

BORDERWALL AS ARCHITECTURE

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"But when one draws a boundary it may be for various kinds of reasons. If I surround an area with a fence or a line or otherwise, the purpose may be to prevent someone from getting in or out; but may also be part of a game and the players be supposed, say, to jump over the boundary; or it may show where the property of one man ends and that of another begins; and so on. So if I draw a boundary line that is not yet to say what I am drawing it for."—Wittgenstein

By some measures, the U.S. Secure Fence Act of 2006 funded the single largest and most expensive building project in the United States of the 21st Century. It finances approximately 800 miles of fortification dividing the U.S. from Mexico that can cost up to \$16 million dollars per mile. Known as the Mexico - United States Barrier, the Great Wall of Mexico, Border Fence and Border Wall, the construction of this wall has transformed the large cities, small towns, and the multitude of cultural and ecological biomes along its path. It is a utopian scenario, engineered for a conceptual tabula rasa defined by Department of Homeland Security Secretary Michael Chertoff who was given unprecedented powers by President George Bush to waive any and all laws in order to expedite the wall's construction. Ignoring the rich and diverse contexts found along the border not only raises critical questions of ecology, politics, economics, archaeology, urbanism and eminent domain (to name a few), it also radically redefines and transforms the territories of the frontera.

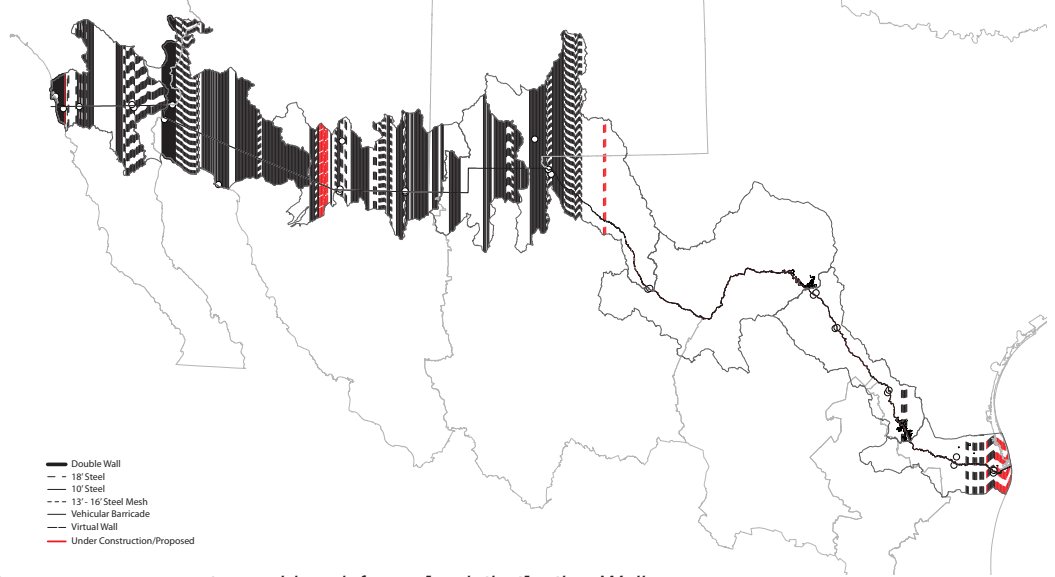
In many locations the wall is fabricated of steel, wire mesh, concrete, even re-purposed Vietnam-era Air Force landing strips. Elsewhere, it makes use of high-tech surveillance systems—

aerostat blimps, subterranean probes and heat sensors. In all cases, the concept of "national security" governs and militates construction and design of the wall, and the success of the wall has been measured in the numbers of intercepted illegal crossings. Border Wall as Architecture suggests that the wall, at such prices, should and could be thought of not only as security, but also as productive infrastructure—as the very backbone of a borderland economy. Indeed, coupling the wall with viable infrastructure—and this proposal focuses on water, renewable energy, and urban social infrastructure—is a pathway to security and safety in border communities and the nations beyond them. Border Wall as Architecture is a proposition for a wide array of retrofits and new schemes for the U.S./ Mexico border wall that builds on existing conditions and seeks to ameliorate current problems created by the physical divider.

Over 700 miles of barriers have been constructed since 2006, at the cost of \$3.4 billion. Additionally, the new wall has been breached over 3000 times, incurring \$4.4 million in repairs. The construction and maintenance costs are estimated to exceed \$49 billion over the next twenty-five years—and there are several hundred more miles of wall construction recently proposed.



BORDERWALL AS ARCHITECTURE



Recent statistics do show a 50 percent drop over the past two years in the number of people caught illegally entering the United States from Mexico. However, human rights groups put the number of deaths during attempted crossings at its highest since 2006 and almost 6,000 deaths have occurred since 1994. It might also be noted that 30 laws were waived or suspended for the construction of the wall, including important environmental, wildlife and Native American heritage protections.

For the most part, architects and designers have stayed away from the border security issue. Ricardo Scofidio of Diller Scofidio + Renfro in New York said about architect's involvement in a border fence project: "It's a silly thing to design, a conundrum. You might as well leave it to security and engineers." Architect Rem Koolhaas had great interest in the related topic of the Berlin Wall and said of his studies of the wall:

"I had hardly imagined how West Berlin was actually imprisoned by the Wall. I had never really thought about that condition, and the paradox that even though it was surrounded by a wall, West Berlin was called 'free', and that the much larger area beyond the Wall

was not considered free...[and that]...the Wall was not really a single object but a system that consisted partly of things that were destroyed on the site of the Wall, sections of buildings that were still standing and absorbed or incorporated into the Wall, and additional walls some really massive and modern, others more ephemeral all together contributing to an enormous zone. That was one of the most exciting things: it was one wall that always assumed a different condition."

There is a similar exciting potential occurring on both sides of the U.S./Mexico wall, but at a much larger scale. In many places, the border wall is constructed as much as two miles away from the actual territorial border. Currently, the land surrounding the border security infrastructure has lost its productive value. Removed from the market economy, it is essentially fallow. There are approximately 40,000 acres of U.S. land that already do—or are planned to—lie on the Mexican side of the border wall—an area equal to twice the size of Manhattan. It contains rivers, farms, homes, public lands, cultural sites, wildlife reserves and even a university. This land has been isolated from U.S. public access and economically neutralized. To counter this, the



Floating Fence: Calexico, CA



Crosses placed by family members of those who died while attempting to cross.



