# FREEDOM THROUGH DESIGN

Studio Reich

### Abstract

### Affiliates

THESIS:
The Influence of Architecture
Sensation and Perception
Line Study
Light and Color Study
Psychology of the Home
Architecture and Children
Affective Luminance

### PROJECT:

Project Introduction Precedents Preliminary Designs Final Design

### ANALYSIS

**Research Paper** 

Index

**Cited Works** 

	1
	4
	6
	8
	10
	12
	14
	16
	23
	24
	44
	54
	84
	123
	124

A refuge center	r for victims	of human trafficking	
• • • • • • • • • •		· • • • • • • • • • • • • • •	• • • • • • • • • • • •

A place of FREEDOM...

...where hope can be restored

Children victimized by human trafficking have been captive and hopeless. The architecture that I want to create is one that enables a transformation from bondage to freedom. The environments we create not only define us; they form us. As designers of these environments, architects have a social responsibility to consider the lives of others; to provide a home for the lost and freedom for the captives.

Architecture can provide an environment that promotes a sense of freedom and value, that can help these children heal and find joy in life.

It can give them a place to call home.

This project is being developed in collaboration with Journeyman International [JI], located in San Luis Obispo, CA. "The Journeyman International vision was launched with the intent of filling the expertise void between international NGO's and the new facilities they construct." JI has helped design and construct multiple facilities in the global south, and has been instrumental in the development of this rescue home.







This project will also be in partnership with GLOWA in Cameroon. "Global Welfare Association (GLOWA) is a not-for-profit, non-governmental organization that combats human trafficking... throughout the North-West Region of Cameroon... GLOWA believes that every child has the right to grow in an environment where he or she feels free and valued, and has the opportunity to maximize his or her potential without being subjected to domestic or sexual servitude. The organization aspires to build child-friendly and abuse-sensitive communities in which children are empowered as rights holders and advocates for their own basic human rights."

Jamils Richard Achunji, Executive Director of GLOWA





## **THESIS:** FREEDOM THROUGH DESIGN

### FREEDOM THROUGH DESIGN

The Influence of Architecture Sensation and Perception Line Study Light and Color Study Psychology of the Home Architecture and Children Affective Luminance .

4

The Influence of Architecture

"Architecture is very influential. We spend almost all of our time in architecture. Architecture can make you sick, if the building materials are toxic. Architecture can make your relationship go south; I can build a building that can make people get divorced. I mean you can make life hard on people, or you can make people's lives incredibly better with architecture. Architecture is a powerful tool. Architects are given this great gift to make people's lives better, and not just the rich people that hire us, but everybody." [Steve Badanes, Citizen Architect] •

6

Sensation and Perception

Architecture is an inherently central aspect of our lives. It can be difficult to see how connected we are to our environments, but that does not mean we are not influenced by them. Our perception of who we are and where we are, critical aspects in establishing psychological health, are strongly influenced by how we perceive the world around us. Light, sound, smell, and tactility are all variables that provide unique sensory experiences of the environments we occupy. Sensation and perception are primary influences that affect our emotions and cognition. The quality design of these environments can not only benefit its users physically, but also psychologically.

"Taking architecture seriously therefore makes some singular and strenuous demands upon us. It requires that we open ourselves to the idea that we are affected by our surroundings even when they are made of vinyl and would be expensive and time-consuming to ameliorate. It means conceding that we are inconveniently vulnerable to the colour of our wallpaper and that our sense of purpose may be derailed by an unfortunate bedspread." [De Botton, 25]

### FREEDOM THROUGH DESIGN





5) 50 e









8

Line Study

This line study is an exploration into the ability of something as simple as a line to invoke certain emotions or characteristics. A jagged line could imply chaos, a squiggly line could suggest playfulness. A straight, solid line represents stability, while a smooth, curved line implies peace.

"If even crude scratches on a piece of paper can speak accurately and fluently of our psychic states, when whole buildings are at stake, expressive potential is exponentially increased." [De Botton, 09]



FREEDOM THROUGH DESIGN

"Light levels and colors influence how we think and behave in a space." [Augustin, 61]

Experiences are also influenced by light and color. On the left are images representing this concept. The lower painting suggests fear and discomfort in a long, dark room. The image above is filled with bright, pleasing colors and is much more open with plenty of light. These abstract images suggests different emotions that need to be considered in design. .

12

Psychology of the Home

The following quote is from *The Architecture of Happiness*, in which Alain de Botton talks about a home's relationship with its occupants. The idea of a home has a curious psychological influence on us. It represents a place of security and belonging.

"It has provided not only physical but also psychological sanctuary. It has been a guardian of identity. Over the years, its owners have returned from periods away and, on looking around them, remembered who they were." [De Botton, 10]

"To speak of home in relation to a building is simply to recognize its harmony with our own prized internal song... Our love of home is in turn an acknowledgement of the degree to which our identity is not self-determined. We need a home in the psychological sense as much as we need one in the physical: to compensate for a vulnerability. We need a refuge to shore up our states of mind, because so much of the world is opposed to our allegiances." [De Botton 107]

Children, especially those affected by tragedies and horrific as human trafficking, need a place where they feel they belong; a place they can feel safe from the chaos of the world. A home is more than a physical place. It provides stability, it is integrated into our identity, and can provide peace in a world full of fear. •

