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*Journal*

RESEARCH IN ARCHITECTURE DESIGN AND URBANISM

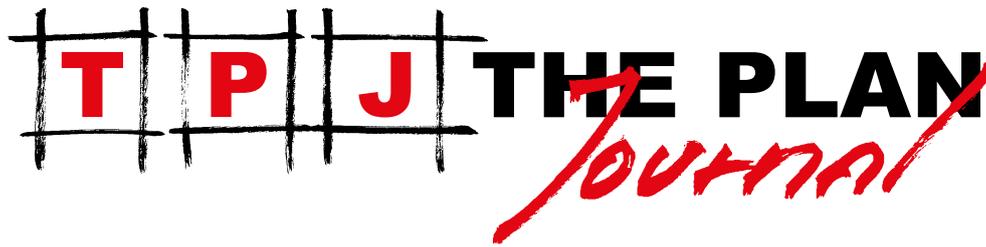
**DESIGN  
FOR  
SOCIAL  
IMPACT**



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On the cover: Conceptual diagram for the project of a community-driven park project in Miravalle, Iztapalapa borough, Mexico City.  
Project: Tatiana Bilbao (Tatiana Bilbao ESTUDIO), Derek Dellekamp, Alejandro Hernández, Rozana Montiel (2015-16).



*THE PLAN Journal (TPJ) intends to disseminate and promote innovative, thought-provoking and relevant research, studies and criticism in architecture and urbanism.*

*The criteria for selecting contributions will be innovation, clarity of purpose and method, and potential transformational impact on disciplinary fields or the broader socio-cultural context.*

*The ultimate purpose of the TPJ is to enrich the dialog between research and professional fields, in order to encourage both applicable new knowledge and intellectually driven modes of practice.*

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# Stretching Design Intelligence to Make a Difference

EDITORIAL

Maurizio Sabini

Designing for social impact has a long history and a recent phase of renewed awareness and interest.

For the former, one could go back to the social concerns of the Modern Movement and its research and experimentations for affordable housing and a “functional city” that had the ambition (soon become an illusion) of making urban opportunities available to all. It was not until the late 1960s and the 1970s that a new approach started to emerge. From the 1968 keynote address by Whitney M. Young Jr. at the American Institute of Architects convention in New York, to Giancarlo De Carlo’s 1970s experiments of “participatory planning and design,” culminated with his seminal article “An Architecture of Participation” (*Perspecta* 17, 1980), to the founding in 1993 of the Rural Studio at Auburn University by Sam Mockbee and Dennis K. Ruth, to the launching in 1999 of Architecture for Humanity, to the 2005 Global Studio, a collaboration led by Anna Rubbo among the University of Sydney, Columbia University, and the University of Rome, to the 2008 The Design for Social Impact workshop and the IDEO-designed toolkit, to the 2010-11 exhibitions at MoMA (“Small Scale, Big Change”) and at the UN Headquarters in New York (“Design with the Other 90%: CITIES,” organized by Smithsonian’s Cooper-Hewitt, National Design Museum), and the launching in 2011 of IDEO.org “as a nonprofit design organization focused solely on social innovation, enabling IDEO to make an even bigger impact on global poverty.”<sup>1</sup>

Regarding the more recent phase of renewed awareness and interest, the 2016 Venice Biennale “Reporting from the Front” certainly represented a culminating point. Beyond the inevitable criticism and polemic that every

Biennale stirs (and that is actually expected and desirable), the exhibitions orchestrated by Alejandro Aravena and his team conveyed an unequivocal general message: our current design and planning culture no longer sees “social impact design” just as an ethical mandate, but as a stimulating, expanded field of operation where its highly complex problems challenge and demand our best design and planning intelligence. As Alejandro Aravena put it, “these difficult complex issues require professional quality, not professional charity... socially minded architecture is a choice, not a responsibility... the more complex the issue, the more the need for synthesis.”<sup>2</sup>

With the call for submissions for this first themed issue of the TPJ we wanted precisely to gauge, at this point in time, our design and planning intelligence around these issues. How do we leverage the power of design to actually, as designers, make a difference? What does it mean “designing for social impact” beyond socio-economical analysis and reporting, or before it becomes political activism and advocacy? How do we grow our design intelligence and sharpen our design tools to make our projects more relevant for society? And how do we assess social impact for design interventions? From the many, interesting contributions received, we identified, through a difficult but rigorous selection process, those that could more clearly illustrate innovative research on this topic from a variety of angles: from historical/theoretical critiques on the state of the discussion, to typological or technological investigations, to cross-disciplinary studies, to projects of reflective practice for specific sites and contexts, to evaluation of, and/or proposals for, new forms of urbanism, to experimental pedagogies. The landscape that emerges out of this highly articulated array of contributions is one of a very dynamic, vibrant and experimental design and planning culture that bodes well for future inquiries, experimentations and accomplishments.

Our intention, with this issue, was to offer an opportunity of reflection on what has already become a fundamental and integral aspect of our practice and research, although too often a-critically dismissed as the “design version of do-goodism” or too superficially embraced as “the real call” for the design fields where professional expertise simply supports an agenda of activism. We hope that this issue will help appreciate how such complex political, economic, cultural, technical and environmental issues and challenges represent real opportunities for our design intelligence, if properly stretched, to make a difference in the world.

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<sup>1</sup> *Design and Social Impact*, a white paper based on the “Social Impact Design Summit,” a convening by the Smithsonian’s Cooper-Hewitt, National Design Museum, the National Endowment for the Arts, and The Lemelson Foundation at The Rockefeller Foundation offices in New York on February 27, 2012 (New York: Smithsonian Institution Cooper-Hewitt, National Design Museum, 2013), 18.

<sup>2</sup> “Architects have no moral obligation to society says Alejandro Aravena,” Dezeen, February 23, 2016. <http://www.dezeen.com/2016/02/23/architects-have-no-moral-obligation-to-society-says-alejandro-aravena-venice-architecture-biennale/>

# Challenging the White-Savior Industrial Complex

Thomas Fisher

*ABSTRACT - Social-impact design challenges many of the assumptions that guide architectural practice such as: What should we design? What program should we design to? What site should we design on? Who should be involved in the design? And what else needs designing beyond what we have been commissioned to do? In raising these questions, social-impact design essentially inverts the expertise model that has guided both architectural education and practice and leads to a more open and responsive mode of practice that looks for the underlying reasons why a problem or need has occurred and the larger systemic issues that surround the project and that may require redesigning themselves. Through a series of social-impact design projects conducted by the Minnesota Design Center at the University of Minnesota, this essay explores what this means in specific ways, through actual projects with diverse communities of people.*

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**Keywords:** social-impact design, adult foster care, community stakeholders, self-empowerment, system-design

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The design community has too much of what the writer Teju Cole has called the “white-savior industrial complex.”<sup>1</sup> Too many architects who might want to do social-impact design have a well-intentioned but ultimately misguided desire to help people who appear impoverished, as if we, in the design community, know what is best for marginalized communities. I want to argue instead that the design community has a

lot to learn from less-affluent communities, and that by working with them in an open manner, we will encounter important and often quite radical challenges to many of the assumptions that guide current design practice. In making this argument, I will use examples from the social-impact work that we have done at the Minnesota Design Center (MDC) over the last two years. We have learned how to do this work with the guidance of the communities in which we work, and we have realized in the process how little we know and how much we all have to learn. With that in mind, I present this paper as a progress report more than a finished thesis. In it, I will describe our efforts not as a set of projects, but rather as a set of questions that we have encountered in the process of doing this work, questions that underscore how radical social-impact design can be.

### WHAT NEEDS DESIGNING?

A great weakness of current design practice lies in fact that architects often design projects without addressing the larger systems that may, themselves, be dysfunctional and in need of redesign. Too many in the design community see system redesign as not within our purview, which, as I have argued in a recent book, is both a mistaken idea and an enormous missed opportunity.<sup>2</sup> Social-impact design shows how much the redesign of the systems that create the problems we face remains one of the most pressing and important design challenges of our time, to which the design community has much to contribute.

As an example of this, the MDC has worked with four counties and the state government in Minnesota to redesign the adult foster care housing system, based on a 1999 Supreme Court decision (*Olmstead v. L.C. and E.W.*) that requires that adults with mental and/or physical disabilities have choices in how and where they live.<sup>3</sup> Right now, disabled adults must live in group homes. Architecturally, many of these group homes fit well enough in their contexts and present no major design problem. The real challenge lies with the system itself, which routes disabled adults along one path to a single type of group-home setting.

A designer in the MDC, Emily Stover, has worked with colleagues in our public affairs college as well as with county and state human services staff to lead a series of design workshops, funded by one of the counties as well as a major foundation. These workshops have involved not only the government entities that oversee the current process, but also groups rarely asked to re-imagine an entire system, including the managers of group homes and, most importantly, the people living in the group homes and their families.

The very idea that we would ask service providers and the people seeking services for their ideas and give them a chance to re-imagine the system they work and live with surprised many of them and we met some skepticism at



Figure 1. The process of social-impact design, involving a diversity of people utilizing design methods to elicit their ideas and possible solutions, at the design workshop. Attendees commented that they loved the collaboration and discussion across organizations in an intimate setting and were hopeful that their perspective would be heard in this process to make this system better.

first. But as the process continued in a series of participatory workshops, with diverse groups of people engaged in thinking about better ways to do this, the ideas that emerged were extraordinary, and challenging to many of the assumptions we have about government services and subsidized housing. A few things became immediately clear. By involving the people most affected by a system, we quickly learned how a system designed to be highly efficient and totally integrated could also become too oppressive and controlled. Residents depicted the adult foster care system as a limited-access highway: once you are on it, there is no way out. Such experiences show the flaw in overly designed systems, with little or no flexibility or choice, created no doubt with the best interests of people in mind, but ultimately oppressing the very ones it seeks to serve.

We also learned that ordinary people often have more radical ideas than most professionals give them credit for. The current design practice of an architect working for a client who defines the project can lead to outcomes that may look good and function well, but that end up reinforcing the system as it exists. The ideas that emerged from these workshops showed that people want a far greater diversity of living options – cohousing, cooperative housing, intentional-community housing – than what the current system provides and what many zoning codes and building regulations allow.

Finally, we learned that people see housing in a much broader context than what many in the housing community do. Out of these workshops came ideas that involved retail strategies, neighborhood operations, digital ideas, and service alternatives that might not look like they relate to housing, but that very much affect how people live their lives. We realized through this process that the adult foster care housing system not only needed rethinking; so did the very idea of dividing professional services – be they in the government or in private companies or firms – into categories like housing that many have little to do with the lived experience of people.

### WHO DETERMINES THE PROGRAM?

Another weakness of current design practice has to do with the assumption that our work begins when given the program by a client. We would not expect physicians to do what we told them to do, were we to walk into their office with a program of what we want done; we expect the medical professionals to diagnose what truly ails us and to do what needs to be done, whether we like the idea of it or not. The same needs to happen with designers. We should not simply accept the problem as framed by the client. We need, instead, to diagnose the situation that led to the client to seek design services in the first place, to understand not only what is obviously wrong, but also what may be the underlying causes not immediately apparent.

Social-impact design has taught us that there exists a set of questions we need to ask at the beginning of every project: Is this the right program? Who was involved in its creation? And is there a less expensive or more efficient way to achieve the same goals? Investigating the program and having conversations with a diversity of people about it represents one of the most valuable contributions a designer can make to a project, especially one with a public purpose intended to serve community needs.

We have begun such a conversation with the Minnesota Department of Employment and Economic Development as it has begun to rethink how it delivers workforce development education to diverse populations. Like many states, Minnesota has many bricks-and-mortar workforce centers, built in the last century around the model of unemployed people coming to these places to upgrade their skills and look for jobs. That may have worked in the pre-digital age, but with computers widely available in people's homes or in nearby libraries, and with many internet-connected phones in many people's pockets, it seems odd to still expect people to go to physical places for information.

The state recently completed a workforce center in north Minneapolis, a community of color, whose program combined workforce training with health and education services.<sup>4</sup> Architecturally, the building has accommodated the program well and has done so in a visually appealing

and contextually appropriate way. But the fairly traditional arrangement of offices and meeting spaces reflects an older way of thinking about workforce development.

Conversations that a colleague in the MDC, Dr. Remi Douah, has had with youth in that community shows that many unemployed people want, more than anything, a safe place where they can find social support and not feel isolated or stigmatized being without a job. This in turn suggests that the program of a building like this needs to be less specific in terms of the number and size of rooms for specific purposes, and more adaptable and flexible as a place where people feel they can come to find community, safety and security, with the social service providers as supporters of that community rather than as the primary occupants of the building.

Especially when doing social-impact design, we have learned that programming needs to involve not just the people paying for architectural services, but also the users and community stakeholders, who may have a very different perspective on what they actually need. When given a program, the design professional should not start designing, but instead stop designing and start listening to and learning from the people served by the design and not typically at the table when program decisions get made. If social-impact design will have any impact at all, it needs to be intensely social in every sense of the word.

#### HOW SHOULD WE DESIGN SYSTEMS?

The same issue arises at the system scale. Like buildings, systems often get designed by the people in charge of them, and as a result, these systems largely work for the convenience of those responsible for their delivery rather than for the people most affected by them. Meanwhile, very few design professionals ever get asked to help with system design, resulting in a lot of poorly designed systems done by well-intentioned experts who often know almost nothing about the design process and how it can arrive at much better solutions when done correctly.

We have seen that in the work that I have done with my colleague, Jess Roberts, the principal design strategist at Allina Health, in the redesign of health systems. Working with leadership at the Centers for Disease Control as well as with various groups of health professionals, we have been impressed by the openness of the medical community to design thinking and to re-imagining the health systems within which they work. Many of these systems have been designed from the point of view of the people delivering services, and so we have tried to move health providers from seeking quick fixes to the symptoms of problems to stepping back and asking more fundamental questions about why these problems arose in the first place and what underlying causes need to be addressed in

order to solve them. Challenging assumptions in that way sometimes leads to initial resistance, but design thinking has proven effective in bringing people around to needed and often over-due investigations of what troubles an organization or system.

We have begun to find some commonalities arising from this work. Overly controlled, highly centralized, and top-down systems have begun to give way to more flexible, distributed, digitally based and data driven alternatives that empower people to take more responsibility for their health and that reduce the cost and complications of the healthcare system. Given the health disparities that exist globally – as well as in the U.S. – this constitutes social-impact design at its best: creating systems that promise to benefit most those who have the least access and financial capacity.

Such experiences also show that the scope and reach of social-impact design far outstrips that of the traditional design work that most designers pursue. Social-impact design opens up a vast new territory of activity for those designers who remain open to thinking about their value in terms of their methods and thought processes rather than the objects on which we have conventionally focused our attention. If the design community has a future, it lies with doing much more social-impact design, responding to the needs of everyone on the planet, not just the wealthiest 5 to 10%.

#### WHERE IS THE SITE?

Social-impact work also challenges the limits within which we design. Here, too, the design community often accepts the project site as a given, without enquiring as to what comprises the real context of the problem. While what the client controls constitutes one set of constraints, human and natural ecosystems have little to do with such boundaries and so, limiting our design work only to what lies under the client's purview misses the many factors that make the project worth doing to begin with as well as some of the best ideas of what to do on the actual site.

A senior research fellow in the MDC, landscape architect Bruce Jacobson, along with other MDC affiliates, public-health designer Remi Douah and architect Paul Bauknight, have worked with a community in North Minneapolis on the possibilities of a former school playground, now available for the neighborhood to imagine as something more. While the site constitutes half a city block, the real site includes the immediate neighborhood, the nearby commercial corridor, the adjoining transportation links, and the underlying infrastructure and watershed. What people see as the site often extends far beyond the property boundaries and social-impact design can play a vital role in embracing the multiple layers of interests and ideas that exist among those who associate with a piece of land, wherever they may live or work.



Having an intermediary like the public Destination Medical Center board and its private partner, an Economic Development Agency board, able to convene and connect public and private interests has made all the difference in creating accessible places and equitable environments. The social impact of their vision to create “America’s City for Health” makes it one of the most interesting efforts underway in a country whose public health remains at the bottom of the developed nations of the world.

The innovation district in the Twin Cities has had to bootstrap its efforts, with an actively engaged board that includes property owners, developers, city representatives, and neighborhood members, but with relatively little funding to create the needed district infrastructure and public space. While the district is only now getting built, some of its initial moves, like the commissioning of an innovative green-street design have shown how a committed group of people with no regulatory authority can still spur an amazing level of cooperation among landowners. As in all social-impact design, human capital can often compensate for a lack of financial capital and the power of collective action can often trump individual self-interest.

Social-impact design adds value, as well, by showing how to utilize sites that others don’t see. Mic Johnson, an architect who served as the interim director of the MDC, led a team that included Jacobson, Close, and Carmody, to envision sites for buildings and open spaces next to and on top of existing, below-grade highways. While at first received with some skepticism, the idea of constructing buildings on the grassy land next to highways and within cloverleaf interchanges, with public open space bridging over the highways eventually attracted adherents. A big part of the appeal lay in the possibility of reconnecting impoverished neighborhoods divided by highways in the 1950s and 1960s and creating residential, recreational, and economic development opportunities that these communities do not now have. The ability of designers, in a case like this, to see opportunities that others have missed and to have a significant social impact on several fronts with a single strategy indicates the value of this work and why its funding often generates many times its value in public and private benefits.

#### WHAT IS THE PUBLIC REALM?

The architectural community mostly works within the dichotomy that defines the legal definition of property ownership and legal responsibility, designing projects either on public or private land, for public or private and non-profit clients. This runs counter to the insights of writers like Henri Lefebvre that space is socially constructed and defined by our experience of it as a series of gradations of semi-public and semi-private spaces that we continually cross and most of the time successfully negotiate every day.<sup>5</sup> Social-impact design suggests that while architects’ clients might be public or private, the people we design for have a much more nuanced understanding of the spaces they traverse.



alternatives and look at their impact in real time. The flexibility of the models also prepares the community to think about the public realm in more flexible or switchable ways, since accommodating today's technology of vehicles driven by people and of trains on fixed rail may change dramatically in another decade or two, well within the useful life of the infrastructure that will be put in place. While the engagement of diverse points of view may lead to multiple perspectives that can seem contradictory, such social-impact design helps us all acclimate to a future that, regardless of the black-or-white way in which we divide the city into public or private property, will be increasingly characterized by ambiguity, contingency, and adaptability – a world that consists mainly of shades of grey.