Near Arizona's San Pedro Riparian National Conservation Area

BORDERWALL AS ARCHITECTURE

security infrastructure must be put to work through contextual engagement and investment. Border Wall as Architecture seeks to create a productive border through site specific but also modular solutions, retrofits and new schemes focused on the following areas: Water infrastructure, Renewable Energy, Social Infrastructure. This proposal will also highlight some of the potential benefits these productive improvements can engender.

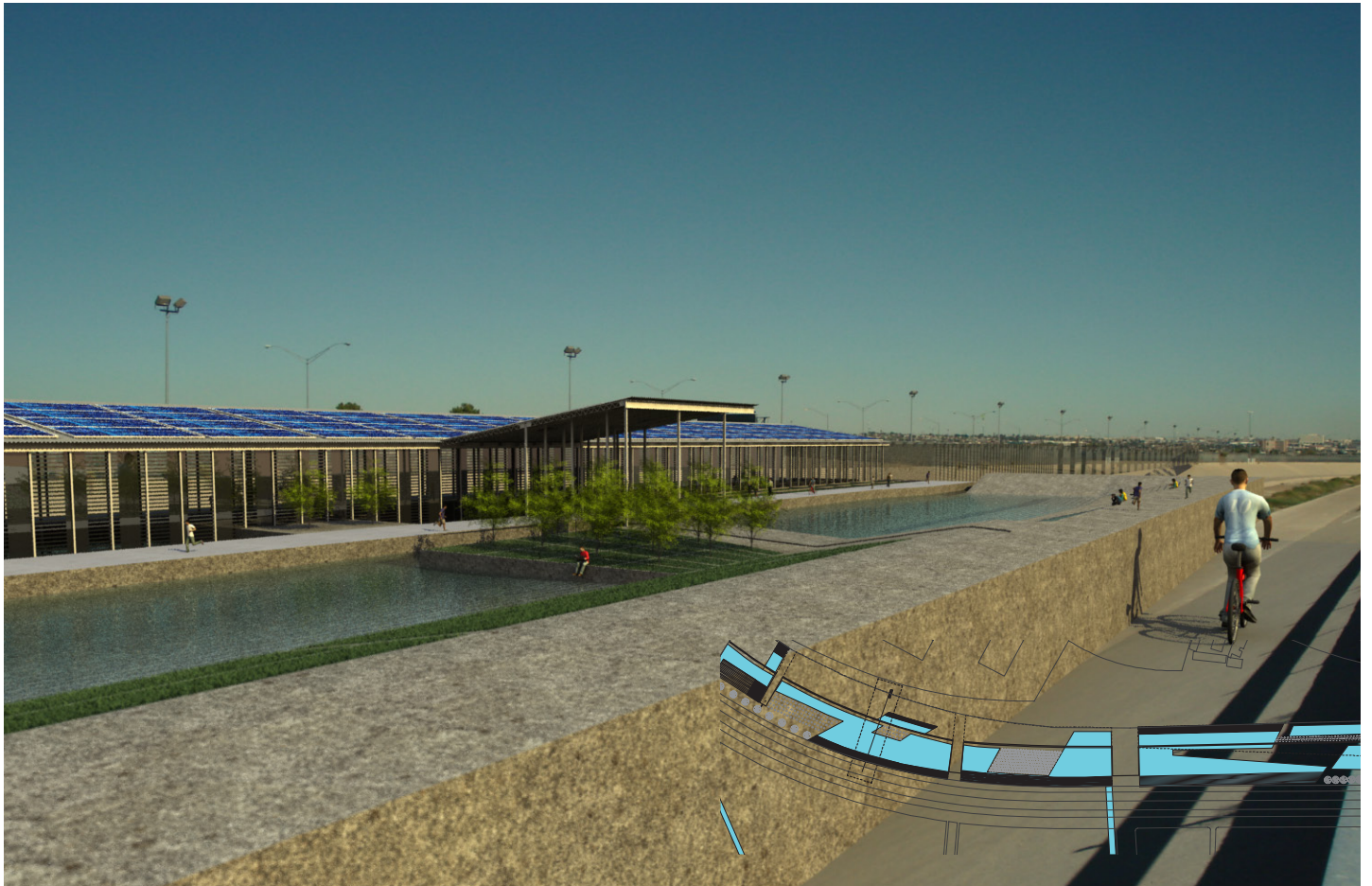
The border wall has already proven to be an effective, if accidental water collection system. Water from desert rains typically drain across the border – yet in areas such as the port of entry at Sonoyta, Mexico and Organ Pipe Cactus National Monument and in the Ambos Nogales (Arizona and Sonoma) the fence acts as a dam. It not only attempts to block northern flows of immigrants, but diverts water flows on both sides of the border into nearby cities. If water collection were considered pro-actively along the border, it could be realized on a much larger scale with massive consequences for communities. For example, the city of El Paso levies storm water fees on all residents and businesses based on the amount of impervious surface that is located on a given property. This is then used to pay for a proposed system of storm water catchments to ameliorate the consequences of flooding in the rapidly growing desert city.

El Paso plans to raise \$650 million for the entire project,

which will distribute storm water catchments throughout the city. Dividing El Paso from Juarez is the large concrete basin defining the location where the Rio Grande/Rio Bravo River once flowed. By locating the catchments along the river, a linear park and riparian ecology could once again flow through the two cities. Locating additional rainwater collection shed roofs along the existing wall can increase the amount of water collected, and also create cool, well shaded places where performances, markets and events could take place. If this resource is then water-banked, it could lead to the eventual re-opening of the river to the city.

Creating a linear water park has important security implications as well. The purpose of wall construction is not to stop the flow of immigrants from the south, but to slow it down. According to the Department of Homeland Security, the wall gives border patrol agents only a few minutes more time to apprehend an illegal crossing. The department also sees rivers as natural obstacles that also offer 5 minutes of added time to border patrol's advantage. A linear water park along the wall that meanders on both sides can create a doubly-secure linear tactical, social, ecological and hydrological infrastructure. Allowing the River to once again flow, triples that security measure.

