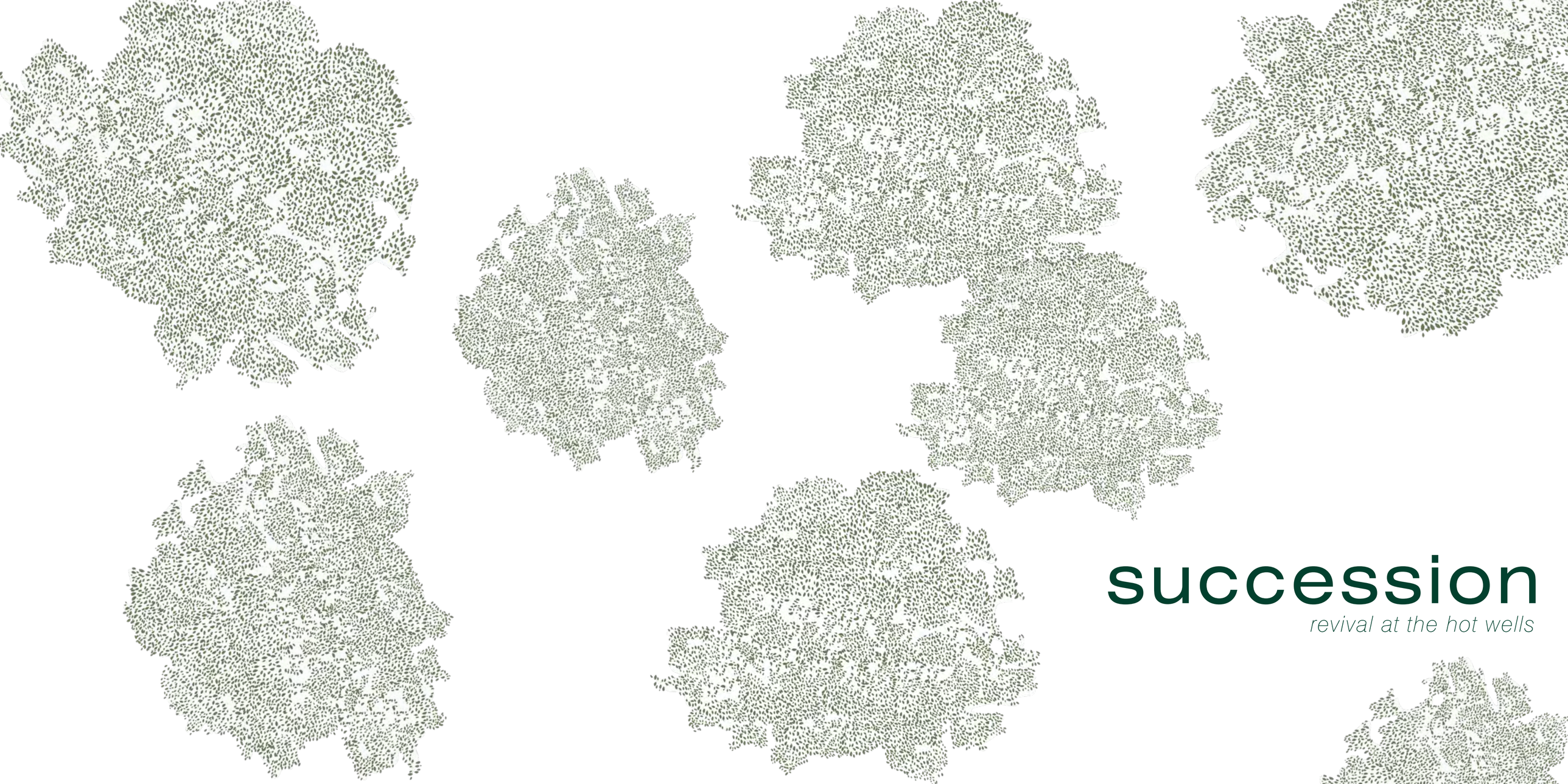
2023

MIA HENDERSHOT

SUCCESSION



succession

revival at the hot wells

succession: revival at the hot wells

mia hendershot

dedication

To my parents,

Thank you for bringing me along on your bike rides, which would spark an idea that I could pour my soul into. Thank you for your constant encouragement and unyielding support while I pursued everything-- from biology to plants to architecture. No ambition ever felt out of reach, and that is because of you both.

To my partner,

Ian, your support and patience during my time in this program has been unquantifiable. Thank you for always helping me back up when I would get knocked down. From 1,000 miles away, you never failed to keep me moving forward and celebrating the milestones. Here's to the end of this chapter as we finally begin ours together.

To my roommates,

Never did I expect to find such exquisite company under such strange circumstances! I'm grateful for all of the porch beers and movie nights, the shared meals and the "can I vent" sessions. Anna, Hilda, Shanze, and Ron, thank you for making the last two years so memorable. I love our little Brookside home.

dr. stephen caffey

brian gibbs

dr. david reed

marcel erminy

acknowledgements

To my committee and studio professor,

thank you all for your guidance and wisdom this past year. I am so grateful to have such a supportive group of incredible minds that believed in what I was pursuing. Thank you for all of your patience and new perspectives. This project would not be what it is without every one of you, and it has been a delight to see how it has grown since our first meetings together.

Marcel, thank you for pushing me forward as I pursued something I was not sure I was capable of. Our meetings together have been invaluable, and I am positive that our time together has made me grow as a designer.

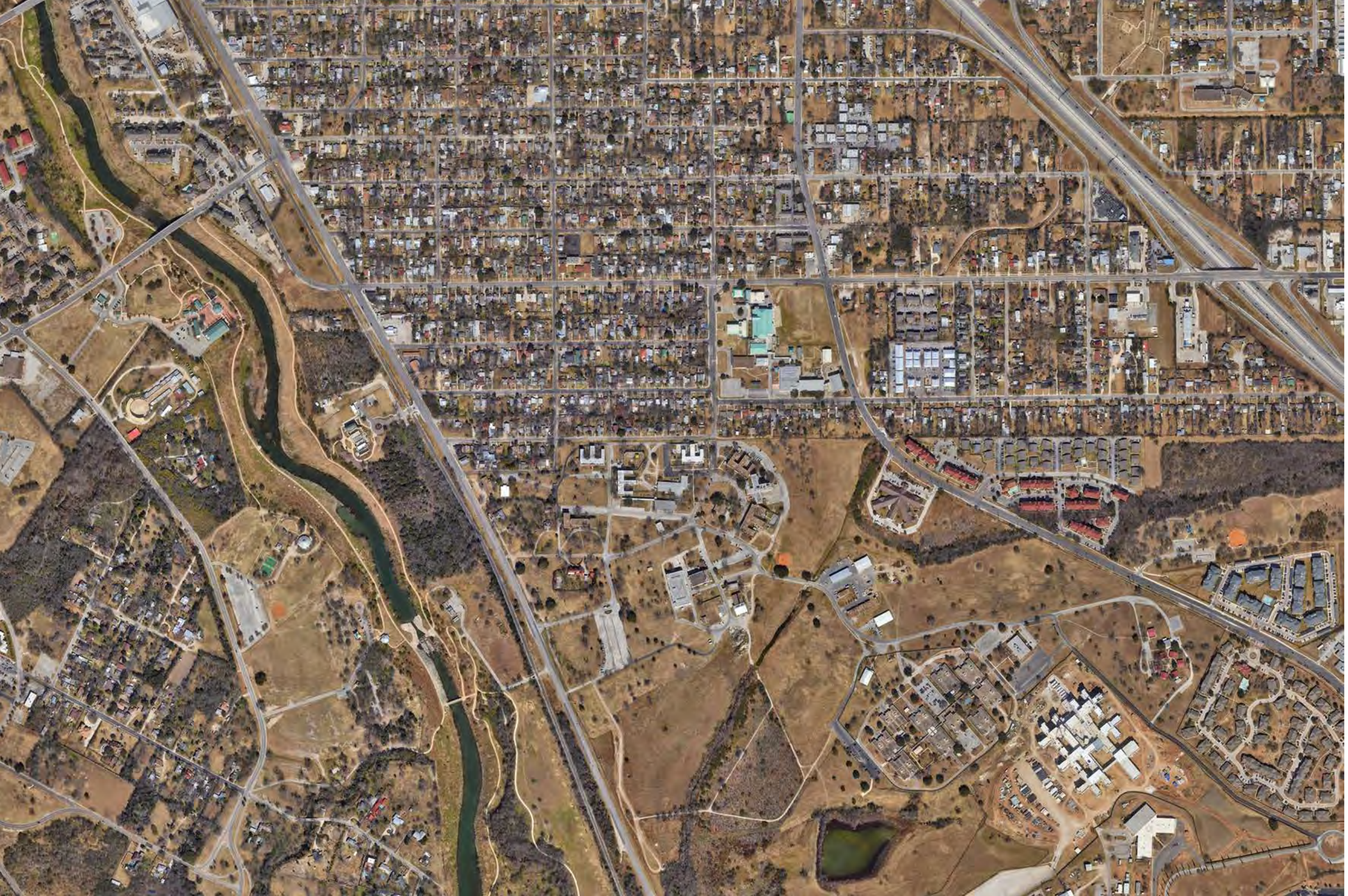
Stephen, you always had a million-and-one thesis-worthy ideas for every half-baked thought I spoke aloud. You've shown me a side of architecture that I did not know existed-- it was our conversation that sparked this concept in the first place. Thank you for keeping my chin high and my feet grounded.

David, thank you for being a part of this committee. Your presence and insight during this process has been a gift, and I am so grateful for the opportunity to work with you again.

Brian, thank you for hearing out even the craziest ideas, and helping me find an answer. Being in your studio has propelled this project forward and challenged me in new ways that I never expected.

"Make the world work, for 100% of humanity, in the shortest possible time, through spontaneous cooperation, without ecological offense or the disadvantage of anyone."

- R. Buckminster Fuller



contents

propagation

the process of creating new plants from a variety of plant materials, such as seeds, cuttings, or other plant parts; this technique is essential for plant reproduction and is widely used in horticulture, agriculture, and forestry to produce new crops, maintain genetic diversity, and restore ecosystems

the process of synthesizing concepts from a variety of educational experiences, not limited to: urban design, landscape design, horticulture, biology, sociology, and architecture; a hodge-podge of knowledge that, when thoughtfully assembled, could give new life to a building and a place.