That has led to very different kinds of streets than what have existed in the past. In the Minneapolis and St. Paul innovation district, a new street, "Green 4<sup>th</sup>," embodies the various goals of the guidelines that the MDC developed under the leadership of John Carmody. Designed by Snow Kreilich Architects and the landscape architects Oslund Associates, Green 4<sup>th</sup> provides access for cars, but it does what few vehicular streets have done in a long time: it privileges the pedestrian. The street has Snow-Kreilich- designed picnic tables, seat swings, steps, and platforms aimed at encouraging people to work, socialize, play, and perform – all within the public right-of-way.<sup>6</sup> This envisions a public realm no longer just devoted to moving vehicles, but instead as a series of places that people care about and want to be in: design for social impact at its best.

#### WHAT IS A COMMUNITY?

Social-impact design can help us think about the world not from the vantage point of those supposedly in control, but from that of those most affected by these systems. In the adult foster care project, for example, several ideas emerged that have an ecosystem-like character. One group re-envisioned the delivery of government service by having a "neighborhood navigator" who would be in the neighborhood, knowing who needed what services and helping people access them. Rather than expect people to go to government offices, this idea would bring government services to where people live and work and would likely increase the satisfaction of employees who would have more direct contact with people as well reduce the cost of government by focusing more on prevention than on crisis response. Such a paradigm shift shows social-impact design creatively rethinking a system to get more with less.

Another idea to come out of this project was the creation of intentional communities in which people in the adult foster-care system had the opportunity to choose who they live with, something that they don't have available to them now. This suggests that the way in which we think of housing as a set of units available to buy or rent misses the point

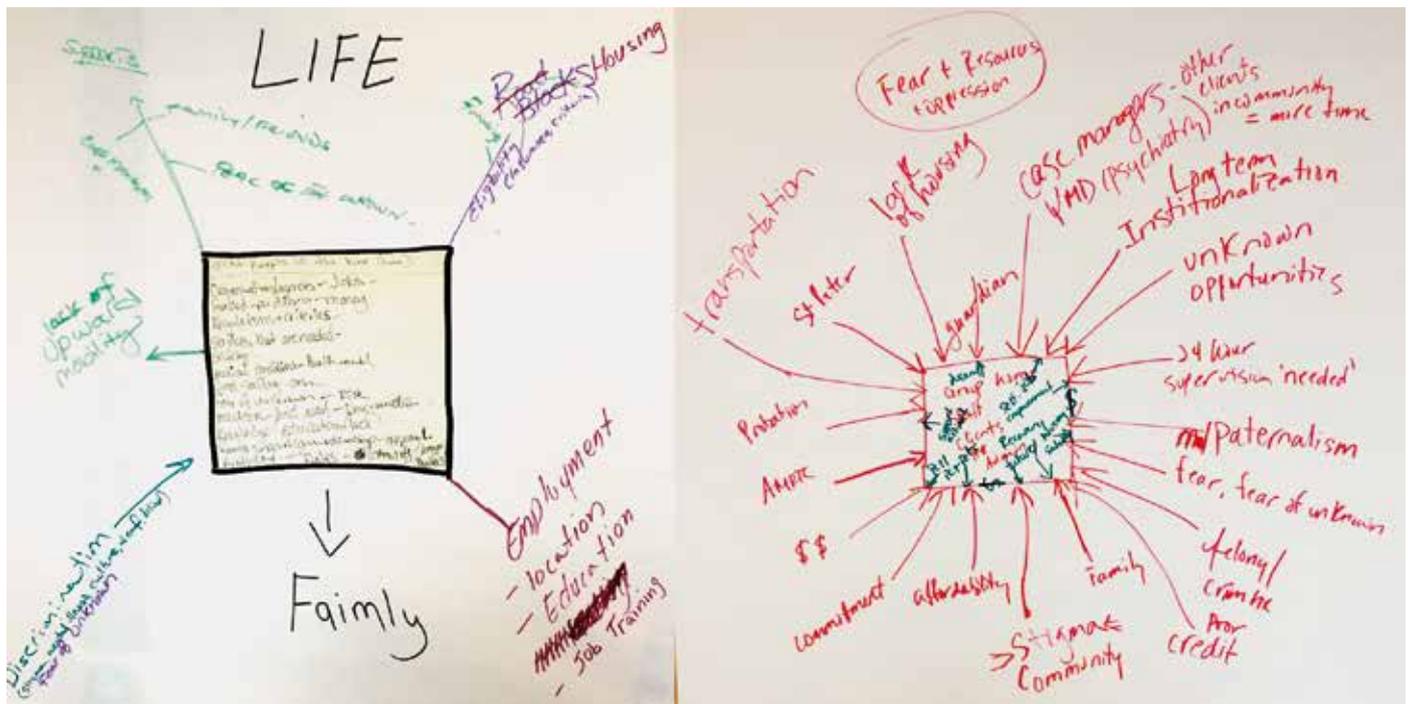


Figure 4. This divergent thinking exercise encouraged providers to consider what were the elements of the care system and what defined the 'box' in this system. Left. Within the box there is the fear of the unknown. Outside of the box: housing, funding, roadblocks, employment, job training, mobility. Fear of the unknown works from the inside and outside. Right. Within the box are the pressures that make the box stay closed – fear, resources, stigma, families, financial pressures, affordability, various institutions, lack of housing, guardians, your care team. How to break from the box: self-empowerment, recovery, money, housing subsidy, person-centered planning and thinking.

about how people seem to want to live, in communities of people with similar interests and values. Creating processes that make it easier for all people to find and live in such communities is another role for social-impact design.

At the same time, we heard from participants in this project a desire to have places in which people of all abilities can hang out together. The need for such “third places” that enable people to gather and linger has come up repeatedly in the social-impact work we have done, suggesting that the public sector should focus on incentives to encourage private property owners to create and maintain such places. The relative lack of third places in our cities, especially for those with few means, shows how social impacts can happen in modest ways, with relatively few investments and often in spaces that already exist.

We also heard that people want more flexibility and a greater sense of community in how they live. Current housing practices rest on a very white, middle-class set of assumptions about how people should live, often with an emphasis on privacy and on a minimum of shared space. As we have

listened to the needs of families in need of extremely affordable housing, they often want something very different: less private space and more shared space with the ability to share cooking, childcare, maintenance, and possessions that they need only on occasion. That such co-housing and cooperative housing faces regulatory obstacles and zoning barriers shows how much our public policies often reinforce the assumptions of those who make the laws rather than the needs of those who suffer under them.

#### WHAT HAVE WE LEARNED?

Professions put great store into expertise, licensing members according to their command of technical information and disciplinary knowledge. While that has considerable value, evident in the remarkable advances we have made in so many areas of human endeavor, including the health and safety of the built environment in countries like the U.S., that focus on expertise has led to what the sociologist Harry Braverman called the “deskilling” of ordinary people.<sup>7</sup> This seems particularly ironic in architecture, since communities of people have built shelter for themselves for thousands of years before architects ever existed.

Social-impact design offers a critique of that whole system. While some tradition-minded architects may think that everyone in the field cares about the social impact of our work and so downplay the radical aspect of social-impact design, we find that doing this work continually challenges common assumptions about the process of design and profession of architecture. Most architects care about society and the effect their work has on the lives of people, but with the expertise model of professionalism, that has largely remained a top-down imposition of the client’s and architect’s beliefs on people who may want, need, and value something very different. As mentioned at the beginning, however well intentioned the architectural community may be, we have perpetuated the white-savior industrial complex as much as any other profession.

Social-impact design comes at people’s needs from the opposite direction: empathetically listening to the very people rarely heard, facilitating people’s active engagement in reframing problems and imagining possible solutions, remaining open to what emerges from this process and questioning any assumptions counter to that, and helping people achieve their vision, using expertise as a supportive tool rather than an oppressive one. Social-impact design may not fit the personality or the perspective of every architect, nor does it need to. But it seems clear to us, having done so much of this work at the MDC, that if we want the architectural profession to thrive in the future, social-impact design has to play a central role. The profession can either continue to serve the world’s wealthiest and shrink in size and importance accordingly, or it can begin to serve the billions of people who need our services even more than the rich – and grow our relevance and impact as a result.

## Notes

1. Teju Cole. "The White-Savior Industrial Complex," *The Atlantic*. Washington DC: The Atlantic Media Company, March 21, 2012
2. Thomas Fisher, *Designing our Way to a Better World*. Minneapolis: University of Minnesota Press, 2016, Chapter 1.
3. A good overview of the topic can be found at this U.S. Department of Justice website: [https://www.ada.gov/olmstead/olmstead\\_about.htm](https://www.ada.gov/olmstead/olmstead_about.htm).
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## Credits

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# Walk the Line. Architecture as a Catalyst for Socio-Spatial Connectivity

Tatiana Bilbao, Nuria Benitez

*ABSTRACT - Miravalle is a relatively new neighborhood in Iztapalapa borough, by the eastern edge of Mexico City. It has been identified as a highly-marginalized area, as its 11,000 residents have poor access to public infrastructure, high rates of violence, and socio-economic discrimination is something most experience. Nonetheless, the community has worked together with the aim of improving the conditions and quality of life in a small but outstanding way. As a group of architects, we are working with them to transform the main park of the area and neighboring communities into a walkable and safe recreational area. The prerequisite for city life is a walkable urban environment. If a safe line crossing the park could help diminish the insecurity and strengthen the connections between people and space within the neighborhoods, then architectural interventions as a stead for social development are guaranteed.*

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**Keywords:** community; lighting; catalyst; park; connectivity

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Walkable urban environments are a prerequisite for civic life. Spatial qualities of the in-between mediate relationships that occur within and around buildings, neighborhoods, streets, and people. Stressing this point further, we believe that collaboration may be the sincerest way to highlight the importance of life activity that happens between these spaces, and how, as designers, partnering with local residents might meaningfully help explore ways in which we may further transform spaces to promote positive interactions within them. If a safe line that crosses a park can

help diminish the insecurity and strengthen the connections between people and space, then architectural interventions as a stead for social development are warranted, at least on real scale.

### A MARGINALIZED MARGIN OF THE CITY

When we visited Parque Corrales for the first time, Jorge, our community liaison opened up to us about Miravalle. The middle-aged teacher in the Marist Middle School, long-haired and thin, told us that after living there for twelve years, he felt “a sense of identification amidst the community because we all suffer from the same problems: gang fights, drug traffic and consumption, or water shortage. We only get water once a week, for two hours! We all live this, and that makes us understand one another and feel for the troubles we all collectively experience.” César, a young resident, expressed similar sentiments, “here the youth doesn’t have the education for talking and engaging in dialogue; they were taught that fighting is how one settles differences.”

Today, Mexico still remains one of the most violent places in the world. These disruptions affect millions like Jorge, largely the consequence of violent, drug-related crimes made worse by rampant government negligence. In some parts of the Mexican republic—Estado de México, Guerrero, Michoacán, and Sinaloa—the mortality rate is higher than in war zones.<sup>1</sup> Too often our only contact with violence comes through statistical figures we read on a page, but in places like Miravalle violence is manifest in other and much more painful dimensions affecting friends, neighbors, and loved ones. Miravalle is a relatively new neighborhood in Iztapalapa borough, on the furthest eastern edge of Mexico City (Fig. 2). Rogelio Estrada, a member of the resident-led Asamblea Comunitaria de Miravalle, spoke to us about the challenges facing Miravalle: “... first of all, this is a community with many needs. INEGI and official studies classify it as a highly-marginalized area.”<sup>2</sup> Residents here have poor access to public infrastructure and regularly experience socio-economic discrimination especially when, for example, many have menial day jobs in the capital where they are often treated like second-class citizens. Miravalle has around 11,000 inhabitants, most of them between twelve and twenty-five years old.<sup>3</sup> Less than 3 % of the population has attended high school or even received a middle school diploma.<sup>4</sup> Even if the will and social opportunity for the youth to attend school existed, educational facilities cannot meet the existing demand as they are often in run-down conditions. This educational deficiency is manifested in the community’s low income levels and high rates of violence. As Oscar Pérez, a manager at the local plastic thermo fusion workshop and member of the Asamblea, tells us, “adults feel a nuisance when they see so many youngsters in the streets with no work, no education, no prospects.”<sup>5</sup>

Miravalle, like most other informal settlements in Mexico, is the result of complex social and historical processes. These can be briefly summarized



Figure 1. Conceptual diagram of the original project.

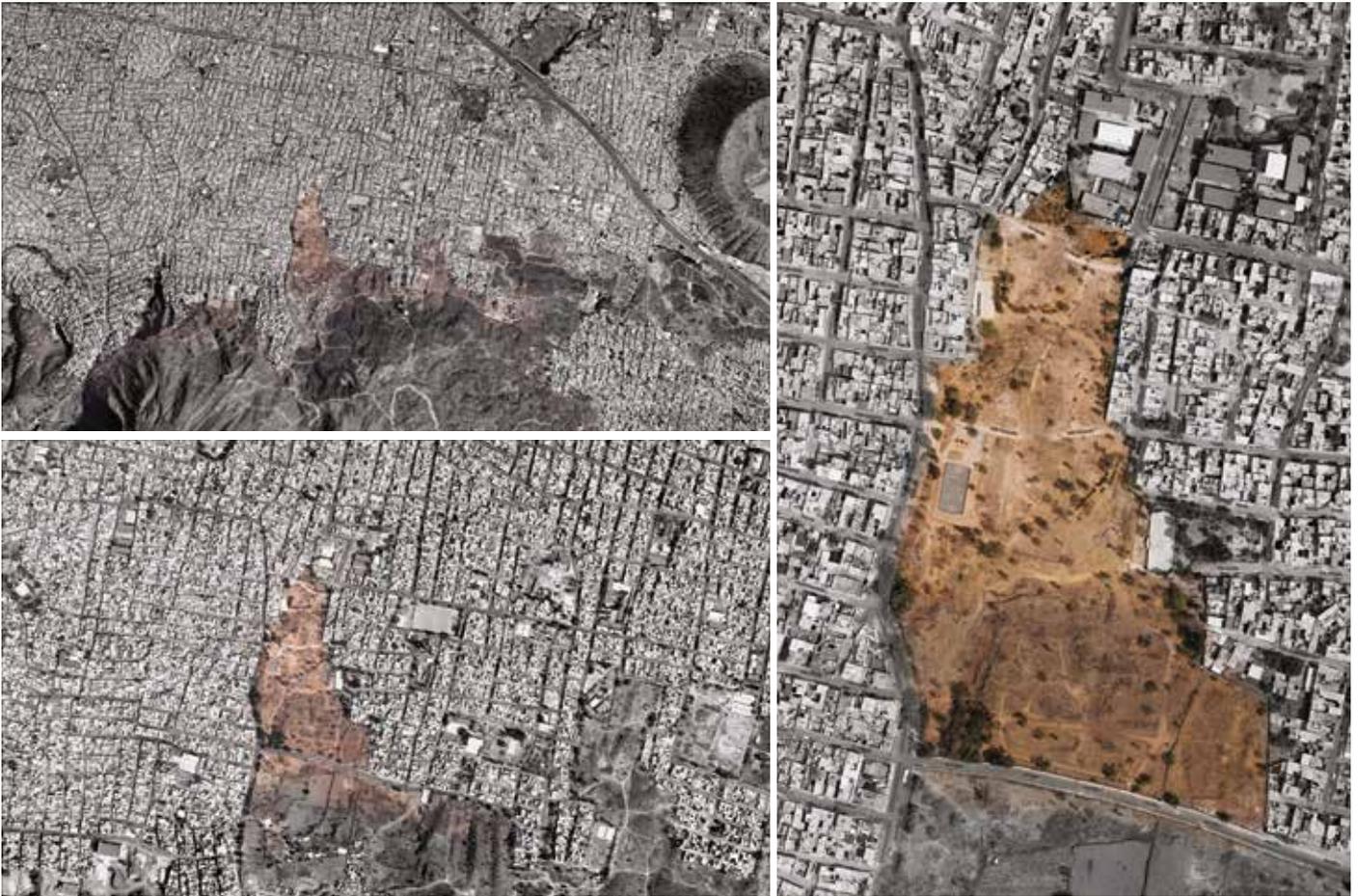


Figure 2. Aerial view of Iztapalapa, Miravalle, and Parque Corrales. Source: Google Maps.

as the rural exodus to urban centers by workers and their families who can only afford to settle in the cheap, underdeveloped urban fringes, places where municipal control or assistance pertaining to development are almost non-existent, and access to urban resources is severely limited.<sup>6</sup> Within a short period of time, these settlements have grown rapidly while lacking proper planning or access to urban services and infrastructure. Informal urban development without basic services may lead to identity problems and fraught social cohesion among inhabitants.

The Asamblea Comunitaria de Miravalle is a response to such aforementioned conditions, a community-based grassroots organization created in 2007 with the aim of improving the conditions of their neighborhood and optimizing resources into building spaces for the community and its development. Through the Asamblea, Miravalle's residents have sought to create a resilient society, pave roads, install drainage systems, build small playgrounds, a recycling center, a cooperative communal dining room and an open dome theater - overcoming the marginal conditions and lack of resources they face day to day. They have collaborated with other architects or institutions, like the National

University of Mexico (UNAM), whose expertise in social work recently helped transform a derelict lot into a vibrant urban center with an arts and crafts workshop named Calmecac.<sup>7</sup> This is a place where the at-risk youth can work and learn, or play "frontenis" instead of loitering around Miravalle potentially becoming exposed to gangs and violence. Working in cooperation with several architects and the local government, the community has successfully transformed some under-utilized spaces to a set of humbly build shared spaces with the goal of fostering a sense of community (Fig. 3).

