

CIS: Architecture & Sustainable Studies

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Vernacular Architecture and Authenticity

Preface

My past three years of extensive travel and study of architecture and design has left me with equal questions and answers. One question I've carried throughout this whole experience has been: what makes certain architecture great? "Great" does not have value assigned to it, like "good" or "bad." Rather, "great" is the experience of a metaphysical connection. Through exploring vernacular architecture, I uncovered a means to great architecture through a heavy consideration of geography, earth, space, time, and site. I used this research to learn vernacular methods, then I researched a site in Coalmont Colorado, and designed a house. The following paper outlines my research and findings on vernacular architecture.

Introduction to "Vernacular"

When I began telling people I was researching vernacular architecture, many looked at me puzzled. They had no idea what "vernacular" meant, especially when it applied to architecture. I have always had a vision that vernacular architecture is something similar to a vernacular dialect - that the way certain people speak is a product of where they come from. Deeper than that, where they come from has a complex range of consequences, including history, ethnicity, culture, technology, landscape, political and economic conditions. These are just a few factors dictating the way people describe their world around them through language.

For example, In the case of African American Vernacular English, or AAVE, linguistics expert Mary Zeigler writes about the development of the language as a product of the socio-political position of African slaves in the United States. Because these people did not know the English language, and were not subjected to education, the African people were forced to learn it, and speak it on their own (Zeigler, 510). Furthermore, Zeigler points out AAVE further developed in a micro-vernacular fashion after the post-slavery diaspora, as African Americans dispersed across the United States (Zeigler, 511). Zeigler asserts that the lack of education led to the manifestation of a sentence characterized by a defined pattern of speech, predictable pronunciation, a unique vocabulary, and varying tenses of verbs. Essentially, AAVE formed through the mixing of objective conditions of a specific area.

Architecture has developed similarly - through uncontrollable, objective conditions of a specific area. Like language, architecture also responds to history, politics, landscape, materials, weather, etc. During my research, I found that the vernacular manifests in architecture through everything from large grids, to the consideration of the most minute detail, like smell. Therefore I chose to organize my research based on scale, beginning with extra large, “XL,” and moving to small, “S.” Through my research, I concluded that vernacular architecture is a deep consideration of the site at every scale, which dictates everything about a structure, such as its arrangement, materials, and process, to the point where that structure cannot *authentically* exist anywhere else in the world.

XL: Geometry & Grids

How was the layout of historically vernacular architecture rationalized? To begin, I researched the traditional Navajo house in the American Southwest, the “hogan.” In building

these houses, the Navajo people chose to orient them to respond to the four cardinal directions (Carey). Though these directions had geographical impacts on the structures, they also carried a higher meaning. According to the Navajo Language, East, or “Ha’a’ah” signifies the beginning of life, and a new day. It has to do with goal setting, visualization and mental strength. North, or



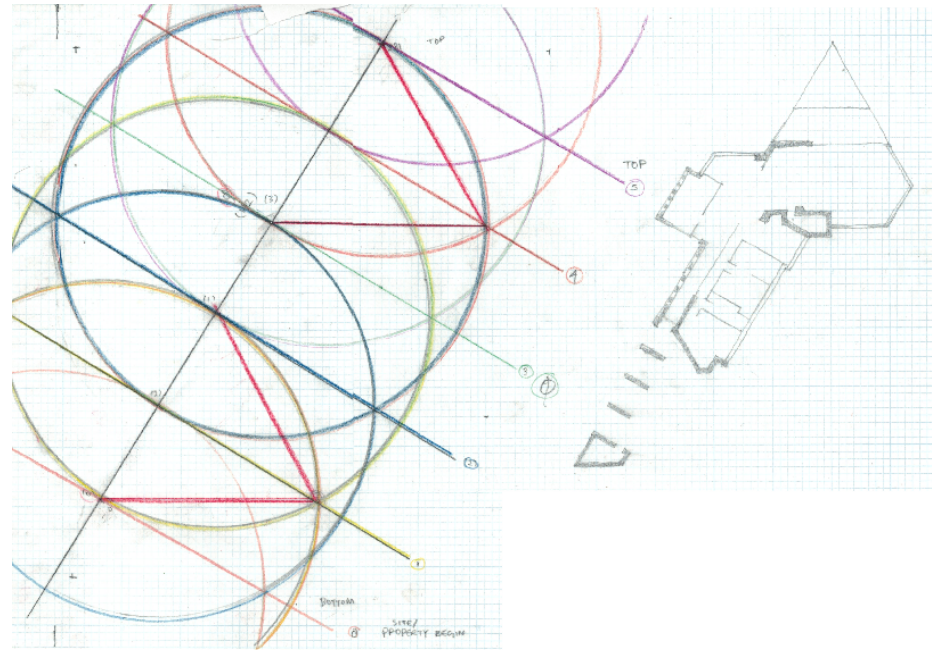
“Náhookos” means darkness and mystery. It is questioning, reflection, and finding a balance between self, and the world. South, or “Shádi’ááh” is about responsibility, planning, gathering information, and analyzing it. And West, or “E’e’ah” signifies the loss of