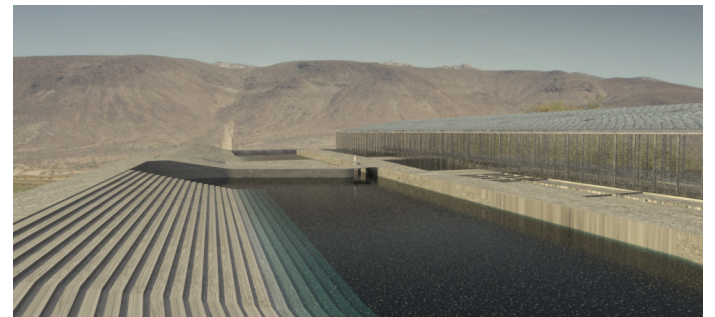
The New River is considered the most polluted river in the United States. It flows north from Mexicali, Mexico, and crosses the border at Calexico, California. New River toxicity



Water Catchment Wall: El Paso, TX



Flooding: Nogales, AZ



Water Catchment Wall: El Paso, TX

BORDERWALL AS ARCHITECTURE

is comprised of chemical runoff from farm industry, sewage, contaminants—such as volatile organic compounds, heavy metals, pesticides—pathogens like tuberculosis, hepatitis, and cholera—as well as fecal coliform bacteria, which at the border checkpoint far exceed U.S.-Mexico treaty limits. The New River then flows through the Imperial Valley, which is a major source of winter fruits and vegetables, cotton, and grain for both U.S. and international markets. While the Secure Fence Act of 2006 was enacted, according to President Bush, to “help protect the American people” from illegal immigration, drug smuggling and terrorism, the new river represents a far more dangerous flow north from Mexico in need of containment.

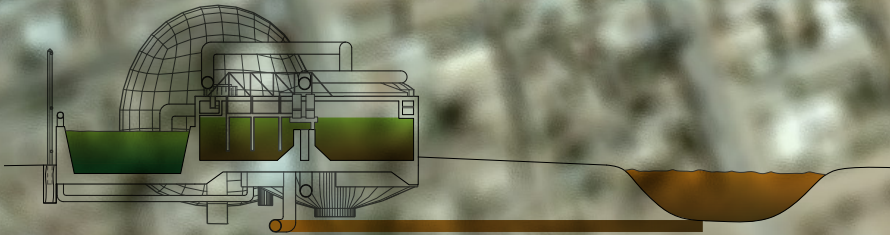
A wastewater treatment wall located in the 2-mile long wasteland that buffers the dense border city of Mexicali from the agricultural Eden of the Imperial Valley would offer a solution to the “illegal entry” of toxins to the U.S. The pollution problem is expected to worsen as Mexicali’s population—already at 1.3 million—continues to expand without adequate infrastructure. For \$33 million, the same cost as the wall that divides Calexico and Mexicali, a treatment facility with the capacity to handle 20 million gallons/day of effluent from The New River could be constructed. This proposed facility would be comprised of a linear pond filtration and purification system creating a secure and invaluable border.

The positive by-product of the wastewater treatment facility

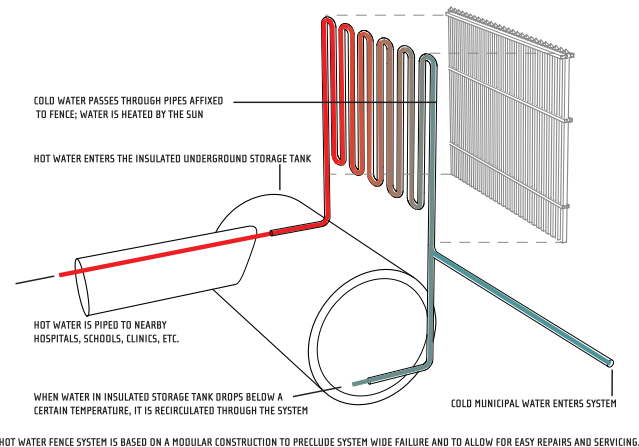
includes methane and water. Methane could be used to generate electricity and light streets. The water could be used to irrigate parks. In fact, the combination of methane and water could fuel the needs for a linear urban park connecting the entire city through a series of lighted, green corridors, creating a healthy social infrastructure between these growing border cities.

The most untapped potential for solar development in the United States lies along the U.S./Mexico border. Solar farms, in turn, are highly secure installations. What if funds to construct and maintain the border wall were to be re-allocated for the construction of energy infrastructure along the border? This would actually create scenarios in many instances that are more secure than the existing wall, and that simultaneously provide solar energy to the energy hungry cities of the southwest.

Consider the 100-mile stretch of border between Nogales, Arizona and Douglas Arizona where 87 miles of border wall have been constructed at a cost of \$333.5 million. Compare that figure to the cost of the largest solar farm in the world, the Olmedilla Photovoltaic Park in Olmedilla, Spain, which cost \$530 million. For \$333.5 million, 54 miles of profit generating solar farm could have been constructed, 40 feet wide providing 60 Mega Watts of electricity. That is enough for 40,000 households. Electricity is an important bi-national commodity and many border towns share electrical grids where electricity could be sold across the border. Because transmission lines would also be put in place



BORDERWALL AS ARCHITECTURE



along the border, reliable electrical infrastructure would be available for both nations to tap. This has important implications when it is understood that, according to the U.S. Department of Energy, “one square foot of solar energy production along the border can power a dishwasher for 1 year”. Solar energy has important economic implications as it relates to jobs as well. In Germany, a country that is a leader in the new energy economy, the 5.3 Gigawatts of solar farms they have built have generated 10,000 jobs.

