

## **A Community Center in Mkuru Kwa Njenga**

In September 2007, SIDAREC, an organization working in the Mkuru Kwa Njenga community became the subject of *Architecture For Humanity's* competition challenge. In the ensuing months, Architecture for Humanity encountered many difficulties relaying information about SIDAREC's site to competitions. Mkuru Kwa Njenga is a Nairobi slum and subject to poor communications infrastructures. Later, the winter's political upheavals only worsened these communication links. The challenge of hosting the competition itself is suggestive of the even bigger challenge of physically building in this community. However, despite the poverty, crime and instability, hopeful acts of ingenuity and creativity persisted. The community of Mkuru Kwa Njenga deserves a place for the safe outlet of these creative expressions. This design proposal envisions such a place – it is a building that serves as a stimulus for social interaction and reconciliation.

While the written objective of the brief is to design an internet café and community center, the underlying objective is to design a building that acts as a catalyst for community development. The building of the winning entry will not only cause a shift in the physical environment, but will also signal a change in the social landscape. To ensure the building is successfully integrated into its site, the design needs to respond to specific local goals, address existing social values and effectively leverage the limited resources of the community.

This paper explains the design decisions made in arriving at the submitted proposal. Part One identifies key objectives and methodologies of building in slums (also called “informal settlements”). Part Two identifies methods to address and respond to site challenges. Part Three identifies the infrastructural and architectural tools chosen for implementation. The resulting competition proposal aims to reflect the aspirations and resource potential of the Mkuru Kwa Njenga community.

## Part One: Objectives and Methodology

### The Client

The locally run SIDAREC group - Slums Information Development and Resource Centres

*“is a youth development project operating in the slums of Nairobi. The organization aims at tapping and consolidating skills and talents existing among the youths in the community for the common benefit of the slum dwellers. The wisdom behind this reasoning was that, a lot of untapped resources existed in the communities and if acknowledged and harnessed, would be useful in bringing the much needed positive development change under the concept: Community problems need community solutions.”<sup>1</sup>*

In the competition brief, SIDAREC addresses their current conditions and discusses their programme targets:

*“Today’s world prosperity is technologically driven. The world has become a global village where the issue of distance is no longer the case. People interact and do business at the click of a mouse.*

*Currently people living on less than a dollar a day in the slums must pay the same rates as those with means to access the internet. The high costs of accessing internet means that many people living in the slums would continue to be out of touch with the rest of the world and poverty will continue stalking them. The need for such facility is also necessitated by lack of a place where students can do their studies and research work online. The nearest place where students can gain online access is a library and is 15 km away and is always full with many people*

*Young people would like to be trained in computer skills that will allow them to compete in the job market, communicate with each other and with the world. They lack a facility where they can gain access to the Internet at rates they can afford and learn these skills.*

*SIDAREC currently operates a successful technology center and radio station in Pumwani and is seeking to build a similar facility in Mkuru Kwa Njenga. The proposed media lab and library will be used to teach computer skills, including web and graphic design skills; will house recording facilities for the youth radio station; and will offer youth a place to research, play computer games, and study<sup>2</sup>.*



SIDAREC, Pumwani Site



Youth gathering at SIDAREC

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<sup>1</sup> SIDAREC Website

<sup>2</sup> AMD Challenge Website

SIDAREC's success lies in its direct engagement with the community. The facility in Pumwani is not only a place where the community can come to learn, do homework and access communications. It is, more importantly, a safe place to exchange ideas, exercise creativity, and showcase ingenuity. SIDAREC believes

*“slum communities have a lot of potential in terms of talents and skills and if members are empowered and mobilized to create positive change, they will eventually raise their standards of living”*

This belief is reflected in the spaces they build to facilitate this empowering message. SIDAREC has been catalytic to the development of the Pumwani area and look forward to replicating their success in Mkuru Kwa Njenga.

Started in 1996 by a group of youths living in slums, SIDAREC has continually improved its programmes of outreach. Surviving for over a decade, they have gained experience, leadership status, and the trust of their community. Their building in Pumwani physically manifests their established presence in the city. Built by local efforts, it is rooted place. It is a reminder to the community of collective social investment.