responsibility, of duties, essentially death (Carey). The language not only responds to the vernacular patterns of the Southwestern sun, as it rises in the East, and sets in the West marking the beginning and end of a day, but also the conditions of light to the North and South. Because of the Navajos position above the equator, the sun will never be found to the North, but rather almost always to the South. This is why darkness is associated with the North - because the lack of sun - and also why enlightenment is associated with the South, because of the abundance of direct light. The Navajos decision to design hogans using the cardinal directions orients the structure with the universe, and the people’s greater beliefs.

Another manifestation of the vernacular zoomed out is found in the connections between geometry and site. To study this, I did extensive on-site research at a Frank Lloyd Wright (FLW) house on Cedar Lake in Minneapolis, Minnesota. This structure breathes the triangle in form.

Through researching the floor plans of the house, and working backwards with a compass and scale ruler, I developed a grid pattern which FLW used to design the house. What is interesting about this grid, is it's connection to the golden ratio, phi (1.618), and sacred geometry. FLW began with a central datum line running north from the corner of the property. Off this line, he then used a compass to

construct a circle, about 100 feet in diameter. From the northern top of that circle, he drew another, then made a line through the intersection point of the circles, perpendicular to the



northern datum. The intersection of the lines created a starting point for the next circle, and this cycle repeated up the northern datum to create six lines, yielding five inner spaces which dictated the general boundaries of the house. FLW further used these lines to mark important points in the circulation of the house, as the crux where the house juts northeast - a vital shifting point in the experience, and programming of the house (from private bedroom spaces and bathrooms to the great gathering room) - bends right at the line marking phi on the datum. The experience is a grand reveal of Cedar Lake, which is not an accessible view from any other point in the house.

Phi is quite literally the most important number in the universe. It dictates everything from how the planets around us orbit, to the shape of a cat's claw. FLW is not only creating a grid to rationalize the floor plan of the house, but is further designing this house around a higher power - like the Navajos did through cardinal directions. In both cases of the hogan, and Frank Lloyd Wright, there is a strong connection between the structure, and the vernacular conditions of a site. Whether that is through the way the sun orients itself around a site, or through a connection between sacred geometry and the experiential features of a place. Both examples here connect to a greater power of belief and rationalization.

L: Form

At the large scale, "butabu" structures in Western Africa are an interesting presentation of vernacular form. These considerably sculptural buildings are composed of stacked earth blocks mudded over, wetted, and sun baked. They are characterized by their smooth edges and surfaces, and often have tree branches jutting out of the walls, serving structural purposes for the roof or additional floors. The word "butabu" itself reflects vernacular characteristics of the buildings. "Bu" is a prefix for earth, "ta" essentially signifies a vessel, and "bu," again means earth. So butabu means a structure made of earth which acts as a vessel for earth (Morris, 7).

Butabu buildings present an interesting case in vernacular form because the "builders are the architects" of the structures (Morris 10). There is no active architect sitting down with a pencil mapping out space and dimensions, but rather, these architectural characteristics are manifested through the hands constructing the space itself. In this exploration of space through creating, form takes shape through the people building. Therefore, buildings can vary countrywide in Western Africa, and they do. Below are two images of butabu structures in Mali,



built by different builders in different areas of the country. Notice how the top image of the Great Mosque of Djenné in Djenné (central Mali) is more rigid of a structure than the one on the bottom, a house in southern Mali. This difference in form is because of the different builders in the area.

Furthermore, the programming of the buildings themselves present a tie to the vernacular. The mosque in Djenné was built in a bigger community with a higher population. They have more of a need for a larger space of

worship housing more members of the community. Djenné is also an older, more developed city in Mali, whereas the town in southern Mali is considerably smaller. There is less of a need for a large community space and rather more of a need for shelter.