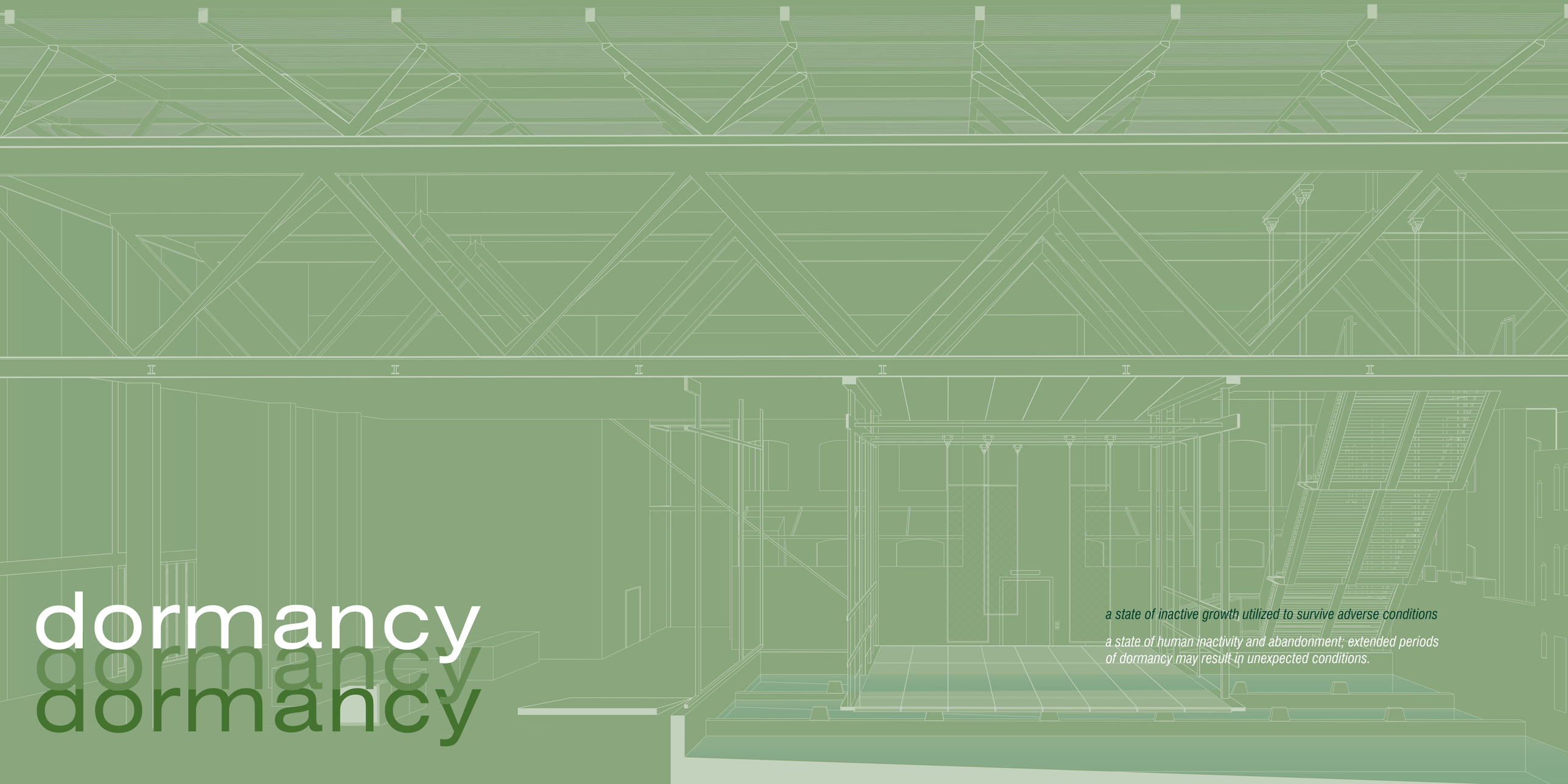
introduction

How can we use the built environment as a tool that allows us to fully appreciate the natural world? This was a question that I began asking myself while sitting in a lecture hall of the Horticultural Sciences building, long before I began my Master's degree to pursue architecture as a career path. After learning about the psychological and physical benefits of access to a lush landscape, I began to see the world differently. I wanted to understand how these benefits could be better incorporated into our daily lives, specifically through the places we inhabit. Since then, my understanding of the intersection between horticulture and architecture has continued to evolve, taking a physical form in the contents of this book.

A core belief I've collected over my (albeit, brief–) time studying architecture is that good design should be equitable. To me, good design acknowledges its role in the greater context of the history and culture of a site; it considers how it impacts the future. Equitable design is built with accessibility to all, and good design recognizes the importance of the environment it is inhabiting. My intentions for this project were to embody design in the context previously described; my vision was to imagine architecture that could be equitable for humans of the past, present, and future, for nature and for the built environment. My approach to this challenge was to use the natural world as a reference. This project is an iteration of the theory of biomimicry and an homage to the forces of nature that continue to shape the built environment. Biomimicry became a tool to investigate the relationship humanity has with its own past. In the words of the Biomimicry Institute, "Biomimicry is about valuing nature for what we can learn, not what we can extract, harvest, or domesticate. In the process, we learn about ourselves, our purpose, and our connection to each other and our home on earth." But what exactly does biomimicry in architecture look like?

You may be imagining a wall of foliage, or a turfed roof that blends seamlessly into rolling hills. – It could be nature's own doing if you see it from just the right perspective. Or perhaps you see it taking form through sustainable systems: the way air flows through the building, keeping it at just the right temperature with lighting provided by the sun. Or, maybe you are a little more direct: architecture that emulates nature by recreating nature. A branching structure that reaches upward for light rays like treetops; honeycombs of cells that undulate across a facade. None of these ideas are wrong, but you can imagine that the strokes of interpretation are broad and all correct in their own right.

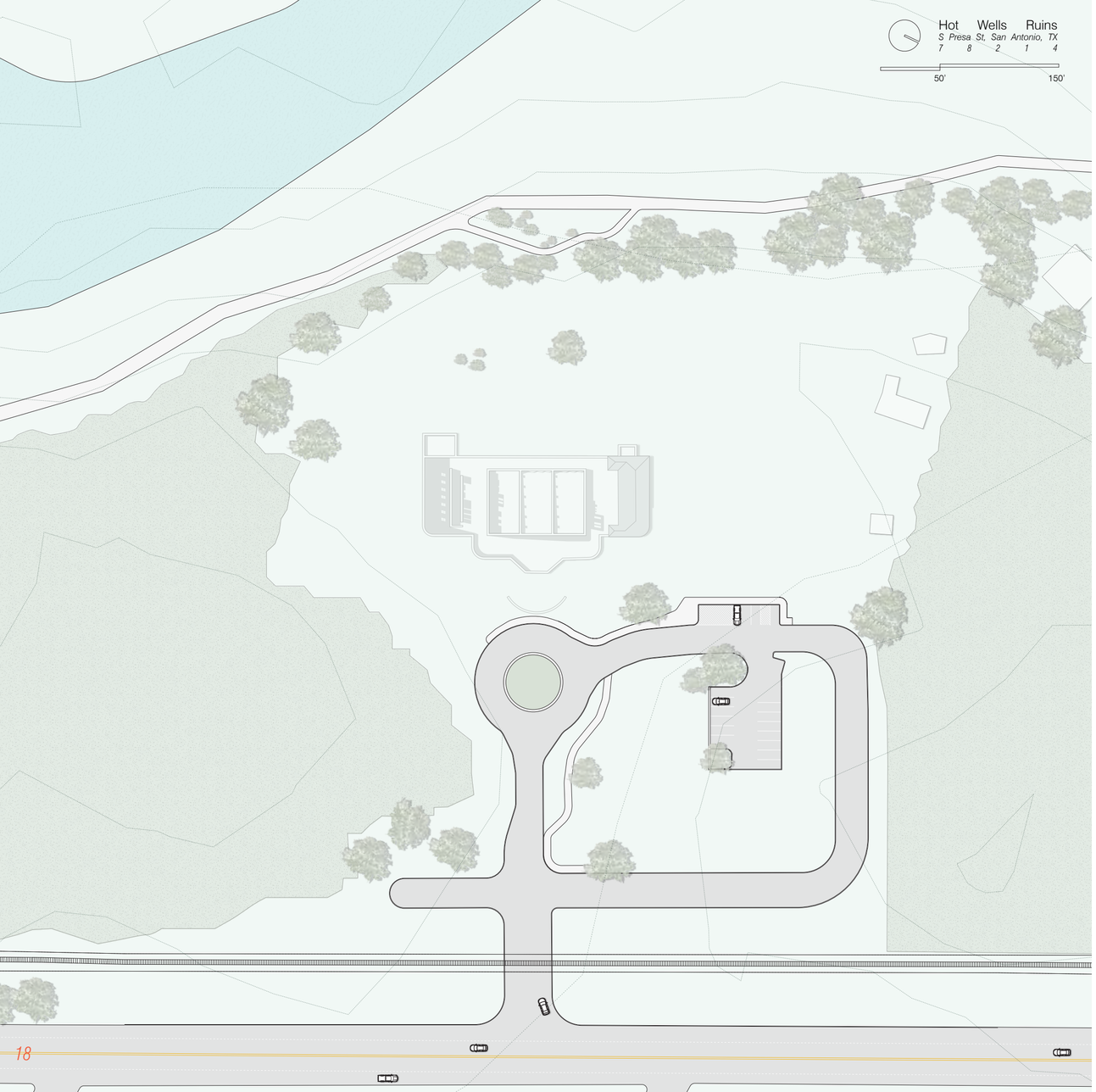
To grasp the intentions of this project, I must define my interpretation of architectural biomimicry for you: Biomimicry is "designing inspired by the way functional challenges have been solved in biology". This philosophy becomes our ethos in design. When we can begin to understand the ties between nature and humans, we find reconnection. Our roots become visible to us, and we see the ways in which we are connected to each other and the spaces we inhabit. The ties between anthropology and biology suddenly become much clearer, and we can see our abandoned, crumbling evidence of histories and overgrown gardens from a perspective that makes them blend just so.



dormancy

a state of inactive growth utilized to survive adverse conditions

a state of human inactivity and abandonment; extended periods of dormancy may result in unexpected conditions.



site context

The Hot Wells is located in south San Antonio, backing up to the winding bike trails that straddle the San Antonio river. On the opposite side, the Wells faces railroad tracks and traffic of South Presa Street, where a neighborhood, school, and hospital reside. Thus, the site functions as a transitional space between the cyclists and pedestrians of the trails, and the roadways and neighborhoods of South Presa. The site can attract visitors from either direction: a discovered gem among the brush from the trails, or a micro landmark for the residents of South Presa. Its location is within walking distance of the San Antonio Missions and biking distance of greater downtown San Antonio. Most notably, it is home to a unique ecosystem that bridges the ecology of the river with the primitive flora that have began dominating the ruins of the building. It is for all of these reasons that the site creates a unique opportunity to function as an intersection between humanity and nature; it is a reminder of a forgotten history and a site of ecological reclamation.