### **The Challenge**

The design for the new Internet Café and Community Centre in Mkuru Kwa Njenga faces the challenge of engaging their community in the same respect as their Pumwani counterpart. How can the design proposal reinforce the values and successes of its predecessor? In what way can existing resources and experiences be leveraged to create a place that will stimulate positive community growth?



SIDAREC, Mkuru Kwa Njenga Site

## Community Engagement

*“When a new, planned building rises in the slum – be it a public toilet or a sewing co-operative – it immediately becomes a monument.”<sup>3</sup>*

- Jorge Mario Jauregui

Using the success of the collaborative build of Pumwani’s SIDAREC center as precedent, the design proposes local community engagement that begins right from the design and building process. The practice of community inclusion during the initial stages of design not helps establish respect for the building, but also ensures that it closely addresses community needs and goals. Three principles of community inclusion have informed this competition proposal. Below are the precedents that shaped them.

## Seamless Integration

The Portable Light Project works with communities to adapt technologies to align to their traditions and identity. Communities without access to electricity face serious health issues and dangers. In the Huichol Village of Nuevo Colonia, Portable Light provided the community

*“..with localized light in their cabins. Women are now able to prepare nutritious meals for their families instead of giving them expensive and less nutritious instant meals. In addition, Portable Light provides a measure of basic health and safety, as women can spot the alacran, the poisonous scorpions of the sierra, brush them off the walls, and kill them. The stings of these scorpions are very painful for adults and often kill babies and small children who sleep in the ranchos”.<sup>4</sup>*

Portable Light is successful as a tool because of the way that it is integrated into their vernacular technology.

*“...working with kits of portable light electronics, women weavers have designed their own light-emitting textiles, using a back-strap look and Mesoamerican weaving techniques more than a thousand years old. By integrating Portable Light into the kuxira (belt) or K+tsiuri (carry bags), Huichol women are both continuing their traditional practices and expanding their possibilities to participate as producers of technology in new economies of their own creation. These women may take ownership of the Portable Light they create.*



Portable Light Project

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<sup>3</sup> Architecture for Humanity, p218

<sup>4</sup> Design for the other 90%, p64

*They may trade or sell it to others in their community, or produce it for sale to tourists”.*<sup>5</sup>

Claiming new technologies and seamlessly aligning it to everyday patterns ensures sustained use. The competition proposal aims to create similar opportunities for vernacular integration through adapting local skills and materials into the design.

### **Involvement Through Build**

An architecture class in Mississippi State University’s design-build in Okolona Mississippi illustrates the power of community engagement. Their project was situated in a “neutral zone” in a diverse neighbourhood where an outdoor park was built to stimulate community integration.

The class quickly learned that their park design would be most successful if the diverse members of the community was directly involved in its realization. The act of building fostered the community integration that the design hoped to achieve.

*“The very act of making something in this way places higher regard on the act itself. Learning to improvise and respond to the conditions and material at hand provides an important lesson. By slowing down and seeing the potential of a place and its people, we remake ourselves to fit the circumstances at hand; we approach our work in a different manner, and this can be enormously instructive”*<sup>6</sup>

In involving the community, local expertise and building traditions were expressed and the potential of its people were realized. Through involvement, community empowerment emerged and leadership roles were fostered. The design proposal for SIDAREC’s new building embraces this technique of local engagement and possible social reconciliation.

*“it is critical to involve the community in the life of our projects; it is not possible for a design to be cared for and maintained without a community taking possession of it. This looser fit between architect, builder and user suspends the design process to involve others in it early on, which provides the grounding for many to be involved and able to pursue long-term community making. The practice of designing and building allow others to be involved in tangible ways and established the place for long-term community making. Through the process of making this park, the community found an opportunity*



Park Project, Okolona Mississippi

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<sup>5</sup> Design for the other 90%, p64

<sup>6</sup> Good Deeds, Good Design, p215

<sup>7</sup> Good Deeds, Good Design, p216

*to reestablish their relationships to one another, to see the ugliness and invalidity of racist viewpoints and the opportunity to invent a new shared, public life. Involving many in the making of the park provided a powerful case that architecture does indeed matter.”<sup>7</sup>*

### **Incremental development**

The community of Bayview, located on the Eastern Shore of Virginia is home to some of America’s poorest citizens. One outspoken and determined resident petitioned for a grant to address environmental stewardship and social and economic equity for the poor. The grant was approved and the community collaborated closely with an architecture firm that facilitated a team of environmental engineers and planners. The aspirations of the community was to rebuild