14

#### Architecture and Children

"In the end, however, in order to uncover our most intimate connection to the world, our environment must offer opportunity for such intimacy. Children, especially, must be given the chance to experience more than just cloned shopping centers, soulless mass housing, or distressing homes. We must provide them with an environmental reservoir of healthy indoor and outdoor places where they can grow along with us. In this way we can all write our own book of treasured environments, read our own stories of place and conclude with chapters in which our deepest dream of some place like home can come true." [Israel, Some Place Like Home]

Architecture is vitally important to children, especially those that have been victims of slavery. Our identities are still being formed as we grow into aldulthood. If architecture truly has an inherent impact on our emotions, then our childhood environments are critical in the formation of our identity and psychological health. Chaotic environments can produce fear and insecurity. Bland, crowded spaces might invoke a sense of worthlessness. Even though environmental influences might be secondary to how these children are treated or whether they feel loved, providing them with quality environments can help fight the negative aspects of their lives. Having a quiet, peaceful place to sleep at night can help provide hope for the new day to come. A well constructed building can help people feel safe. It is important, for children especially, to feel that they have a place where they are free and valued, able to play and find joy in life, a home where they feel they belong.



VELLUM

Affective Luminance

An exploration into the psychological effects of light and materiality. This lounge table is designed to encourage warm, pleasant feelings; to discover how emotions such as joy and peace can be invoked through design. This furniture competition provided a great opportunity to explore my thesis in a full scale, physical form.

Designing and constructing this table also provided a good experience in understanding what it takes to turn a design into a reality. Different materials behave in different ways, and often the construction process doesn't go as smoothly as one might expect. This table is constructed using cottonwood and translucent onyx tiles. Steel sheets hold up the LED light strips beneath the surface. I enjoyed building this table and I am pleased with how it turned out. People are always curious what material could emit such a beautiful glow. They smile as they appreciate its natural beauty. I learned that people behave differently depending on how their environments communicate with them, and that the perception of things they consider beautiful can have a positive influence on their emotions.











# **PROJECT:** GLOWA RESCUE HOME

# PROJECT INTRODUCTION
PROJECT SCOPE CARE FOR TRAFFICKED CHILDREN BAMENDA, CAMEROON BACKGROUND INFORMATION CULTURE SITE ANALYSIS CLIMATE





PROJECT INTRODUCTION

.

Project Scope

This project is a rescue home designed for the Global Welfare Association in Bamenda, Cameroon. "The main goal of the project is to provide the very much-needed safe and confidential housing to victims of abuse in Bamenda, Cameroon. The design and construction of the home shall ensure emergency services of lodging, feeding, clothing, healthcare, and proper case management to at risk youths as a way of preventing trafficking and/or re-trafficking. The home shall host and provide holistic rehabilitation to at risk young people such as orphans, children of single, adolescent mothers, street children, young drug abusers, etc. It shall provide individual and group support services and facilitate their reinsertion process through job search, job placement and/or seed grants. It would be a one-stop facility that shall create opportunities for the full development of potential through multiple engaging activities for clients and help raise the profile of child trafficking and child abuse in Cameroon. We hope to develop it into a hub for the protection of women and children from violence, offering research opportunities to students and engaging victims in advocacy for policy formulation and improvement." [Jamils Richard Achunji]



Care for Trafficked Children

In November of 2012, the Child Recovery and Reintegration Network hosted a webinar on safe accommodation for children who have been victims of human trafficking. Dr. Lucy Shuker of the University of Bedfordshire was one of the key speakers. She provided the diagram shown on the left as a representation of the needs of the children related to safety and healing. She also provided a list of ten main principles to consider when caring for victims of human trafficking.

1. The best interests of the child should be at the centre of all decisions regarding the provision of safe accommodation and related support.

2. Children should be asked about what makes them feel safe.

3. Children should be given sufficient information to help them make informed decisions about their accommodation and care.

4. Safety measures should be implemented to reduce a child's risk of going missing, especially within 24 to 72 hours after first contact with the child.

5. Safe accommodation should be understood as multi-faceted, involving physical and psychological elements, with particular recognition of the impact of trauma on a child's perceptions and behaviour.

6. A child's accommodation and safety needs will change over time and should be regularly assessed.

7. A child should not feel punished or overly restricted by measures taken to help keep them safe in accommodation.

8. A child should be given access to a range of psychological, educational, health, social, legal, economic and language support that 'brings safety to the child' and helps them recover.

9. Everyone working with child victims of trafficking should be trained to recognise and respond appropriately to their needs.

10. Efforts to keep children safe should involve the wider community in ways that help create an environment that is difficult for traffickers to operate in.

PROJECT INTRODUCTION Bamenda, Cameroon

6° N Latitude 10° E Longitude Elevation: 4,692 ft. Population: 550,000

Located in central Africa a few degrees north of the equator, Bamenda is one of the larger cities in the country, and is located in the tropical northwest. The city is comprised of a dense center surrounded by rural communities.

Like many countries in Africa, Cameroon was formerly under European colonial occupation. Additionally, forty percent of the population is under the age of fifteen, which likely adds to the prevalence of child labor.







PROJECT INTRODUCTION

.

**Background Information** 

The United Nations Office of Drugs and Crime [UNODC] defines human trafficking as "...the acquisition of people by improper means such as force, fraud or deception, with the aim of exploiting them." The U.S. Embassy in Cameroon also explains that, "Cameroon is a source, transit, and destination country for children subjected to forced labor and sex trafficking... Trafficking operations usually target two or three children, often when rural parents hand over their children to a middleman promising an education or a better life in the city... Cameroonian children from the country's 10 regions involuntarily work in domestic service, street vending, mining, and agriculture, including on tea and cocoa plantations. Cameroonian children are also exploited in prostitution within the country." Additionally, "Cameroon is listed in the Tier 2 Watch List of the 2011 Traffic in Persons Report published by the U.S. Department of States on 27 July 2011. Tier 2 Watch List constitutes countries that do not fully comply with minimum standards of the Trafficking Victims Protection Act (TVPA), but are making 'significant efforts."