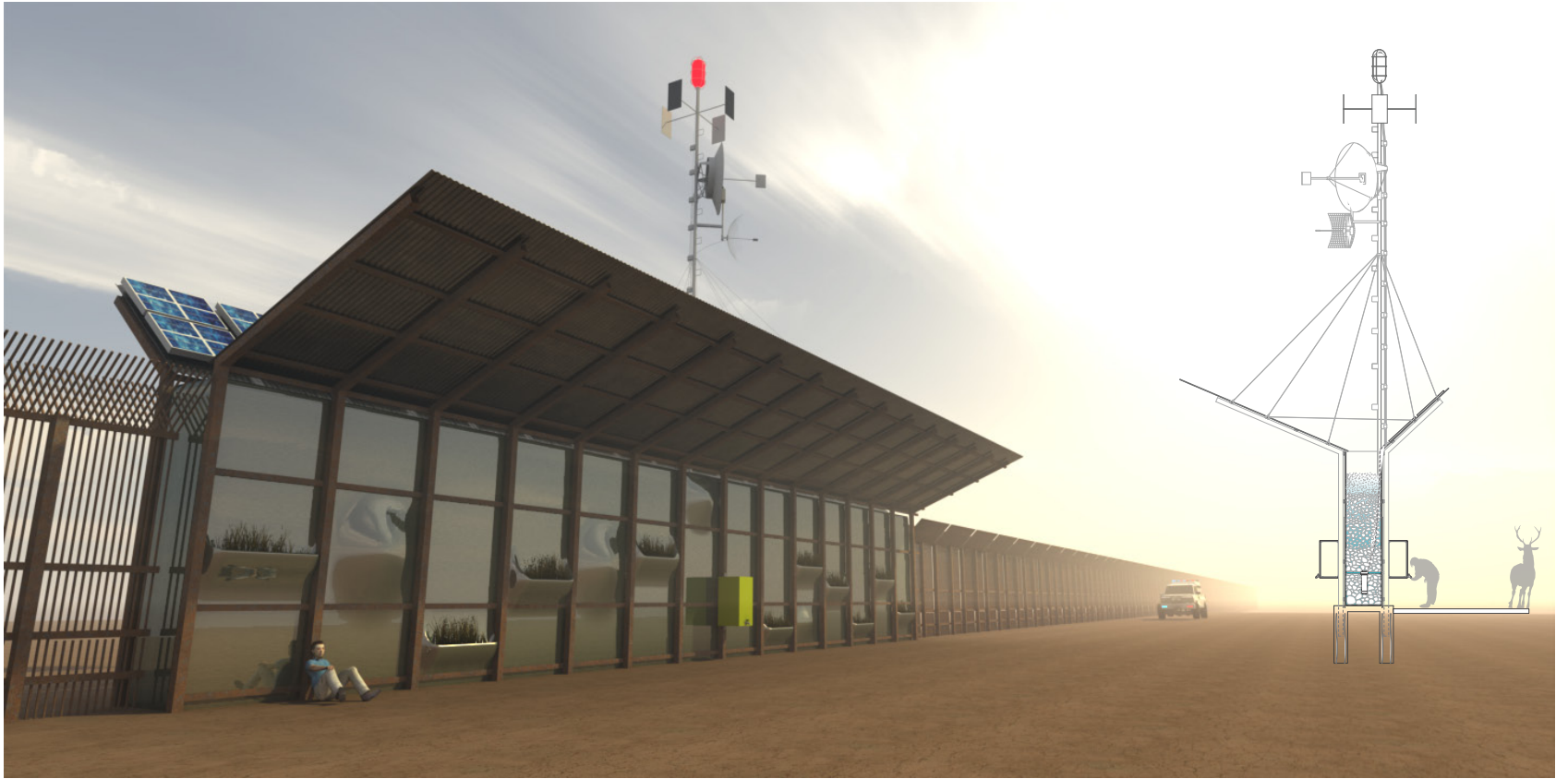
There are still further border improvements possible that combine solar heat gain with water issues. In urban environments, the border wall can be coupled with hot water production, creating low-cost additional resources that supplement the infrastructure of rapidly growing border cities. The massive steel walls are enormous heat absorbing agents, and they could easily be retrofitted with panels that produce hot water, which is a much-needed amenity in border cities. The hot water could then be used in markets, clinics, hospitals and schools.

When solar energy is coupled with water collection, it also offers a key component for the establishment of life safety

beacons along the border. The principal cause of death among migrants attempting to cross the border illegally is exposure to the elements, which causes heat stroke and dehydration. Solar generated electricity could power beacons that inform border patrol of both immigrants or American citizens who find themselves in danger in the harsh extremes of the southern deserts.

The photovoltaic panels would also be designed to collect water runoff; to power atmospheric water extractors; or to pump water from wells or rivers that could be stored, purified and dispensed as needed to distressed crossers in the desert. Engaging the water dispenser, or even approaching the life safety beacon would alert border patrol. Such devices could also ameliorate the effects that access to water has on wildlife, who find themselves unable to travel their natural routes in search of water.

While most of this work has been focused on public utility-style resources, the importance of social improvements along the border should be stressed. Sports, for example, are inherently social activities where networks between people with common interests are formed. The social capital produced by these networks is a core element in the fabric of communities: it



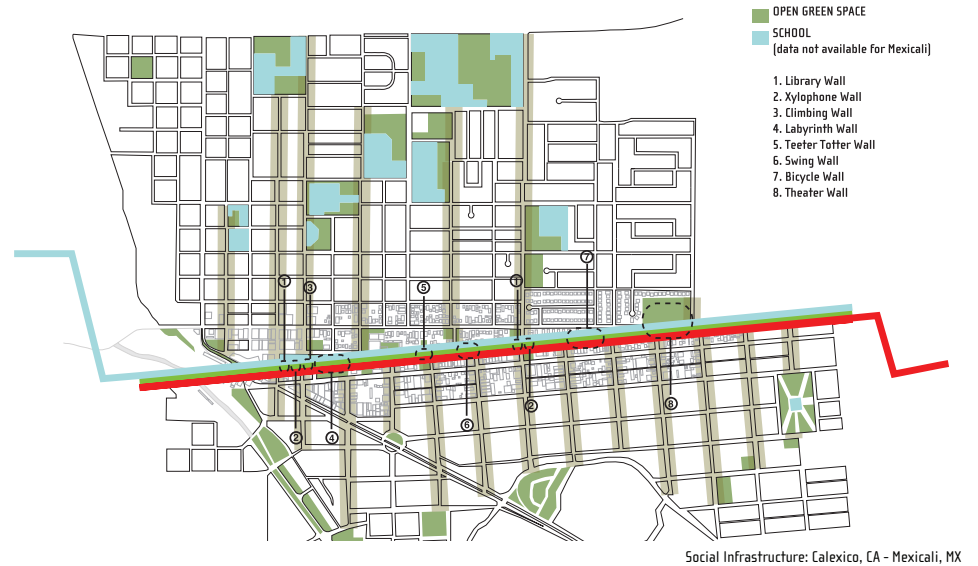
Water and Life Safety Wall



BORDERWALL AS ARCHITECTURE

produces safety and security, friendship and community, civic identity and economic value. Over time, social capital builds what may be termed “social infrastructure,” a key element in the success and health of communities. One of the most devastating consequences of border wall security in its present state is the division of communities, cities, neighborhoods and families, and the erosion of social infrastructure. Even so, sports have served as a way to cope with the realities of the wall. Volleyball has been known to be played using the fence as a net in several sites along the border and bi-national yoga classes have been held through the border wall as well. As such, the border wall can and should be envisioned as a linear urban park through certain urban geographies. When supplemented with green spaces, connected to schools and other parks, there is no reason not to think of the wall as the organizing condition for an urban park, offering pedestrian and bicycle routes through the city. The linear park, in turn, has the potential to increase adjacent property values and the quality of life on both sides of the border while providing an important green corridor through the city.

