GOVERNMENT CANYON VISITOR CENTER

Lake|Flato
San Antonio, Texas
Web

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FIRM BRIEF [1]

Established in 1984, Lake|Flato has gained a national reputation for designing architecture that is rooted to its place, responds to the natural environment, and merges with the landscape. A passionate advocate for environmental stewardship through their focus in sustainable design, the firm seeks to create architecture that is tactile, modern, and well-crafted.

The firm began over thirty years ago when founding partners Ted Flato and David Lake met under the tutelage of their mentor O'Neill Ford at the firm of Ford Powell Carson in San Antonio, Texas. Lake and Flato were inspired by Ford's ability to blend Texas regionalism with modernism to create a unique southwestern style of his own. These architectural philosophies are present in Lake|Flato's work, which shows appreciation for the pragmatic solutions of vernacular architecture, the honesty of modernism, and the context of a rich and varied landscape.

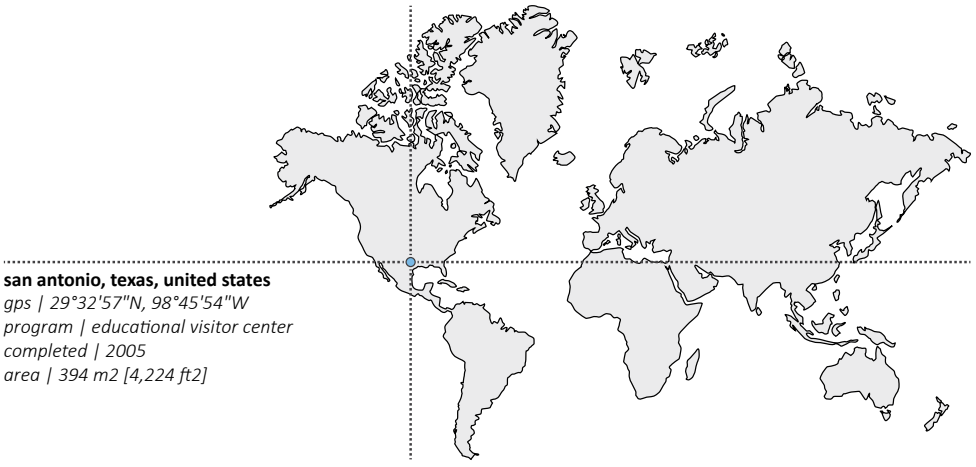
Utilizing contextually authentic sustainable strategies in a wide variety of project types and scales, Lake|Flato produces architecture that conserves energy and natural resources while also fostering healthy environments that enrich communities. The firm has been honored with over 200 design awards, including the American Institute of Architects' Firm of the Year Award in 2004. For their efforts in progressing sustainable design, Lake|Flato has also won eight Committee on the Environment Top Ten Green Project Awards and received the Global Award for Sustainable Architecture in 2013.

PROJECT BRIEF

> *The design for the Government Canyon Visitor Center strives to foster a harmonious relationship between people and the natural environment. The design considers the ecosystem, landform, and climate to create a place that unites humans with the landscape in simple and elegant ways. Creating these experiences that heal and restore the ecosystem while fostering environmental stewardship – this is the basis of the design thinking.[2] Bob Harris, FAIA, Lake|Flato Partner*

The Visitor Center serves as a 'gateway' to the Government Canyon State Natural Area about 40 kilometers [25 miles] northwest of downtown San Antonio, Texas. It is perched at the mouth of a canyon on the Balcones Escarpment, a geological fault zone consisting of many deep canyons. This escarpment defines the eastern boundary of the Edwards Plateau which makes up a large portion of western Texas. The Visitor Center provides a threshold between the suburban neighborhoods of San Antonio and the natural beauty of the Edwards Aquifer, located on the eastern edge of Pla-