## Culture

Mr. Achungi, executive director of the Global Welfare Association [GLOWA] in Cameroon, has provided insight into the cultural vulnerabilities of Cameroon and some of the tragedies faced by the children that are trafficked there.

"Culturally, child fostering is highly practiced in Cameroon permitting one's children to grow with friends and relatives. These cultural practices have been infiltrated by traffickers who normally pose as helpers at the disposal of the suffering masses... Also, parenting practices are such that children must obey instructions from adults. This factor plays on the victims who would hardly oppose instructions from slavers... Child labour is readily accepted here making it difficult for people to question when they see a child engage in activities considered abusive. Domestic trafficking is on the increase and street begging by trafficked children is an everyday activity...

Cameroon has recorded a considerable advancement in the empowerment of women with an increasing number of women involved in paid jobs and needing backups at home for performing domestic chores. This backup is readily found in the trafficking and exploitation of children... The legal system is so slow and highly corruptible which discourages many from seeking legal redress, especially against rich trafficking agents." GLOWA is currently working to fight this cycle of trafficking by informing and empowering communities while working to provide a home for victims they have rescued.



PROJECT INTRODUCTION

Site Analysis

The site I have chosen as a temporary site for this project is located on the northern edge of Bamenda, Cameroon. It is a temporary site that was chosen because of its location and size, but is not the final site upon which the center will be built. Not-for-profit organizations in Cameroon are granted land from the government upon which to build, but the land is taken back and allocated to another organization if it has not been developed on. Therefore, the design is being created on this temporary site in preparation for its development on a final site.

Local buildings are usually constructed of either poured concrete or concrete masonry. Poorer construction usually consists of cheap wood buildings or poorly constructed masonry.

With regard to utilities, most are reasonably available in urban centers. Electricity is accessible but pregnant with cuts. Domestic gas is sold in cylinders. Water is available through the national water company in the cities, and is community based in rural areas. **PROJECT INTRODUCTION** • . •











**SUNLIGHT** 

Climate

The climate in Bamenda, Cameroon is relatively fair, with average temperatures ranging from 60°F to 80°F yearround. The primary factor that needs to be considered is the humidity, which is typically 85-95%. There is also a considerable amount of rainfall during the monsoon season. The wind speeds are relatively consistent throughout the year. The trade winds come from the northeast and the monsoon winds come from the ocean to the southwest.

Given the high levels of humidity, natural ventilation will need to be a key design feature in order to keep air flowing through the rooms. A moderate amount of passive solar heating will also help warm spaces during the evening. Natural lighting should also be a key factor in the design to provide warm white light to the spaces while saving money on electricity.

Spring & Fall: 84° above the souther Summer: horizon at solar noon Winter: 60.5° above the southern horizon at solar noon

72.5° above the northern horizon at solar noon









Dry Bulb Temperature

## PRECEDENTS

MARIKA ALDERTON HOUSE BUTARO HOSPITAL SAYNATSALO TOWN HALL DRUK WHITE LOTUS SCHOOL





PRECEDENT Marika Alderton House

Designed by Glenn Murcutt, this is a precedent set in a hot, humid climate in Australia. It utilizes natural ventilation to sustainably cool the building. Its form is designed to maximize the amount of ventilation possible while limiting sun exposure. The refuge center will need to be designed to function similarly due to the high levels of humidity in Cameroon.







PRECEDENT Butaro Hospital

Designed by MASS Design Group as a way of rethinking architecture with increased focus on how it affects health. In contrast to previous buildings that had failed to serve as quality health environments, MASS' hospital in Rwanda utilizes sunlight and plenty of natural ventilation to keep rooms fresh and clean. This is important in a hot and humid climate, but especially when addressing health concerns. It was constructed by community members using local materials, which is something that will be seen in the Bamenda refuge center. Additionally, percieving a building as a place of healing is important when considering the emotional and physical health needs of the children that will be living within the GLOWA Rescue Home.





PRECEDENT Saynatsalo Town Hall

Designed by Alvar Aalto, this precedent was chosen for inspiration into site design. It is a quality representation of a project with an inward focus. The buildings are finely crafted using typical materials in unique ways. The site is sculpted to provide varying levels of interaction with the buildings, and the central plaza helps unify the overall design. Similar design features will be used in the development of the rescue home. Creating an inward focus will help form a sense of community at the center, and the innovative use of typical materials will help keep the project affordable and constructable while providing a quality home for the children.





PRECEDENT

Druk White Lotus School

Designed by ARUP, this is a transitional school located in northern India. It was chosen as a precedent because of the similar program and because of the sustainable measures implemented in this project. It utilizes a trombe wall passive solar system, a rainwater catchment system, and a waterless, ventilated toilet design. Similar design considerations will be developed in the rescue home in order to create a self-sustaining facility. The similarity of function helps give insight into the programatic needs of the rescue home.