It should be clear that the infrastructural improvements under consideration here play the legislative hand the U.S. has been dealt, and they work firmly within the complex and often labyrinthine fiscal, cultural and political realities of the border and that the transformation of the borderwall has important consequences on at least three fronts—improving the quality of life along the border, increasing security and creating jobs. Increasing the quality of life in Mexico is a step towards





Library Wall

BORDERWALL AS ARCHITECTURE

immigration reform. Border towns lack the infrastructure that allows them to be sustainable, healthy cities and infrastructural wall elements have the potential to provide city amenities amid urban growth. Infrastructural elements are highly secure facilities and profits from infrastructure development projects and infrastructural improvements to border cities would go a long way towards contributing to increased national security and immigration reform. The construction of large-scale infrastructure projects create jobs, as do the manufacturing of the vital components that make up infrastructural technologies. These could also take place along the border.

Franklin Delano Roosevelt set out a course for U.S. / Mexico relations at the onset of World War II with a vision of hemispheric security that was not beholden to a limited view of border fortification. He said, “What I seek to convey is the historic truth that the United States as a nation has at all times maintained opposition --clear, definite opposition-- to any attempt to lock us in behind an ancient Chinese wall.” (Jan 6., 1941) Yet, the border fence in its current form recalls the inflexibility and ancient strategy of a wall as a singular means of security. Michael Chertoff, the architect of the existing wall said, “A “fence by itself not going to work, but in conjunction with other tools, it can help.” There are many reasons to think that border security can be achieved—and will only be achieved—by employing a more multi-valent and flexible tool in the form of a vision of border infrastructure than has yet been imagined.



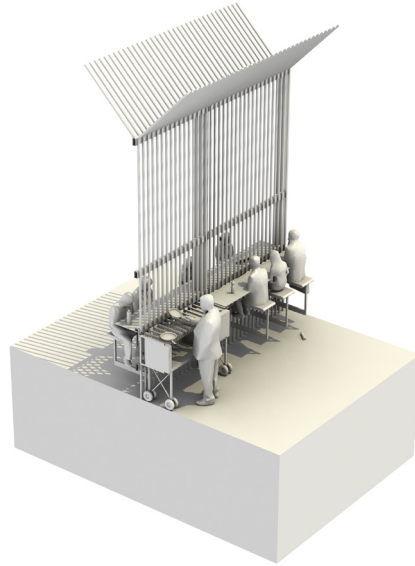
APPENDIX



Family Visits: San Diego, CA - Tijuana, MX

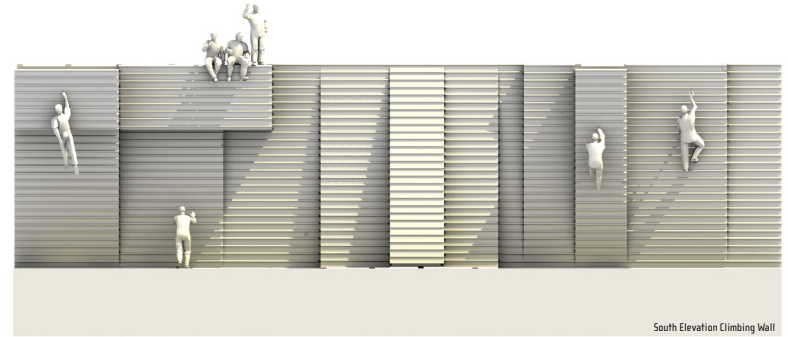
BURRITO WALL

Casual exchange is common across the border wall ranging from small talk, long visits with friends and family, and commercial exchanges of items ranging from food and bracelets to illegal merchandise. The Burrito Wall accommodates for a food cart to be inserted into the wall. The proximity to the wall and the security overhang create shade. Seating is built into the wall and food, conversation or a bi-national game of footsies can occur across the border.

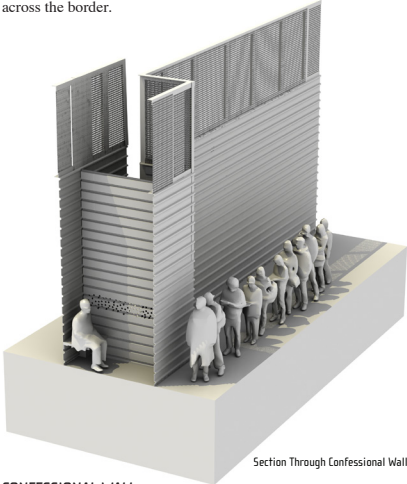


Burrito Wall

APPENDIX



South Elevation Climbing Wall



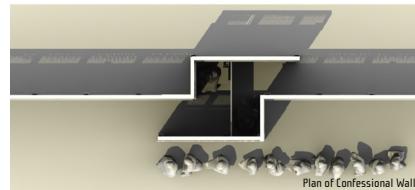
Section Through Confessional Wall

CONFESSORIAL WALL

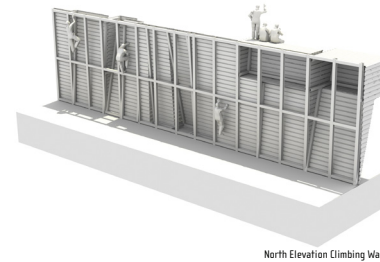
The division created by the wall often heightens border exchanges. In Friendship Park, a beach park that spans both San Diego, CA and Tijuana, Mexico, intimate exchanges are common. Each Sunday afternoon Holy Communion is offered through the fence – increasingly as an act of civil disobedience. Here the fence serves as an opportunity for confession, with both confessor and priest must ask that his trespasses be forgiven as they must transcend the border to perform the rite.