The duality of anthropology and ecology functions as a catalyst for program, which is proposed as a destination for locals and tourists alike. The abandoned Hot Wells must, then, maintain its ruinous form in an inhabitable fashion. It must acknowledge the ebb and flow of possession between people and nature. It must provide context of what it used to be, but should function in a manner that contributes to its community. Thus, the Hot Wells Culture & Ecology Center takes form. It becomes a destination that is discovered upon the river banks, with a landscape that shares the narrative of its past. It becomes a place to be explored, to learn about plants and people, and for a community to gather. The abandoned state of the ruins plays a part in a larger narrative where we may recognize what used to be while constructing something new.

The abandoned Hot Wells Bathhouse sits on the southern banks of the San Antonio river, tucked behind a thicket of trees that disguises it from the traffic of South Presa Street. On its river-side, a winding pavement of hiking trails slinks behind what is left of the ruins-- stumbling upon the crumbling stone, an average pedestrian may be delightfully surprised to discover what peeks its crumbling walls just above the tree line. San Antonio's oldest luxury resort now sits in a state of decay. What was once a socialite retreat has given way to nature's will: cedar trees and native grasses grow inside the walls of the abandoned parlour, wooden beams have rotten and fallen to the ground. It must be by some miracle that the old brick walls still stand, but it seems to hold its ground with a supportive embrace from the flora and fauna that sprout from its decrepid walls. Our aloof trailgoer is unaware of the rich story the forgotten building has to tell, yet this is where our story will begin.

TIME LINE

1892

San Antonio State Hospital builds a well on their adjacent property, hoping to create their own water source by connecting to Edward's Aquifer. Instead, they discover a sulphur spring. Deeming it unusable, the hospital sells the land to the highest bidder.

1894

William Shacklett acquires the land and quickly sets to work at constructing a bathhouse. He advertises the sulphuric water as having healing properties, and people soon flock to the new resort. After only a year from its opening, the bathhouse is destroyed in a fire.

1925

The Hot Wells reopened as a luxury Victorian style spa. The site becomes a local landmark for San Antonio's elite and attracts famous names from all over the country. The old pecan groves that once surrounded the well are replaced with ornate sculpture gardens, and exotic animals are released to roam freely on the grounds. Adjacent to the bath house was a hotel, which burned down in 1925.

1927

In 1927 Charles Dubose, John C. Kirkwood, and M. H. Braden formed the Hot Wells Tourist Park Company and constructed tourist cottages around the foundation of the old hotel and elsewhere around the grounds, and guests were allowed to use the swimming pool.

1942

In 1942 the property was purchased by Mrs. Cleo S. Jones, and she and her husband Ralph converted it into a motel and trailer park. The lobby of the bath house was reopened as a bar and grill called The Flame Room, offering burgers, beer, and swimming in the hot sulfur pools.

1977

The site was officially closed to the public, but was sold by The Flame Room owners with the hopes it would be soon restored.

1997

On October 20, 1997 a fire caused by arson destroyed the midsection of the bath house and made it seem more unlikely the hotel could ever be restored.

2014

The sulphur well was capped in January of 2014; representatives of the Hot Wells Conservancy hoped to one day revitalize the site.

2022

The Hot Wells are reopened to the public as a museum of cultural and ecological history.

All images and timeline courtesy of Gregg Eckhardt, The Edwards Aquifer Website.

primary growth

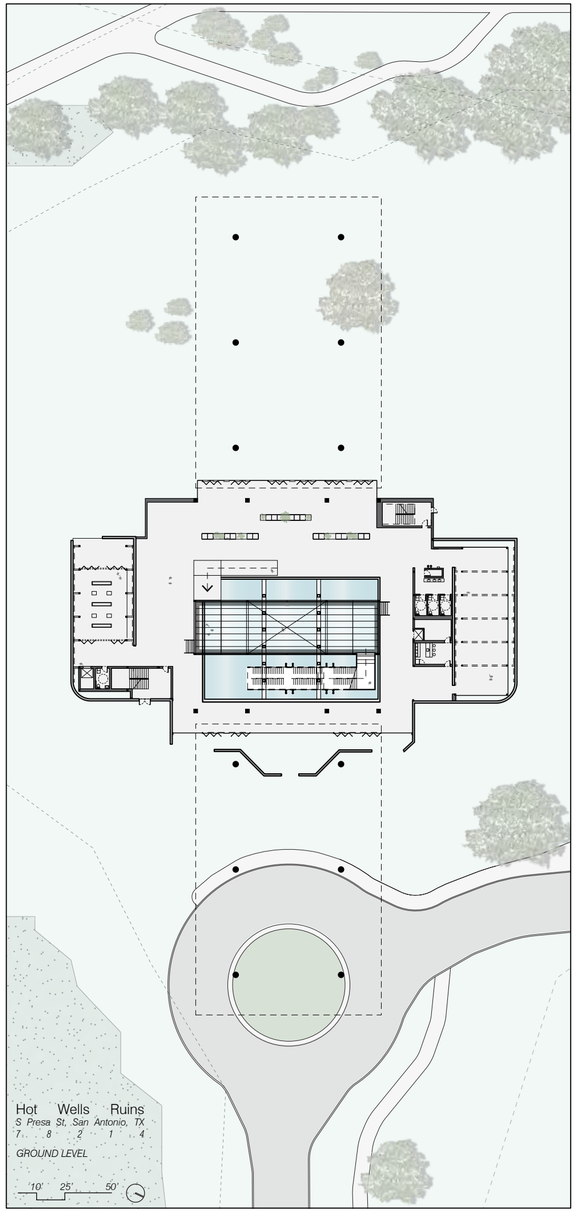
growth in length that gives rise to primary tissues called the primary plant body

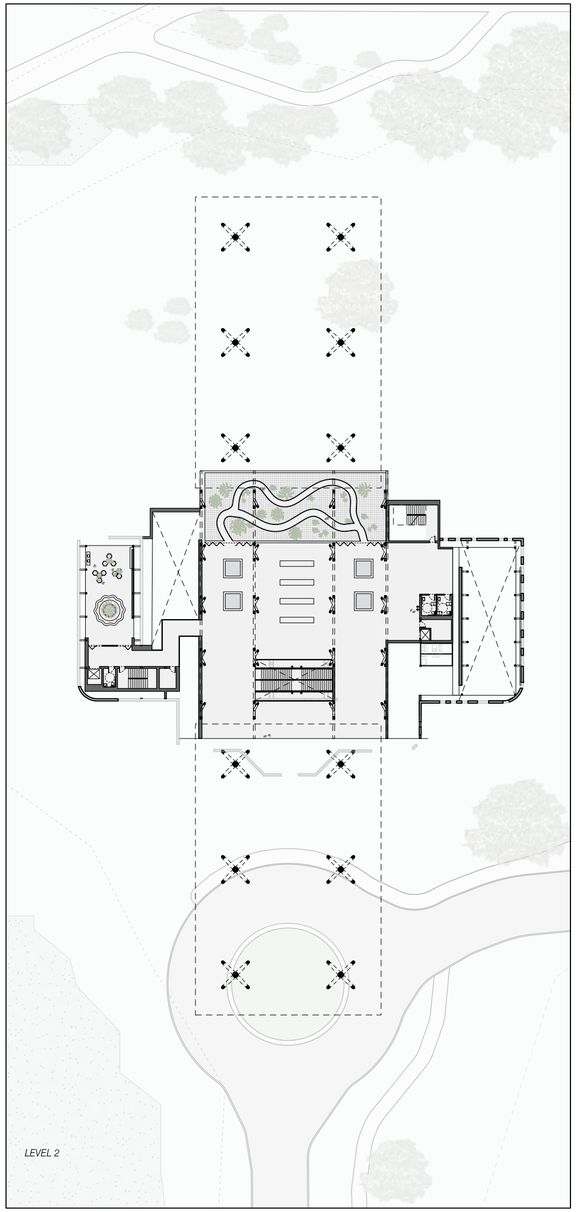
honoring the existing conditions of the site

