue a sense of grit, durability, and timeless character, so for inspiration, they looked to examples of successful adaptive reuse projects, like repurposed warehouses and other industrial structures. While the development is entirely new construction, the reference feels right.

Site-cast concrete is expressed throughout the project — articulated through board-formed walls, thermally broken concrete columns, and a pan-joist concrete floor framing system. Employing this system allowed for large structural spans in the tenant spaces, yielding maximum flexibility for future leaseholders. Since the post-tensioned tendons only run in one direction within 20-in beams, the 4.5-in concrete slabs between the deeper beams are available for mechanical chases and other penetrations required for the gas, electric, and plumbing needs of future occupants.

The curtain wall system, furnished by EFCO, also reinforces the industrial motif, its custom aluminum fin caps allowing for an exaggerated overall depth and a profile that enhances shadow play throughout the day. Far
from appearing flimsy, this highly performative, thermally broken window system is composed of a true divided light, in many instances spanning fully from structure to structure.

Double-wythe assemblies of locally sourced D'Hanis terracotta block lend a sense of integrity and stout depth to the exterior walls, also in keeping with the industrial archetype. The sheen and pigment of the block play delightfully across the outdoor spaces within the project, providing particular warmth when combined with the careful plantings prescribed by Austin-based landscape architects, dwg.

The landscape team also introduced a variety of acoustically sensitive water features and irrigation systems that are replenished entirely by means of condensate captured from rooftop mechanical units and stored in subgrade cisterns. This water is deployed across the site through runnels and weep holes, sustaining the project’s plantings. “You’ll notice we introduced an armature for vines that covers a lot of the concrete on the project,” says Krajcer — a self-professed closet landscape architect. “Over time, we hope that the crossvine, fig vine, and Carolina Jessamine will overtake those parts of the facade.”

As a not-so-subtle, yet wholly appropriate nod to the development’s time and place, local neon artist Evan Voyles was also enlisted to create site-specific artwork for the outdoor public spaces. That Music Lane succeeds where so many others fall short is due in equal parts to the diligence of the design team and the long-term mindset of the developers. But the recipe for projects like Music Lane is no secret — it’s the same formula that has always produced good architecture.

Music Lane is a thoughtful and excellent addition to the SoCo district, one that will be cherished by Austinites for many years to come. As the city’s drumbeat of development shows no sign of slowing, other aspiring contributors would be wise to take note.

Christopher Ferguson, AIA, is an architect at Clickspring Design and co-founder of DO.GROUP.
Eau de Livestock

Mule Alley in the Fort Worth Stockyards has been repurposed as a mixed-use district where office space, retail, and hospitality activate what were once barns and stables.

Architect Bennett Benner Partners
General Contractor Commerce Construction Company
Structural Engineer JQ Engineering
MEP Engineer Summit Consultants
Civil Engineer Kimley-Horn
Landscape Architect Lifescapes International

by Michael Friebele, Assoc. AIA

The horse and mule barns at the Fort Worth Stockyards occupy a large tract within the district’s cultural heart along Marine Creek. Built in 1912 as a replacement for the original structures, which succumbed to fire, the stables contributed greatly to the fabric of the district, though their use for the livestock trade came to an end well before the Stockyard’s historic designation in 1976. Aside from the Texas Cowboy Hall of Fame museum, a trail riding company, and a gift shop occupying the storefront along East Exchange Avenue, the complex sat largely abandoned and neglected until the Stockyards Heritage Development Company invested $175 million in their Stockyards properties, including the renovation of Mule Alley.

Mule Alley balances the Stockyards’ evolution into a mixed-use urban district and tourist destination that trades on its historic character through a thoughtful rehabilitation of the 1912 built fabric. The adaptive reuse project was led by Fort Worth architectural practice Bennett Benner Partners (BBP), which subdivided the 180,000 sf of brick, concrete, and steel barns and stables into a series of leasable spaces. These spaces are characterized by double-height volumes with elevated catwalks and haylofts, which were once used as platforms for traders to view and feed the equines on the floor below.

As a mixed-use diagram, the project is straightforward. Public programming along the northern edge focuses toward the Livestock Exchange Building — the heart of the Fort Worth Stockyards district. Mule Alley runs perpendicular, toward the south, from E. Exchange Avenue to the site of a future hotel, with stables and barns lining both sides. The entrance to the alley is through an existing gateway framed by two-story towers. The alley itself has been transformed into a pleasant, tree-lined, walkable corridor. The barns and stables on the west side are now mostly retail and restaurant spaces, and those on the east
Though uses have changed over time, the alley through the center of the project has always been a domain best experienced by foot.