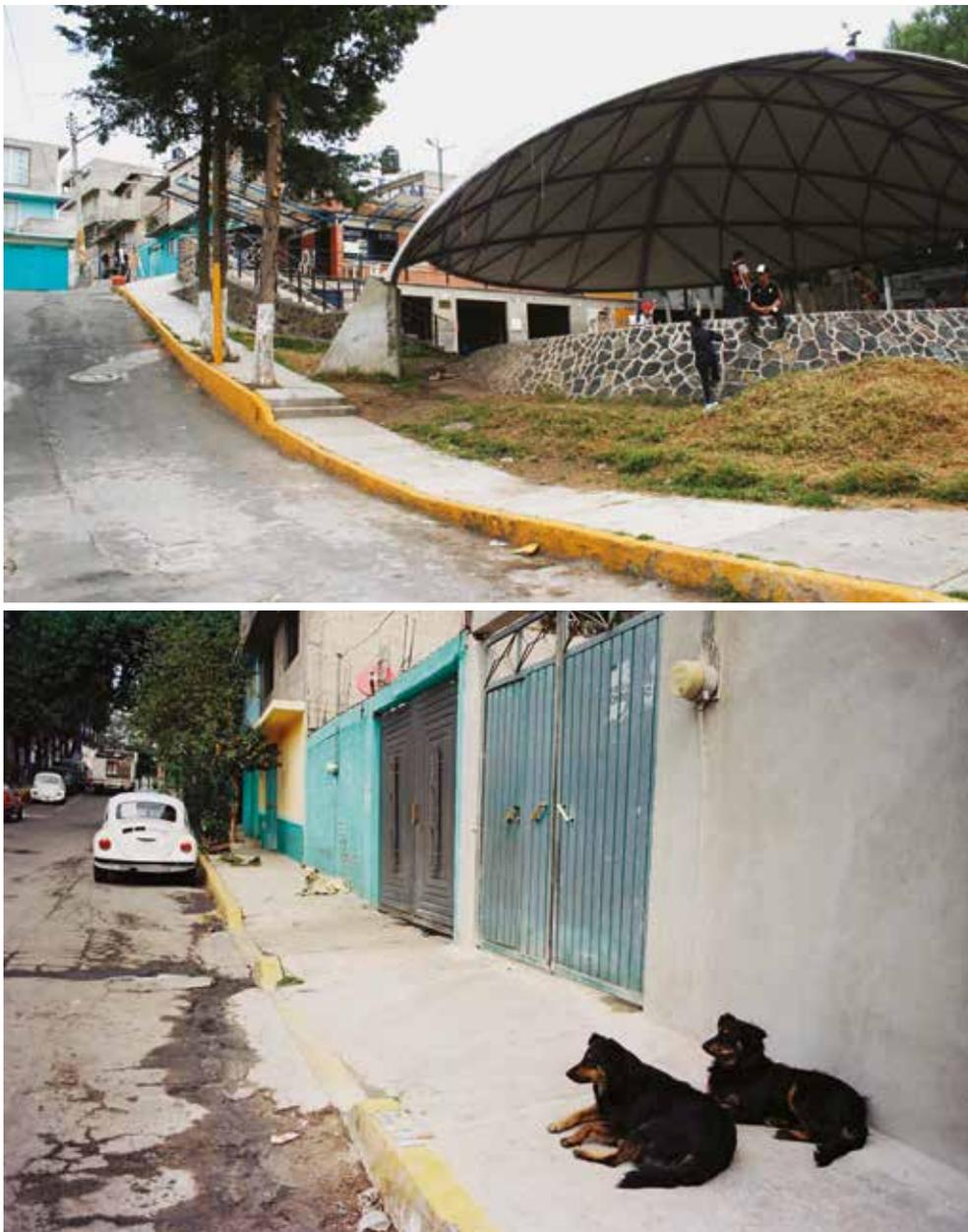


Figure 3. Top: dome, community dining room, library in Miravalle. Photo: Hortense Blanchard. Below: street view in Miravalle. Photo by Anna Der.

With the invitation to participate in the 2016 Venice Architectural Biennial, *Reporting from the Front*, the project “Walk the Line” was conceived – apropos of the theme— as an architectural intervention that could aid and ail a specific community. The effort was a collaboration among Tatiana Bilbao Estudio, and Alejandro Hernández. In one of the first discussions concerning the proposal, Alejandro Aravena (curator of the 2016 Biennale) commented that the funds provided for the Biennale were enough to build two units of social housing in Mexico. Rozana added that she was already involved with the Miravalle community, and we immediately decided to take on the challenge of helping transform the neighborhood. We wanted to initiate an immediate and lasting positive change on a place in need of a small-scale restructuring gesture. With the task before us, we established a joint-fundraising effort to match the amount of the Venice Biennale grant.

All of the aforementioned firms see the architect’s role as improving people’s quality of life through spatial means. We favored a simple intervention but one whose social implications would initiate a broad, positive and lasting social transformation. It wasn’t until our first visit to Miravalle, first interviews and field work, that we settled on Parque Corrales as the site where we could have the maximum possible impact. Situated at the limit, the threshold between the neighborhoods of Miravalle and San Miguel Teotongo, an empty lot had become an impromptu park somehow overlooked and forgotten by the relentless pace of the explosive informal urban sprawl. As a neglected natural reserve and a potential link between four surrounding neighborhoods the site presented a real opportunity to work toward residents’ and the assembly’s vision of forging a true sense of community. Although it was a strategic piece of land with tremendous potential, Parque Corrales had the reputation as a hotbed of muggings and violence throughout the largest part of the last decade. Residents had not yet figured out how to transform such a valuable piece of land into a community recreational space, despite other successes in renovating other neighborhood spaces.

Due to the potential danger in crossing the park, many residents chose to spend more time and money circumventing the park to get to and from homes, schools, and businesses. Some people like young middle school teenagers, while crossing it to get to school or walking back home had little choice but to risk a possible mugging or exposure to potential sexual harassment. Cristina, one of the middle-schoolers we interviewed, told us how she had already been mugged four times. When asked why she continued to cross the park after such experiences, she explained that she preferred the potential risk over the forty added minutes to her commute that circumnavigating the park entailed. We were shocked to realize how such a state of permanent insecurity had become normalized, how experiencing danger, violence, and insecurity had become a part of that community’s identity.

The topography of the park grounds had been eroded by natural elements; in addition, the pedestrian paths in the park were lined with heaps of trash.

The budget for the lamp posts and site reconstruction was roughly the same as for the sixty-meter path installation built for the Venice Biennale. The idea behind building an illuminated path at Miravalle was to partner with an at-risk, marginalized community already thinking about its social needs and working towards solving its problems. To achieve such goals, partnering with other institutions became a key part of the project. A proposal for a site transformation cannot merely be an isolated gesture, however well-intentioned or poetic. It is not enough. We sought to determine a plan of action to build relationships among people, the spaces they occupy and the objects they interact with. The inaugural intervention consisted in a line of actions that aimed to reinforce relations between people and raise awareness of the space they inhabit and how they inhabit it, instead of underlining the antagonisms of their own community reflected in the park.

The first stage of our intervention involved illuminating a 360 meter path through the entire length of the park. The idea behind the light path that could act as a bridge — not only interconnecting the surrounding areas, but also interlacing its people — was to be a line of recognition, a lit trail, a dialogue, a conversation and a catalyst of safety. Because design by itself cannot fix social ills, we made sure to enrich the process by working alongside the community with the hopes of building a real connection among the park borders, its different neighborhoods and the inhabitants of the greater region of Iztapalapa. By creating a safe way to cross and inhabit the void while working with the community, we could leverage the power of design to enact a positive and transformative chain reaction in the spatial use of that particular area. More specifically, working with a self-managed community became a key feature of the project, since we did not want to appear as outside actors that produced an external project; hence, it was our thinking that, by working alongside the *Asamblea Comunitaria*, we could together conceive a comprehensive and coherent action manifested into a particular space.

We are aware that lighting fixtures alone cannot eradicate the insecurity of an area, but by providing a well paved and illuminated path, we hoped it would help create a more welcoming environment which would increase transit and maybe, in the the long haul, transform the derelict lot into a park buzzing with activity. Meanwhile, we hoped it would also demarcate a space of reinsured interaction, a “place of encounter” — as Henri Lefebvre would call it — where other public activities can take place. A transformation of such nature can only occur through an active social practice of space. To pursue such change into space we ought to construct the medium for positive interactions to unravel, while cancelling negative ones.

An urban transformation towards a safe area is simultaneously the cause and result of more people circulating around public spaces. Walkable places must, by definition, have a reasonably cohesive social structure that provide safety, a sense of community and a healthy public life. The profession at large and our studio have learned from the mistakes and broken promises of the placelessness of the International Style Modernism. For such complex problems architecture cannot be the only solution, but in working together we can spark social changes through thoughtful, precise and punctual spatial interventions.

The collaboration with other architects and the local community highlighted the importance of the activity that happens between buildings and neighborhoods, the in-between, and how such partnerships might meaningfully explore the ways in which we may contribute further. The prerequisite for a civic life is a walkable urban environment. If a safe line crossing the park could help diminish the insecurity and strengthen the connections between people and space, then architectural interventions as a stead for social development are warranted.

#### OUTLINE ON THE GROUND

On March 7<sup>th</sup>, early in the morning, around ten architects from the participating studios set about a quest on the eastern border of the city (Miravalle), carrying three hundred meters of cable, one hundred light bulbs, and string. There we met up with photographer Onnis Luque, his team, and Jorge, who welcomed us in the Marist school (Fig. 4). The facility is a prototypical Mexican school with a large patio, the kind of schools built across the Mexican republic after architect Juan O'Gorman published his design for a modern school in 1930 - a clean, bare space, adequately lit, where Jorge kept the building tools: hammers, chalk, and sticks.<sup>8</sup>

By the time we made it to the park, several community members were awaiting our arrival, eager to help. Together, we marked the line from one end of the park to another, with sticks and strings. We traced with chalk along the space, sprinkling the fluorescent white powder generously, following the original plan, nervous, unsure, but ultimately exuberant about the unseen, built, unearthed path which lays ahead.

Before noon we all paused to take a break until the sun, perched high in the sky, came down and the stilling, dry afternoon heat dissipated. We walked around looking for somewhere to eat something. During this time, the park's potential and its urgent issues became manifest to us not just as anecdotes but as lived experiences by community members. As we sat under the dome, we could admire the recent project done by the Assembly in conjunction with the National University and enjoy the simple pleasures that an evening of leisure in the Miravalle's hillsides could provide.

We drank soda under a drooping tree beside the main road, next to the Calmecac, another community project by the Asamblea consisting in a



Figure 4. View of courtyard, Escuela Marista. Photo by Anna Der.

community center and workshops for young kids, a frontenis court, and a basketball court.

Before dusk, our friend Rafael drove up the mountain with a gasoline-powered generator that we could connect to, in order to illuminate the path. At the same time, some of us were already placing the cable along the path we had previously marked, keeping it elevated with the help of the community passersby and residents willing to lend a hand.

After several unsuccessful attempts to provide the sufficient amount of power to light up all the circuit, success! We maintained the path lit for several minutes. We imagined how an illuminated line could render—even if only a small percentage—the path visible, and make a territory walkable. Suddenly, the light worked as some sort of telescope, or line retracing not just the site's cartographic projections, but the neighborhood's geography. The territory was rendered legible and could be understood immediately, helping to reinforce a sense of safety along the line. (Fig. 5.)

Little did we know, darkness was an ally of people with more nefarious ideas, rendering them invisible. After a quarter of an hour gasoline battery ran out, as did Rafael's car battery. During the following minutes, we folded the cable, removing the bulbs from their sockets. In the blink of an eye, just when darkness had swept in, blanketing our surroundings anew, we discovered that two light bulbs had already been stolen.

Had some residents been resentful of a group of foreign professionals? Perhaps. Were a couple of light bulbs an opportunity to score some quick



Figure 5. View of tracing the path, Parque Corrales. Photo by Anna Der.



Figure 6. Lit circuit installation, Parque Corrales. Photo by Anna Der.

cash? Most likely. Despite that, we not only felt, but could appreciate from our experience that afternoon, that the majority of people were happy during the symbolic event, and that alone was enough of a reason to carry on with the construction plans. It was a good sign, as well as an enriching exercise for us, and a feasible imaginative act for them, to continue working there. This event was a statement and an experiment to see how the line could bring transformation in the blink of an eye. A few weeks later, the formal construction of the line began, replacing illogical semi-destroyed paths and formalizing the desired lines traced by residents' activities into permanent paths.

## THE VENICE BIENNIAL

It was not until the early days of May 2016 that construction began on site, coincidentally during the same days that we were assembling the installation for the Venice Biennale *Reporting from the Front*. It was a beautifully intricate process: just as the Biennale visitors were watching a short video of the beginning of construction in Miravalle, the park transformation itself was taking place.

The installation for the Biennale consisted of a symbolic representation of the work that was taking place in the eastern edge of Mexico City. A thirty meter long line of light traced a path in the middle of the Artiglierie, connecting with the Central Pavilion of the Arsenale. (*The Artiglierie is one of the many buildings comprising the large historic complex of the Arsenale, the old shipyard of Venice, where part of the Venice Biennale takes place – Ed.*). The visual backdrop of the line was a projection wall, screening the worksite in Miravalle and connecting the light path with the real one across the sea. We wanted to stress the idea that “reporting from the front” was sharing our process almost in real time, hands on labor, transporting the visitor’s imagination to the actual construction site, including the spectator into the story. (Figs. 7 and 8.)

## SUNDAY MORNING

It was almost a usual Sunday in Miravalle: the *Tianguis*,<sup>9</sup> religious confirmations, parties in the corners or sidewalks, roasted chicken and soccer matches in the small courts around the borough. But that morning of the 26<sup>th</sup> of July, we met at 8:00am with mothers and fathers that were summoned for their monthly community labor activity. This activity had in Miravalle a key part of its resident-led transformation.

The site had already been under construction for a few weeks. It was a slow process, but the once broken paths and unwalkable steep rocky roads had finally become smooth and uniform.

The families were ready for a robust working day. They came ready with picks, shovels, buckets, brooms, wheelbarrows, and grandmothers, brothers, children, uncles: all gathered in alliance for collaborative teamwork. They helped us unload the gravel out from the truck and lay it over the bare earth

path that should become the Line. The families' gathering was so enthusiastic that even the young kids wanted to chip in, moving gravel and sprinkling chalk.

### A COMMUNITY INPUT

Co-working with the community was both the means and the end of the project. The Asamblea Comunitaria has been devoted to working restlessly with the Miravalle community for the better part of the past decade. As Rogelio Estrada, one of its members said, "I perceive a strength in my community: its will to change and not stay quiet sitting back and expecting others to speak for them. We all have an urge to speak out! We want to propose, to change, to go forward. This was the key reason which led to the assembly's creation."

The first time we visited the area, we asked the kids in the José de Tapia Bujalance school what they imagined or wanted the park to become. Light, hygiene, safety, surveillance, play spaces. These buzzwords kept popping up in all responses (Fig. 9). The first step to outlining the project guidelines and define our strategic approach was defining users' needs, particularly those who would benefit most from the creation of the park, such as kids. Working together, we could clearly communicate and understand residents' problems, enabling us to channel our ideas and work into a simple and feasible architectural gesture. We believe that – without being ambiguous or esoteric - it should always be this way; after all, architecture is the spatial result of a service to the community. Jorge, as a community leader, kept telling us about how important it is that the community reflects on its own issues: "It's not our task to tell them the solution. We need to search for answers together, it is a slow journey but we think that it is the most steadfast route to progress."

There is no doubt that Miravalle is a self-managing community. It is an example of how collaborative efforts can render a community, especially the informal ones (which today represent the majority of the world's built environment), more resilient, thus reinforcing social integration. In this case, the change was provided through the construction of cultural spaces within the neighborhood (for example: art education spaces for kids and youngsters, small scale cultural and ecological programs, etc.). Perhaps architecture can only contribute as a kind of "detonator" (a catalyst), for participation and involvement, staging a socio-spatial transformation, but it is an important role nonetheless.

### AN UNPROMISING PANORAMA?

Light has a strong cultural meaning. It has enabled human activity to take place regardless of external conditions, revolutionizing fields such as medicine, entertainment, culture, communication, public life in cities, etc. Its role as an extension of time and space is of utmost importance. If announcing is like performing and light is activating, then collaborating is

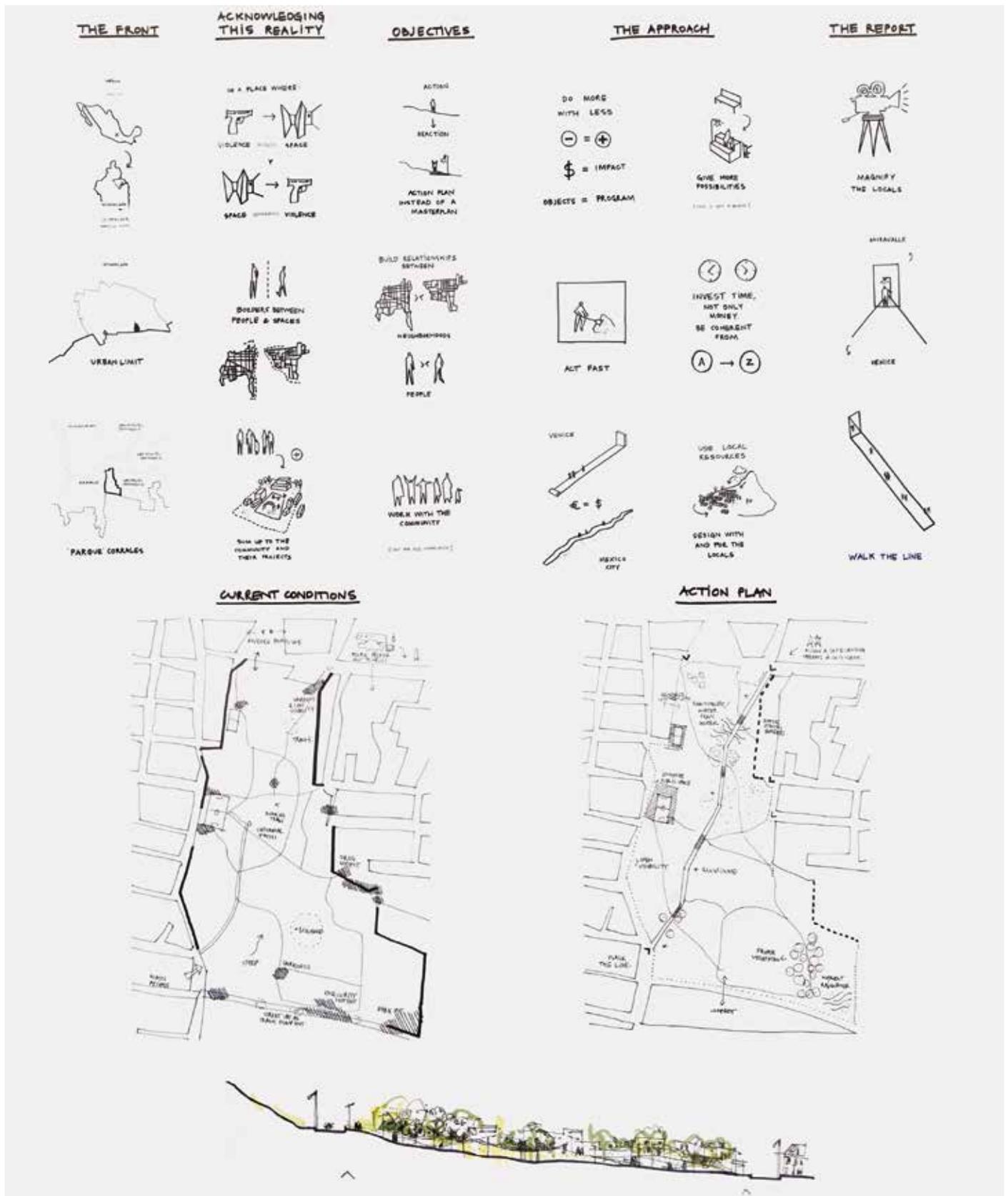


Figure 7. Diagram explaining the project both in Miravalle and in Venice. Courtesy Tatiana Bilbao Estudio.