M: Materials

At the medium scale, the vernacular manifests through materials. With an eye to Spanish Colonial houses, or Adobe Architecture, throughout California, the geographical conditions of the state varies in certain areas. In 1927, Donald Hannaford along with a team of photographers and draftsmen traveled through California documenting Spanish Colonial structures dating from 1800 - 1850. They embarked on this journey because at the time, they could not find any published information on the architectural details of the Spanish Colonial houses. On the

journey, they gathered plans and drawings of these features, but also documented and traced the origins and patterns of materials used in the construction. This mission took these researchers from southern to northern California.

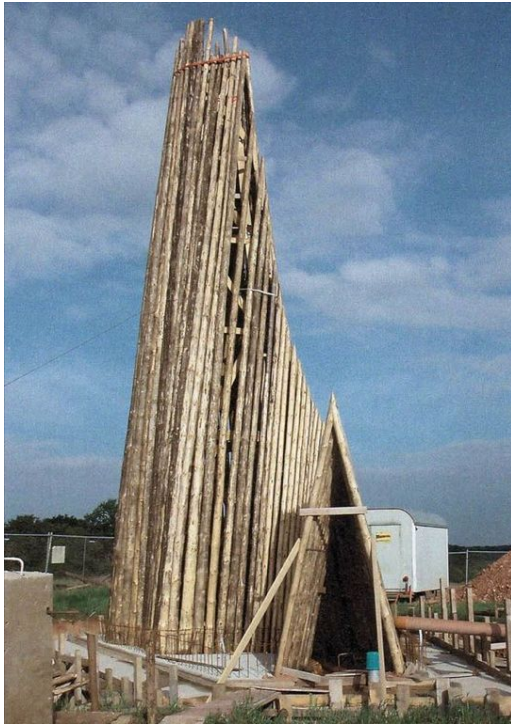


Observing roofs, Hannaford notices that “Roof coverings varied in different localities. Where redwood was abundant, hand-riven shingles or shakes were used; and tile, where good clay was found” (Hannaford, viii). Houses with redwood shingles were found commonly in Monterey, and Sonoma, like the house pictured above, whereas houses with clay tile roofs were found in San Juan, and Santa Barbara. With an eye to material, the vernacular can vary state-wide and even city-wide. Hannaford also noted the economic privilege of having a clay tile roof in a place where this material was not vernacular, like Monterey, the seaport capital of California in the early 1800s. At the time, trade flourished with the East coast. Monterey attracted many people, and was the social hotspot of northern California. Naturally, because of this status, Monterey was a wealthy area (Hannaford, ix). At this material scale, it is observed how the vernacular can be influenced by a superficial factor - wealth and capital. This is an observation to be discussed in the conclusion.

S: Process

Through Peter Zumthor’s Bruder Klaus chapel in 2007 in Mechernich, Germany, the architect considers the smallest scales of vernacular architecture possible: process and smell. By

sourcing trees from the site, building a teepee structure, and ramming earth mixed with 90% dirt



from the site against the trees, Zumthor creates an authentic, pure structure dictated by the integration of materials from the property and process of creating space. Furthermore, when the rammed earth cured, and the molds were deconstructed, the tree branches on the inside of the structure were set on fire. Their ghostly presence was immortalized in the ribbed walls of the inner space, as well as in the black soot jammed in the crevices. An unusual, often overlooked sensual feature of this process is smell, as the burned trees left their aroma on the inside, another tie to the vernacular

conditions of the landscape.

Analysis & Conclusion

How is the vernacular a means to architectural greatness? Above all, focusing a structure on its experience, material, constructing process, etc. grounds that building in its exact location. It makes that building unable to be picked up, and shifted 10 degrees - because that would alter the meaning and experience of the structure so dramatically that it would not be the same. It would have less of an authentic tie to it's site.

It is the effectiveness of how design responds to these vernacular conditions which dictates its authenticity. Vernacular structures do not consider style, but rather consider how vernacular materials influence form. Thus, form is a byproduct of vernacular considerations.

Butabu structures were not constructed to look the way they do, but were constructed for the sake of shelter and programming. Their unique, rounded forms are products of the means of production, through stacking and mudding for practical strength. This innocent, pure structure is separate from any style, but rather just exists.