Fig 1 | *Location Map*



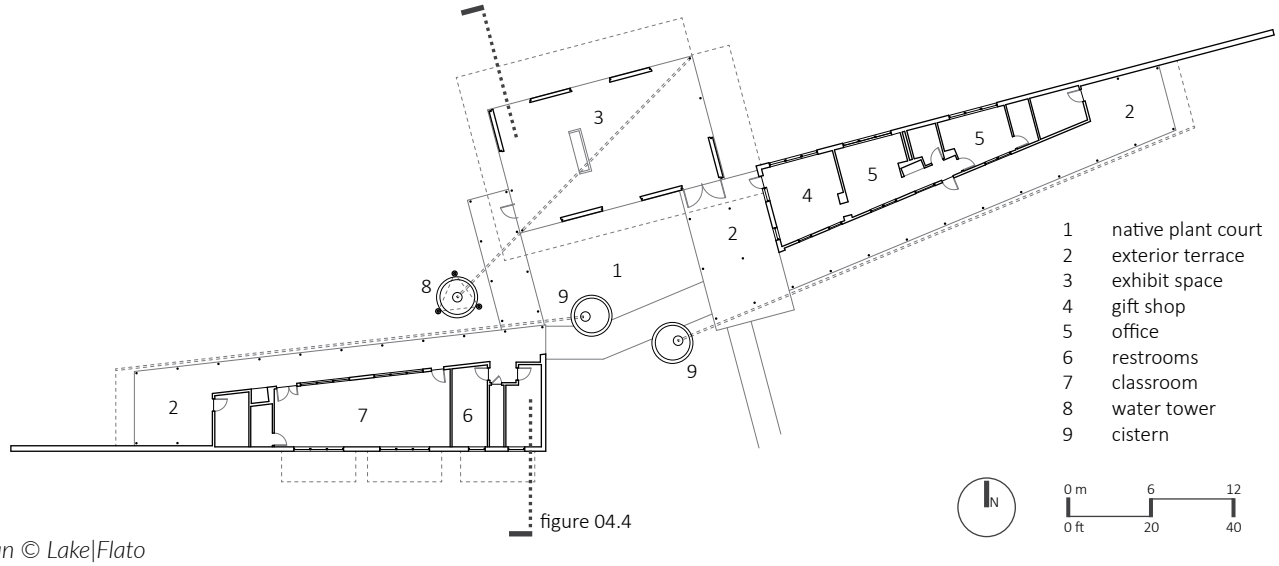


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Fig 2 | *Floor Plan © Lake|Flato*

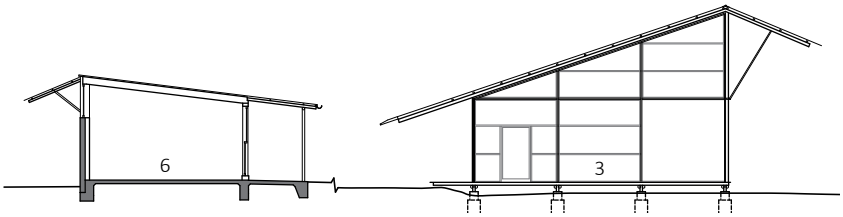


Fig 3 | *Building Section © Lake|Flato*

teau. About 88 percent of the Natural Area overlaps with the Aquifer's recharge zone. This aquifer is the only source of drinking water for the approximately two million inhabitants of south central Texas, playing a vital role in the health of the surrounding communities.

Guests approach the Visitor Center from a parking lot south of the facility. The complex consists of three primary buildings built for use by the Texas Parks and Wildlife Department. One functions as office space for park officials, another as classroom and meeting space for educating the community about water conservation. The third is an open-air exhibition space. The buildings are entered through a central garden on the south, while the Aquifer lies to the north of the project.

Lake|Flato's design intent was to protect and restore the natural landscape of the site while simultaneously designing a low-maintenance, durable, sustainable, and functional public education center. To accomplish this goal, many sustainable strategies were employed; the Visitor Center was meaningfully situated within its landscape and only local materials were used in the construction. These traits exemplify Lake|Flato's work. The success of the Visitor Center led to a Top Ten Green Project award by the American Institute of Architects' Committee on the Environment in 2007.

TECTONIC PRINCIPLES

ANATOMY

The two wing buildings of the Government Canyon Visitor Center sit on concrete slabs raised about 30 centimeters [12 inches] off of natural grade on mounded earth. The surrounding terrain is configured to slope away from the structures to ensure positive drainage on the site. Long limestone walls reach out from the platforms and help define the edges of the buildings as well as the boundary of the Natural Area. They are man-made marks on the earth. Unlike the wing buildings, the central building is set up on pier foundations, creating a disconnect from the ground plane and allowing natural systems to run unimpeded below. A framework of steel pipe forms the primary structure of all three buildings while horizontal wood slats and large screened windows comprise the cladding. Above, the deep overhangs of metal roofs shelter the spaces below. These elements, in true tectonic fashion, all serve to protect and serve the hearth.