Figure 8. Interior view of installation “Walk the Line” at the XV Venice Architecture Biennial. Photo by Onnis Luque.

building. For this reason, the essay explores the collective effort that can reposition architecture as a social discipline, intimately related to and deeply invested in the transformation processes of its context.

Despite the sum of partners that we managed to add-up into the process,<sup>10</sup> such as The Rolex Foundation’s grant contribution and the aid of the company cm2, who worked so hard to manage the construction site pro bono, what at first glance seemed like a simple construction project transformed itself into a lethargic process, due to the scarce available resources that we were able to secure. An inaugural and noble intention turned out to be a portrait depicting a widespread national reality, underlining how projects full of promise and energy suddenly and unexpectedly become paralyzed. The financial viability of the project is currently in limbo, halting the next construction stage due to the lack funds.

As small or seemingly insignificant this project appears to be, it means a great deal for the people in Miravalle. For those of us who worked there, the project has been the opportunity to introspectively examine the potential impact architecture can have within anthropological, social and spatial



Figure 9. *Faena* (working chore) with the inhabitants of Miravalle. Courtesy Rozana Montiel Estudio de Arquitectura.

limits. Nonetheless, it also underlines how simple projects as this are also extremely difficult, as they affirm how society collectively prioritizes self-preservation over the collective wellness. Projects like the Park in Miravalle, whose process could be applied also elsewhere to integrate informal settlements, have zero monetary utility and it is therefore difficult to devote them time or to secure the necessary resources when individuals are unwilling to experiment.

At the same time, this process demonstrates that, to a large extent, the project of building a Miravalle community has already been accomplished by community leaders and residents working in conjunction. The park and the light path serve as symbolic indicators of the community's progress. Alas, these cannot by themselves create a community where one did not exist. Such built forms serve to strengthen relationships. Thus, while the life of the community depends on a network much larger and more complex than any park, the renewal of social bonds is why projects like these are so relevant, because a community must be constantly re-forged and made anew every day, or these social bonds will fall into disrepair and the built environment will soon follow suit. Maintaining the process alive is what the



Figure 10. Interviewing the children about how would they envisioned the park. Courtesy Dellekamp Arquitectos.

built environment, as a host for public interactions, can contribute to the overall dialogue of community and place-building.

We are eager to continue with the second phase of the construction work and truly say that it is possible to “walk the line” across the park, but we are also conscious that there is a much longer path to walk in terms of collaboration between architects and communities after this project. We are still making an effort to raise the necessary funds to complete the

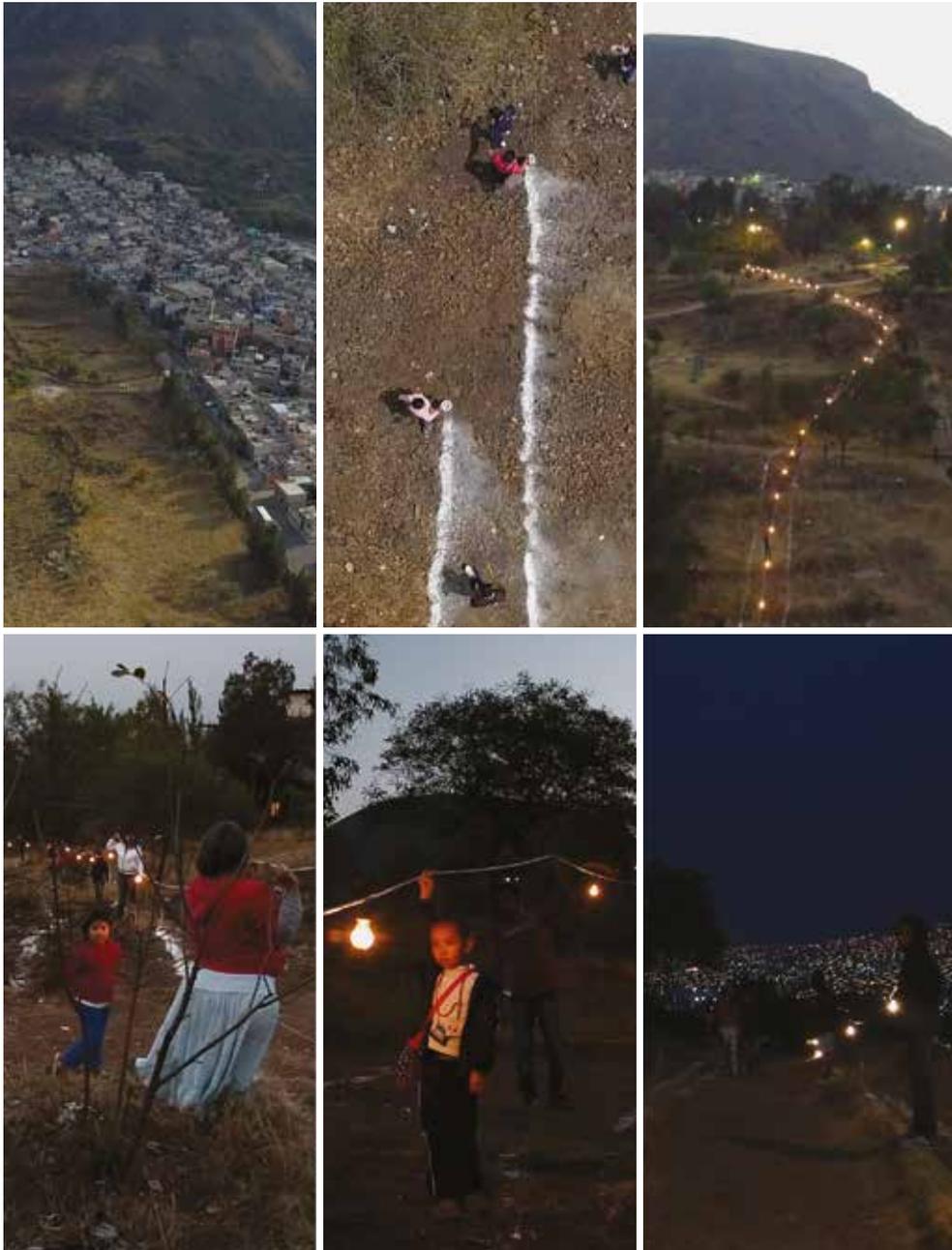


Figure 11. Views of the path illumination on March 7th, Parque Corrales. Photo by Onnis Luque. See full video at <https://vimeo.com/179496861>.

project, which grew in scope from a simple lighting path to a comprehensive park masterplanning effort throughout our involvement. We wanted to negotiate with the community a long-lasting, well illuminated and lively park, rather than just installing a few lighting fixtures.

The promise of the evening of March 7<sup>th</sup> still shines brightly in our memories as a glimmer of what may be, when for a few glorious minutes as the sun set over the western edge of the Sierra Madre Sur, the path forward was illuminated for all to see.

## Notes

1. According to the National System of Public Security (Sistema Nacional de Seguridad Pública [SNSP]), the mortality rates in 2016 broke records, with 6,576 homicide cases nationally due to violence, only between January to April. That means 56 victims a day. Within this time frame, 728 homicides happened in Estado de México, 692 in Guerrero, 371 in Michoacán, and 330 in Sinaloa.
2. National Institute of Statistics and Geography (Instituto Nacional de Estadísticas y Geografía - INEGI).
3. According to the INEGI, 60 % of the population, that being around 6,000 young people.
4. In addition to what statistics reveal, Oscar Pérez said “schools may be even two hours away from the kids’ homes, and doing this journey twice a day wears them out, and that is one of the reasons why they drop out of school.” César said “the majority only reach middle education, to say the most. Nowadays, some venture to start high school, but most of them only study through middle school. Their parents tell them how studying doesn’t take them to earn money, stressing how important it is for them to start working as soon as possible.”
5. The thermo fusion workshop consists of a place where the youngsters can work recycling plastic residues from the neighborhood and turning it into chairs, vases, artworks. When selling the pieces, the money they earn can partly become part of a fund for further projects of the Asamblea Comunitaria.
6. “Everyone located where they could. This land was commonly owned, but, when it started to be sold, people started to build their houses with cardboard; cardboard actually became a symbol of Miravalle. Little by little, with the help of local government programs, they built their homes with concrete blocks and other (more resistant) materials. This is one of the characteristic things in this place, people would invest their scarce money in construction or construction materials. Then they build a floor or two more than what they need, so they can rent a room to someone else and obtain some extra income.” (Jorge Carvajal, member of the Asamblea Comunitaria de Miravalle.)
7. This was possible after the funding the Asamblea received from the Urban Age Price, Deutsche Bank, in 2010. As well as an urban agriculture center, they recently started building in San Miguel Teotongo (neighboring Miravalle), with the aim to educate the younger generations about water harvesting, urban agriculture, and recycling, and, eventually, to supply food produce to the community dining room in Miravalle, where cheap and organic food can be provided to the inhabitants.
8. From the 1930s and following years, the Mexican architect Juan O’Gorman came up with a plan with the aim of building all the schools the city needed with the same budget that had been used in the past 10 years for building only one. Within that period, he developed a strategy for erecting low-cost modern modular schools, defining a radical functionalist Mexican style that would further be replicated across the country.
9. Informal market set on the street.
10. cm2, a construction contractor and development company, joined our effort as developers and builders. The Rolex Foundation funded part of the process, Flos provided us with lamps, Carlos Hano and Kova Innovaciones with lighting design, Cementos Fortaleza donated cement. Elementia, Eternit, Allura, CEMPanel, Wavin, and Amanco became sponsors or donated material.

## Credits

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Construction and development: cm2

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In 2004 she founded Tatiana Bilbao Estudio with projects in China, Europe and Mexico. She received numerous awards, such as the CEMEX Building Award (2011 and 2013), the Kunstpreis Berlin 2012 for her career by the Akademie der Künste, two silver medals at the Mexican Biennial of Architecture, and the Global Award for Sustainable Architecture by the LOCUS Foundation, Cité de l'Architecture, Paris (2014). Her work is included in the collections of major museums, such as the Centre Pompidou, the Carnegie Museum of Art and the Art Institute of Chicago.

She has lectured at many schools and institutions around the world. She has been the Louis Kahn Visiting Professor at Yale (Spring 2015), the Cullinan Visiting Professor at Rice (Spring 2016), and Adjunct Associate Professor of Architecture at Columbia (Fall 2016), where she currently (Spring 2017) holds the Norman R. Foster Professorship of Architectural Design. E-mail: [info@tatianabilbao.com](mailto:info@tatianabilbao.com); [press@tatianabilbao.com](mailto:press@tatianabilbao.com)

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# S House n. 3

Vo Trong Nghia

*ABSTRACT - The third prototype house for low-income classes designed in response to housing shortages in countries struck by natural disasters was built in Ho Chi Minh City. Thanks to passive design methods, natural lighting, a galvanized steel structure that weights only 1,200 kg set on a reinforced concrete foundation, the model combines quality control, cost management, easy transportation, DIY modular components and fast on-site construction. Now suitable for mass production, the S HOUSE project is designed to be flexible and adaptable to expansion or new uses as the next prototypes will showcase.*

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**Keywords:** Low-cost housing, disaster relief, prefabrication, durability, housing prototype

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The serial project, called "S HOUSE," has begun to propose a prototype house for low-income classes in the Mekong Delta area. After building two successful case-study houses, a steel structure model in 2012 and a precast concrete structure model in April 2014, a new prototype, S HOUSE 3, was constructed in Ho Chi Minh City.

The aim of this serial project is to provide stable but lightweight, permanent but affordable homes for low-income earners in a harsh tropical climate. Although there are many local challenges such as weak ground condition, frequent typhoon and potential earthquake, the structure is stable enough to withstand natural disasters. Passive design methods

are applied throughout the series, including but not limited to, natural lighting and ventilation.

Combining the advantages of the first and second prototype, S HOUSE 3 realizes a higher of durability, flexibility and easier construction while maintaining the affordability and lightweight of the series. The main structure is made from lightweight steel. Slender steel lattice walls secure, support, and rigidify the whole frames. Thus the number of beams is minimized, reducing steel quantity greatly compared to previous prototypes - this structure only 1.200 kg (2,645 lb). Pedestal, incorporated with foundation, is made of reinforced concrete. Thanks to this, the galvanized steel structure is isolated from the ground, ensuring its durability even in a climate of high temperature and high humidity.

As was in the previous prototypes, the basic strategy of construction is a combination of modular structural components and DIY (do-it-yourself) finishes. Prefabrication helps to control quality, cost management, and future mass production. Galvanized steel frame and precast concrete foundation guarantee predetermined stability and accuracy. The lightweight structure allows smaller foundation and transportability by small boats, since waterways are still the dominant means of transport in certain areas in Vietnam. By pouring additional concrete, this compact foundation can be extended on site if necessary. Light frames with simple bolted connection also encourage dwellers and neighbors to participate in construction. All components are designed to be lighter than 60 kg (132 lb), to allow easier transportation and construction - in fact, it takes only three hours to assemble the whole structure and roof. Finishing materials can all be assembled and replaced easily by dwellers and neighbors. For the prototype, lightweight cement board is chosen for cladding.

Starting from the Mekong Delta, the S HOUSE project is aiming to be disseminated to the entire Vietnam, South East Asia, India and African countries, and to the rest of the world where low-income people are suffering from poorly built environment. Lightweight components of the S HOUSE are designed to be transportable by means of shipping containers. The latest prototype in progress, S HOUSE 4, will span a much larger space. Therefore, it is more flexible in use compared to the previous prototypes. Not being limited to housing, it can accommodate various functions such as retail, school and clinic, which are increasingly demanded in developing countries.

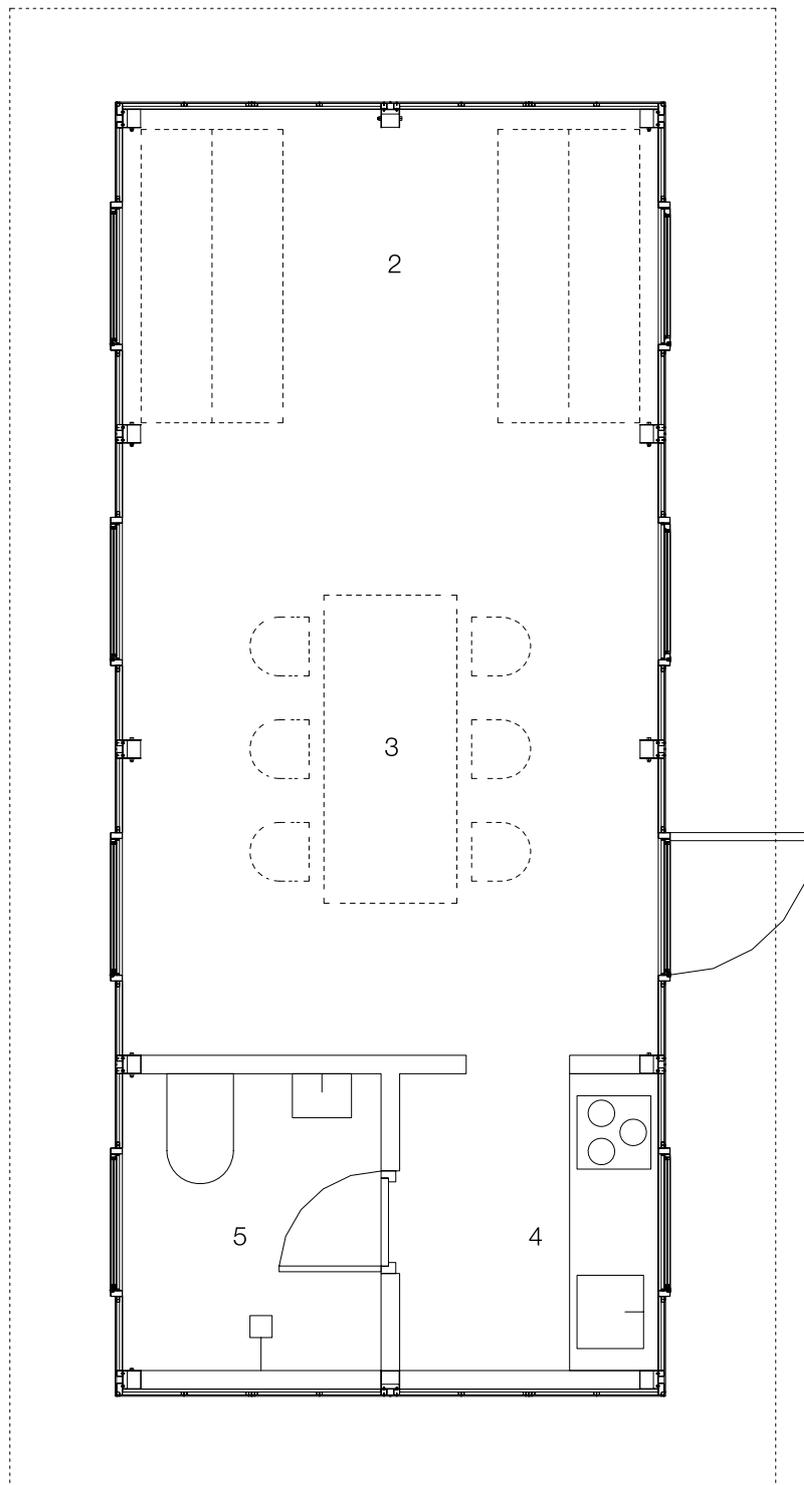


Figure 1. Floor plan.