## PRELIMINARY DESIGNS

FIRST ITERATION SECOND ITERATION SECTION SHOW THIRD ITERATION



PRELIMINARY DESIGN

This design will utilize natural ventilation by opening to the northeast trade winds, but will limit exposure to the southwest monsoon storms. The site is organized to create a central courtyard while opening up to the back, where gardens and a pig and poultry farm will be present. The northern most building will be comprised of five group homes. The southern building will have service spaces in the west wing and learning workshops in the east wing. The adjacency diagram shown below is a representation of how each of the spaces connect to each other. It is not representative of exact space locations or sizes, but helps to show the organization and circulation of spaces.







The proposed construction method for this iteration is a modular panelling system which would be constructed on the ground and tilted into place. This repetitive form of construction would allow the building to be constructed in phases, and could easily be learned and duplicated by unskilled volunteers. The building would be mounted on pylon foundations to eliminate the need for a slab and allow air to ventilate the building from underneath.






PRELIMINARY DESIGN

Similar to the first iteration, this design will utilize natural ventilation by opening to the northeast trade winds. The buildings are designed to take advantage of stack ventilation while also creating a light well to naturally light the rooms. The site is organized to create a central courtyard where the community can gather together. The boys and girls group homes are separated and each take advantage of the views to the northeast. The learning workshops are located on the south end of the site, and the service spaces are located in the primary, central building. This iteration is more developed in site layout and form compared to the first design, but still lacks overall site design and spatial depth. The method of construction is typical concrete masonry walls finished with cement plaster.













The diagram shown on the left is an abstract representation of the project related to its surroundings. The world from which these children come is chaotic and frightening. The center shall be designed to provide them with physical and emotional safety in an environment where they feel free and valued.



PRELIMINARY DESIGN Section Show

This is a section of the third design iteration showing the learning center on the left, the service spaces on the bottom, and the group homes on the top. This section was cut to show the varying levels of the site and the forms of the buildings. It also begins to give an impression of the atmosphere of the project.

the A





PRELIMINARY DESIGN

This is the third design of the rescue home. It is also designed to take advantage of the northeast winds, and is organized to create a central plaza where the community can gather together. This courtyard is circumferenced by hills and terraces, and the buildings open to the center to create an inward focus while the rooms still embrace the views from the site. The boys and girls dorms are still separated, but the design is unified by the central gathering area.

The site is sculpted to take advantage of the slope. The service spaces are set into the hillside and open to the lower plaza on the north side of the site. This design is more integrated with the site than previous iterations, and the spaces communicate with each other much more fluently. The issue of safety still needs to be addressed, as does the implementation of covered circulation and softer transitions between spaces.







C



learning workshops

٠



	2	
	$\underline{P}$	
		4
2		
	<u> </u>	
	$\overline{\Delta}$	
	7	
	2	
	2	

group homes



Central Courtyard





Courtyard In The Evening











**CMU CONSTRUCTION** 



WOOD FRAME CONSTRUCTION



## FINAL DESIGN







ARCADE IN THE EVENING





**GROUP HOME** 





MAIN HALL










This rescue home is designed to provide these children with an environment that encourages growth and healing. It is designed to utilize natural ventilation by exposure to the northeast tradewinds. The site is organized to create a central courtyard where the community can gather together. The boys and girls group homes are separated and each take advantage of the views from the site.





**FLOOR PLANS** 

When the project is completed, there will be ten group homes in total. Each will house 5 children and 1 onsite staff member, allowing for a total of 50 children and 10 staff that live at the rescue home. The use of group homes instead of a large dormitory will aim to create a family-like atmosphere in which the children can grow together under the care of foster parents. This design will form an environment more conducive to emotional healing and growth for the victims of human trafficking. There will also be housing for additional staff not living in the group homes.

The service spaces will include a dining hall, a kitchen, restrooms, a bakery, a small store, a health center, a laundry room, and offices for the staff. The learning center will be composed of four vocational training workshops. These workshops are important because they will create an environment in which the children can learn skills and trades. This knowledge is critical in that it teaches them how to provide for themselves in order to avoid being forced back into slavery.







SECTION LOOKING EAST







SECTION LOOKING NORTH





# Daylight & Natural Ventilation:

Given that Cameroon has such high humidity, natural ventilation is critical to designing a comfortable environment. The fresh air and prevalence of natural light create a warm, pleasant environment, more conducive to healing and peace.

## Casement Windows:

The use of casement windows is important because it helps open the interior and soften the boundaries of the walls, allowing the space to feel more open and free instead of enclosed. Children are able to have control over their environment through the variable use of the shutters.

Rain Garden: • • • • • • • • • • • • • • • •

Excess water run off falls into the rain garden and drains into the site. The garden helps prevent flooding and provides a beautiful landscape that softens the transition to the private spaces.





The image shown above is a private space for one of the children living at the GLOWA Rescue Home. It is important that each child has his or her own space to personalize and identify with.





- Offices, Health Center, Laundry
- Group Homes: Girls
- Group Homes: Boys
- Staff Housing
- Main Hall

- Kitchen, Entry
- Workshop: Hair Dressing, Tailoring
- Workshop: Carpentry, Mechanics
  - Circulation
- 1 Playground
- 2 Central Courtyard
- 3 Garden Area



Rainwater

112

• Catchment Cistern

The plentiful rainwater that falls on the sloped roofs is caught and stored in a cistern located on the site. This water can then be cleaned and used for plumbing, laundry, and irrigation.

Excess rainwater that falls on the roofs of the group homes is also used to water the rain garden in front of the homes. This helps manage runoff and provides water for a beautiful garden of native plants.



