Cross Border Communion: San Diego, CA - Tijuana, MX



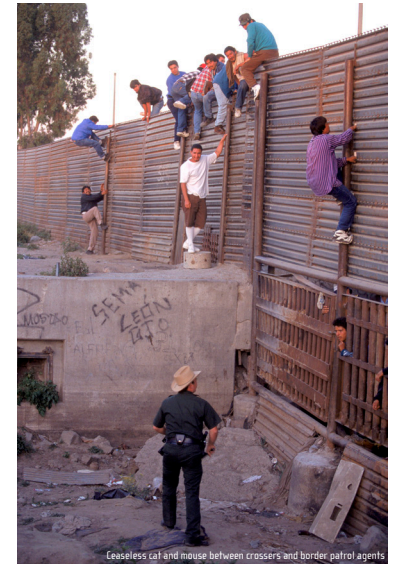
Plan of Confessional Wall



North Elevation Climbing Wall

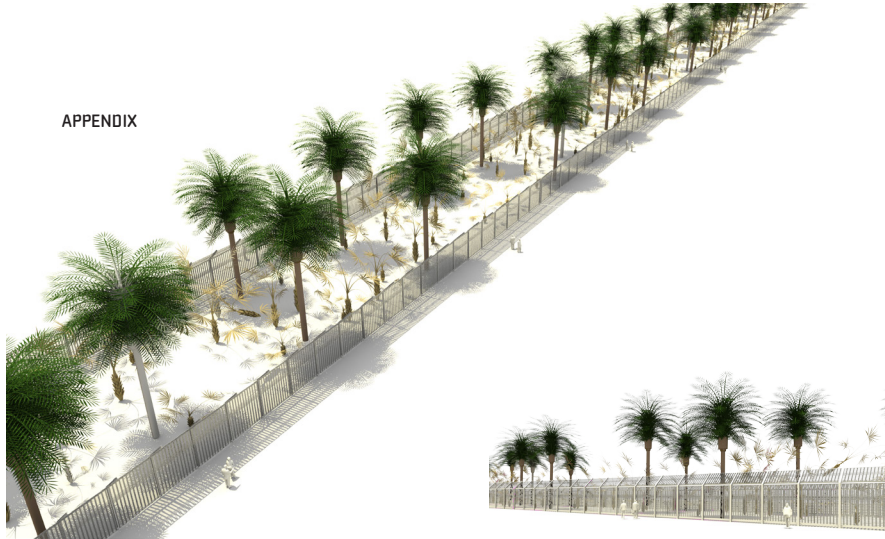
CLIMBING WALL

“Show me a 20 foot fence and I’ll show you a 21 foot ladder” has become a mantra for describing the fence’s inadequacies. Various techniques have been used to surmount the wall. Artist Judi Werthein has created special shoes called Brincos (jumpers) – “crossing trainers” – designed to help illegal immigrants negotiate the sometimes deadly terrain they encounter when crossing the border from Mexico to the U.S. Various makeshift platforms/ramps have also been erected to allow cars to drive over the border fence. Here, the act of climbing the fence becomes not more difficult, but more challenging, as it takes on the language of a rock climbing wall with various routes and grading.



Ceaseless cat and mouse between crossers and border patrol agents

APPENDIX



Relocation of Sabal Palm



Truncated agriculture along the border

FOREST WALL

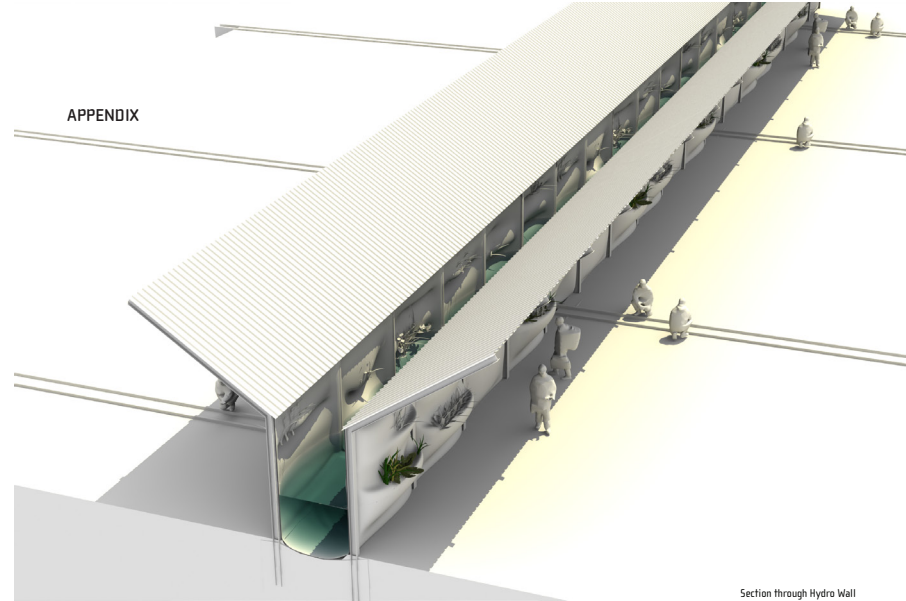
Once found across much of the lower Gulf Coast, sabal palm forests have all but vanished under the plow. While some scattered trees can be found on private lands in the region, the significant remaining stands of these towering trees are located at Lennox Foundation Southmost Preserve, the Sabal Palm Audubon Center and the Lower Rio Grand Valley National Wildlife Refuge. All three of these conservation areas lie in the path of the border fence. In order to save the sabal palms that would otherwise be leveled by fence construction, the Conservancy is partnering with the U.S. Fish and Wildlife Service and Audubon Texas, in coordination with the U.S. Army Corps of Engineers, to transplant the palms to safe ground, one tree at a time. The trees, which grow as tall as 65 feet and are up to 100 years old, are being uprooted and hauled to a number of locations, most within a mile of their original site, where they are then carefully replanted. It is a massive undertaking and a race against the clock. Each of the approximately 300 trees must be thoroughly trimmed and

the root balls carefully unearthed intact to ensure survival. The project, which is already underway, is expected to last through the summer.

Simultaneously, along the border with Eagle Pass, Texas, Mexicans, with support from their government, have begun to plant the first of 400,000 trees to form a “green wall” in protest of the fence. The tree-line will eventually stretch for 318 miles along the border between the Mexican state of Coahuila and Texas.

Forest Wall adapts the tree-line protest by proposing a double fence condition around the sabal palm preserve, thus addressing security concerns and protecting our environmental heritage. A forest surrounded by a double or triple fence is a perverse take on a reserve – a preservation of an ecology that in a post-border condition could serve to stitch the two sides back together again.

APPENDIX



Section through Hydro Wall



Massive flooding caused by build up of windwept debris against border fence



Flooding: Nogales, AZ

HYDRO WALL

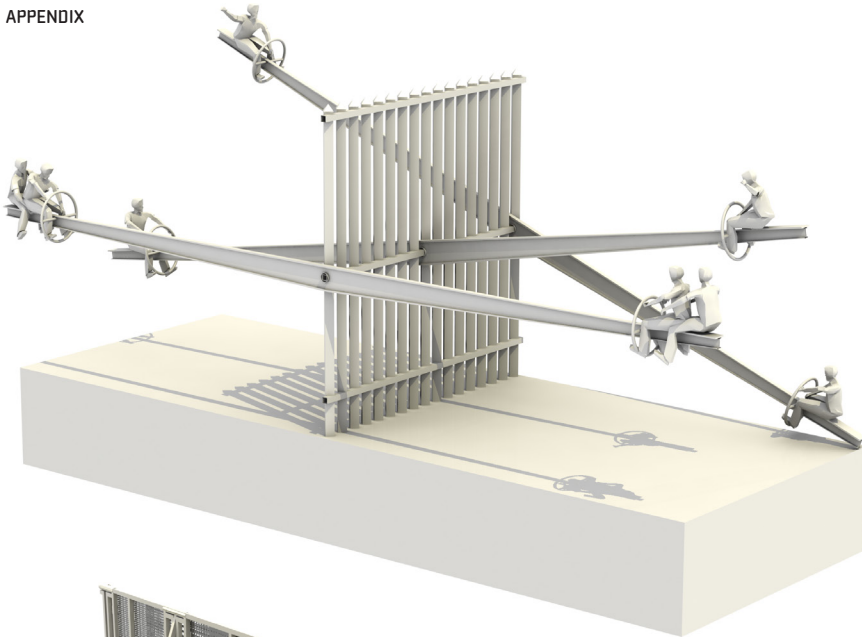
Water and air quality in the border regions suffer a disproportionate amount of environmental degradation compared to each nation's overall environmental standing. The 14 metropolitan areas along the border have abysmal air and water quality.