Semper believed "the hearth formed that sacred focus around which the whole took order and shape."[3] The Visitor Center has two primary focal points: water conservation and public education. The social center of the facility – the open-

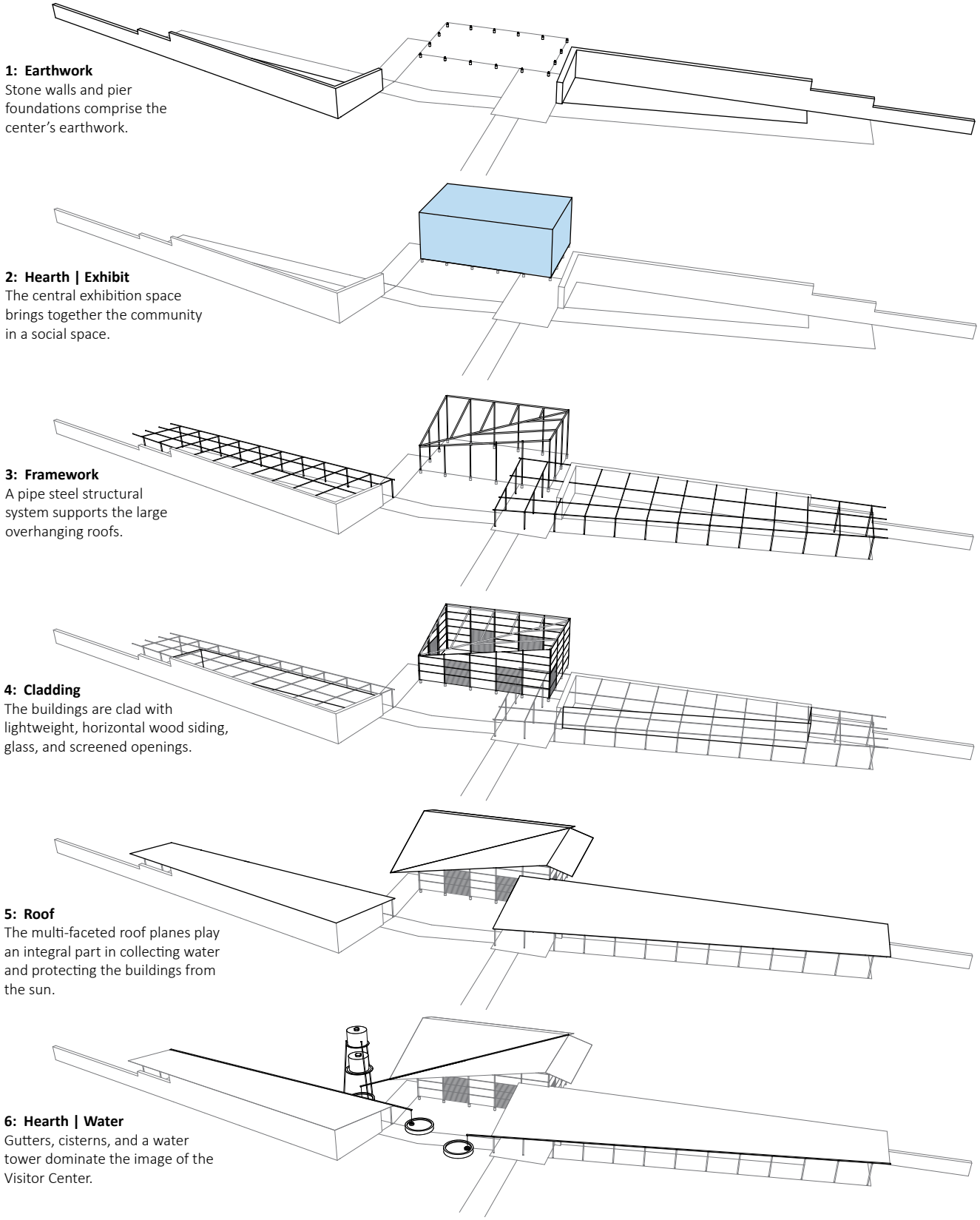


Fig 4 | *Building Anatomy*

air pavilion – supports public education. This exhibit and gathering space embodies the design intent to foster community around the concept of water conservation; it links the community to the natural environment. The structure also connects the two wing buildings, providing a contemplative space between office and classroom from which to enjoy the beauty of the Aquifer beyond. The other embodiment of the hearth is through the cisterns. Three underground units and a water tower hold the precious liquid around which the entire project is developed. These chalices are truly sacred to this place and reflect the protection of the environment that the facility pursues. Whereas Semper's conceptualization of the hearth began with the life giving warmth of the fire, here that essential element is its elemental opposite – water.

STEREOTOMIC

Constructed of limestone quarried within 80.5 kilometers [50 miles] of the site, the long stone walls clearly define the edge of the recharge zone and anchor the project to the earth. Their composition is reminiscent of historic stone fences that can be found around the site.[4] As they stretch towards the buildings from either side, they extrude up from the earth eventually forming full height walls that partially enclose the Visitor Center's wing buildings. The outer ends of the walls disappear into the native vegetation, returning to the earth. A break between the walls provides a conceptual joint or threshold in the middle of the project site leading to the facility and through it to the Aquifer.

The cisterns at Government Canyon hold a combined 67,380 liters [17,800 gallons] of water. Reflective of the natural retention of the Aquifer, they serve as stereotomic anchors to the earth and its systems. As the project is shaped around water, these cisterns also tether the project to that primary goal. Two of the underground cisterns are found in the entry court and are topped with concrete planters that hold native vegetation. Conversely, the water tower dominates the site, looming over the project and serving as a beacon for its message.