- 1. Entrance
- 2. Bedroom
- 3. Living & Dining room
- 4. Kitchen
- 5. Bathroom

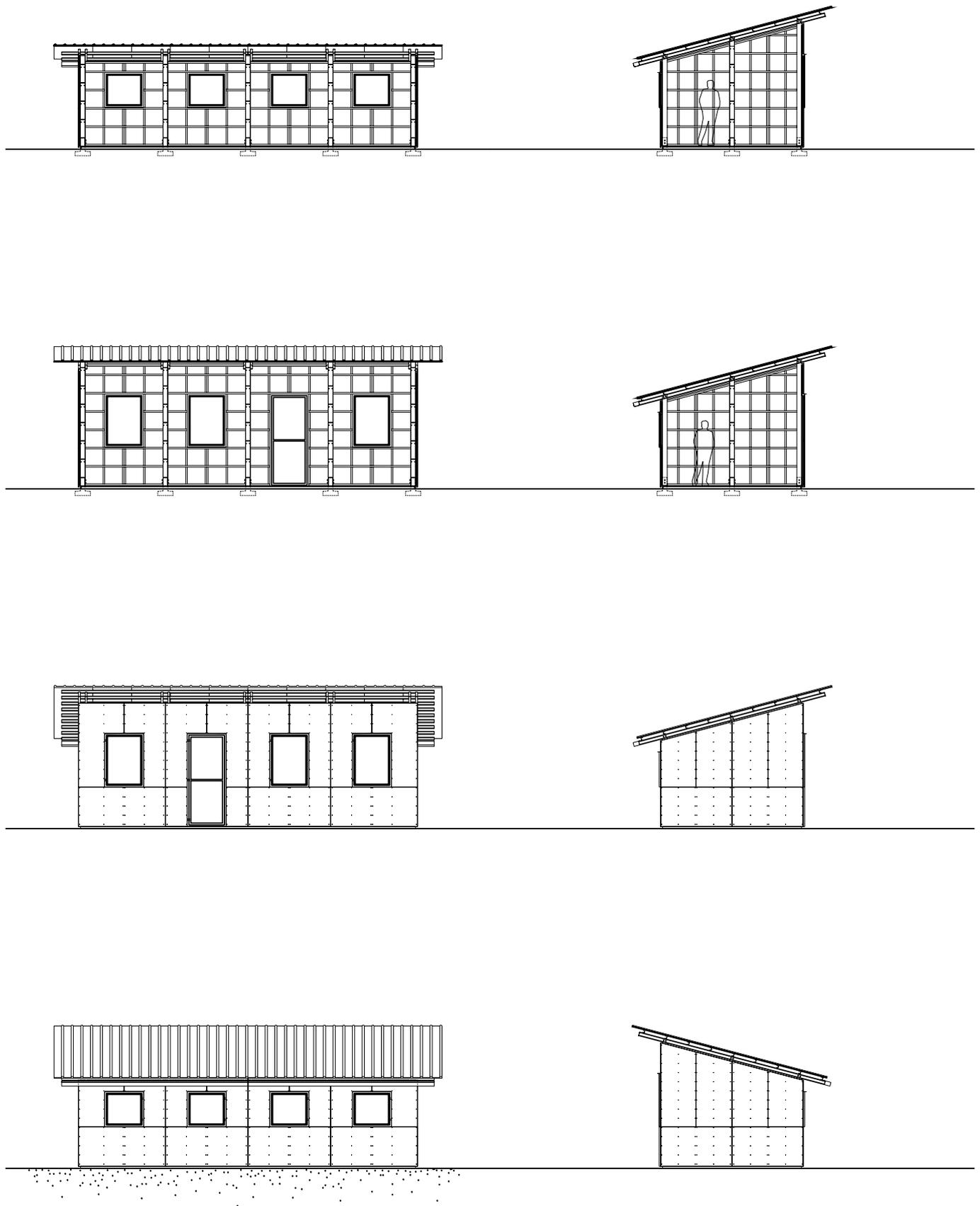


Figure 2. Sections and elevations.

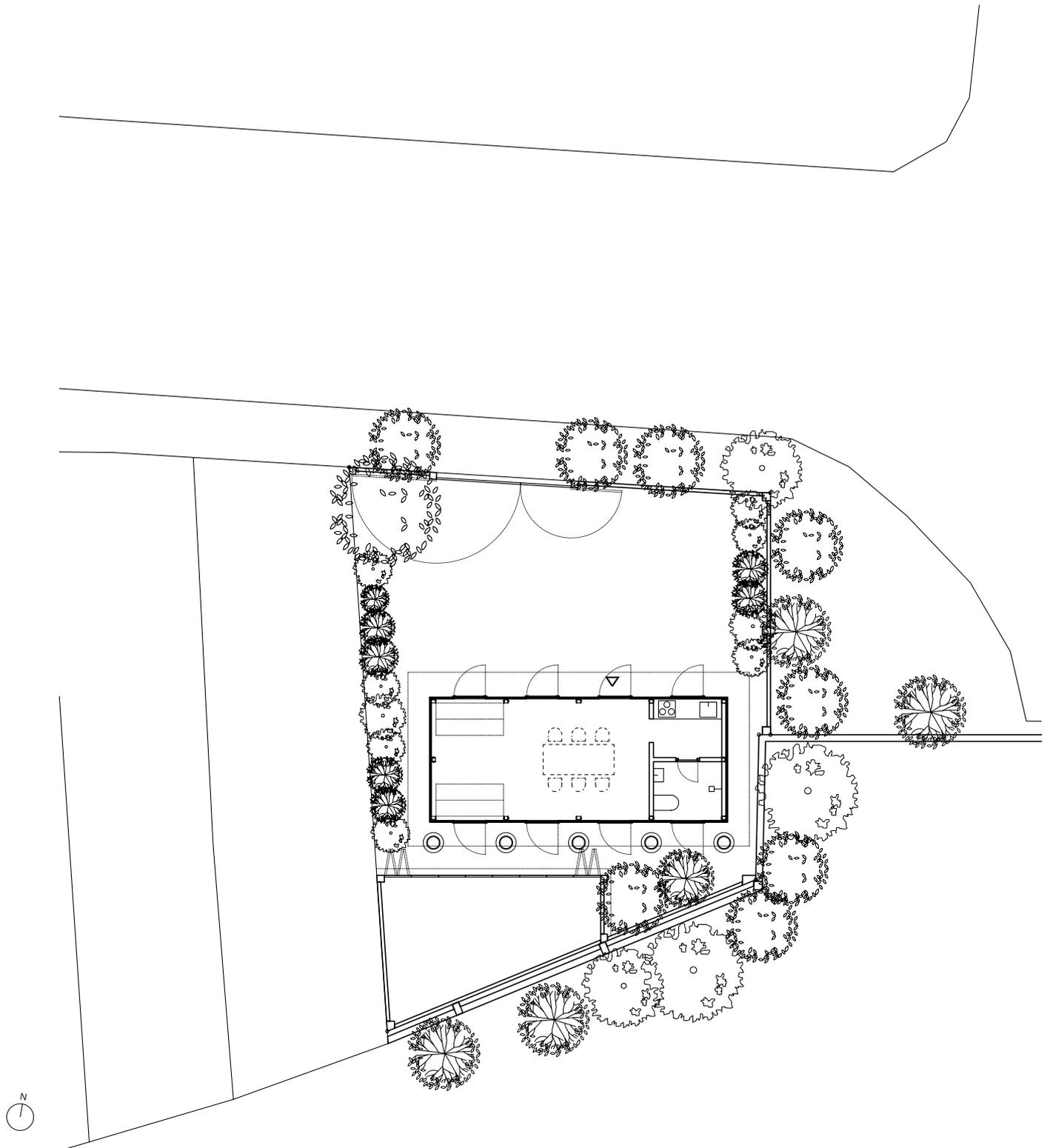


Figure 3. Site plan on a typical urban plot in Vietnam.



Figure 4. The S House 3, by Vo Trong Nghia Architects. © Hiroyuki Oki.



Figure 5. Like its predecessor, the S House 3 features a small gap between its roof and walls to encourage ventilation, and several operable windows. © Hiroyuki Oki.



Figure 6. Though the house weighs 1,200 kg (2,645 lb), individual components are designed to be lighter than 60 kg (132 lb), to allow easier transportation. © Hiroyuki Oki.



Figure 7. Whereas the previous S House was built from a pre-cast concrete frame bolted together with steel fixings, this newest version is made mostly from lightweight steel. © Hiroyuki Oki.



Figure 8. the S House 3 measures 31.6 sq m (340 sq ft) and has just one large interior space inside. © Hiroyuki Oki.



Figure 9. Vo Trong Nghia's third prototype for the S House has both a steel frame with a concrete foundation and steel lattice walls. © Hiroyuki Oki.



Figure 10. "The aim of this serial project is to provide stable but lightweight, permanent but affordable homes for low-income earners in a harsh tropical climate," says Vo Trong Nghia. © Hiroyuki Oki.



Figure 11. Finishing materials can all be assembled and replaced easily by dwellers and neighbors. For the prototype, lightweight cement board is chosen for cladding. © Hiroyuki Oki.



Figure 12. Night view of the model house with interior lighting. © Hiroyuki Oki.

**Project Team**

Architect Firm: Vo Trong Nghia Architects

Principal architects: Vo Trong Nghia, Masaaki Iwamoto, Kosuke Nishijima

Architect: So Adachi

Contractor: Wind and Water House JSC

Status: Built in 11.2014

Program: Prototype house

Location: Ho Chi Minh City, Vietnam

GFA: 31.6 m<sup>2</sup>

Photographs: Hiroyuki Oki

**Vo Trong Nghia**, founding partner of Vo Trong Nghia Architects, studied architecture at the University of Tokyo before returning to Vietnam to establish Vo Trong Nghia Architects in 2006. Through a series of the award winning projects, Nghia has developed sustainable architectural design by integrating inexpensive, local materials and traditional skills with contemporary aesthetics and modern methodologies. Nghia has received numerous international prizes and honours including but not limited to; World Architecture Festival Award, ARCASIA award, WAN 21 for 21 Award and, FuturArc Green leadership Award. In 2012, he was selected as the Architect of the year in Vietnam. Besides running his architectural practice, Nghia has continued to be involved in architecture at a grass roots level by teaching at the Nagoya Institute of Technology in 2011. Nghia is registered architect in Vietnam. E-mail: [pr@vtnaa.com](mailto:pr@vtnaa.com).

**Vo Trong Nghia Architects**, Founded in 2006, Vo Trong Nghia Architects is a leading architectural practice in Vietnam with offices in Ho Chi Minh City and Hanoi. More than 60 international architects, engineers and staff work closely on cultural, residential and commercial projects worldwide. By experimenting with light, wind and water, and by using natural and local materials, Vo Trong Nghia Architects employ a contemporary design vocabulary to explore new ways to create green architecture for the 21<sup>st</sup> century, whilst maintaining the essence of Asian architectural expression. Vo Trong Nghia Architects are in strong collaboration with Wind and Water House JSC, a construction company specializing in green buildings construction, to realize designs of high quality in Vietnam. (<http://votrongnghia.com/company/>).

# Temporary Houses for Post-Disaster and Social Emergency

Mariagiulia Bennicelli Pasqualis

*ABSTRACT - The research focuses on the theme of the resolution of the problem of emergency housing in urban and metropolitan areas, and on how to house about ten thousand of people within a short time, with comfortable and low cost dwellings, following a catastrophic event or a social emergency.*

*The aim of the research is defining a model of open residential building system, based on high density and reversibility strategies.*

*On one hand the research analyses the actions undertaken during the earthquake occurred in L'Aquila on April 2009, focusing on the "mistakes" which were clear since the beginning but only today clear to everyone, and the "merits" of what is an extraordinary operation, never seen before, of building in few months a very large number of dwellings, through a wide repertoire of procedures and technologies.*

*On the other hand the research analyses the need of creating new temporary dwellings to allow heavy interventions of urban development. The combinations of these two realities, post-catastrophe and social emergency housing, will create, in time of peace, a supply chain for temporary, reversible and low cost dwellings.*

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**Keywords:** temporary houses, post-disaster emergency, social emergency, high density housing, SATOR Project

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The research entitled "Temporary High Density Dwellings for Post-Disaster and Social Emergency" focuses on the resolution of the problem of the

housing emergency in urban and metropolitan centers, and tries to answer the question: “how to temporarily accommodate about ten thousands of people within a short time, in a comfortable way and with low-cost building systems, following a catastrophic or social nature event.”

In fact, in case of natural-disaster events, people must cope, on the one hand, with the loss of their houses and belongings, and, on the other hand, on the dislocation for an undetermined period of time in provisional dwellings, often uncomfortable (such as container units) and/or far from their territories, causing the abandonment of the struck urban centers, thus one's own history and memories.

Furthermore, when provisional dwellings are designed as permanent, no specific uses are usually defined for the future; when conceived as temporary, usually is not foreseen any clear specification about their dismantlement. In the latter case, indeed, it is not rare to find cases where these structures – after the emergency purposes use – are still occupied or reused for tourism, even though they do not fulfil the minimum residential standard, with high costs in terms of environmental sustainability and a waste of money, essentially due to the continuous adaptations. As a key example, in Birmingham, UK, there is a complex of lodgings realised in 1946 after World War II to solve the lack of houses; the government provided the population with 156,600 provisional residential units, designed and produced on the basis of the American prefabricated housing modules (UN-HABITAT/IFRC, 2009). These lodgings were designed to last ten years, but they are still there and still occupied, after seventy years.

Then, the general objective of the research is to define temporary housing systems to answer to situations of high-density housing emergency, able to keep the population in its own territories next to its own houses, where temporariness means a period of three to five years on average.

In particular, the research proposes the development of an advanced model of residential, temporary and reversible, low cost system, with a “zero impact” on the territory. Such system should be able to welcome thousands of evacuated people, adaptable to different technologies selected on the basis of a dry-assembly repertoire. Finally, the study is aimed at defining an open system that can continually update itself and, above all, is available to a market as wide as possible.

The starting point of the study is the earthquake which hit L’Aquila (Italy) on April 6, 2009. The research started analysing the actions undertaken, focusing on the “mistakes” which were clear since the beginning (but clearer to everyone as of today), and the “merits” of what it is an extraordinary operation, never seen before, of building a very large number of dwellings in few months through a wide repertoire of procedures and technologies.

Firstly, the main error made was the realisation of permanent and traditional residential buildings in available areas around L’Aquila urban centre, creating criticalities in terms of traffic congestion, rupture of the

social tissue due to the dislocation of the population, difficulties for the local enterprises and economic conditions linked to the real estate market sector. Secondly, the costs of interventions were consequently high, due to the durability of the buildings and the creation of the concrete anti-seismic platforms with consequences for the financing of the reconstruction. Last but not least, the high risk of definitive depopulation of the historical centre of L'Aquila, as new towns make really hard the return of the inhabitants (mainly students, strangers and young couple) to the former houses.

Therefore, the specific objective of the research is the development of an open residential building system – from the design concept up to a virtual prototype – based on a high-density and reversibility strategy able to offer opportunities for development not only within the emergency post-catastrophe scope, but also within the social housing emergency one, in particular for the production of temporary, reversible, low-cost and comfortable dwellings to house the end-users of the public residential building stock to undergo retrofit operations, which represents one of the main current strategies of urban development.

At the same time, the above-mentioned open system should be adaptable to the requirements of a permanent residence as a strategy for new construction housing interventions characterised by a high degree of reversibility and then durability (Fig.1).

Starting from these two realities – the housing emergency following catastrophes and/or social issues – the design and management strategies are defined to create, in time of “peace,” a productive supply-chain aimed at realizing a product more and more suitable for the necessities of a temporary and reversible residence and, in this way, checked, which means to limit not as much the mistakes – often unavoidable due to the urgency of interventions – but rather the permanent effects of mistakes on the territory.

In this sense, it is necessary to generate a double innovation approach for both the procedures and the architectural product based on the criticalities of the current strategies. This means also to set the basis for a wider and more general consideration, according with the actions to undertake for defining an innovative product and to provide a new regulation (currently missing) related to the temporary housing interventions.

Such necessity can be clarified, for instance, by adopting the “low-cost” objective, one of the most strategic for the operation sustainability. This is due to the fact that, as mentioned before, high costs create difficulties both during the realisation and decommissioning phase of the building systems. How to create low-cost and comfortable dwellings? Low-cost can be determined through qualitative and quantitative choices, where “qualitative” means the selection of materials and finishes characterised by a smaller durability due to the temporariness of interventions, whilst “quantitative” means the rationalisation of the dwelling space in typological and dimensional terms.

Furthermore, the fact that the emergency housing end-users have neither furniture nor wardrobe, allows the contraction of the individual space through the integration of furniture by means of a careful meta-design study aimed to guarantee a suitable level of comfort.

Nevertheless, this entails a rationalisation of spaces, which is practicable through the revision of the building standards (in Italy expressed by the DM - ministerial decree - 1975). This is possible only through the introduction of the already mentioned national discipline for the realisation of temporary residential building systems for emergency scopes. In fact, it is necessary to foresee simplified procedures to speed up the process and contain costs.

The necessity to operate in the emergency field implies, in fact, the definition of parameters, which – even though they are present within ordinary planning guidelines – here acquire a strategic importance to answer with urgent actions but at the same time to preserve the territory. Therefore, such parameters require a complex answer dealing with manifold aspects of the design process and a careful procedural planning, besides a careful definition of the architectural product.

From the product realisation process point of view, the idea is to identify the most efficient answers within the industrialised processes and create the basis for a direct relationship with the construction sector. In fact, one of the aspects that characterises more the answer to the housing emergency post-catastrophe, is the contemporariness of multiple interventions. This issue can be tackled only by facilitating the widest participation of the building sector enterprises, in order to absorb the necessary production avoiding sudden halt during the building process.

#### INNOVATION OF THE ARCHITECTURAL PRODUCT AND THE BUILDING PROCESS

Starting from these considerations, the research is aimed at setting a verified method constituted by a system of procedures and an architectural product, addressing both the Italian Civil Protection and the Local Public Administrations – as the bodies primarily involved in the management of emergencies on their territories – as well as the building sector enterprises – as stakeholders of the development of new productive supply-chain. From the product perspective, the introduced innovations concern the definition of an advanced model for the realisation of a temporary and reversible residential building system for the housing emergency, which is also able to welcome the know-how of the building sector.

At the same time, it is necessary to proceed to the revision of the whole building process procedures, starting from the identification of the emergency building areas, the definition of procurement procedures for the urbanisation operations, and finally the definition of the design-build procurement models for the realisation and the following decommissioning of the temporary dwellings.

Instead, it is also necessary to define an intervention referring the still missing building standards for temporary building to discipline the

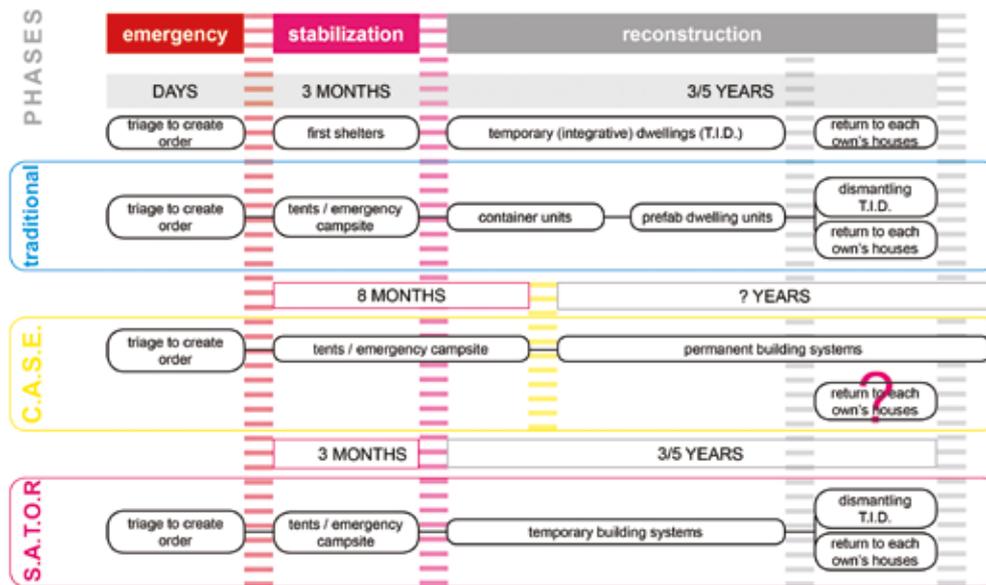


Figure 1. The emergency process: comparison between the different processes defined by the Italian Civil Protection, the CASE project and the SATOR project.

temporary occupation of private areas. In fact, this step could be relevant in order to allow an easier occupation of areas, as in the case of emergencies the occupation of private areas is usually an option, and temporariness would avoid dispossessions.