# **ANALYSIS:**

CRITICAL ANALYSIS OF ENVIRONMENTAL PSYCHOLOGY AND ITS APPLICATION IN THE DESIGN OF THE GLOWA RESCUE HOME In developing the rescue home for the Global Welfare Association (GLOWA) in Cameroon, it was important that I create an environment that helped children feel free and valued, one that encourages healing from the tragedies they have faced as victims of human trafficking. These children have been captive and without hope. They deserve to live in a place that they can call home, where they feel safe to play and grow. This paper is written as a critical analysis to determine the extent to which the current design for the GLOWA Rescue Home satisfies that need. Certain facets of the design fulfill this requirement well, but it is still lacking in some areas. There are ways in which it can be improved as well. However, in order to understand what parts of the design are good and which still need development, a clearer understanding of these parameters must be defined. 124

In this analysis, what is considered qualitatively good or bad is the extent to which the project creates a healthy environment that promotes a sense of freedom and value for these children by means of the principles found in environmental psychology. Dave Alan Kopec, "a specialist in the field and professor at the New School of Architecture and Design in San Diego," defines environmental psychology as, "the study of human relations and behaviors within the context of the built and natural environments," (Moses). "Environmental psychology explores how physical spaces influence the way we feel, think, and interact with the world…" (Psychology Today). For the purpose of this project and the potential influence on users, principles of physiology will also be considered. Physiology is defined as, "the branch of biology dealing with the functions and activities of living organisms and their parts, including all physical and chemical processes," such as biological reactions to various colors (Dictionary.com).

if they are unaware of it. The quality design of our built environments accounts for this influence to create spaces that people can enjoy and feel comfortable in. For this project, a healthy environment is considered be one in which children who have been victims of human trafficking can find healing from their wounds, both physical and psychological. Physical healing can easily be addressed in an infirmary, like the one located on the site, and by designing structures to code to create a physically safe environment. With a program as sensitive as a refuge center for children rescued from slavery, this may also include a wall or barrier to keep out intruders. However, an environment that encourages psychological healing is more difficult to define.

125

Psychological healing is a movement towards emotional stability; to be able to find peace and joy in life, rather than being consumed by fear or pain. In his book, Spirit and Place, Christopher Day describes health as, "a state of renewal, balance, and development... For humans: life vigor, emotional stability, and spirit growth," (Day, 181). The tragedies faced by victims of human trafficking can leave emotional scars that will likely take years to recover from. Helen Armstrong, an associate of Free The Slaves, explains, "Former slaves can have serious and complex psychosocial problems.' In a perfect world, rehabilitation programs would include mental health professionals who could help clients through counseling," (Armstrong, 35). A physical environment that promotes emotional healing is important in helping children recover from slavery, but counseling and the opportunity to talk with others is critical in their healing. However, this discussion concerns the design of physical environments, and while not undervaluing the importance of psychiatry, will discuss how the quality design of a rescue home can help children recovery from the emotional trauma of slavery.

I will begin by addressing key points in the current design of the GLOWA Rescue Home that were beneficial in creating a healthy environment for the children. Some of these design principles were fairly general and apply to the overall site layout. For example, the site design creates a central courtyard that acts as a shared community space to unite the people staying at the center. Additionally, the housing at the center is separated into group homes, each housing five children and a staff parent. These decisions were made in an effort to create a personal, family environment within the refuge center so that children could feel at home and at peace. In a study done by Baum and Valins (1977) students living in a dormitory setting were compared to those living in suites. They found that "...the corridor residents felt crowded and stressed in contrast to those living in suites," and subsequently were less social and felt they had less control over their environments (Baird and Lutkus, 6). Therefore, in designing a home that is meant to bring healing and peace, a suite-style design would have a much more positive impact on these children than



Making spaces into places.

a dormitory style. A unified courtyard scheme also helps to create a firm sense of place. Christopher Day explains that a "place" is formed by a combination of defined enclosure and the energy within a space, which he calls boundary and field (Day, 125). In the rescue home design, this is done in a fashion similar to that in the images shown on the left, in which the buildings create the boundary around the courtyard and circulation and activity create a field within it. The creation of a firm sense of place is important because, "We relate to where we live differently if home is an identifiable building on a patch of ground or a layer somewhere above it. The more we know where we live, the more secure our identity..." (Day, 127). In turn, the more secure our identity, the healthier we are psychologically.

127

Another set of design features that were important in creating a healthy environment were the sustainable measures used to provide quality daylight and natural ventilation. These features help create a comfortable environment with regard to light, temperature, and air quality, each of which influence people both physiologically and psychologically. With regard to lighting, "More brightly lit rooms seem more cheerful, which in turn makes us more cheerful," especially when lit indirectly, (Augustin, 61). "Lighting can be direct or indirect... Indirect lighting makes a space seem larger. Direct light increases our energy level," (Augustin, 61). Also, "Lighting a room with a more general, consistent, moderate intensity of light is relaxing," (Augustin, 62). More detailed studies will need to be conducted to test the lighting levels of the rescue home design, but currently, windows and light wells were developed in an effort to fill spaces with balanced levels of indirect and direct light. In doing so, the spaces created will feel more comfortable and energizing or relaxing where appropriate. It is also important that these spaces are lit with daylight as opposed to being limited to artificial light. Physiologically, daylight is filled with energy and helps the production of endorphins and vitamin D, critical to our mental health. Also, "Daylight's light cycles help us regulate our circadian rhythms and that keeps us in a good mood and improves how comfortable we feel," (Augustin, 63). In addition to the lighting levels of the spaces, natural ventilation was used to create quality spaces with thermal comfort and fresh air. "Fresh air invigorates us. It's important we have enough. So sensitive are we to small increases in CO2, that concentration and vigour fade in stuffy rooms," (Day, 190). Keeping the air clean and fresh helps provide more oxygen and prevents the presence of harmful pathogens, and it also feels more pleasant. The more comfortable a person feels in a space, the better tendency they have to enjoy it and feel at peace. 128