Fig 5 | *Government Canyon Visitor Center from the main entry path © Lake|Flato*

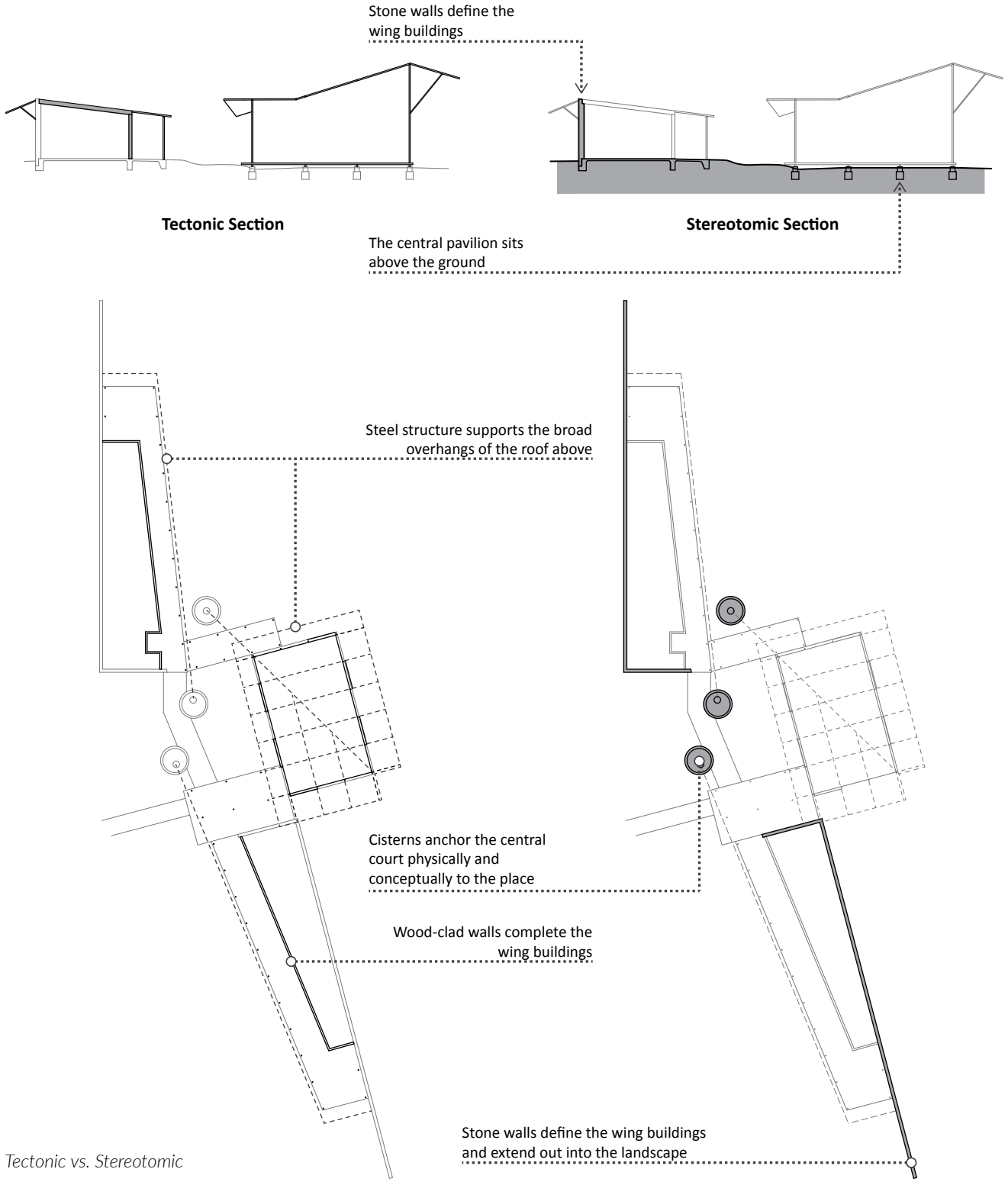


Fig 6 | *Tectonic vs. Stereotomic*

TECTONIC | SPACE

The primary tectonic components of Government Canyon Visitor Center are the lightweight steel structure, the sloped roofs, and the slatted wood walls. The steel frame was repurposed from the region's oil pumping facilities and cattle ranch fence suppliers and reworked with new purpose at Government Canyon. The lightweight walls are clad with eastern red cedar siding that is naturally resistant to decay and was left untreated to patina to a dull silver. The frame and wood clad walls read as thin and delicate in contrast to the heavy stone walls. Whereas the stone elements anchor, the tectonic components enclose and define space. That definition is variable; the transition between indoor and outdoor is gradual due to the use of screens, large ceiling-to-floor double hung windows, and deep porches. This gradual