Furthermore, the analysis of the best practices highlights the need for the institution of a technical structure within the Italian Civil Protection Agency and linked to the local administrative set up for the management of the emergency, as well as research institutes. This technical structure is aimed at supervising the whole management of the emergency process in times of “peace” – before the event occurs. This assumption means that such systems are not designed for a specific social and geographical context, and therefore it is needed to define building systems able to “accept” the different solutions available on the building market sector and, at the same time, be “adaptable” to the specific conditions of the emergency context. Thus, this is meant to be a global project as a result, but also able to adapt according to the local characteristics of the site it must be realized into. The answer to such matters is identified in the project SATOR<sup>1</sup> a temporary organised and reversible housing system, which takes the name from the famous palindrome<sup>2</sup> as a symbol of total reversibility.

### *The Building Process Innovation*

From a procedural perspective, many aspects should be redefined. Some of them are the following issues:

- the emergency areas<sup>3</sup> localisation

- the timing of the emergency process
- the procurement procedures for the realisation of the interventions
- the procurement procedures for the dismantling phase
- the definition of the technical specification of the global project as a tool to control the appointment of the building design and realisation during the procurement procedures

Concerning the timing of the emergency process, the first assumption is to validate the strategy used for L'Aquila, which consists in skipping the container phase to provide the provisional dwellings immediately after the tent camps. Firstly, this allows saving costs for both the emergency houses and the reconstruction, at the same time. Secondly, former experiences, i.e. the Umbria earthquake, which stroke in 1997, showed how containers were used as "the" provisional dwelling and some of them still last nowadays in those territories.

The innovation introduced in this aspect is, then, to keep this step within a reasonable time, as the Civil Protection guidelines specify that the maximum time to spend in tents should not exceed three months. And this is even more critical depending on the season in which the events occur: the L'Aquila earthquake hit the city in April, during springtime, and this crucially affects the decision process put in place afterwards. In fact, in the L'Aquila case, the evacuated population lived in tents for eight months, during the realisation of the first new housing complexes.

Therefore, how to shorten this time to the suitable one of three months? How to assure a correct evaluation of the design characteristics, and of the site plan? How to correctly and efficiently accomplish the procurement procedures and the building processes in line with this goal?

These questions are fundamental and the answer substantially depends on one main move: rescheduling some of the emergency actions before the disaster events occur, which is subsequent to the definition of the technical structure. Such structure will act as a research body in charge of the global design process of the emergency temporary dwellings, on the one hand, and as a sort of general contractor during the building process, on the other hand, in order to assure the development of the entire process.

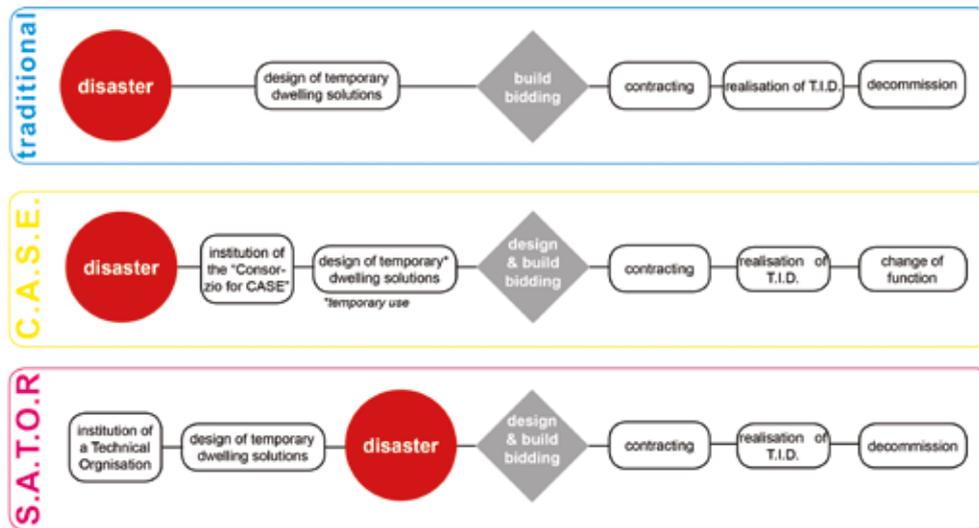
Through this, it is possible to define the following actions prior to the 77 event:

- the design and update of the provisional dwellings and their possible aggregations
- the emergency areas localisation

which will allow to immediately start the procurement procedure, on the management side, and the site arrangement and the construction design of the buildings on the production side (Figs. 1, 2).

Regarding the procedural actions, the strategy is to split the procedures into three main categories:

**THE EMERGENCY PROCESS | MOVING UPFRONT THE DESIGN PHASE BEFORE THE EVENTS**



**THE PRODUCTION PROCESS FOR EMERGENCY EVENTS**

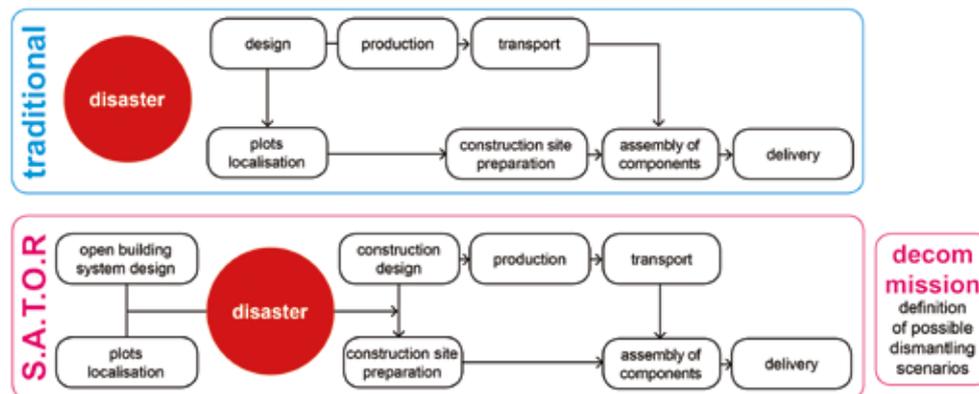


Figure 2. The emergency process: moving upfront the design process due to the introduction of the Technical Organisation and the effect on the production process of the temporary dwelling solutions. The temporariness quality of the system allows the precise definition of dismantling scenarios.

- site areas arrangement and urbanisation
- foundation systems
- construction design and realisation of the building systems

The former two categories will be carried out through the MEAT – Most Economically Advantageous Tender - criterion, based on a concept design. The latter, instead, is expected to be fulfilled through the Design-Build procedure based on a developed design and with a highly performance-based procurement model. As well as for the former categories, the selection criterion will be the MEAT one.

The tool, which will assure the respect of the performance indicators, is the Technical Specification document. The Technical Structure would elaborate this document and it illustrates:

1. the specifications related to the Space Units, thus the minimum dimensions and the specific performances for the definition of the internal spaces of the dwellings
2. the description and specifications related to the technical components of the buildings, i.e. horizontal and vertical/internal and external components, doors, windows, etc.
3. the specifications of the tender procedure, thus the definition of the documents participants should submit
4. the judging criteria to which the offers would undergo

The judging criteria are defined to guarantee, among others, the temporariness and the reversibility of the building systems, as those indicators can limit the negative effects of the interventions on the territory and on the reconstruction of the former urban centres.

### *The Housing System Design*

As stated before, the so-called project SATOR represents a high-density, multi-storey and anti-seismic building system, characterised by the contraction of the individual living space and by the rationalisation of the fundamental components (i.e. services, supply networks). Such aspects are implicit in the general concept of the high-density residential strategy. Thus, it is possible to state that the high-density strategy is “the” answer in case of medium-large urban centers, to avoid both an excessive dispersion of the emergency districts on the territory, and to reconstitute – also during the emergency – a social tissue. The reasons to adopt this strategy lie on the willing to avoid an increase of the urban functional criticalities (Properzi 2009) and, on the social perspective, the isolation, abandonment and impotence of the residents (Alexander 2011) a low-density approach could procure.

The high-density strategy entails, however, an increase of the complexity of the building site operations, especially in the case of reversible residential systems.

Studies and researches conducted on the theme of the post-catastrophe housing emergency usually concern the emergency process management and are based mainly on the low-density strategy and approaches linked to the “container” unit – in typological and technological terms – or, in general, on the object-ready-to-use. Indeed, this strategy has already shown wide limits of production and quality, introducing several issues inherent to the environmental and functional comfort, on the one side, and to the storage when not in use, on the other.

In fact, looking at the best practices in terms of housing emergency, the “container” strategy is the most frequently adopted. This is evident when looking at the many examples related to post-catastrophe shelters and student housing buildings. However, this strategy entails the use of pre-

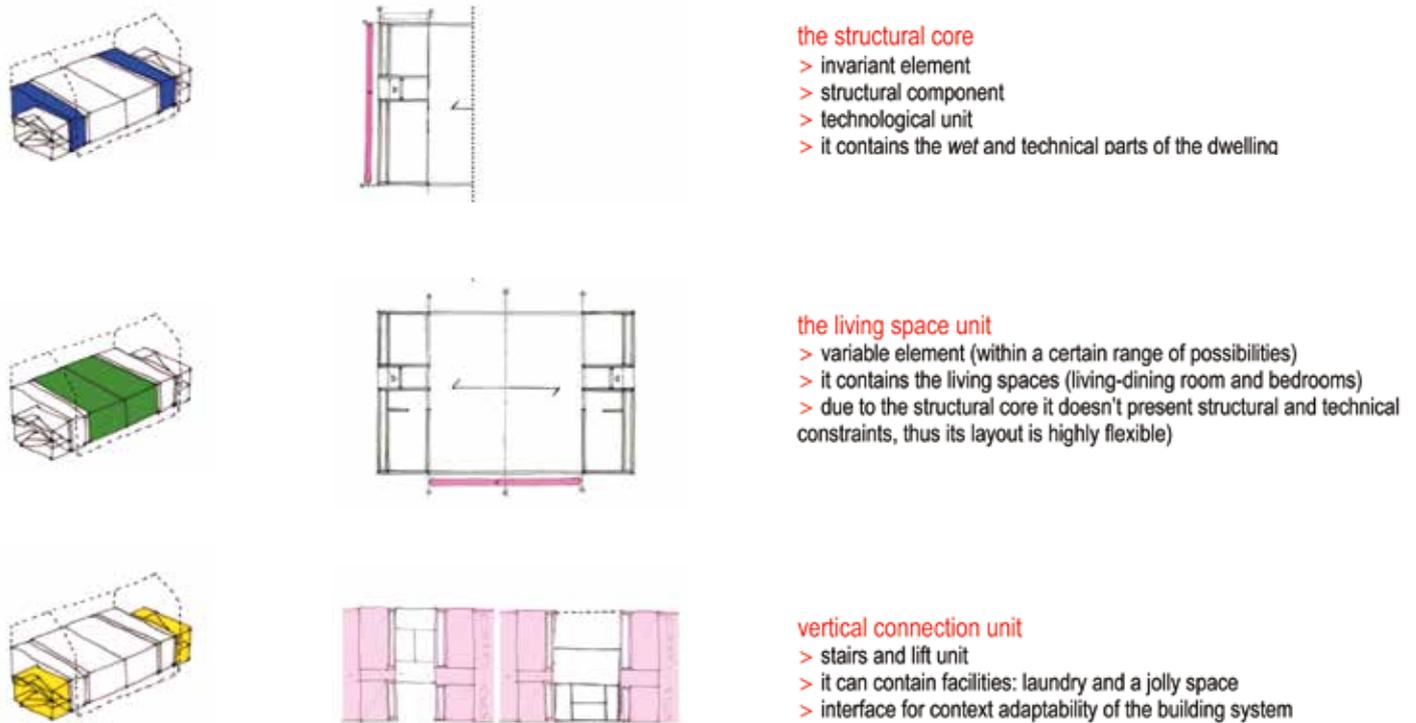


Figure 3. The concept design of the elementary unit of SATOR project.

assembled dwelling units – i.e. the container units – which generally come with (a) technological and (b) typological limits.

On the technological side (a), it doubles the structure and/or insulation of the “containers”/dwelling units, increasing the use of resources; on the typological one (b) it entails more than usual to align the dwelling units alongside a shared balcony. If the former one implies the increase of costs, the latter one results in a lack of comfort.

Some examples of this strategy are the student housing systems realised in Northern Europe:

- the student housing in Amsterdam, realised by Tempohousing
- the student housing in Le Havre, realised by Studio Cattani Architect
- the housing systems for the post-earthquake emergency in Japan realised by Shigeru Ban

The last one displays a smart way to avoid the doubling of the insulation components, but not that of the structural components, nor the “balcony”-aggregation.

Then, the question is: how to ease the building operations, both for the assembly and dismantling ones, avoiding the “container” or the “cottage” model?

The answer proposed through SATOR is an open building system, which

is composed of invariant elements (a) and of a complex of variables elements (b).

The invariant elements (a) constitute the “hardware” of the system itself – the technical, structural and technological core; the variable ones (b) instead, constitute the adaptability of the system to the specific climate, as well as to its geographical and social contexts.

Such structure realise an “open” system, as it allows: changes within a defined range of possibility according to different dwelling sizes; aggregations (e.g. line or gallery); and geometrical characteristics of the site (i.e. altimetry characteristics).

### The Typological Design: the Elementary Module

One of the main purposes of the present study is the definition of the “elementary module” conceived on the four following elements:

- 1 -the structural “core”
- 2 -the living space unit
- 3 -the vertical connection unit
- 4 -the envelope system

These four elements (Figs. 4a and 4b) constitute the building system and confer the system both the “adaptability” to the specific context of the emergency and the “functional” and “architectural variability,” as the morphological quality of the emergency compounds is a highly important aspect to tend to, even for emergency temporary buildings. The structural core (1) is namely the invariant element of the building system, which contains the dwelling services (the entrance and the “wet parts” of the housing unit – i.e. the bathroom and the kitchen). Thus, this element is both the technical and the structural component of the housing unit. Two cores placed at a distance of 7.2-9 m from one another realise the building span. The span between the technical cores identifies the living space units (2), namely the dining and living room and the bedrooms. The living space unit is dimensioned to host two minimum dwelling units, made up of one bedroom, one living and dining room, the kitchen and one bathroom. The range of the dwelling size variation above indicated is 1.8 m wide. This distance is the one the building system can admit and it is set in order to implement the dwelling of one more bedroom (Figs. 4a and 4b).

The second level of the dwelling extension is represented by the façade, namely the space between the external wall of the building and the envelope system. This extension-area admits to expand the dwelling both punctually and linearly, through the enlargement respectively of the single space units, on the one side, and the occupation of the all-area to implement the living room, on the other. The punctual extension allows the implementation of the double bedroom with a baby-room space unit and the living room with a small study space unit.

The concept is conceived in order to concentrate the structural and plants constraints in the structural core, thus conferring the maximum variability of the living space units internal layout.

All the space units, both those contained in the structural core and the living space ones, have been re-dimensioned through an attentive meta-design study – based on the activities to carry out in them and the minimum equipment of those spaces – in order to rationalize the internal space to preserve the territory and save costs for the reconstruction of the urban centers (Figs. 5, 6a, 6b, 7).

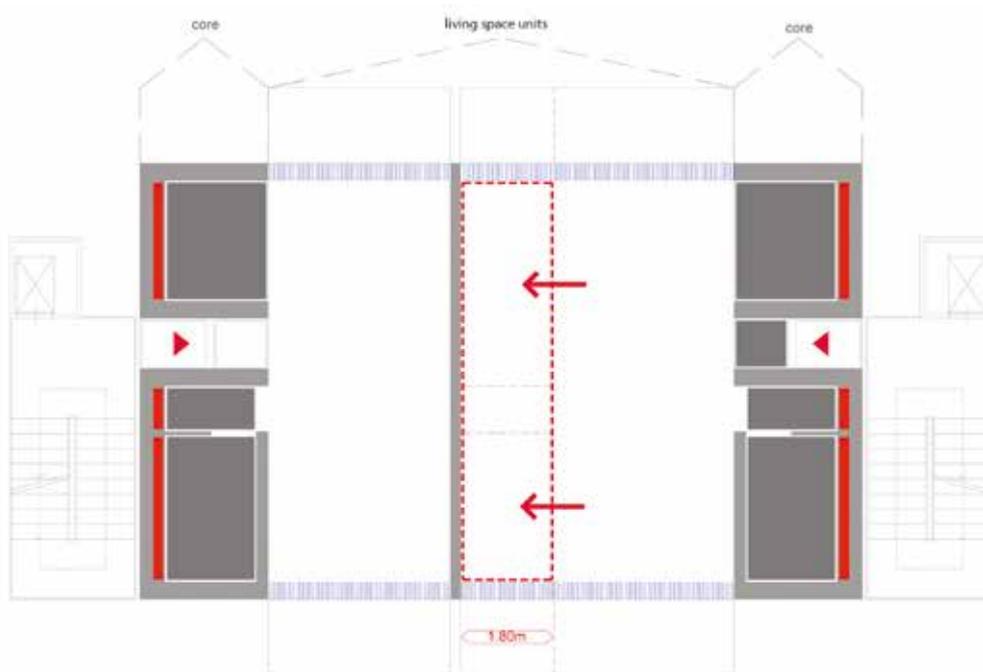
The vertical connection unit (3) is that part of the building which permits the vertical aggregation of the system and the adaptability to the geometrical characteristics of the site, as it can “assimilate” the horizontal (geometry) and vertical (altimetry) variations of the area. This is possible by modifying the shape and the position of this unit in relation to the elementary module. Thanks to this quality of the vertical connection unit, it is possible to achieve variations in the plan geometry of the building system, defining linear or curvilinear, simple multi-storey building or more complex aggregations like courtyard buildings; balcony-served buildings and others.

Finally, the envelope system (4) is the outer part of the building, which confers the adaptability to the climatic conditions of the context and the building morphological feature, thus, at the same time, the variability and the identity of the emergency quarters. In fact, the system is conceived as juxtaposed, to be moved according to different configurations with respect to the building body. The envelope system realises – according to the different requirements – the facade of the building or an inside / external habitable space, both as a place of addition of space units to create the different dwelling size and to guarantee the morphological variability of the system. Such aspect is necessary to avoid the realisation of a multiplicity of all equal zones with the result of a substantial alienation of people who lives in them. The variability is a quality of the building system aimed at creating an architectural landscape also in temporary emergency districts (Fig. 8).