Contemporary architect Jacques Herzog from Herzog & de Meuron would agree with this statement, taking it a step further in an interview with DEZEEN in 2013. Through three buildings in Miami, Florida, Herzog & de Meuron attempt to “create a new vernacular for Miami.” This is through the Perez Art Museum, the 1111 Lincoln Road car park, and the Jade Signature tower. Criticising the art deco style buildings of Ocean Drive, Jacques Herzog calls these buildings “stupid architecture” because of their failure to respond to the reasons why people love Miami - for the sun, the trees, the warmth. To Jacques Herzog, they are nothing but “blind boxes decorated like a cake or pastry... [they don’t] relate at all, or exploit at all the amazing conditions [of Miami]” (Hobson). When we design and build in the name of style, we do not push architecture forward into the present. We are not exploring architecture as a means of living, of discovery, of efficiency. We instead choose to be reminiscent, and nostalgic of history.

This is precisely why architect Le Corbusier romanticizes the aesthetic of the engineer in his most famous book (and one of the most read books in architecture), *Towards a New Architecture*. Locomotives - planes, ships, cars, etc, as well as structures of utility, like grain silos and bridges are not designed to look pretty, or to have a style. They are rather designed to fulfill a function in the most efficient manner. Thus, any consideration of beauty or style is an extrapolation of the utility of the raw structure. Beauty as a byproduct of pure objects is also

something noticed in the art world by sculptor Richard Serra. When asked in a 2001 interview with Charlie Rose, “where is beauty?,” Serra responded:

“For the most part, artists don’t get involved with beauty, they get involved with the language of art, and trying to extend the language of art, and beauty happens as a residue of their involvement in the particularities of what they're trying to accomplish - in terms of communicating something to someone else.”

I would argue that you could replace “art” and “artist” with “architecture” and “architect” above. Thus, style poses an impediment to authenticity.

Another impediment to authenticity is material impurity. Wealth in Monterey, California was able to skew the vernacularity of the structures in the 1800s. Though it can be appropriately argued that the buildings are still authentically vernacular, as the clay tiles were still a material native to California as a state, wealth still influenced materials in the years to come. Take the Oslo Opera House, completed in 2007, which was constructed of marble and granite from all over Europe, from Sweden to Italy, with a budget of roughly 760 million USD (ArchDaily). The presence of materials from all over the world reduces the locality of the building. However, sitting on the bay of Oslo, the city at its back, the Opera house was designed to rise up from the edge of the water like a big white iceberg, acknowledging the cold, glacial history of Scandinavia. This is a beautiful concept well manifested through the form of the building, and though this building may be impure through materials, it’s design maintains a connection to the site through beauty and history.

An example of a building having no integrity through material or design are contemporary Minangkabau structures in Indonesia. In the book *Adjusting the popular image: Diversity and dynamics in Minangkabau vernacular architecture*, author Marcel Vellinga argues



that contemporary Minangkabau structures resembling the traditional style are another step in the vernacular architectural language of Indonesia. These buildings, instead of following tradition and using timber, mud and other vernacular materials from the area, are now being built with concrete and milled wood to appear the exact same as the buildings from hundreds of years ago. For this reason, contemporary Minangkabau buildings are not an extension of the vernacular, they are merely stylistic clones of old unique buildings. They do not vernacularly respond to the present

space and time, but rather immortalize an old style with concrete and insulation. Contemporary Minangkabau structures do not reflect the experience of the unique geographical elements of the Indonesian landscape, but rather draw attention to the unique buildings that once were, of a time long past.

Contemporary vernacular architecture needs to function as a tool for complementing what makes our world unique and beautiful at the exact intersection of space and time. The exact intersection of space and time which vernacular architecture exploits is the *site*. This does not mean neglecting history, but embracing it, and using it as a tool for design. This also does not mean neglecting style, but exploring *why* and *how* that style emerged from the conditions of the geography. Vernacular architecture must be post-style, and environmentally conscious.

In today's day and age, we live on a fragile planet, surrounded by fragile ecosystems which change before our eyes every 100 feet, and every 100 days. In the west, thirty-five percent of the world's materials and forty percent of the world's energy goes toward building (Algreen). In a lecture on sustainable materiality, designer Charlotte Algreen asserts materials need to be used smarter. Locally sourcing materials is one strong approach to sustainability, as it cuts down on carbon emissions through transportation. Another way it is sustainable is through cultural value and appreciation. Vernacular design not only ties a structure to its place, but also to a group of people and their national identity - the building is as local as the people, not just because of where it is, but because of what it is made of, why it is there, etc. These ties push the merit of architecture out of the realm of function, and into a metaphysical connection with the earth, and it's many surroundings. This is precisely why vernacular architecture makes the greatest architecture - it is the experience of this exquisite metaphysical connection of space and time.