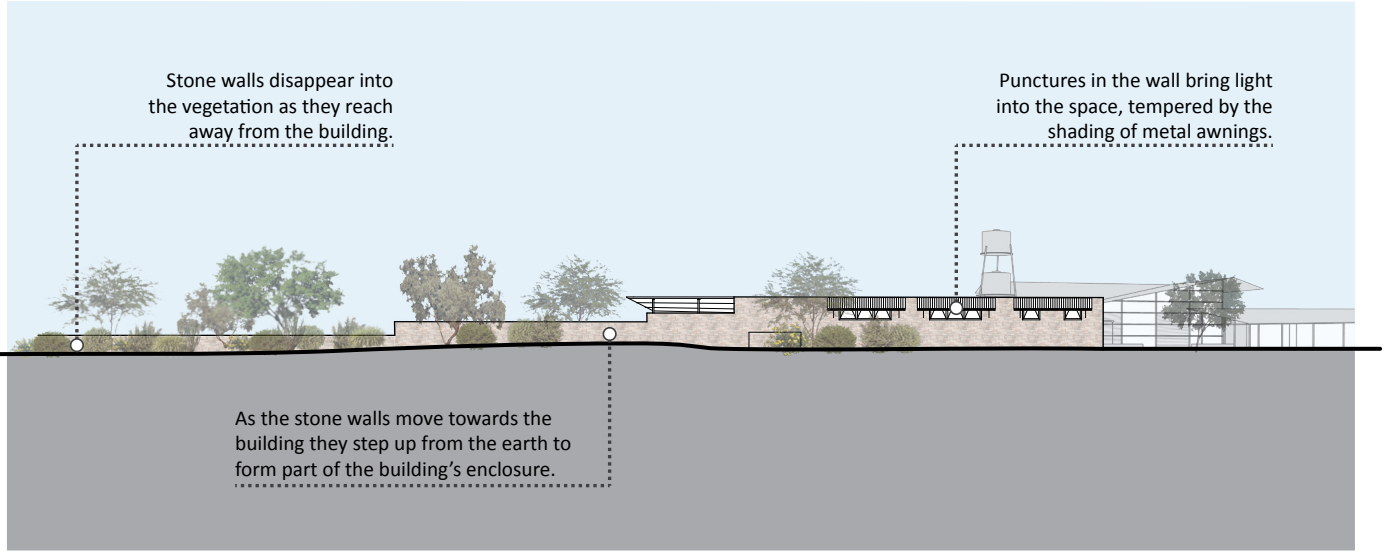
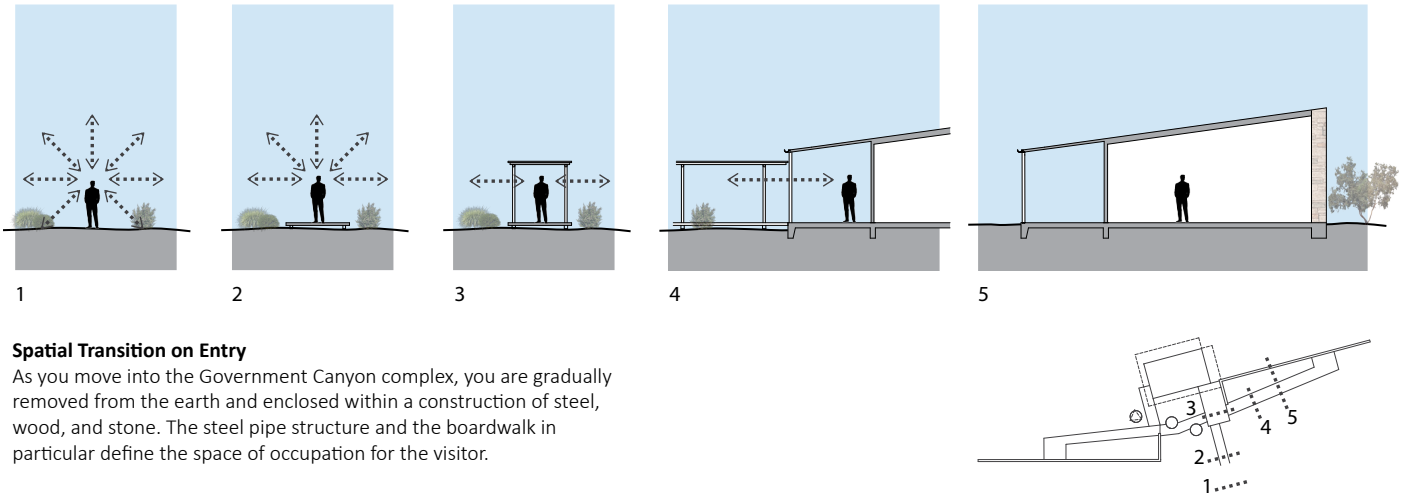


Fig 7 | *Wall elevation analysis*



Spatial Transition on Entry
As you move into the Government Canyon complex, you are gradually removed from the earth and enclosed within a construction of steel, wood, and stone. The steel pipe structure and the boardwalk in particular define the space of occupation for the visitor.

Fig 8 | *Spatial transition*

transition assists in the development of a relationship between natural and man-made space.

The roof planes are covered with corrugated, galvanized metal roofing, which provides a reflective surface to mitigate heat gain while reducing the need for roof decking and substructure. The long sloped roofs – in addition to sheltering the spaces from the elements – have a primary role in the collecting of rainwater. Each roof is asymmetric and guides rainwater to a system of gutters and rain chains that leads to the cisterns. Echoing Porphyrios' statement that "a tool as the product of craft fulfills its purpose only when used,"[5] this project was created as a utensil for collecting water and its goal is to comprehensively fulfill that purpose. Because of its prominence in the design, water can be considered to be primary to the Visitor Center's material palate. The path of water defines the shape of the buildings, while its underlying meaning provides the reasoning for the development of the program. Although it is impossible for water to serve alone in this capacity, it helps define both space and expression for the project.