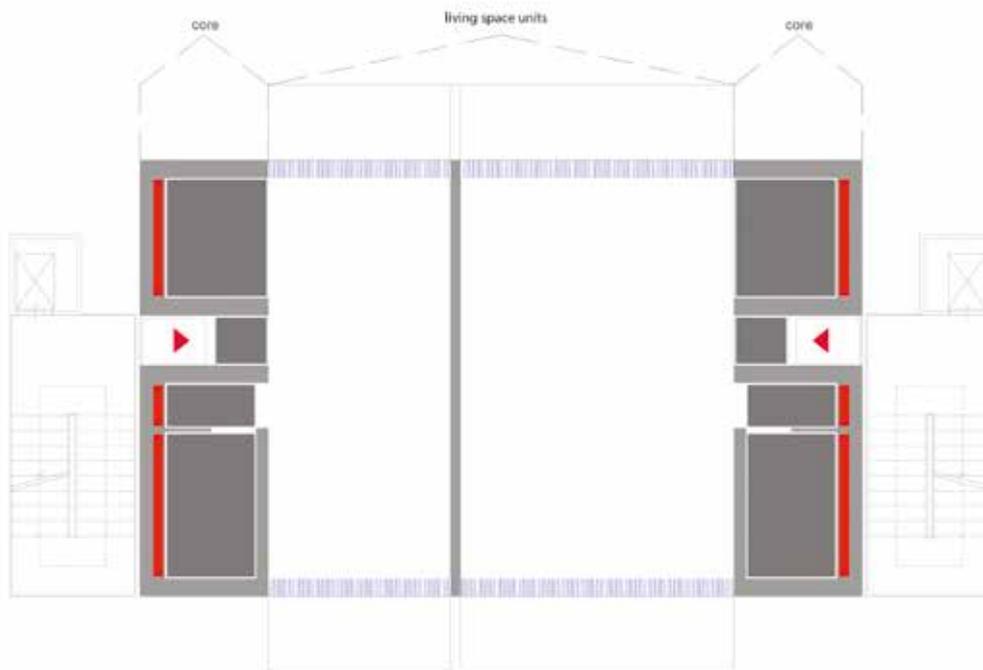
The present study is based mainly on the following criteria:

1. the comfort of the residential units
2. the temporariness of the building systems
3. the low-cost

The comfort of the residential units (1) is one critical requirement, but firstly it is important to set which level of comfort we should intend. In fact, in the case of temporariness, the comfort assumes a different connotation in comparison with the permanent houses. This assumption is based on the fact that (a) reducing the comfort of the provisional dwellings allows saving money to reinvest into the reconstruction, and (b) it helps people to push for going back to their former houses. Reducing the



scheme of dwelling variability



dwelling size A2

Figures 4a and 4b. Scheme of the dwellings variability: the scheme of the dwelling plan extension and the different dwelling size.

comfort, thus, entails operating on the environmental requirements, which means the surface rationalisation and the selection of proper internal and external finishes. This is applicable only in case of – and thanks to – the temporariness of interventions. Furthermore, low cost is the requirement which makes the temporariness sustainable, thus possible.

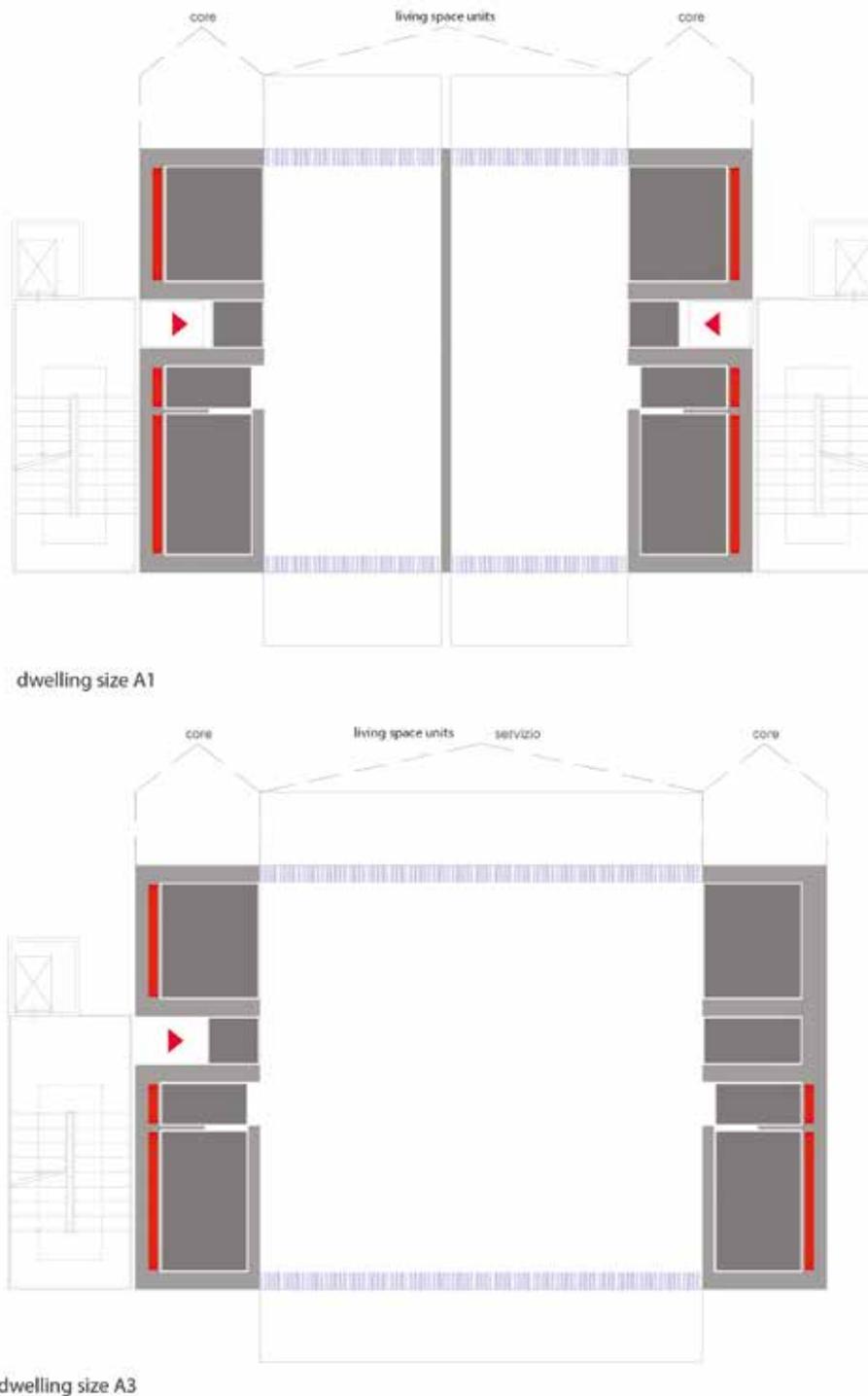


Figure 4b. See caption for Fig. 4a - Ed.

The present study, then, operates the rationalisation of the dwelling surfaces through an attentive design process, applying the meta-design principles and through a “trial and error” approach (Bisig and Pfeifer 2008). The concept design of the elementary module presents a “strip” dwelling organisation, where each strip is related to a specific function. The

concept is formulated taking into consideration respectively: the single dwelling layout; the aggregation of dwellings, both horizontally and vertically; the adaptability of the building systems to the specific context. Regarding the internal layout, the design process starts with the assessment of each single space unit and the reconsideration of the activities each space unit is allocated to. As stated before, the design process should also consider the minimum furniture needed to equip each space with, considering that emergency end-users do not hold any belongings. Then, the furniture must be provided with the dwelling. This fact offers one more opportunity of reconsidering the internal layout and designing the container elements in order to ease the dwelling unit usability, on the one side, and to save space and then costs, on the other. At the same time, the space unit definition cannot leave the construction and transportation requirements out of consideration. Those requirements, however, should be combined with the ergonomic criteria, thus the usability of spaces.

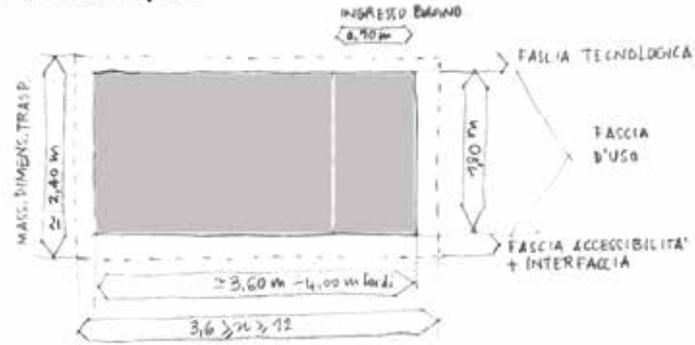
For example, the design of the bathroom space unit should consider: (a) the minimum width to comfortably use the bathroom fixtures; (b) the minimum length to put the bathroom fixture in line on the same wall, in order to rationalise the environmental building systems and to correctly use them; (c) the possibility to bring the bathroom unit as a 3D component on site, thus to keep the space unit into the regular transportation measures; (d) the need to combine the bathroom space unit with the kitchen one to keep the technological complexity together and to free the living space units from structural and technological constraints. All these aspects bring to the definition of a space unit characterised by a dimensional range of a minimum of 1.8 m large (internally), a maximum of 2.4 m large (externally) and a maximum of 12 m in length. The unit space design should, then, comply with those dimensions to reach the requirements set above.

Furthermore, the width gap of 0.6 m allows the positioning of the plant system and the definition of the construction model, thus the structural system of the emergency building system.

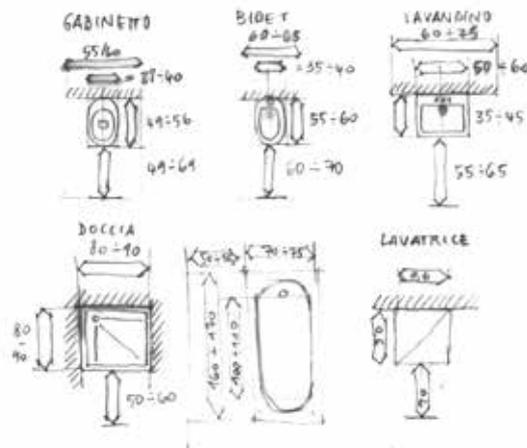
The same process is applied to all the space units composing the dwelling, taking into consideration the minimum and maximum building span, which should also allow the use of standard components for its realisation. Thus, the dimensional coordination of the elementary module considers the bedrooms minimum internal proportions and the living/dining space layout, on the one side, and the technological dimensional standards to allow the use of standard building components, on the other side.

The result is the possibility to place two minimum dwellings suitable for a couple or for a couple with a child, in the 7.2 m building span. Indeed, the 9 m span can host a minimum and a medium dwelling, suitable for 3 or 4 people (a double bedroom with a single one) or the biggest dwelling size, suitable for 5/6 people distributed in 3 double bedrooms.

functional plan



minimum equipment



concept design

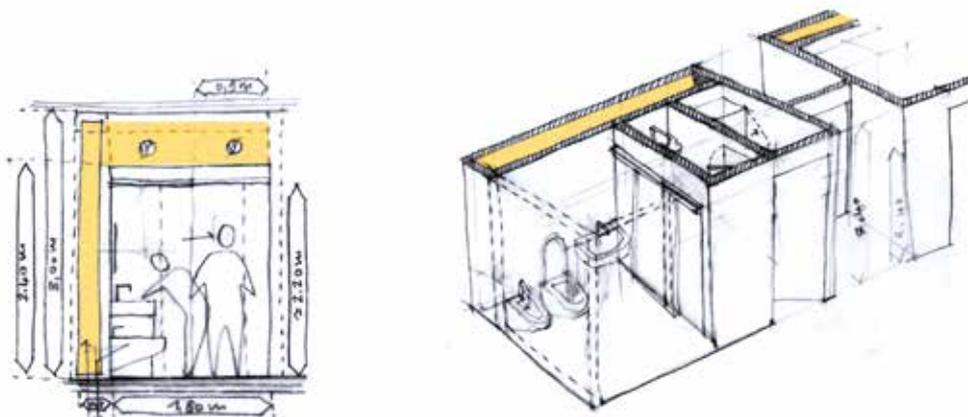
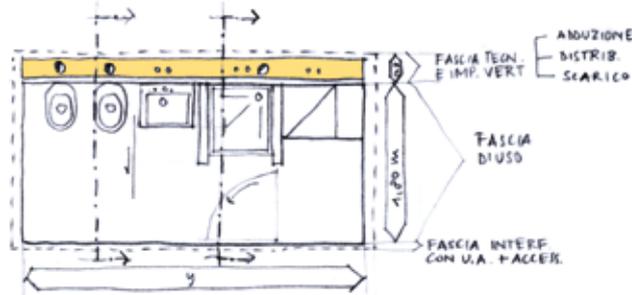
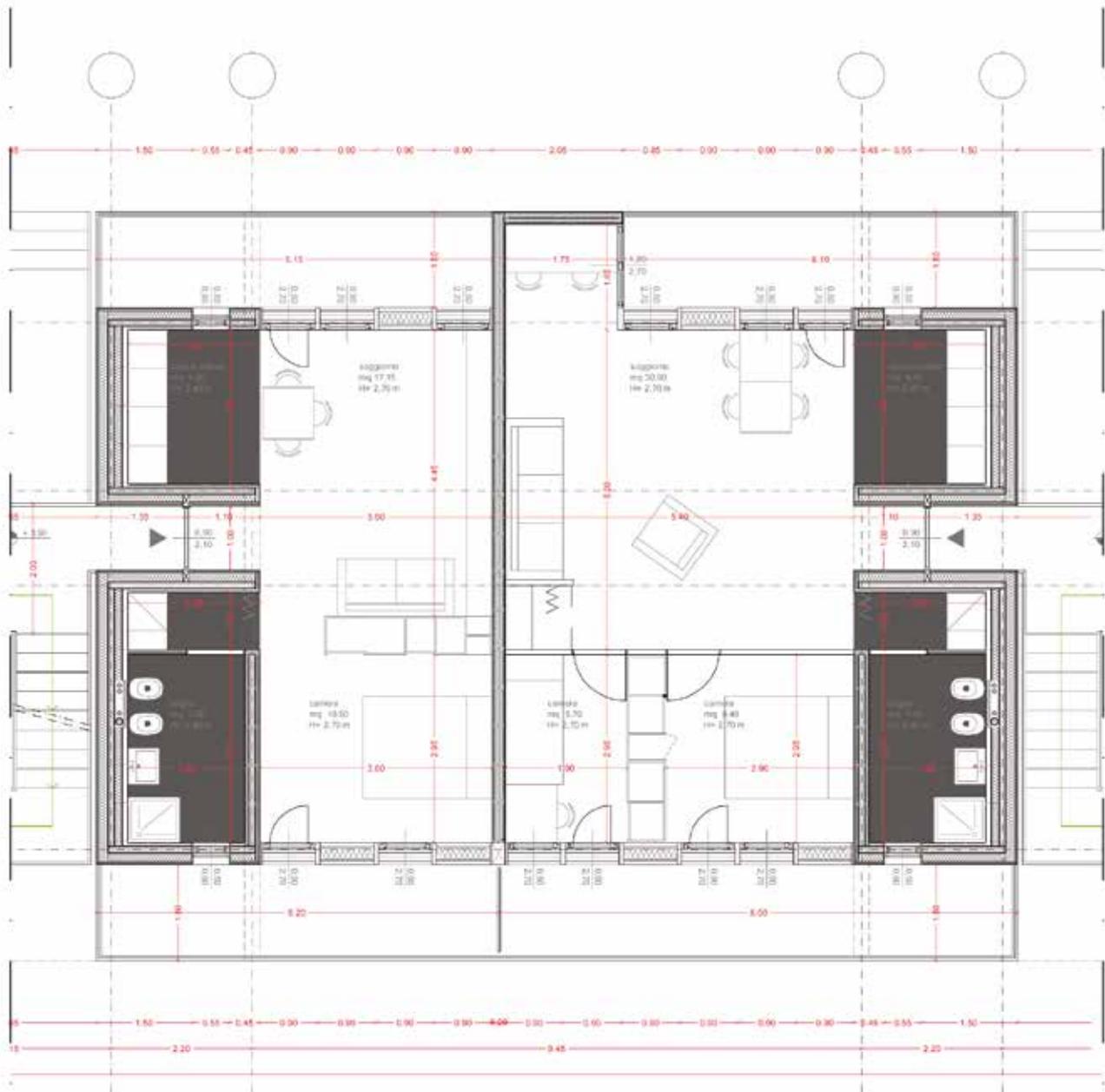


Figure 5. The study for the rationalisation of the dwelling space units: sketch of the bathroom plan, section and minimum equipment.



Figures 6a and 6b. The virtual prototype: schematic design of the dwelling units illustrating a range of possible layout variations. Fig. 6a: combination of minimum and medium dwelling units.