Rendering of potential community space for the citizens of Bayview

*“a rural village of homes, neighborhood-owned businesses, community institutions, and collectively owned land. They wanted to make tangible steps to develop, own and operate their village”.<sup>8</sup>*

The community and the design team began with informal barbeques to discuss and build communication and trust. Local meetings soon followed where a series of short-term, tangible goals were introduced. In the process of implementation, the community gained experience in assuming more and more responsibilities. Within a year, Bayview accomplished all the goals they set out to achieve: drilling deep wells, attaining clean drinking water, planning a community garden, and building the foundation of a productive agricultural landscape. Their success empowered them to move onto larger projects concerning long-term visions for their community.

*“The community was determined to change their physical reality. The technical team was challenged to elevate the design process so that it became an opportunity for community empowerment; this would shift radically the balance of power from a county bureaucracy to a community of low-income residents. The process would not simply provide short and long term solution to significant environmental issues, but would create a community-based organization adept to implement them. The technical team believed that by interpreting the community’s vision of itself, instigating an organizational structure and setting Bayview on political path of self-governance, a defined community identity would emerge”<sup>9</sup>*

The competition design embraces this incremental process of

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<sup>8</sup> Good Deeds, Good Design, p106

<sup>9</sup> Good Deeds, Good Design, p105

physical build and realization. Mobilizing enabling policies to facilitate incremental tasks promotes empowerment and local ownership. The design is meant to serve as the initial catalyst for dialogue to stimulate community-driven decision-making and incremental implementation.



## Part Two: Site Challenges

In order to stimulate effective dialogue and focused efforts, the design of SIDAREC's new center needs to reflect the specificities of Mkuru Kwa Njenga's site conditions.

### **Slums – the good, the bad, the ugly and the possibilities**

In Nairobi, over 60% of the population live in slums. These informal settlements house the wave of settlers drawn to the city by promises of wealth and opportunity. Buildings erected use found material and are built following no formal plan. Slums are unsanctioned and provide limited infrastructures and services. Running water, schools and health dispensaries are poorly lacking.



Mkuru Kwa Njenga

*"Of the three billion people who live in urban settings, an estimated one billion live in slums."*<sup>10</sup>

These informal settlements are the cities of the future. As the poor urban population continues to explode, these cities will grow. The contemporary urban challenge is to address the conditions of these informal communities. How to mediate these chaotic conditions towards sustainable and healthy living?

*"The true challenge is not to eradicate these communities but to stop treating them as slums - that is, as horrific, scary and criminal - and start treating them as neighborhoods that can be improved. They don't need to be knocked down and built new, because in most cases this will only produce housing that is not affordable to the people who are living there."* – Robert Neuwirth

Robert Neuwirth is a journalist who has lived in the slums of Rio, Nairobi, Istanbul and Mumbai. His firsthand accounts speak of challenges facing these communities, but it is the vitality in these places that he is most excited to share.

*"Life there is hard: no water, no transport, no sewage. But looking at them from the inside brings a surprising perspective. Neuwirth discovered thriving restaurants, markets, health clinics, an unconventional real-estate market, and truly effective forms of self-organization."*

*His vivid descriptions and frank admiration for the ingenuity and innovation he encountered force us to rethink assumptions about community, poverty and the shape of 21st-century cities. Our challenge isn't to end poverty or control populations, but to engage*



Example of "slum living". Ingenuity and creativity can be seen in the multiple functions and orientation of household objects

<sup>10</sup> WHO website.



*and empower the residents in these "cities of tomorrow."<sup>11</sup>*

Another advocate for the creativity and ingenuity found in informal settlements is the Urban Think Tank, an architecture firm working in Caracas. Their designs reflect the informal character of the “barrios” in which they work. Some of their work document the informal markets located in patterns of moving traffic and interstitial spaces of the city. Their architectural interventions reflect their documented subjects. One project - located in the targeted pockets of the barrio – is a modular stair-kit. These stair-kits are adjustable to fit varying spatial constraints when assembled. The barrios of Caracas are built on steep slopes - these stairs respond directly to the need for simple paths of connection in the city’s rapidly growing urban fabric.