REPRESENTATION

Water can also be viewed as the ornamentation of the Government Canyon Visitor Center. Bötticher states: "…the principle of…tectonics is identical to the principle of nature as creator: that is, to express the concept of every entity in its form." "The tectonic's active hand forms each member as a part of a corporeal schema. Thus, while creating a spatial entity, the member accommodates not only its own function but also its static interplay with all other members most

completely."[6] At Government Canyon, the components of this assembled structure are interlinked as part of the master plan for ushering water. The central schema of the project unites its members in a tectonic assembly of parts.

Although perhaps not expressing a physical underlying structure, this schema visibly depicts the natural forces at work on the building and the underlying foundation of its conception. Every component of the structure – the roof, the gutters, the chains, the cisterns – expresses the concept of water conservation. The water becomes a "skin" that endows these elements with higher purpose. Here, ornamentation is tasked with conveying an understanding of the conservation of water and creating an abstract reflection of the natural processes at work below in the Aquifer.

Semper states that "[a]rchitecture, like its great teacher, nature, should choose and apply its material according to the laws conditioned by nature, yet should it not also make the form and character of its creations dependent on the ideas embodied in them, and not on the material?"[7] Similar to the ideas of Schelling, Semper believed that the principles of nature, rather than its form, should guide the creation of the built environment. The principles of ecology, environmental systemic relationships, and the laws of gravity create the blueprint for the development of the Visitor Center. These systems clad the buildings with an art-form of water. Even the simplest elements, such as gutters, are exaggerated to highlight the passage of water from the sky to the earth. In a world that must become hyper aware of environmental issues, this small project is clad with the art-form of contemporary times.

PLACE

The design of the Government Canyon Visitor Center is based on vast accumulated knowledge of the unique needs of this place. Much of this information was gathered with the assistance of the Texas Parks and Wildlife Department. This knowledge was then utilized to design a facility that not only showcases the beauty of the landscape, but also centers on and teaches about conservation and the preservation of the Aquifer.

A number of strategies were utilized in the creation of this sustainable center. The spaces are oriented to optimize the solar potential of the building, while the roof overhangs are designed to regulate the solar impact on the interior spaces. The central pavilion can be manipulated, through the use of rolling doors and screens, to block winds when cool or to allow them through for natural ventilation when it is warm. Sustainable materials with recycled content like fly ash concrete and steel with 75% recycled content were used throughout the project. Lake|Flato also reduced the conditioned program space initially proposed by 35% to further lower energy costs.