Facing. Facades were an exercise in maintaining historical features and proportions.
Right Changes to the Marine Creek balance a hard existing edge with a lighter touch that opens views from the project to the waterway and surrounding district.
Below A breezeway through the west barn connects to Marine Creek.
side are mostly offices, currently occupied by a tech company, Simpli.fi, which funnels digital advertising campaigns into local markets.

The rehabilitation walks a line between retaining historical character and providing tenants a desired amount of storefront visibility and exposure. Storefronts were scaled to the original rough openings within the rehabbed brick facades. Signage is respectfully set among the brick through the use of transparent graphics atop the framed openings and blade signage that complements the existing metal detailing.

Second Rodeo Brewing, which occupies a building adjacent to the breezeway, features a new roof with an operable skylight that maintains the profile of the original, pre-fire structure. A patio for the brewery further activates the creek edge.

BBP's tenant guidelines set the tone for the historic quality of the interior spaces and offset the desire for larger storefronts. Each tenant benefits from the double-height volumes and existing character. Catwalks above serve as the back of house, with each tenant creatively expressing a program that is traditionally kept out of sight. Where collaboration between BBP and tenant designers occurred, MEP and tenant lighting stand free of clerestory light exposure and are visually worked into the design of the existing spaces. Among the more adventurous and pleasing examples of tenant fit-out are Shake Shack by Michael Hsu Office of Architecture, Provender Hall by interior designer Kate Murphy (with BBP), and a future Avoca coffee shop by Mitchell Garman Architects.

Mule Alley, when considered alongside its recent typological counterparts in Fort Worth, is refreshingly atypical. Mixed-use development has become formulaic, driven by efficiency and economics and focused primarily around a “theme” or story. Clearfork, WestBend, and Crockett Row are recent examples whose ambitious plans are inher-
Right The existing two-story towers were restored, framing a focal entry point into Mule Alley from the greater Stockyards district.

Facing top A winding slow path for cars is paced cohesively to encourage pedestrian traffic and retain a sense of the alley's homogeneous character.

Facing bottom The architects noted that the east-facing facade is one of their favorite moments of the project, as it retains the most character within the preservation.
ently similar by model: Get the diagram right, make the parking count appropriate, double load the retail, detail the central street, and add some wayfinding. The people will come.

While Mule Alley breaks a number of these failsafes—for example, it has very little parking, it has been successful and is almost fully leased—90 percent to be exact. This shows that the best mixed-use can happen when working with the historic fabric and taking care of it. The respect that BBP showed in their handling of Mule Alley will hopefully serve as an inspiration for how we handle future development in Fort Worth and beyond. “I see Mule Alley as a metaphor of our city,” says BBP Principal Michael Bennett, AIA. “It is taking our history and the public’s perception of our city and evolving it into something new.”

Michael Friebele, Assoc. AIA, is an associate at CollisonRTKL in Dallas.
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1/2 2021 Texas Architect 95
Jeanne Schultz Design Studio’s Futura

Launched in 2020 by AIA Austin in response to the coronavirus pandemic, Force-Majeure is a design ideas competition that prompts critical thought on architecture in times of crisis. This year’s competition challenged participants to reimagine vital communal spaces, with provisions for the social distancing brought about by COVID-19. The Jurors Commendation award was created to recognize the sci-fi-level speculation presented by “Futura,” a middle school by Jeanne Schultz, Danielle Eke, and Aman Bhaduria that responded to the post-pandemic education scenario put forth by the competition.

Futura looks well beyond the scope of the current pandemic to address an eerie, post-apocalyptic Austin that has suffered at the hands of human over-consumption, greenhouse gas emissions, natural disasters, and repeated pandemics. “We didn’t think of this pandemic as an isolated moment,” says Schultz. “We wanted to push it further and think about the longevity of our solution.” The middle school is a cluster of intertwined pods perched on tall, sinuous stems high above a desolate ground plane. The pods are connected by a looping transit system through which students and faculty circulate on individual hovering devices programmed to follow a strict schedule and maintain proper distance from one another. Circulation paths along the lower perimeter of each pod allow students to file into place beneath each classroom before ascending to their own sanitary niche.

The school has eight levels that move up from administration and shared spaces to sixth, seventh, then eighth grade classrooms, finally culminating in three lushly planted nature conservatories at the apex. In the world of Futura, most of the life forms with which we currently share our planet have become extinct, and the middle school serves as an earth-bound spaceship where students may interact daily with flora and fauna.