Urban Think Tank's Stair Design

Another project that responds directly to the community’s needs are the Dry Toilet Facilities. Without running water and plumbing, the massive population experiences unending problems of waste removal. The design solution: build facilities that require little water consumption. Without the need to move gallons of water up steep slopes and waste down the slopes, optimum hygiene can be more easily achieved. Urban Think Tank’s design successfully solves problems specific to the barrio community.



Urban Think Tanks' Dry Toilet Facility

The perspectives of Neuwirth and the problem solving tactics of Urban Think Tank illustrate the dormant opportunities that lay in aligning specific architecture tools with the approach of sensitive site appraisal.

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<sup>11</sup> TED website

## Interaction and Dialogue

In design, the social dynamics of the clientele need to be examined. Users of the Mkuru Kwa Njenga facility do not own personal computers or desk space; in fact, they often have very little space of their own to claim. Most residents of informal settlements share living spaces and lack formal offices. They are “mobile entrepreneurs”. What most individuals take for granted in developed communities are personalized spaces with ample storage where work can be done with regularity and efficiency. Residents of informal settlements work in mobile conditions. They carry their tools and notes to communal workstations and hold meetings in informal spaces. The SIDAREC center will be one of these places they can temporarily claim and easily adapt to their needs.

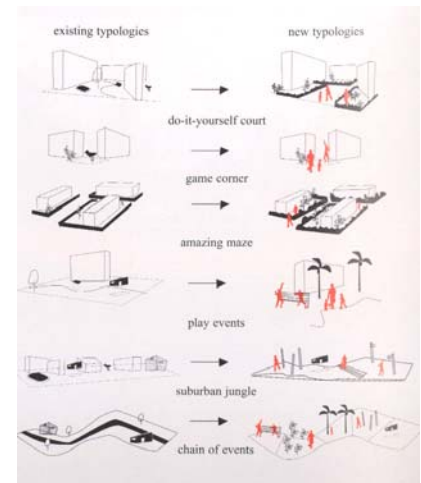
Claiming public space is the shared interest of curator Liane Lefaivre and the architect Henk Doll. Their collaborative design proposal for Rotterdam playgrounds address issues of personal and social health in communities. Their design is a network of playgrounds at different scales that engage various age groups and simulate interaction.

*“Collectively, the places form a network due to the fact that they are interconnected via physical routes, sightlines, or meetings zones”<sup>12</sup>*

The communities become drawn to these parks because they are spaces that acquire their

*“own distinct character by entering into a relationship with its surroundings. In conjunction with other place-oriented features in the social, spatial and historical context, the play culture offers inspiration for innovative play concepts with a recognizable allure. Play areas becomes places to which people feel attached”<sup>13</sup>*

The design of SIDAREC’s new community center similarly aims to inspire interaction, connection and attachment. The design boasts different scales of congregation spaces. The sports/outdoor theater space facilitates large-scale gathering; the smaller, informal open spaces gives opportunity for group gatherings; and the sheltered portico zone create the conditions for clusters of intimate discussions. These spaces are visually connected. The simple spatial orientation centered along the spine allows users to easily move from one space to another. In section, the spatial dynamic is reminiscent



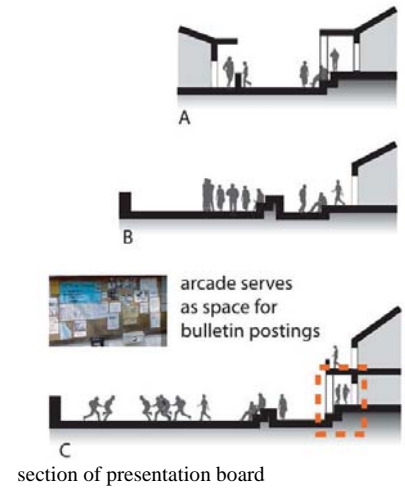
Liane Lefaivre and Doll’s park diagrams

<sup>12</sup> Lefaivre, 121

<sup>13</sup> Lefaivre, 123

of what Jane Jacobs calls “eyes on the street”. Low scale buildings create intimacy that allows informal social interactions to take place. Also, the community’s use of found materials and its reinterpretation into the form of wall murals and benching will transform the center into a place where “people feel attached”. On the portico columns, community members have the opportunity to post bulletin. These interactive surfaces further reinforce the feeling of community-owned space.