Water is the most limited resource in this primarily arid region. Many migrant deaths are caused by dehydration as they cross the harsh desert. The border wall has also caused severe flooding where rain has fallen, blocking natural drainage systems and damming in entire neighborhoods. A Hydro Wall would collect water and store potable safe water over the span of several miles for distribution on both sides of the wall.

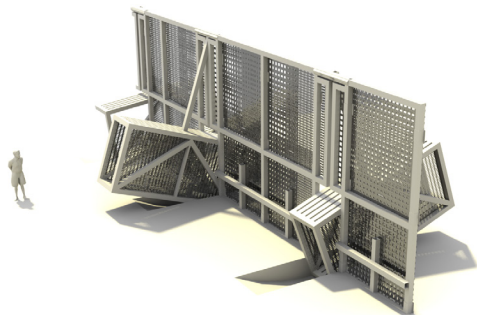


Section through Hydro Wall

APPENDIX



Teeter-Totter Wall



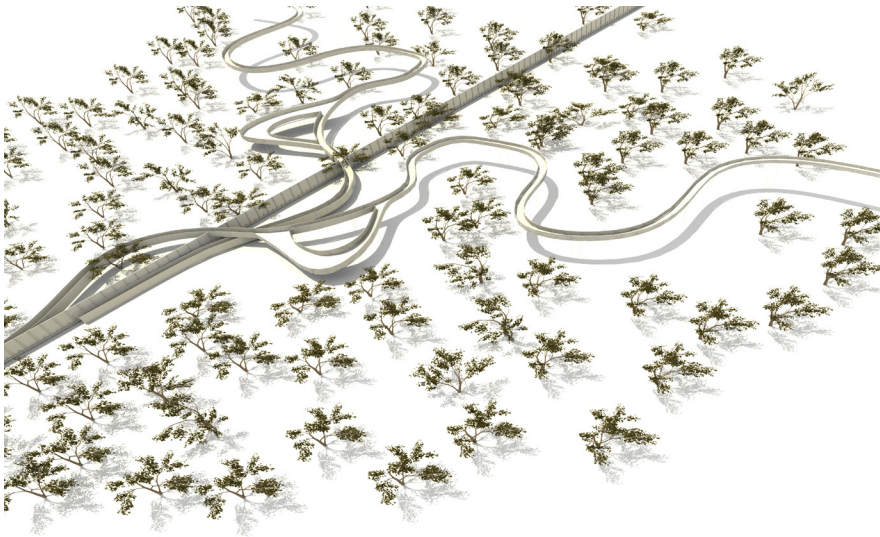
Swing Wall

TEETER-TOTTER WALL / SWING WALL

The trade and labor relationships between the U.S. and Mexico are in delicate balance. Mexicans throng to the U.S. to find work, but often long to live comfortably in their own country. U.S. industry and agriculture is dependant upon immigrant labor pools, yet the Department of Homeland Security, Border Patrol, and Immigration and Naturalization Services have made it increasingly difficult to attract foreign labor. These proposals demonstrate the delicate balances between the two nations.



Makeshift ramps and ladders used to breach border wall



Jabalinas thwarted by the border wall



Defenders of Wildlife, Department of Homeland Security | MAP: By Nathaniel Vaughn Kelso and Gene Thorp, The Washington Post - April 19, 2008

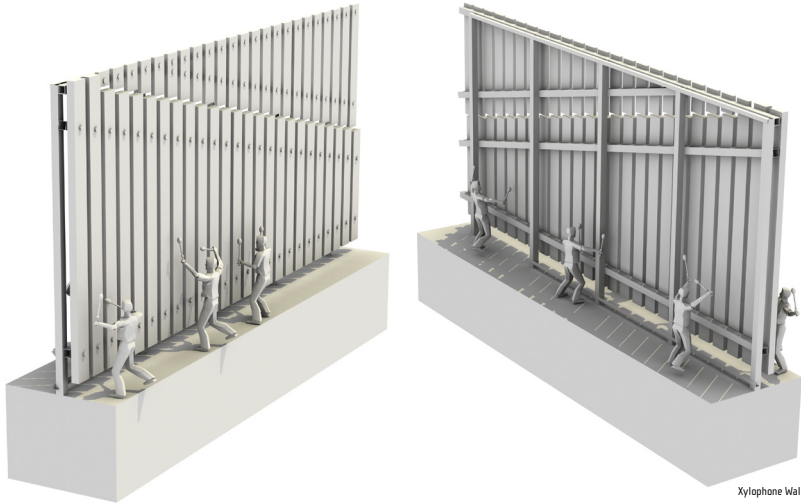
WILDLIFE WALL

The Border Wall, existing and proposed, cuts through countless wildlife and nature reserves. The borderland between the U.S. and Mexico includes grasslands, mountains and desert habitats that support a diverse range of wildlife. The Lower Rio Grande Valley alone hosts 17 endangered or threatened species. Ensuring the free movement of critically endangered species between Mexico and the U.S. will have important impacts on breeding and genetic diversity for those animals. The biggest concern is that the barrier will break small populations of animals into even smaller groups resulting in fewer animals interacting. The wall could ultimately threaten entire species. The key is to have gaps in the fence that are sufficient to allow passage of animals while at the same time meeting security needs. A Wildlife Wall would contain special openings that allow for the passage of wildlife, and would create opportunities for shelter and safe nesting spots. It would also allow for people from each country to experience nature on both sides of the wall.