Additionally, the provision of a private space for each child was important in the design. It was critical that each child have a space to personalize and to call his or her own, a place of stability in which they could ground their identity. "We need a home in the psychological sense as much as we need one in the physical: to compensate for a vulnerability. We need a refuge to shore up our states of mind, because so much of the world is opposed to our allegiances," (De Botton 107). Helen Armstrong explains, "In many cultures, having a private place of one's own is important. If possible, give clients of any age somewhere that they can call their own – even if it is only a small box with their name on it. Try to give clients control over their own things, possibly for the first time in their lives. Unless you ask first and s/he agrees, do not open a client's own box or room," (Armstrong, 19). It was also important that each private space have a window from which a child could view the outside world. There have been studies in hospitals that show that "...in windowless units, twice as many surgical patients developed post-operative delirium as those in units with windows. They also showed more symptoms of depression." Additionally, "Patients with a view of trees and flowers took 9% less time to convalesce than those with views of a brick wall," (Day, 233). Not only can a beautiful view be pleasing to look at, it can have a significant effect on health by means of our psychological states. Each window in the group homes is operable and has shutters with which the children can control their environment and enjoy the beautiful view and fresh air.

179



Other beneficial features in the design include the space provided to run and play and the simple organization of the site to create a sense of order. Helen Armstrong explains, "For normal development, children must have space to play. Both boys and girls need to climb, run, jump and move freely, to play games, sing, dance and make noise, to use their hands for catching and throwing, drawing and making things," (Armstrong, 18). These images from Helen Armstrong's article, shown above and below, help illustrate this. Additionally, it is important to "Establish a sense of order, so clients know what to expect," (Armstrong, 46).



There is, however, a key aspect of the rescue home design that did not help create a healthy environment. Even though the design creates a community atmosphere, the overall form and site layout is still too institutional. In Spirit and *Place*, Christopher Day explains that in order to make a building institutional, it simply needs straight corridors, regimental rhythms, a utilitarian atmosphere, and a standardized experience to all the senses. Additionally, the buildings would be boxes to containerize people and process occupants in a linear sequence (Day, 231). The GLOWA Rescue Home does not match this description perfectly, but there is enough overlap that it certainly needs to be addressed. Currently, the design is guite linear with plenty of right angles and box-like buildings. There are little alcoves, gardens, and large, casement windows that help blur the distinction between indoors and outdoors, but to some extent these features are merely covering up the institutional boxes. These are important, however, because, as Day explains, frequent opening to the outer world and interweaving daylight from different directions can help prevent a space from feeling institutional. Other design features that can counteract this include strategically angling walls, swelling corridors, and providing a meaningful variety of materials, as shown below (Day, 231). The current design is definitely not composed of dark, lifeless spaces found in institutionalized buildings, but the form and linear layout could still be developed further to prevent it altogether.





There is also a certain aspect of design that was not fully included in the rescue home: the inclusion of semi-private spaces within the larger public space. This would have created more hierarchy in the spatial design and could have helped the children feel more comfortable in the new environment. People often need to feel safe and semi-secluded while viewing the world around them, especially if that world is strange or new. Quiet spaces within a public environment can help children adjust to a community and be more comfortable with who they are and what their place is in the new environment. Roger Hart, author of Children's Experience of Place, writes, "Contrary to the urban and recreational planners image of children as desiring to continually run, jump and climb, some children search out quiet places to be alone. These places frequently carry water, dirt or sand and are sites for hours of quiet introspection often dabbling seemingly aimlessly," (Hart, 171). Such places are important to the emotional health of children, but have not been designed into the rescue home yet. Helen Armstrong explains that these spaces are also important for private social interactions. "Provide guiet times for actively listening to each client," by designing, "...a space that is private, but not completely away from everyone. 'A center in Togo uses a small open building for private counseling. Grass mats

hang around the sides, but the client can see out. Other people can see that someone is talking inside there. But they cannot watch and cannot hear what is being said.' (Hyde, 'Physical and Mental Health')" (Armstrong, 39). In this situation, the spatial design is helping facilitate a therapeutic social interaction, something that was considered but not fully accounted for in the current design. 132