The design makes decisive moves of spatial articulation and surface treatment to align to community needs. These spaces and surfaces provide a canvas for dialogue. They celebrate, what Neuwirth and Urban Think Tank value most: the community’s potential for creativity and change.



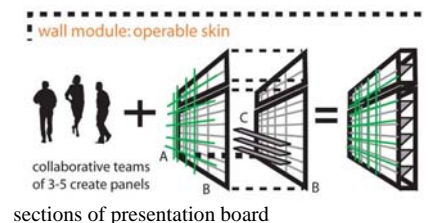
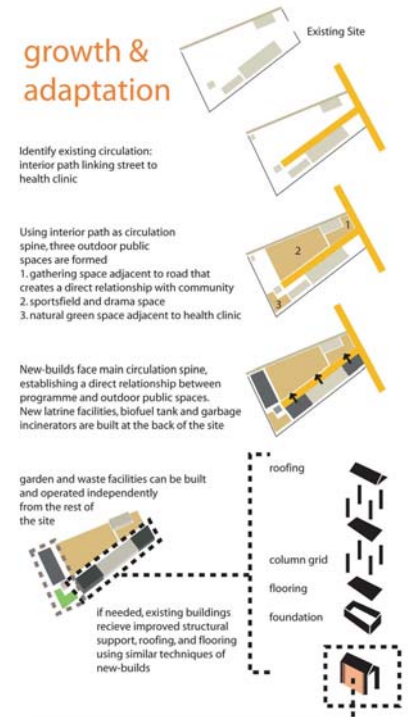
## Growth and Adaptation

The building's capacity for community engagement can only occur when it is realized by viable build solutions. Limitations in materials make significant design decisions. Timber is extremely expensive and difficult to transport; cement powder that makes concrete doubles in price every few months. Buildings in slums are investments in labor and materials. Thus, a design decision was made to keep existing buildings on site and implement a "growth and adaptation" technique where new buildings align to existing ones. Where applicable, existing buildings – roofing, flooring, or envelope – are strengthened. This technique is familiar in slums where all growth is subject to incremental improvement. When funds and materials become available, improvements and expansions can be made. The landscape of informal settlements is always in transition.

Using the precedent of the "slum-building tradition", easily accessible and inexpensive materials are employed. One example is asfadobe - a combination of tarmac and earth. The structure of the design needs to be extremely simple so that it is flexible to allow the application of a variety of materials. This sensitivity to limited resource is informed by examples of projects in isolated, resource-poor locales. A Himalayan orphanage uses mainly local stones found on site; the Fochta Youth Center in Malawi uses vernacular sun-dried blocks instead of fire clay bricks that burn up precious firewood.

The envelope of the building also engages local skills and materials. The wall module makes use of local welding skills and scrap materials to create a secure and breathable skin. Inspired by adjustable double skin wall sections, the modules are a direct response to the overheated interiors of informal dwellings. The breathable skin facilitates ventilation and air filtration. To address social issues, teams of three to five working on each module have the opportunity to engage in dialogue. It is possible that, through working in small groups, dissensions between possible political and ethnic factions can start to dissolve. Through committed work towards a common goal, a process of peaceful unification can take place.

Site, local building traditions, and skills will ultimately shape a building's form. This design engages the limitations and possibilities of the physical and social landscape to propose a community-driven design. By encouraging community involvement, the final construction becomes a monument to local genius and respectful collaboration.



YMCA in Basel



## Part Three: Infrastructural and Architectural Tools

### Sustainability

While site dynamics, social patterns and economic factors are important to consider in a design, it is most crucial to address the sustainability of the building itself. Sustainability ensures that the building can be feasibly maintained and economically sustained. Such issues are especially critical when the building is sited in an area wracked with broken infrastructures and limited by small overhead budgets. Sustainability also includes environmental and health impacts. The competition design proposes green and healthy design elements that are simple to implement and economically feasible. The community center will act as a showcase of easily adaptable technologies that can vastly improve community living standards.

### The Garden

Situated at the back of the site, the garden is not only a rare patch of green space in the slum; it is also a stimulating place for mind, body and community health. Located adjacent to the health center, the garden provides a place for mental contemplation, and the growth of foodstuffs and herbal plants that can support healthy living. The garden is inspired by the “Grow your Own Clinic” - a competition entry by Kyoto University. It is a project praised by developing community physicians for its practicality. Drugs are only effective when the users have access to nutritious foods. The “Grow your Own Clinic” provides the foodstuffs necessary for sustainable health.