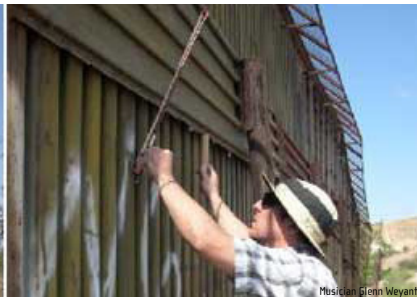


Deer waiting to cross near Arizona's San Pedro Riparian National Conservation Area

APPENDIX



Xylophone Wall



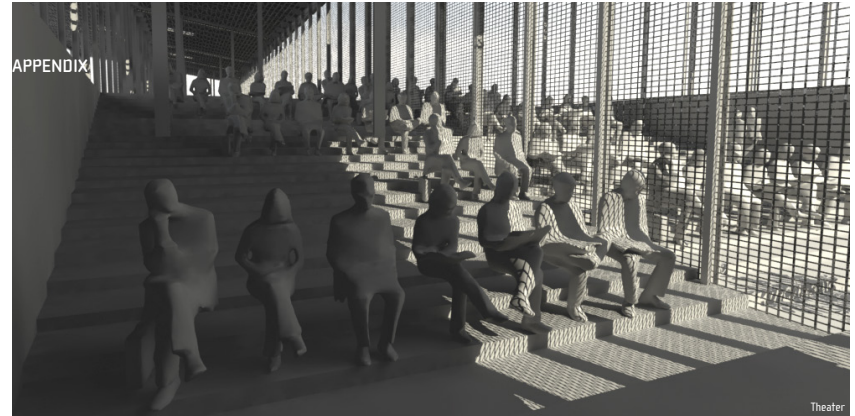
Musician Glenn Weyant

XYLOPHONE WALL

Musician, Glenn Weyant, performs music on the wall that divides Mexico from the United States. Weyant places contact microphones on a section of the wall near Nogales, Arizona, and then he uses a cello bow against the metal of the wall to create exotic and avant-garde sounds. The Xylophone Wall allows for multi-person/bi-national informal and formal performances on the border.



Section Xylophone Wall

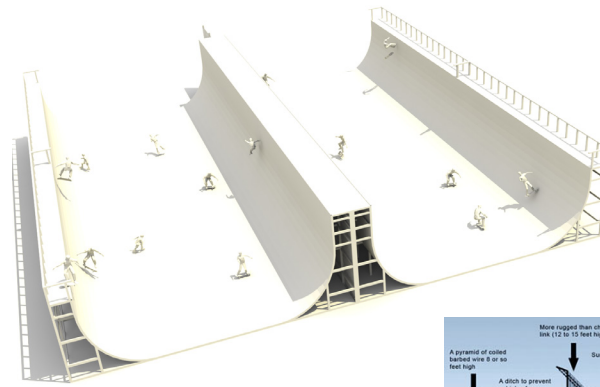


THEATER WALL

Many events take place through the border wall, bringing people from both nations together. These include yoga, volleyball, communion, prayer and deaf signing. A Theater Wall would allow for bi-national collaborations in performance, music, theater and film.

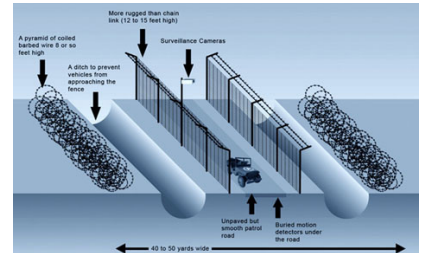


Cross Border 400



VERT WALL

The introduction of the double fence in many areas offers an opportunity to activate this interstitial zone. Vert Wall understands this area as a space of play, while also challenging the strategy of crossing. The double barrel section is reminiscent of initial security schemes that involved double ditches. This section also allows for the containment and distribution of water along the border channeling overflow away from flooded regions and diverting water to areas experiencing drought.



FOOTNOTES

¹ Genova, Judith. Wittgenstein: a way of seeing. Psychology Press, 1995. 122.

² While there are a number of architectural definitions to define the barrier, Chertoff describes the intervention as a “tool” see: Chertoff, Michael. Homeland Security: Assessing the First Five Years. Philadelphia: University of Pennsylvania, 2009. 42.

³ While it is difficult to accurately measure the exact scope and cost of the fence project, it has spanned more than 700 miles through 4 states and will cost as much as \$49 billion over the expected 25-year life span of the fence according to a nonpartisan Congressional Research Service. See: Tyche Hendricks, “Study: Price for border fence up to \$49 billion: Study says fence cost could reach \$49 billion/ Lawmakers’ estimate falls far short of total, research service says,” San Francisco Chronicle, January 8, 2007. Page B-1.

⁴ Deaths along the border are also difficult to account for. Many bodies have not been discovered and the cause of deaths vary and can be attributed to many factors. See: Spencer S. Hsu, “Border Deaths Are Increasing: Rise Is Despite Fewer Crossers, U.S. and Mexican Groups Say,” Washington Post, September 30, 2009.

⁵ William Hamilton, “A Fence with More Beauty, Fewer Barbs,” The New York Times, June 18, 2006. sec. Week in Review.

⁶ Hans Ulrich Obrist, “Part 1: On Berlin’s new architecture,” in Interviews, Volume I, ed. Thomas Boutoux, Fondazione Pitti Immagine Discovery, Charta, Milan 2003. 507-528.

⁷ This estimation was emerged by calculating the total estimated area of U.S. land that is south of the U.S-Mexico barrier using available maps of barrier locations and proposed construction sites.

⁸ In 2008 the border fence was responsible for causing 7-foot deep water levels in the cities of Nogales. See: “Report: Faulty design turned border fence into dam.” Arizona Daily Star 15, August 2008

⁹ David McLemore, “Texas to see border fence construction next year Despite opposition: Rio Grande set for 150 miles of barriers,” The Dallas Morning News, December 5, 2007.

¹⁰ Frisvold, G. B. and Caswell, M. F. (2000), Transboundary water management Game-theoretic lessons for projects on the US–Mexico border. *Agricultural Economics*, 24: 101–111. doi: 10.1111/j.1574-0862.2000.tb00096.x

¹¹ George W. Bush, “Introductory Speech at the Signing of the Secure Fence Act,” The Roosevelt Room, The White House, Washington, D.C., October 26, 2006.

¹² Calculations were based on the cost per square foot of recently constructed waste water treatment plants in the U.S.

¹³ SolarBuzz, “Fast Solar Energy Facts,” <http://www.solarbuzz.com/FastFactsGermany.htm> (accessed January 13, 2011).

¹⁴ Eschbach, K., J. Hagan and N. Rodriguez (2001): Causes and Trends in Migrant Deaths Along the U.S.-Mexico Border 1985-1998. Center for Immigration Research, University of Houston.

¹⁵ Franklin D. Roosevelt, “Four Freedoms,” January 6, 1941 in *Great Speeches*, ed. John Grafton (New York, NY: Dover Publications, 1999), 93.