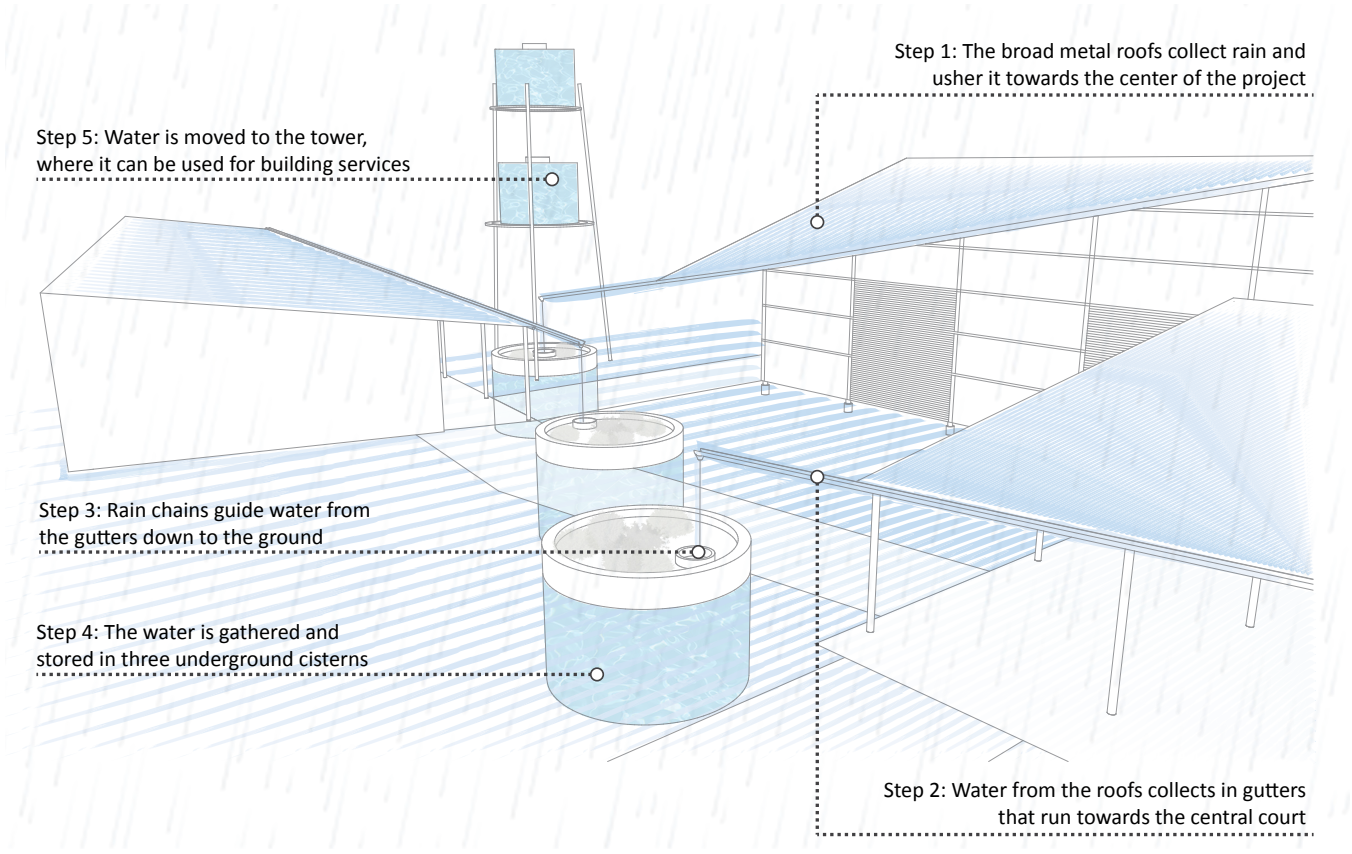


Fig 9 | *The path of water*

The central pavilion floats about 46 centimeters [18 inches] above the ground, allowing water and cooling breezes to move unobstructed beneath the structure. To reach this elevation, a boardwalk extends from the parking lot – where it is at grade – and slowly rises to the height of the pavilion. This design minimizes the impact of the man-made structures on the movement of water through the site, but also accounts for periodic flooding in the region during heavy rains. This design exemplifies the coordination of building construction for site and project specific reasons. The structure, construction, and art-forms of the project use the theme of conservation to tie the project to its place in the Texas savanna.

ADDITIONAL RESOURCES

PROJECTS

Agudas Achim Synagogue, Austin, Texas, United States, 2001 (30°21'34"N, 97°45'29"W)

Shangri La Nature Center, Orange, Texas, United States, 2008 (30°6'6"N, 93°45'3"W)

Brown Residence, Scottsdale, Arizona, United States, 2010

ASU Health Services Building, Tempe, Arizona, United States, 2012 (33°25'17"N, 111°55'59"W)

Briscoe Western Art Museum, San Antonio, Texas, United States, 2013 (29°25'23"N, 98°29'21"W)

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NOTES

1 The firm brief was provided by Lake|Flato.

2 This quote by Lake|Flato partner Bob Harris was provided by the firm.

3 Gottfried Semper, "The Four Elements of Architecture: A Contribution to the Comparative Study of Architecture," in The Four Elements and Other Writings, ed. Harry Francis Mallgrave and Wolfgang Herrmann (New York: Cambridge University Press, 2010), 102. Originally Published in 1851.

4 "Top Ten Projects: Government Canyon Visitor Center," The American Institute of Architects, http://www.aiatopten.org/node/143.

5 Demetri Porphyrios, "From Techne to Tectonics," in What Is Architecture?, ed. Andrew Ballantyne (New York: Routledge, 2002), 132.

6 Karl Bötticher, "Excerpts from Die Tektonik Der Hellenen," in Otto Wagner, Adolf Loos, and the Road to Modern Architecture, ed. Werner Oechslin (New York: Cambridge University Press, 2002), 188. Originally published as Botticher, Carl Gottlieb Wilhelm. Die Tektonik Der Hellenen (Potsdam, 1844).¬

7 Semper, "The Four Elements of Architecture," 102.