In addition to growing food and herbal plants, the garden can also improve the health of the site. Acting as a “living machine”, plantings can filter out possible contaminants from its surrounding. Members of the community can be employed to maintain the garden. Here, they can reassess agricultural skills left behind in rural communities and translate them to address urban conditions. The garden becomes a place where the community can consider a different possibility for land use in the slum.

### Enabling Infrastructures

Building sustainably has tangible outcomes. It simplifies the maintenance and reduces reliance on costly and unreliable infrastructures. Urban Think Tank’s dry water toilet design and the Himalayan orphanage’s biofuels system, are examples of sustainable tools that not only improve the health of the users, but allow the building complex to be more self-reliant. The design’s incorporation of water cisterns, solar panels, and a bio fuel tank means that SIDAREC can rely less on ineffective infrastructures and reduce



Field Clinic for AFH Competition Entry, Submitted by Kyoto University



Hand constructed Biofuel Tank



Hand constructed Water Cistern



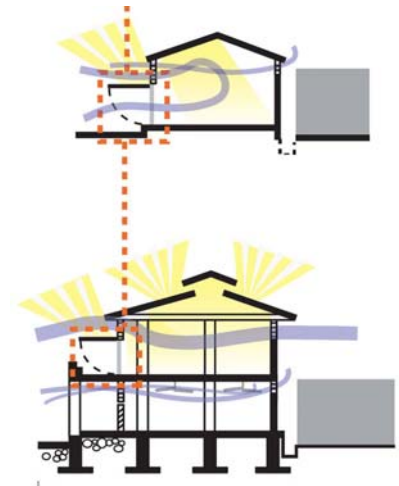
Light and affordable folding Solar Panels

costs to lighting, irrigating, cleaning and fueling. The initial investment in such technologies quickly pays for itself.

Community youths employed to take responsibility and maintain these sustainable systems will learn productive skills. The employment of local youths is inspired by an initiative in Barefoot College, India. Illiterate community members learned how to maintain sustainable technologies such as water pumps and solar panels and became self-sufficient and respected active members of their communities. The design's success in cost reduction, income generation, and community empowerment can act as a reference for future builds and programmes in Mkuru Kwa Njenga.

### Passive Solar

One of the simplest design moves for reducing energy costs is optimizing natural ventilation and lighting. Though passive solar design is a typical design move in the profession, it is important to note that applications in informal settlements require active negotiations to successfully implement. Local materials may limit the extent of what can be built. This competition entry illustrates a general scheme of passive solar design that is meant to generate a discussion of methods for execution using the existing materials and local building traditions. The simple ventilation and lighting models are based on successful simple builds in locales facing limitations in resource and building skills.



Passive Solar Design



## Conclusion...

The design of the community center aims to address the challenges faced in Mkuru Kwa Njenga through a process of investigation, dialogue and collaborative build. The competition proposal acts as a vision to stimulate dialogue from which a community-driven design can be reached. The precedents that informed this initial proposal did not limit itself to aesthetics and technologies, but extended into the realm of methodology, attitude, and objective identification.

*“The works of the past always influence us, whether or not we care to admit it, or to structure an understanding of how that influence occurs. The past is not just that which we know, it is that which we use, in a variety of ways, in the making of new work.... The typology argument today asserts that despite the diversity of our culture there are still roots of this kind which allow us to speak of the idea of a library, a museum, a city hall or a house. The continuity of these ideas of type, such as they are, and the esteemed examples which have established their identity and assured their continued cultural resonance, constitute an established line of inquiry in which new work may be effectively grounded.”*

-The Harvard Architectural Review. Volume 5. Precedent and Invention. Between History and Tradition: Notes Toward a Theory of Precedent. John E. Hancock.

The precedents outlined in this paper provided insights into the specific challenges of working in informal settlements - how they can be addressed, shaped and directed towards positive change. With a growing interest of the architectural community in working with underserved populations, this paper outlines the methodologies, attitudes and tools that can be helpful. Identifying key objectives to using effective methods of building and incorporating sustainable architectural tools will shape a design that can serve as a vehicle for community development.

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