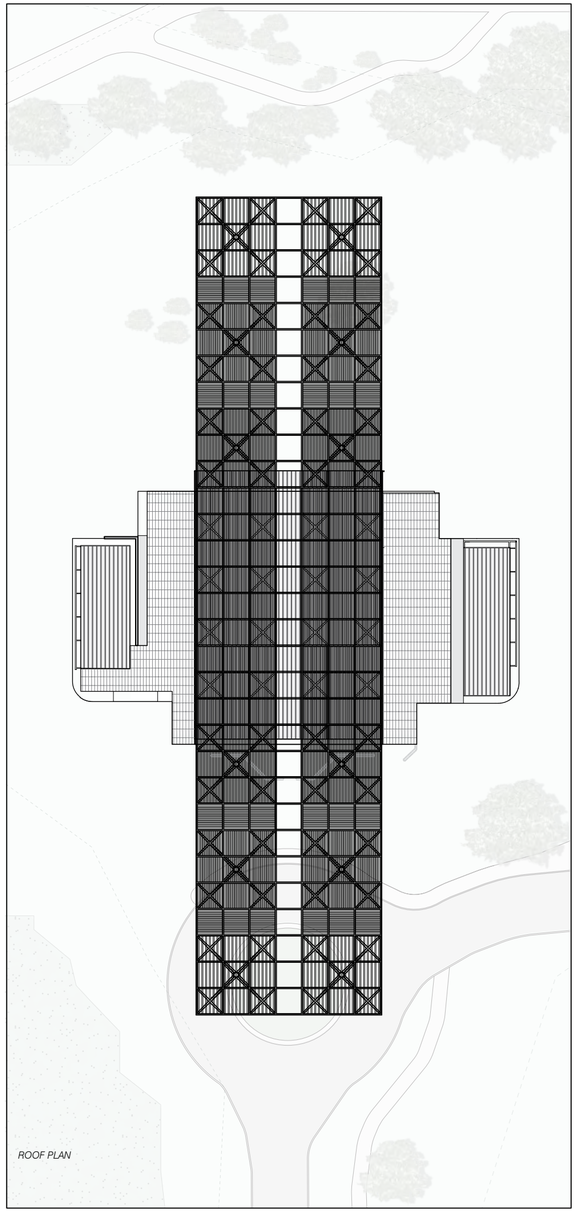
form

The sulphur pools, located centrally in the old bathhouse, established a circumambulatory element that emphasized its importance to the original structure. It was critical that this area was protected and encased, which led to the form of the revitalized Hot Wells. Shelled in a transparent box with an extended roof, the pools are meant to welcome visitors upon their arrival. In contrast, the flanks of the building are a separate structure that is housed inside of the existing walls of the old bathhouse.

plans

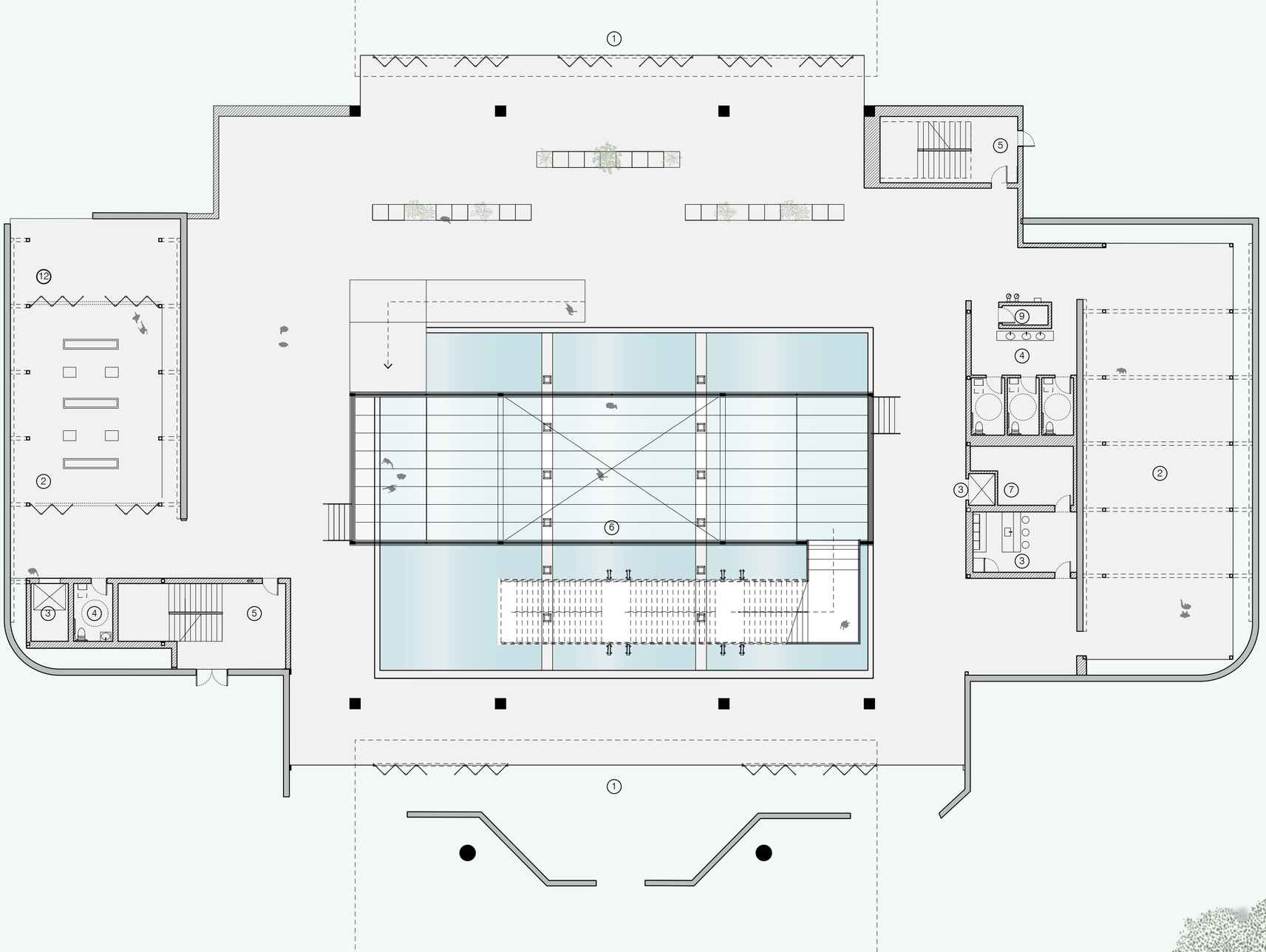

Hot Wells Ruins
S Presa St, San Antonio, TX
7 8 2 1 4
GROUND LEVEL
10' 25' 50'


LEVEL 2


ROOF PLAN

level 1

The first level houses program for the cultural exhibit of the Hot Wells. Metal panels suspended from the ceiling make a canvas for plaques and art instillations, and the wings function as a gallery space for artifcats and exhibits. The pool greets visitors as they enter the space, encouraging users to circulate around the entire floor before traveling up to the second level.



KEY

1 entry
2 exhibit space
3 elevator
4 restroom
5 fire stair
6 pool walk
7 mechanical
8 staff quarters
9 storage
10 classroom
11 greenhouse
12 covered patio


level 1

level 2

The second level houses program for the ecological museum. Upon ascending the suspended stairs, users find themselves among the treetops of both the structure and the surrounding landscape. They may wander around the ecology exhibit, explore the flora of the greenhouse, or gather in the private space provided by the flanking classroom.