Lastly, it should be noted that as a whole, the design seems to work fairly cohesively and is well organized to create community and stability. However, it did not fully account for the ways in which children relate to their environments and the psychological difference between the developing minds of children and those of adults. Children interact with their environments in unique ways, and even though some of the people staying at the center will be young adults and staff members, it is important that this difference in interaction is accounted for. "Young children, because they lack the verbal... skills that are relied upon in many cognitive environmental psychology investigations, tend to be an understudied and worse, and underestimated population," (Baird and Lutkus, 130). Even though the physical environment we occupy is the same as that which children occupy, there is a difference in our psychological environments. This is defined as, "the relationship between the organism and the physical environment and is modified according to this relation..." because "...in the subject's view the activity takes place in the psychological environment, so it is within this realm that the subject regulates behavior. The physical environment is the one in which the external observer sees the subject act," (Baird and Lutkus, 143). It is important that an environment be designed in accordance with the cognitive structures of children, because, "...this may facilitate the children's perception of the environment as coherent and legible; this in turn might influence the degree of comfort that the child feels in the environment..." (Baird and Lutkus, 162). As a result of being more comfortable in an environment, children will more easily be able to find peace and healing from the tragedies they have faced. Though there are not many clear design guidelines for creating child-centered spaces, some hints exist that can give us an idea of how to create a more comfortable psychological environment for children. Some general principles of physiology mentioned earlier still apply to children, as do many psychological principles, but further design decisions must be made that are backed up by child-centered studies. For example, "One area for which information exists about children's preferences for physical structures is the outdoor playaround." Studies showed that"...older school-age children," like those staying at the rescue home, "...much preferred the adventure playground, where one could build clubhouses out of old tires, boards, and miscellaneous junk," (Baird and Lutkus, 13). Roger Hart also explains, "One particularly important quality of environments for children is its suitability for modification by them. Adopting a theory of adaptation, it may be argued that one way people make themselves comfortable in an environment is through the complimentary processes of giving order and meaning to an environment... and of physically modifying it," (Hart, 349). Hart also explains that children love finding secret paths between spaces and greatly enjoy bodies of water. The spatial hierarchy children designate to various places is different than that of adults, and must be accounted for in design. In the rescue home, priority is given to spaces for team games, like soccer, and the provision of space for an adventure playground, but it should also account for the unique idiosyncrasies found in the psychological environments of children that are so critical to their sense of comfort and home.

133

The children that the Global Welfare Association is helping have experienced pain that is difficult for most of us to comprehend. Treated as slaves and living in inhuman conditions, they have known little more than fear and loneliness. However, this refuge center can provide rescued victims with a new place to call home. It should be designed to create an environment where children feel free and valued, and it can do this by means of the design principles found in environmental psychology and physiology. Many features of the center have already been designed to emotionally benefit these children. However, there are ways in which the design can be refined to further provide healing for these kids. Ultimately, the children for whom the center is being built should also have a say in the design. Their joy, their childhood, and their dignity have been stolen from them. Providing them with a safe place that they can call home will help them find healing, peace, and the freedom to feel joyful once again.







INDE	Х																																		ļ
• • • • •	•	•	• •	•	٠	• •	•	•	٠	٠	٠	٠	٠	٠	٠	٠	٠	•	• (	• •	•	•	٠	٠	٠	٠	٠	٠	٠	٠	٠	•	•	•	•

Climate Data:	Bamenda, Cameroon	roon					
Month:	Avg Temp (°F)	Rainfall (inches)	Sunlight (hrs)	Humidity (%)	) Wind Speed (mph)	(hqm)	High-Low Temp:
January		68.7 0.	0.42	8.70	84%	2.80	25.5°C/14.6°C
February		70.8	1.17	8.53	83%	3.42	26.2°C/16.0°C
March		71.4 5.	5.19	6.93	83%	3.73	25.5°C/16.5°C
April		71.9 7.	7.14	5.43	85%	3.11	24.9°C/16.5°C
May		69.9	7.08	5.10	85%	3.42	24.4°C/16.1°C
June		69.9 10	10.68	4.00	87%	2.49	n/a
λην		65.9 15	15.28	2.80	%06	2.80	21.2°C/14.8°C
August		66.2 16	16.40	2.80	92%	3.11	21.1°C/14.8°C
September		66.9 16	16.55	2.87	%06	2.80	21.9°C/14.9°C
October		67.9 9.	9.71	4.83	89%	3.42	23.2°C/15.3°C
November		68.3 2	2.49	7.50	87%	3.42	23.8°C/14.9°C
December		68.5 0.	0.57	8.80	86%	2.80	24.6°C/14.4°C

CLIMATE DATA CHARTS

## INDEX

"2012 Trafficking in Persons Report on Cameroon." Embassy of the United States Yaounde, Cameroon. N.p., n.d. Web. <http://yaounde.usembassy.gov/tipreport.html>.

"Aalto, Alvar: Säynätsalo Town Hall Group." Encyclopedia Britannica Online. Encyclopedia Britannica, N.p., n.d. Web. < http://www.britannica.com/EBchecked/media/34845/Saynatsalo-town-hall-group-Finland-designed-by-Alvar-Aalto-1950>.

Achunji, Jamils. "Talk with Jamils Richard Achunji." E-mail interview.

Armstrong, Helen C. "Rebuilding Lives." Free The Slaves. N.p., Mar. 2008. Web. 14 June 2013. < http://www. freetheslaves.net/Document.Doc?id=60>.

"Attachment: Child Workers from the Ivory Coast." The Chocolate Festival. N.p., 25 Oct. 2011. Web. 17 June 2013. <a href="http://www.festivalchocolate.co.uk/2011/10/news-from-the-world-of-chocolate-3/kids-pose-for-portrait-on-cocoa-farm-where-they-work/">http://www.festivalchocolate.co.uk/2011/10/news-from-the-world-of-chocolate-3/kids-pose-for-portrait-on-cocoa-farm-where-they-work/</a>>.

Augustin, Sally. Place Advantage: Applied Psychology for Interior Architecture. Hoboken, NJ: John Wiley & Sons, 2009. Print.

"Average Monthly Rainfall And Temperature For Cameroon From 1900-2009." Climate Change Knowledge Portal 2.0. The World Bank Group, n.d. Web. <a href="http://sdwebx.worldbank.org/climateportal/index.cfm?page=country\_historical\_climate">http://sdwebx.worldbank.org/climateportal/index.cfm?page=country\_historical\_climate</a>.