After researching vernacular architecture across the world, vernacular architecture is a deep consideration of the site at every scale, which dictates everything about a structure, such as

its arrangement, materials, and process, to the point where that structure cannot *authentically* exist anywhere else in the world.

Works Cited

Ahrens, Donna., Tom. Ellison, and Raymond. Sterling. *Earth Sheltered Homes : Plans and Designs* . New York: Van Nostrand Reinhold Co., 1981. Print.

Algreen, Charlotte. “Materials Matter.” DIS Copenhagen, 25 October 2018, Copenhagen, Denmark. Guest lecturer in class.

Carey Jr., Harold. “The Navajo Four Cardinal Directions.” *Navajo People*. 20 January 2015. Accessed 25 April 2020. Web.

<https://navajopeople.org/blog/the-navajo-four-cardinal-directions/>

Dethier, Jean. *Down to Earth : Adobe Architecture, an Old Idea, a New Future : Based on an Exhibition at the Centre Georges Pompidou* . New York, N.Y: Facts on File, 1983. Print.

Earth Sheltered Housing Design : Guidelines, Examples, and References . New York: Van Nostrand Reinhold, 1979. Print.

Easton, David. *The Rammed Earth House* . Revised edition. White River Junction, Vt: Chelsea Green Pub., 2007. Print.

Edelhart, Mike. *The Handbook of Earth Shelter Design* . 1st edition. Garden City: Doubleday, 1982. Print.

Hannaford, Donald R., and Revel. Edwards. *Spanish Colonial or Adobe Architecture of California, 1800-1850* . Stamford, Conn: Architectural Book Pub. Co., 1990. Print.

Hobson, Benedict. “Herzog & de Meuron are ‘de onstructing stupid archite cutre’ in Miami.”

DEZEEN, 7 December 2013. Accessed 27 February 2020. Web.

<<https://www.dezeen.com/2013/12/07/movie-jacques-herzog-perez-art-museum-1111-lincoln-road-miami-herzog-and-de-meuron/>>

Le Corbusier, and Frederick Etchells. *Towards a New Architecture*. New York: Payson & Clarke, Ltd., 1927. Print.

“Migration and Motivation in the Development of African American Vernacular English.” *A Companion to the History of the English Language*. Oxford, UK: Wiley-Blackwell, 2009. 509–520. Web.

Morris, James, and Suzanne Preston. Blier. *Butabu : Adobe Architecture of West Africa* . New York: Princeton Architectural Press, 2004. Print.

Reid, Esmond. *Understanding Buildings : a Multidisciplinary Approach* . 1st MIT Press paperback edition. Cambridge, Mass: MIT Press, 1988. Print.

Serra, Richard. Interview with Charlie Rose. *PBS*. 2001. Web.

<<https://www.youtube.com/watch?v=KEvklGKd6uE&t=2841s>>

Steen, Athena Swentzell, and Bill. Steen. *The Beauty of Straw Bale Homes* . White River Junction, Vt: Chelsea Green Pub., 2000. Print.

Vellinga, Marcel et al. "Adjusting the Popular Image: Diversity and Dynamics in Minangkabau Vernacular Architecture." *Indonesian Houses: Volume 2: Survey of Vernacular Architecture in Western Indonesia*. Vol. 251. N.p. 117–144. Web.

"Oslo Opera House / Snøhetta" 07 May 2008. ArchDaily. Accessed 8 May 2020.

<<https://www.archdaily.com/440/oslo-opera-house-snohetta/>> ISSN 0719-8884

Wolfram, Walt, and Erik R. Thomas. *The Development of African American English* . Oxford ;: Blackwell Publishers, 2002. Print.

Zeigler, Mary. "Migration and Motivation in the Development of African American Vernacular English." *A Companion to the History of the English Language*, edited by H. Momma and

Matto Michael. Chichester, UK ;: Wiley-Blackwell, 2008. Print.Chichester, UK ;:
Wiley-Blackwell, 2008, 509 - 520. Print.

Zumthor, Peter. *Thinking Architecture*. Basel: Birkhauser, 1998. Print.