KEY

1 entry
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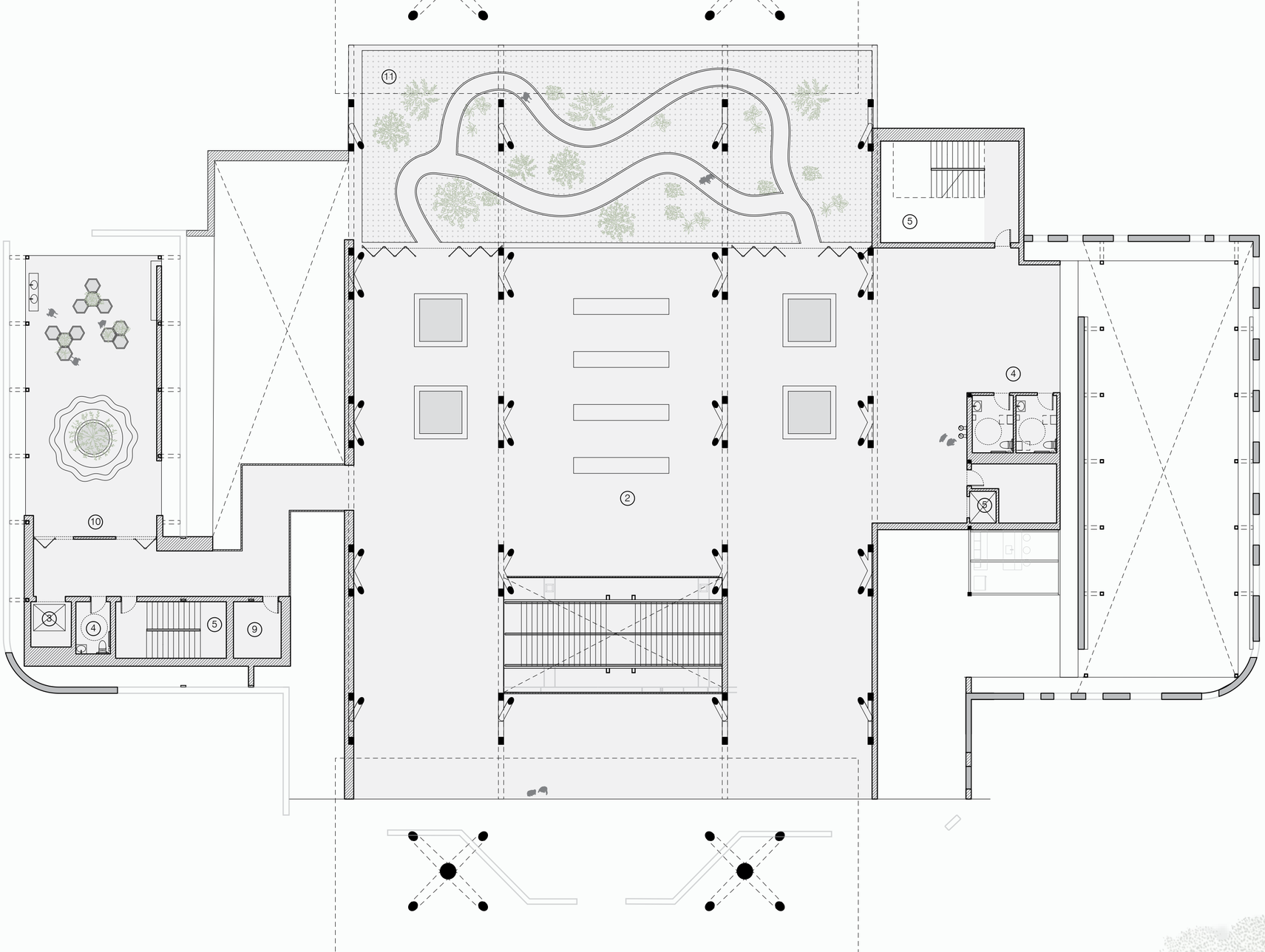
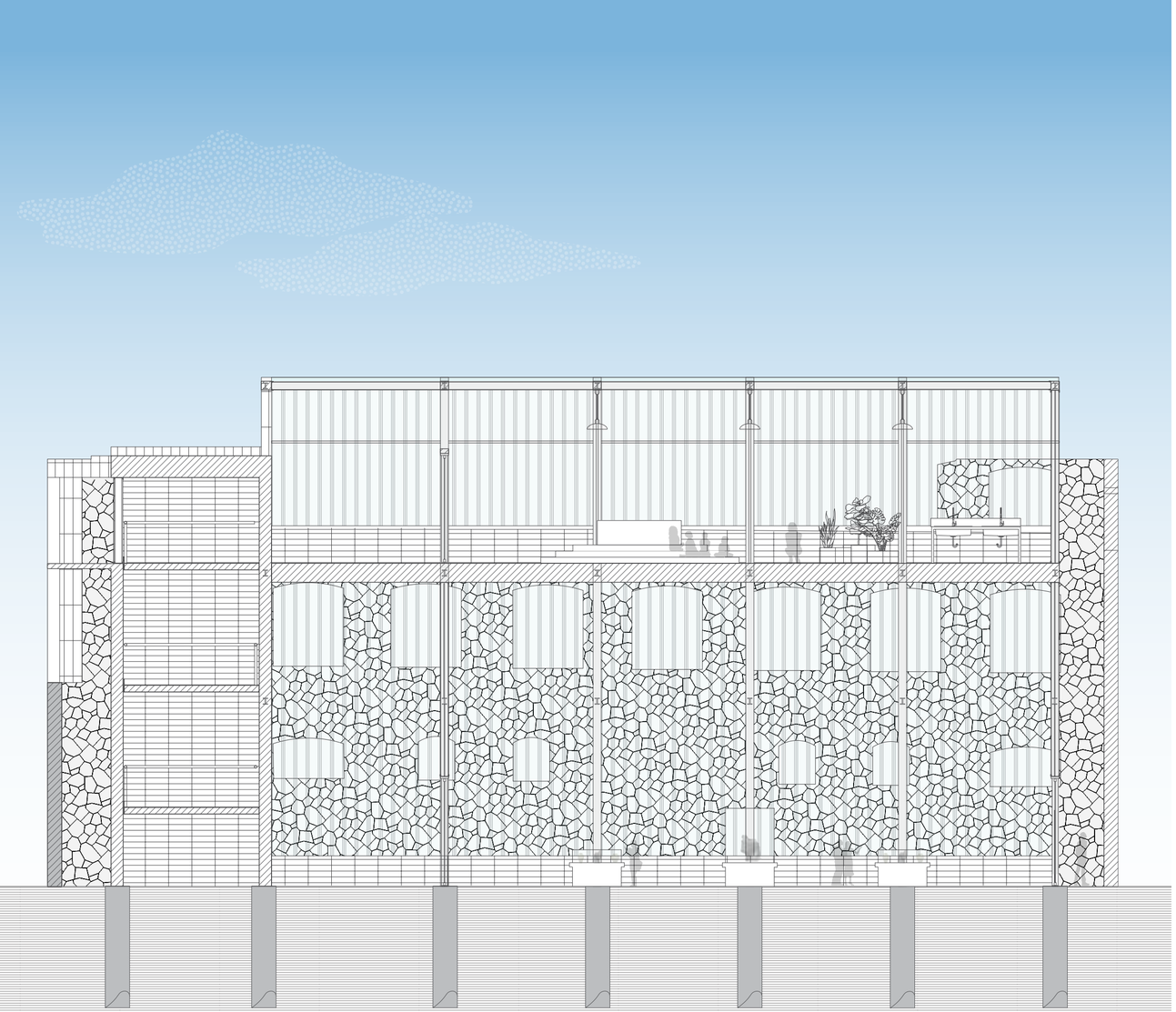
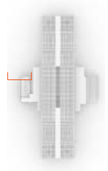




the classroom

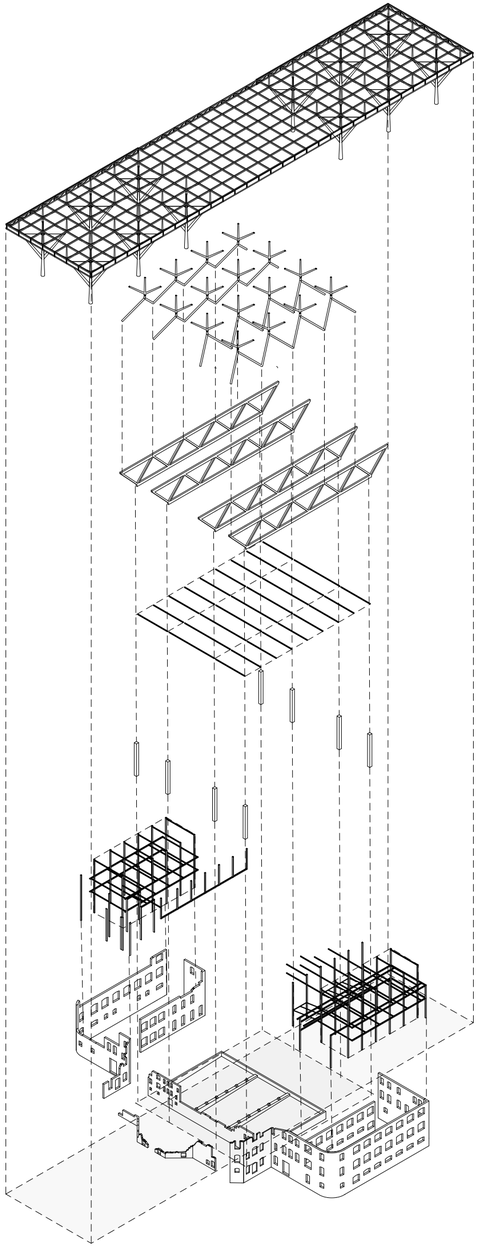
The classroom is located on the second floor of the building, encased in the ruins behind photovoltaic glass. The space provides scenery of the San Antonio River, trails, and landscape of the site. This space is meant as an area for young minds to experiment with nature, for field trips to gather, and for local community classes to share practices in gardening. The room features a large cork sitting mat, hexagonal planters, and storage space to allow a variety of groups to gather and share knowledge.



secondary growth

growth in width or diameter that gives rise to secondary tissues called the secondary plant body

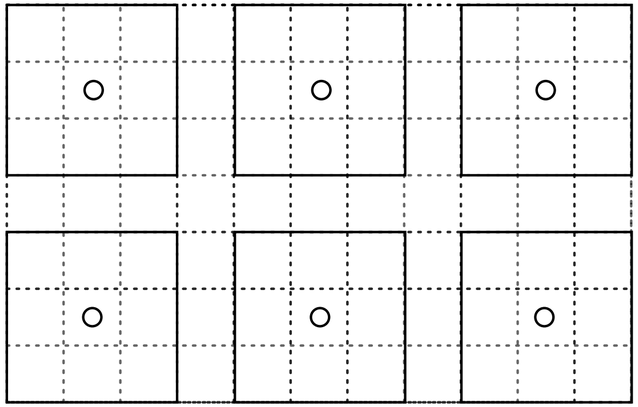
revitalizing the existing while engaging new program

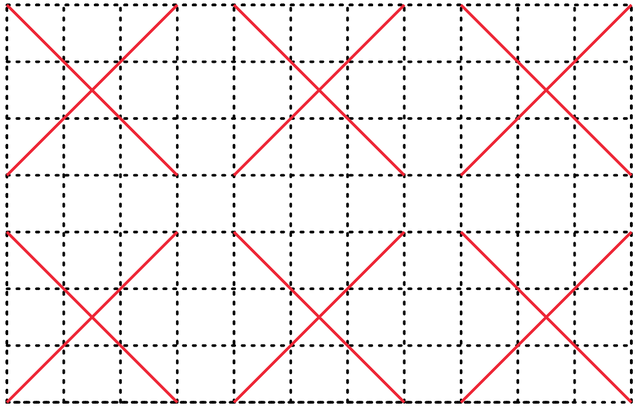


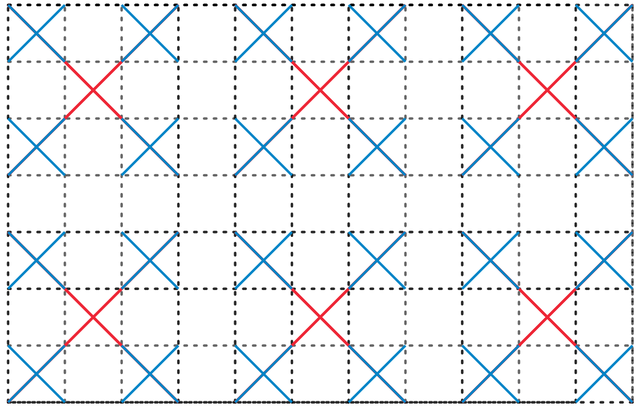
structure

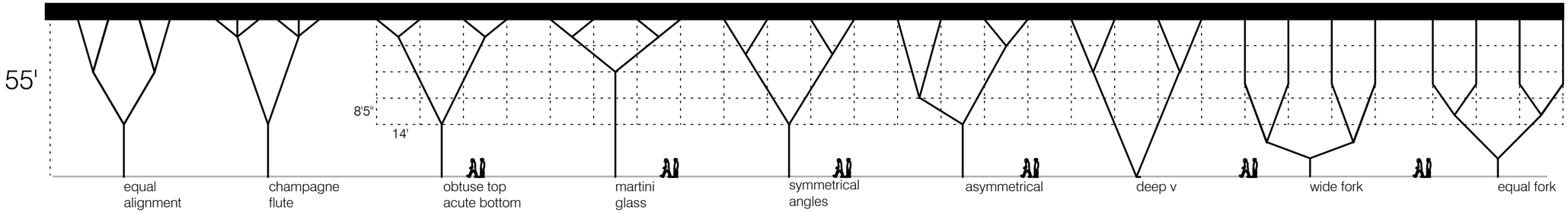
Biomimetic principles were utilized to create a sense of lightness through branching while leaving a minimal footprint where loads were transferred. The “super-roof” extends 150’ beyond both entrances of the building. Tree-like supports stem from four floor-height trusses which suspend over the pools. 12”x12” columns then transfer the load to the foundation, creating a spidering effect which avoids impeding on the existing conditions of the historic building. On either flanking side of the building, 8”x8” HSS columns support the standing walls of the existing ruins while also providing structure for the flanking indoor spaces.