Baird, John C., and Anthony D. Lutkus, eds. Mind Child Architecture. Hanover, NH: University of New England, 1982. Print.

"Bamenda, Cameroon." Wikipedia. Wikimedia Foundation, 14 Nov. 2012. Web. 07 Dec. 2012. <a href="http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda,\_Cameroon>">http://en.wikipedia.org/wiki/Bamenda.org/wiki/Bamenda</a>

"Bamenda Climate Guide." World Climate Guide. N.p., n.d. Web. <http://www.worldclimateguide.co.uk/ climateguides/cameroon/bamenda.php>.

"Bamenda Climate History." Weather 2. N.p., n.d. Web. <http://www.myweather2.com/City-Town/ Cameroon/Bamenda/climate-profile.aspx?month=1>.

"Buildings Photo Gallery." Druk White Lotus School. N.p., 07 Dec. 2012. Web. 07 Dec. 2012. < http://www. dwls.org/buildings-photo-gallery.html>.

"Butaro Hospital." Mass Design Group. N.p., n.d. Web. <http://www.massdesigngroup.org/our-work/ projects/butaro-hospital.html>.

"Cameroon." Living Earth Foundation. N.p., n.d. Web. 07 Dec. 2012. < http://livingearth.org.uk/projects/ cameroon/>. "Central Intelligence Agency." CIA. N.p., n.d. Web. <https://www.cia.gov/library/publications/the-world-factbook/geos/cm.html>.

Chanakira, Teurai. "Local Farmers save Lives!" Elizabeth Chanakira Cancer Trust. N.p., 20 Nov. 2011. Web. 17 June 2013. <a href="http://cancertrust.wordpress.com/2011/11/20/local-farmers-save-lives/">http://cancertrust.wordpress.com/2011/11/20/local-farmers-save-lives/</a>.

Citizen Architect. Prod. Big Beard Films. Perf. Samuel Mockbee. 2010. DVD.

Day, Christopher. Spirit & Place: Healing Our Environment, Healing Environment. Oxford: Architectural, 2002. Print.

De Botton, Alain. The Architecture of Happiness. New York: Pantheon, 2006. Print.

"Environmental Psychology." Psychology Today. N.p., n.d. Web. 14 June 2013. < http://www.psychologytoday. com/basics/environmental-psychology>.

"Global Welfare Association." GLOWA Cameroon. N.p., n.d. Web. 07 Dec. 2012. < http://www.freetocharities. org.uk/glowa/>.

"Google Earth." Map. N.p.: n.p., n.d. N. pag. Print.

Hart, Roger. Children's Experience of Place. New York: Irvington, 1979. Print.

Israel, Toby. Some Place Like Home. Chichester, West Sussex, England: Wiley-Academy, 2003. Print. "Jamils Richard Achunji Anguaseh." Facebook. N.p., n.d. Web. 07 Dec. 2012. <a href="http://www.facebook.com/anguaseh?fref=ts">http://www.facebook.com/anguaseh?fref=ts</a>.

Journeyman International. N.p., n.d. Web. 07 Dec. 2012. < http://www.journeymaninternational.org/>.

"Marika-Alderton House." OZETECTURE. N.p., n.d. Web. 07 Dec. 2012. <http://www.ozetecture.org/2012/ marika-alderton-house/>.

Moses, Nalina. "Environmental Psychology: Building with Feeling." The American Institute of Architects. N.p., n.d. Web. 17 June 2013. <a href="http://www.aia.org/practicing/AIAB096792">http://www.aia.org/practicing/AIAB096792</a>>.

"Physiology." Dictionary.com. N.p., n.d. Web. 17 June 2013. <http://dictionary.reference.com/browse/physiology?s=t>.

Shuker, Lucie. "Alternative Care and Safe Accommodation." Home, The Child Recovery and Reintegration Network. N.p., 14 Nov. 2012. Web. <a href="http://www.childrecovery.info/Alternative-care-and-safe-accommodation.190.0.html">http://www.childrecovery.info/Alternative-care-and-safe-accommodation.190.0.html</a>.

"Statistics: Bamenda, Cameroon." The Weather Network. N.p., n.d. Web. < http://www.theweathernetwork. com/statistics/c01550>.

## INDEX

"Stop Human Trafficking in Cameroon." Civitas. N.p., 28 July 2011. Web. < http://www.cvtas.org/2011/07/ stop-human-trafficking-in-cameroon/>.

"UNODC on Human Trafficking and Migrant Smuggling." United Nations Office on Drugs and Crime. N.p., n.d. Web. <a href="http://www.unodc.org/unodc/en/human-trafficking/index.html?ref=menuside">http://www.unodc.org/unodc/en/human-trafficking/index.html?ref=menuside</a>.

"Urban Poverty." Anna Kari, Photojournalist. N.p., n.d. Web. <http://annakari.photoshelter.com/gallery/-/G0000OnorBLRGkbl/>.

"Weather Forecast, Bamenda." Freemeteo.com. N.p., n.d. Web. <http://freemeteo.com/default. asp?pid=24>.

"Weather Statistics for Bamenda, North West (Cameroon)."Yr.no. N.p., n.d. Web. <http://www.yr.no/place/ Cameroon/North\_West/Bamenda/statistics.html>.

																															<b>CITED WORKS</b>									
••	• •	•	٠	٠	٠	٠	٠	•	٠	•	•	•	•	٠	•	٠	٠	٠	٠	٠	٠	٠	•	٠	•	٠	•	٠	٠	•	•	•	•	•	•	٠	٠	٠	•	•