column trees









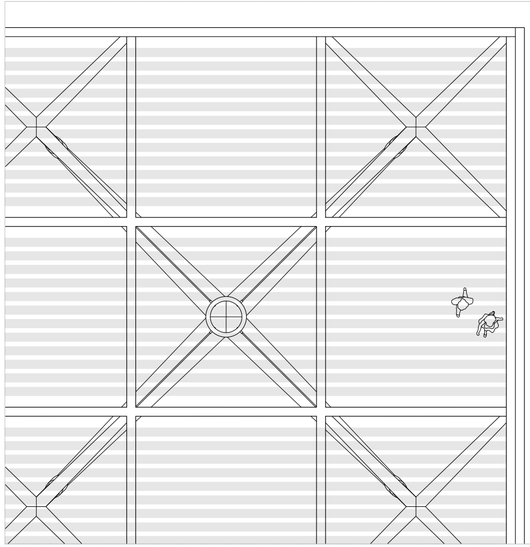
The intention of the column-trees is to provide a maximum amount of structural support with the most minimal footprint possible. The columns branch out in four directions at two different heights, which creates a total of 16 contact points upon reaching the top of the column. As the columns rise in height, the steel structure of the branches taper. The final result looks similar to a structural tree, with a wide base and branching elements that uphold a shaded roof structure.

Using a regular 14'x14' grid ensured an even distribution of support throughout the structure. Each square is supported at each corner, with the presence of a column only occurring every 56'. With this regularity serving as a baseline, the iterative processes of design could begin.

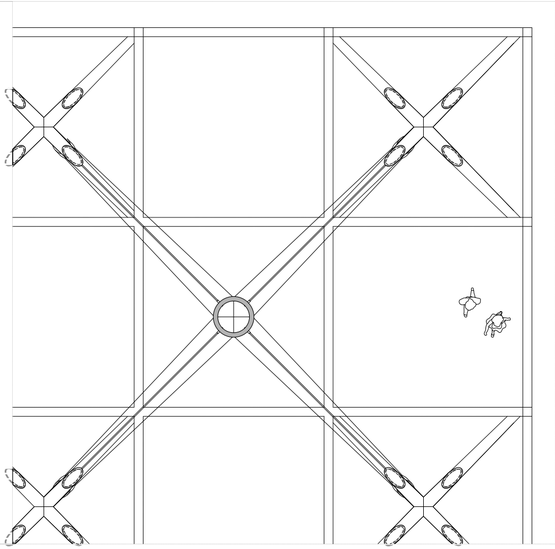
The adjacent diagram demonstrates the design process as an exploration of varieties in the column-trees. Because all of the contact points of the trees were made regular in plan, these iterations are best viewed in elevation. Angle depth and the height of breaks became the variables with which the iterations began to take form. Because the columns reach 55' in height, it became essential to consider the human scale walking beneath the column trees. Too low of a break could become a hazard to pedestrians, but too high a break may understate the effect that the branching system creates. Angles could be regular or irregular, but too narrow or too deep of an angle could result in greater structural challenges. The height of the breaks also affected the overall perception of a tree-like form. If the break occured too far away from the roof, the section would begin to appear more fork-like than tree-like.

After extensive exercises and iterations, it appeared that the 'symmetrical angles' tree was most successful. The angles keep the proportionality of a tree, and branch out at heights that correspond appropriately to human scale. Functioning as the welcome gates to the site, the column-trees establish a distinct architectural language as visitors approach the building.

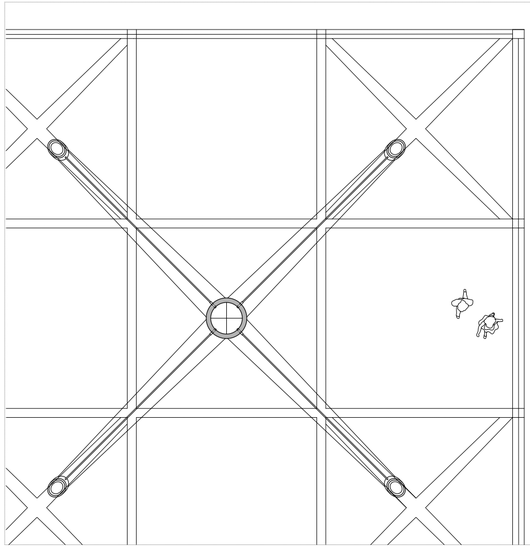
roof plan



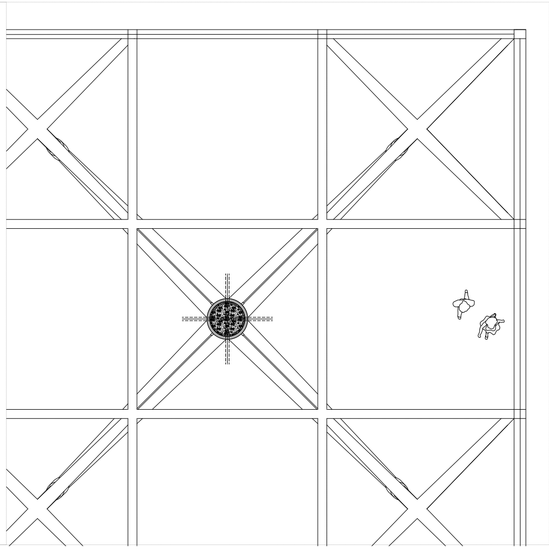
section a

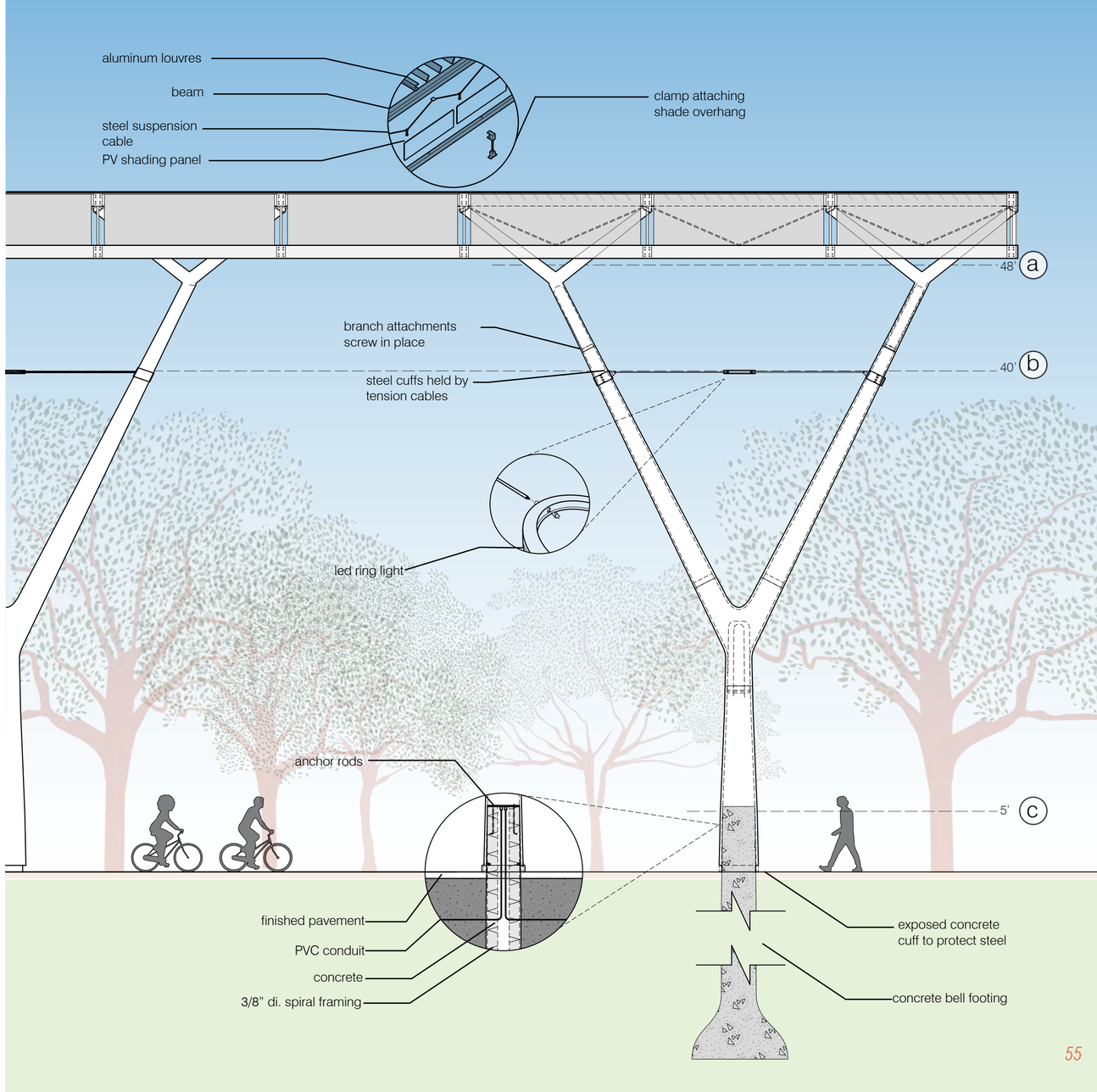


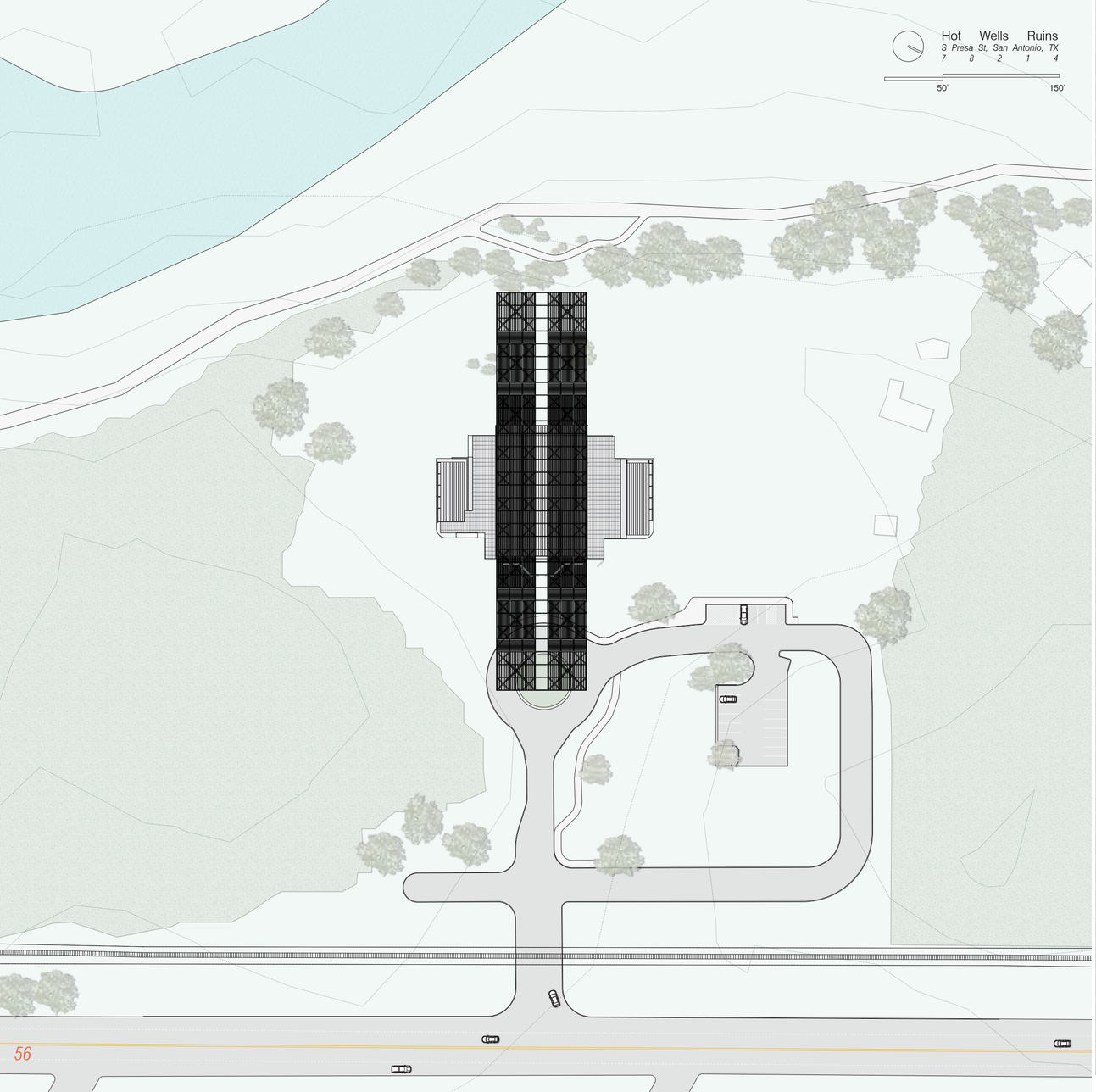
section b

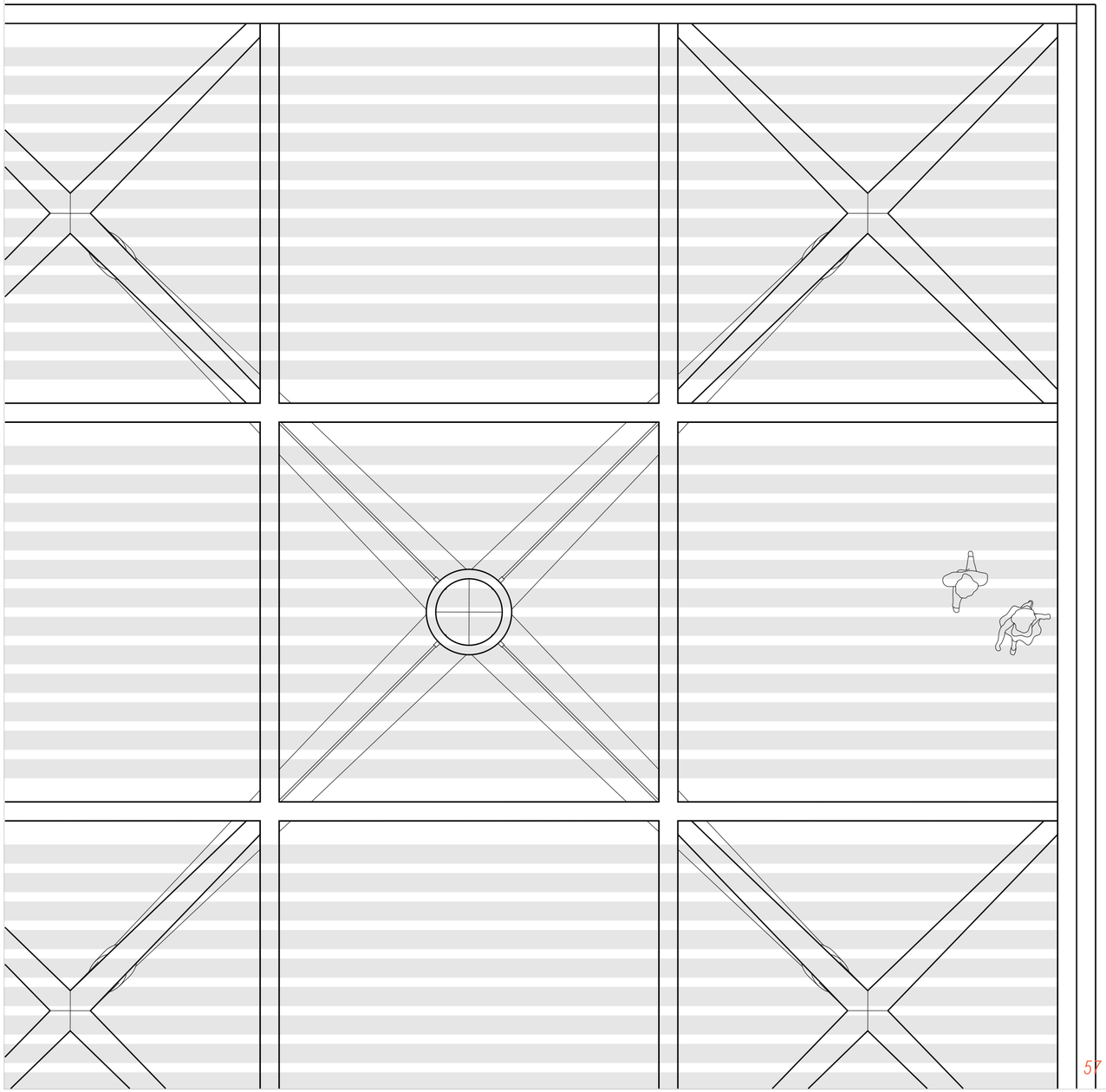


section c

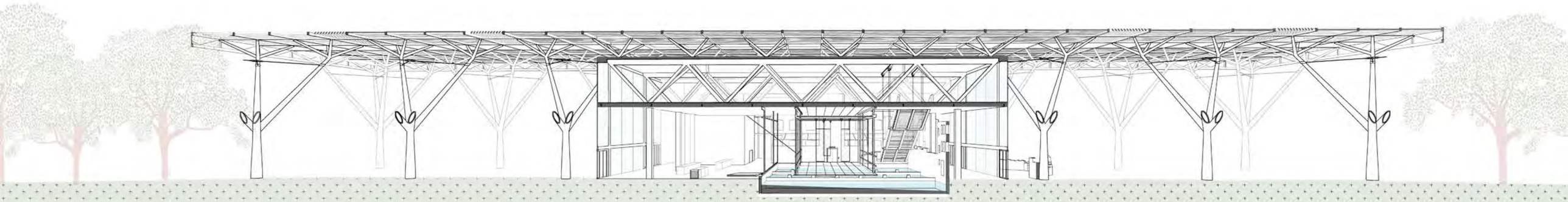





Hot Wells Ruins
S Presa St, San Antonio, TX
7 8 2 1 4
50'
150'

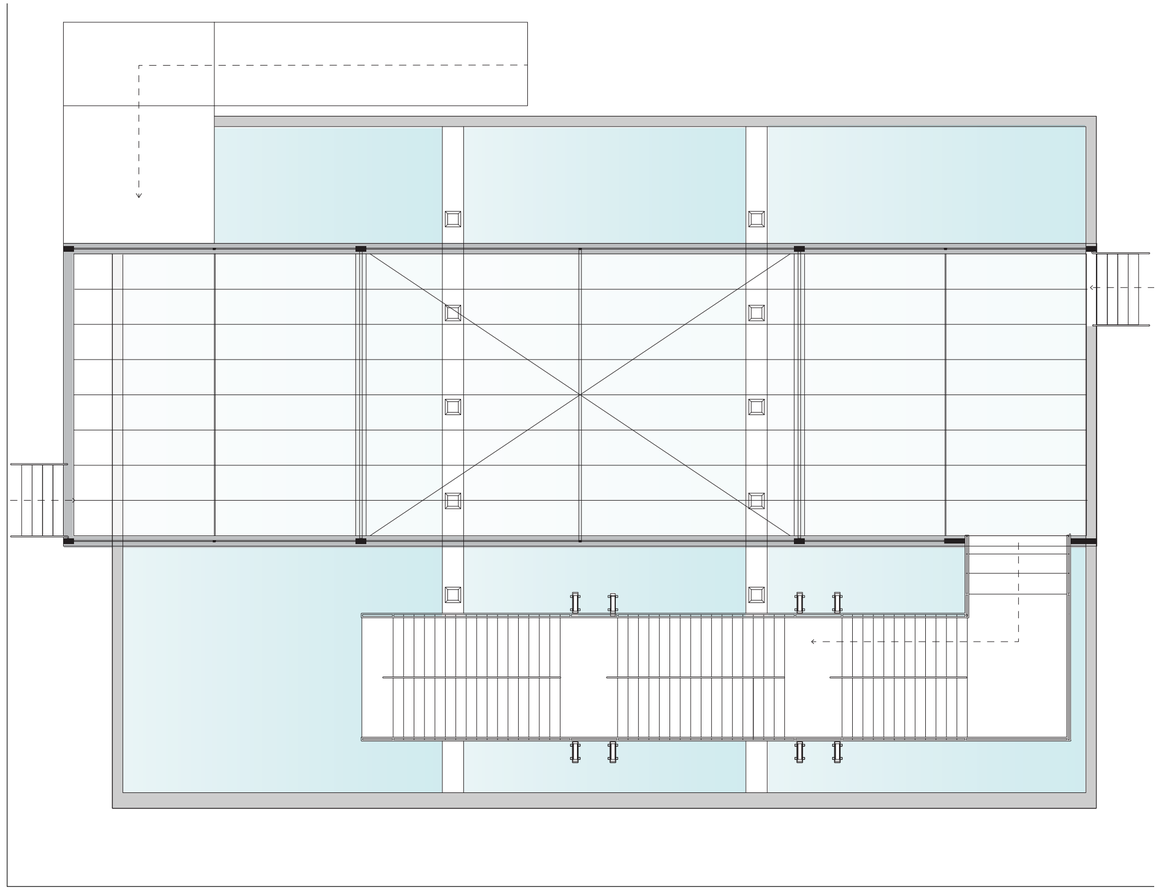


perspective section



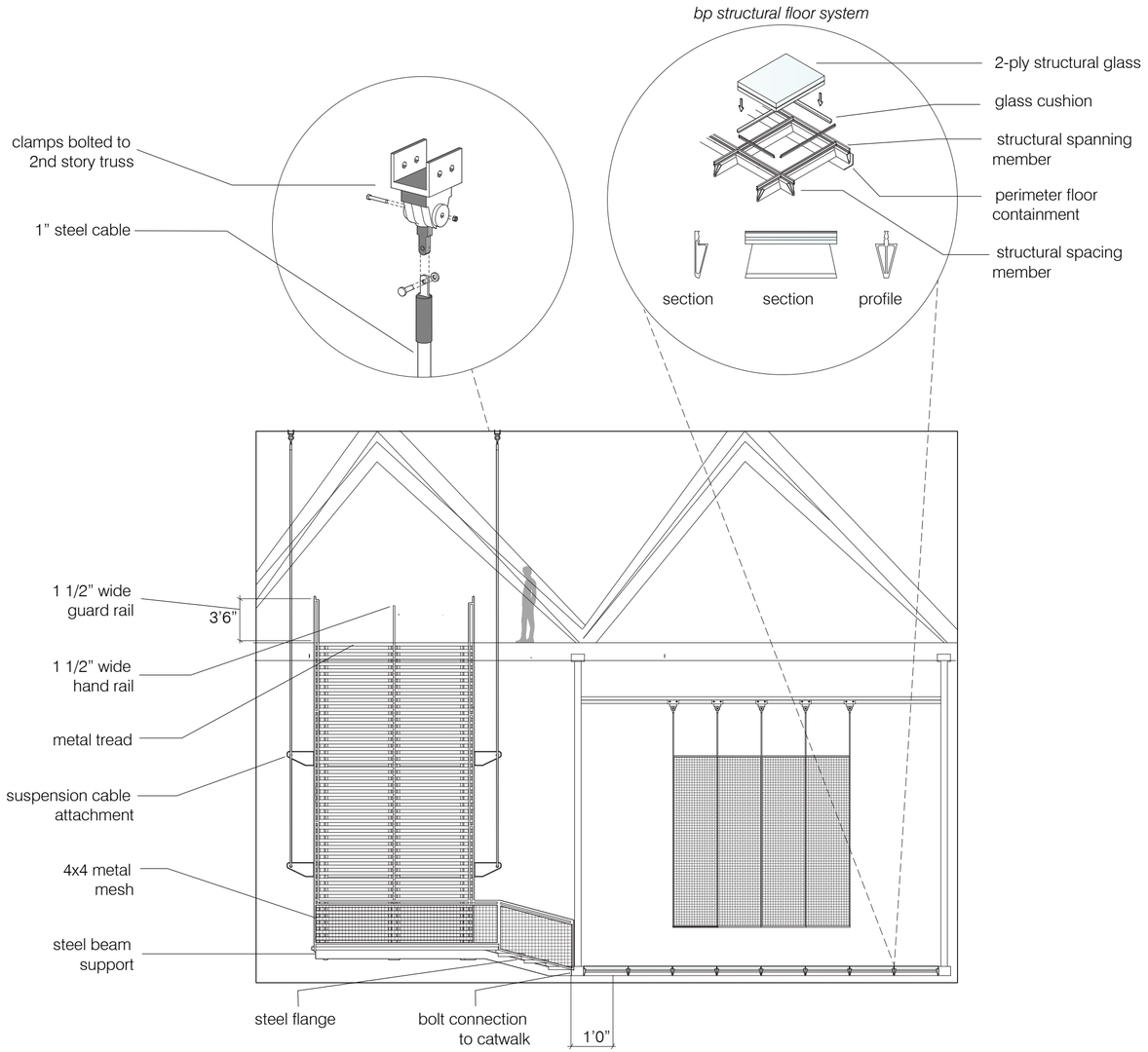
pool walk

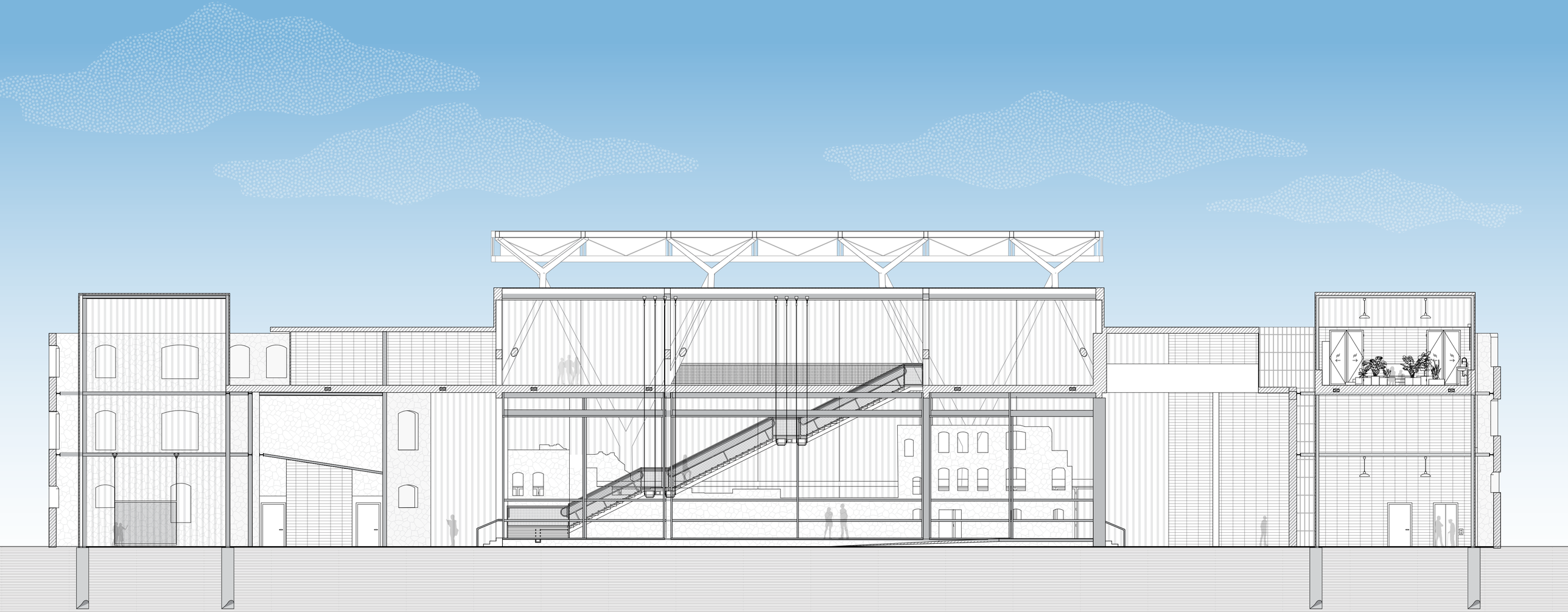
Creating a catwalk across the pools provides visitors with a space to interact with the history of the site as a bathhouse in a non-invasive manner. Although the pools are no longer a site for swimming or healing, they still serve as an important feature of the building's program, Utilized as a rainwater collection source, the pools are able to provide greywater for the greenhouse and surrounding landscape. Additionally, the open-aired first floor is further cooled by the central body of water.

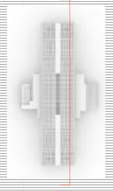


pool walk specs

The catwalk and central stair is suspended from the second story truss system, providing the user with a sense of floating as they cross the pools and travel up to the second floor. Reinforced structural glass provides users with an unobstructed view of the pools beneath.







succession

the process by which the mix of species and habitat in an area changes over time. Gradually, these communities replace one another until a "climax community"—like a mature forest—is reached, or until a disturbance, like a fire, occurs.

The give-and-take relationship between the built environment and nature, in which one inherits the other.

closing statements

Architecture and horticulture are, to me, completely intertwined if you choose to see the world that way. They both surround us, and it is our decision to choose whether to embrace that relationship or not. This project has been an exploration of the intersections between the built environment and the natural world. I wanted to better understand how the two can coexist in a manner that engages the community to think similarly. I've learned that sustainability is building with the end in mind. What will your world look like 100 yeas from today?

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