The SATOR virtual prototype eventually realises the following different dwelling size:

- A1\_40: 40 m<sup>2</sup> for two people (one master bedroom)
- A1\_50: 50 m<sup>2</sup> for two people and a child (one master bedroom + the baby-room space unit)
- A2\_56: 56 m<sup>2</sup> for three people (one master bedroom and a single one)

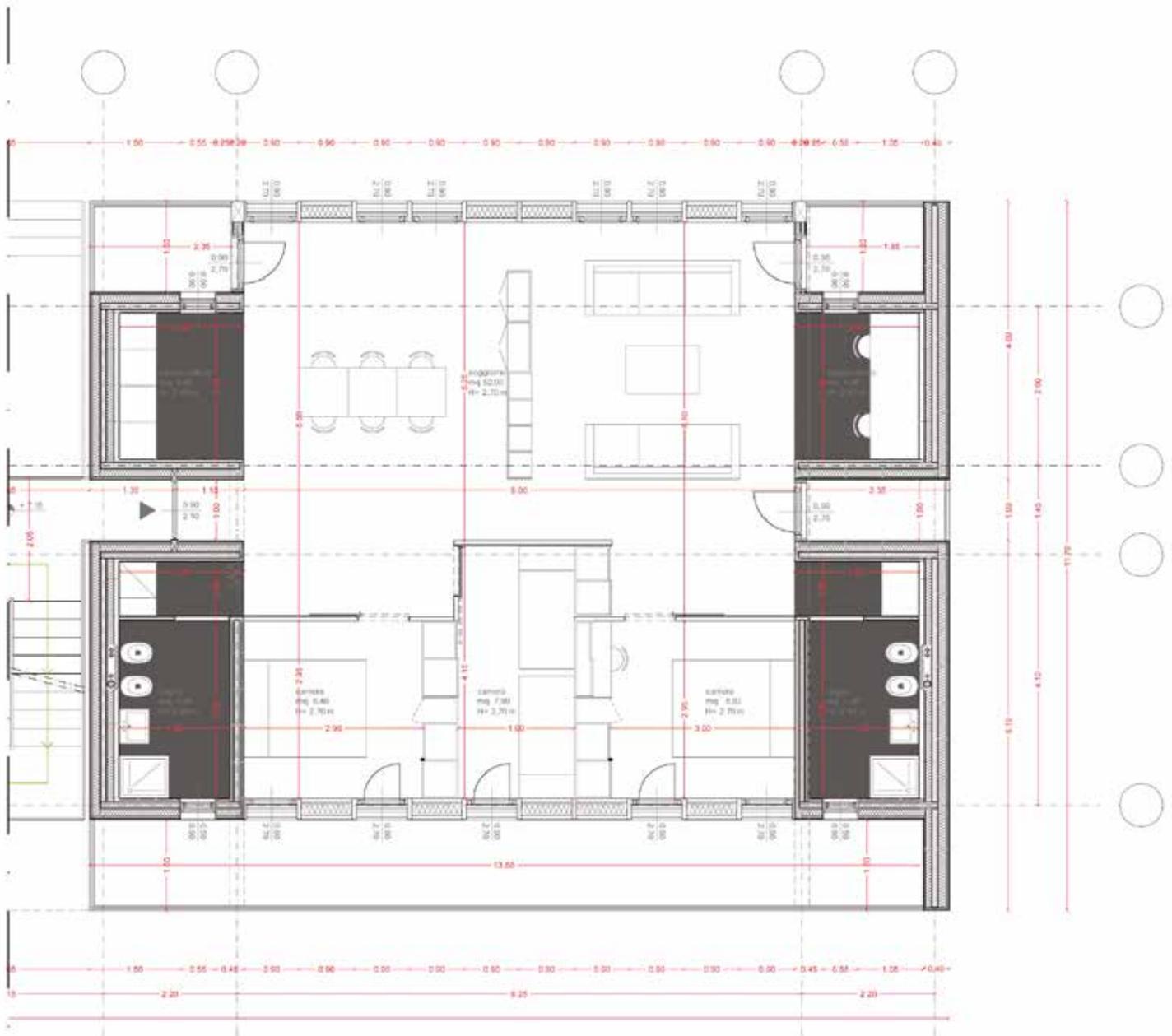


Figure 6b. The maximum dwelling size. See caption for Fig. 6a - Ed.

- A2\_59: 59 m<sup>2</sup> for three people (one master bedroom and a single one + the study space unit)
- A2\_64: 64 m<sup>2</sup> for four people (one master bedroom and a double one)
- A3\_100: 100 m<sup>2</sup> for five people (one master room, a double bedroom and a single one)
- A3\_117: 117 m<sup>2</sup> for six people (one master room and two double bedroom)

These result from the combination of the elementary module and the punctual and linear dwelling extension level.

### The Detailed and the Environmental System Design

The construction system is one crucial aspect to define high-density, temporary and reversible building systems.

Thus, the study analyses the different requirements needed to achieve all the above-mentioned building system features.

These requirements, which form the reference indicators for the contractors to spell out in the tender briefing, have been defined based, on the one hand, on their “weight” on the environment, and on the other, to guarantee the real temporariness of the building systems.

Due to the temporary quality of the building systems, the technological choices have fallen in the only field of dry-assembly construction systems, which guarantee a rapid assembly and dismantling of the system and, through stratified constructive solutions, the reversibility of the system itself.

These indicators are here synthesised:

- Portability - This means that the component should be shaped and assembled in order to be easily transported and moved on site.
- Impact on the ground - This depends on the foundation typology and on the foundation material impact.
- Imprint on the ground - The tight relationship between the shape and the ground occupation of the building systems. This footprint can be, for example, compact, linear, crooked or fragmented.
- Construction speed - This indicates the quality of the building system to be assembled rapidly and with the smallest number of operations. This quality is conferred through a rationalisation and simplification of the building system during the design phase and it acquires a crucial role in emergency situations, being the strategy to both save costs and give a rapid answer to the housing need.
- Flexibility - This refers to the availability of the building system to adapt itself to the needs of the end-users (once identified) and the context, and to offer a certain range of variability, thus to confer an architectural quality to the emergency districts.
- Dismission - This is a fundamental indicator, as it makes the temporariness and the reversibility of the building system real. These qualities, in fact, depend on the attitude to reverse the building operations and derive from an attentive design process and the use of proper technologies and construction systems. Furthermore, the building system should be layered, in order to separate materials based on their recycling property.



Figure 7. Two internal views of the minimum dwelling size and its possible layout variation through the introduction of a partition furniture.

- Recycle/reuse - This indicates that materials and components should be chosen based on the life-cycle of the building system to realise and guarantee the maximum "availability" to be recycled and/or reused.

- Anti-seismic - This indicator, above all in the case of a natural disaster situation, covers a key role, even for the psychological equilibrium of evacuated people. Due to the temporariness strategy, it is possible to expect the building systems to undergo earthquakes of minor intensity in comparison with long-lasting structures. This does not mean to minimise the seismic aspect, but to intervene through specific strategies and technologies, both during the design and the realisation process, to guarantee the appropriate resistance of structures in case of earthquake based on their limited life-cycle.
- Low-cost - This indicates the quality of the system of guaranteeing the suitable safety and the maximum of the comfort with the minimum costs of the building systems. This parameter means to operate: rationalising the dwelling surfaces; simplifying procedures; choosing materials and technologies available to the building market sector able to ease the realisation process. This requirement is critical as it makes the temporariness strategy possible, on the one side, and maximally employ resources into the reconstruction of the urban centres, on the other side.

In synthesis, the building systems should be conceived based on the available technologies and dry-assembly construction models, assuring their total reversibility, once the emergency will end. Finally, to ease the building process, above all during an emergency process, it is important to prefer industrialised processes, minimizing the site operations. This latter requirement is crucial due to the contemporaneity of interventions in case of a post-disaster housing emergency.

Then, the SATOR project represents the possible answer to the above-mentioned issues, as it is conceived as an open-system to be realized through dry-assembly construction models, chosen from those currently available on the market, and to be updated to the brand-new ones.

Among the construction aspects, the foundation system represents one of the most critical points: as usually, it is the element entailing the heavier impact on the ground, thus the footprint on the environment.

The most part of the samples often presents concrete foundations directly realised on-site. This kind of structures is normally intended to be reused after the emergency, usually without defining a real destination (i.e. platforms for market stands, is one of the most recurring ones) and producing, as a result, the permanent occupation of an area. On the contrary, the present study wants to define temporary and totally reversible systems, which produce a “zero impact” on the environment, thus it designs a specific foundation system completely pre-fabricated and assembled on site.

This is constituted of three classes of the pre-cast beam produced in blocks, depending on the weight – thus the transportability – of each one.



Figure 8. Possible external views of the SATOR project, depending on the shell definition.

Furthermore, it presents an integrated hook system and pre-configured holes, to assemble the beams by means of metal tie-ropes. At the same time, also the elementary module is conceived in different components, each one with its own construction strategies based on the specific morphological and technological characteristics:

1. the structural “core”
2. the living space unit

The structural core (1) is a self-standing system, which admits a total prefabrication; thus this component could be transported on-site as a 2D panel system to be assembled on site, as well as a preassembled 3D volume – in case also completed with the equipment – depending on the specific convenience in terms of transportation and site conditions.

The living space unit (1), instead, is realised with a framed structure supported by the structural core vertical elements.

The dimensional organisation of the elementary module, thus the entire building system, is achieved through a “tartan knit,” which allows defining the internal layout of the dwellings, regardless of the available materials and construction technologies to choose during the procurement procedures (Figs. 9a and 9b).

In fact, the tartan knit puts its axis on the internal and external edge of the structural element, in order to control the internal dimensions of the space units. The flexibility of the system is assured giving to each different



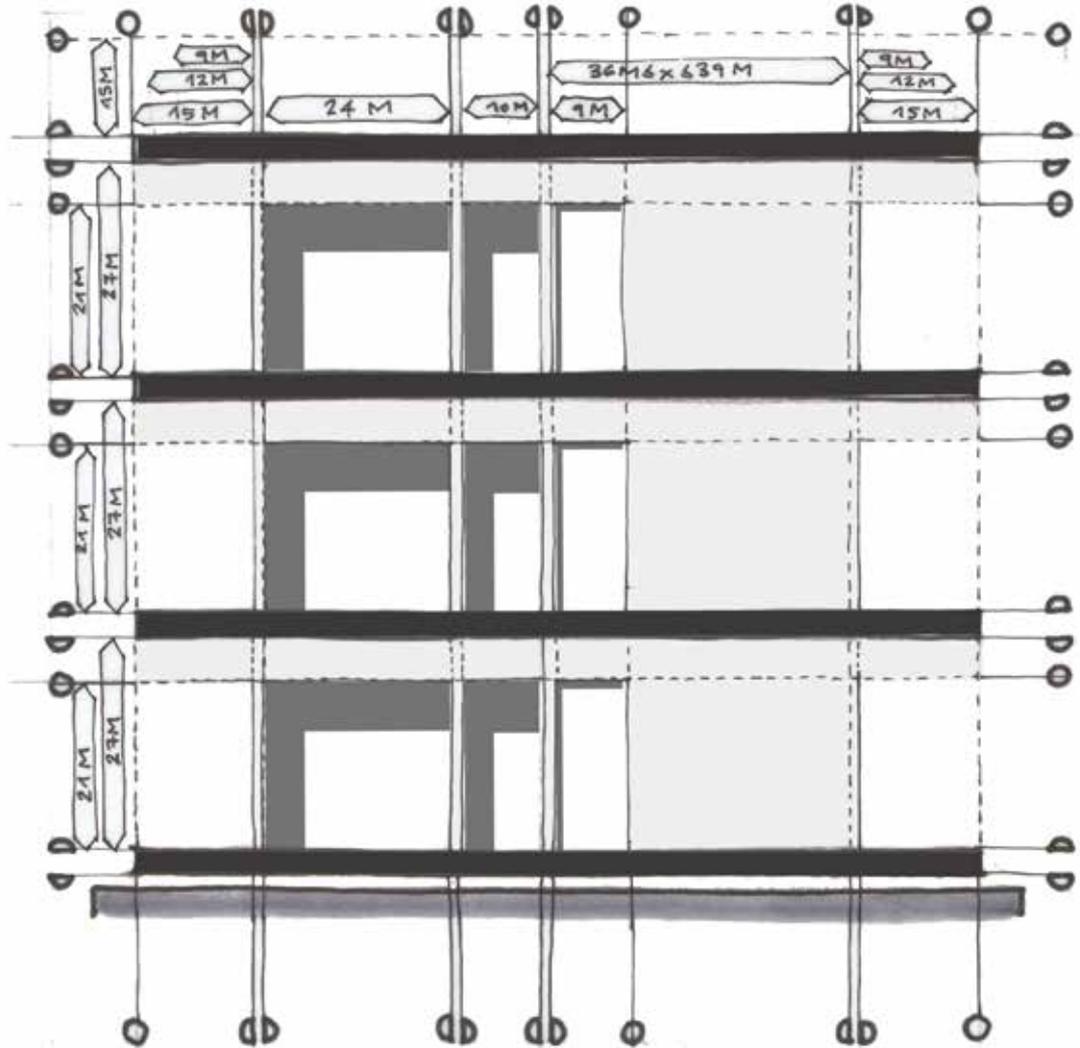


Figure 9b. See caption for Fig. 9a - Ed.

same requirements defined for the construction system. Thus, the systems should be conceived in order to allow their total reversibility and recycle/reuse of the single components.

In conclusion, to test the building system, the research provides a virtual prototype with a wood-combined technology system: X-Lam for the structural core and balloon-frame for the living space unit (Fig. 10). Being a virtual prototype, the test was conducted producing a developed design of a 3-storey housing system, in analogy with those of the CASE project built in L'Aquila in 2009, to demonstrate that it is possible to realise quality residential districts, even in case of temporary building system for a post-disaster emergency.

## CONCLUSIONS

The SATOR project is the development of a clear and slender complex of procedures and tools (the special specification) that makes efficient, and therefore effective, any process referable to the resolution of the housing emergency. These tools surely represent the basic conditions to reach the other central objectives: the constructive rapidity which solves, in addition to an evident saving of times and costs, the lodging of the evacuees in the shortest time possible. To reach this aim the management of the necessary procurement procedures and the specific indicators to be fulfilled have been provided, in order to make the objectives of the public administration and the productive sector converge.

The research, nevertheless, leaves some open questions, among which the low-cost and the decommissioning objectives. Currently, the cost estimated of the project SATOR stands around 950€/m<sup>2</sup>. Such figure represents an interesting objective for what concerns the whole sector of the so-called low-cost building systems.

However, the realization of the objective needs to aim more decidedly to the further contraction of the geometric aspects, specifically on the quantities - height, surfaces, among others - and contemporarily, on a complex of low-cost finishes, according to the temporariness of the building systems and in correspondence to an acceptable comfort performance for the inhabitants. This means to limit the use of resources reducing the cost of the provisional dwellings and saving the most of the financing for the reconstruction.

In synthesis, the principal goal is surely reachable with a further examination of the building system design, preferably in collaboration with the productive compartment and through a wide and deep investigation of the building products market.

The concept of decommissioning certainly represents a very critical goal to reach because it is evident that this not only concerns the present study but also the future of the architectural design culture and of the overall building market sector. The present research has intended to frame an adequate repertoire of components and elements that can be devoted to the reversibility and recyclability principles of components and materials which compose the building system. At the same time, it is necessary to develop a further and careful evaluation of the material nature, through a comparative system both for a performance, productive and economic assessment of the different opportunities currently offered by the market sector of the building materials and technologies. The present research opts, instead, for the timber/wood technology, as it was the most suitable for the verification of the system.

In conclusion, one of the central points at the base of the present study is primarily to show that through a symbiotic relationship among the authorities in-charge, universities, civil protection agencies, contractors



Figure 10. A sectional perspective of the structure of the SATOR project virtual prototype illustrating the balloon frame construction system of the living space unit.

and industrial suppliers within the building sector – along with a careful design activity – it is possible to realize comfortable, sustainable, agreeable interventions of temporary high-density building systems.

## Notes

1. Sistemi Abitativi Temporanei Organizzati Reversibili.
2. SATOR AREPO TENET OPERA ROTAS is a Latin palindrome, namely an inscription (typically in a square, the "Sator Square") legible in all directions (from right to left and the opposite, as well as from the top to the bottom and vice-versa. (The earliest version of this precursor of the modern crosswords was found in Herculaneum, an ancient Roman town south of Naples, which was buried with ash during Mt. Vesuvius' eruption in 79 AD. The Sator Square may then predate the Christian era. - Ed.)
3. With the terms "emergency areas" is here intended the site for the provisional dwellings as defined in the "Metodo Augustus" document (Galanti, 2007), not those areas for the first emergency operations, or those of the tents camps.

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# Dotte Agency: A Participatory Design Model for Community Health

Shannon Criss, Matt Kleinmann

*ABSTRACT - As community activists resist racial injustice, food insecurity, and infrastructural delinquency, many groups are attempting to articulate the voice of the citizen. It is within this landscape that architects have historically struggled to find common ground to afford democratic access for citizens to engage in discussions about the future of their city. Based upon surrogate models of other professions, there has emerged a proactive movement towards Social Impact Design. Like many urban core areas, our community faces a health epidemic compounded by poverty. In response to requests for collaboration, and through cross-disciplinary academic partnerships in both public health and social welfare, we have begun to leverage design advocacy to improve health outcomes. This has evolved into an alternative model of practice that advances public design through interdisciplinary, adaptive and incremental spatial agency. It is a sustainable practice that fosters conversations and supports events originating from within the community. Our approach seeks to scaffold an infrastructure of public health through methods of participatory design and advocacy. Through new forms of design intelligence and collaborative design tools, our critical spatial practice demonstrates new ways for how architectural design can be relevant to society.*

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**Keywords:** social impact design, public architecture, community engagement, participatory, design, critical spatial practice

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Organized in late 2014, Dotte Agency originally intended to serve as a loose affiliation of architecture studio collaborations between three

professors and their students within the School of Architecture at the University of Kansas (KU). Since then, it has evolved into an informal community-outreach extension for students and faculty at KU to provide multi-disciplinary design services to local non-profit organizations, community leaders, and city agencies to address the health disparities present within underserved and culturally diverse neighborhoods of the urban core of Wyandotte County, Kansas. As a result of multiple joint projects in various urban spaces over the last few years, the collaborative work has provided both students and community participants with a holistic rethinking of how design can be deployed to serve the needs of everyday people. Learning through participatory practices, Dotte Agency has built trust with partners to foster a collaborative environment that engages neighborhoods seeking to restore their built environment to better promote and improve access to essential resources. The work emerges from dialogues between students, residents, and community organizations, and is supported through cross-disciplinary collaborations, including the fields of public health, community development, public administration, business, and design. This dual-approach — leveraging community health resources to support a design practice — translates the tacit knowledge of participating residents into shared visual representations, leading towards installed elements that build upon the best available evidence for increasing access to public health. Guided by this process of iterative collaboration, Dotte Agency has refined participatory methods and tools to allow for design-thinking skills to critically address health disparities, while offering students an opportunity to propose and build work more relevant to the needs of society.

This shift towards utilizing innovative design methods to mediate adaptive design problems is not typically found within architectural practice. The role of the traditional architect or architectural firm is to serve their client, and to deliver a distinct building that responds exclusively to their client's needs. This framework has become the accepted standard due to its potential efficiency and profitability for architects and clients alike, but it does so with tools and methods that have been demonstrated to be effective in solving primarily technical design challenges. However, the established architectural process has shown limited capacity to address the adaptive challenges made manifest in the built environment today (lack of social cohesion, issues of safety and crime, poverty, gentrification, environmental injustice, climate change, etc.). Instead, the production of any individual building asks the architect to balance their available time, access to capital, and personal aspirations in pursuit of an aesthetically pleasing design in service to the individual or organization that has provided them the means with which to do so. Given these constraints, conventional architectural practice thus rarely seeks to directly empower individuals or support a community's efforts to strategically re-invest in neglected neighborhoods as their primary design goals. Capitalism, and to a lesser extent bureaucracy, has made these notions of designing for greater social equity difficult for

practicing architects to even begin to address while balancing their own investment in any given project. That is not to say, however, that models for how architects can respond to adaptive challenges in society do not already exist.

Within academia, a new generation of socially-engaged students have begun to respond to adaptive challenges through unique collaborations that collectively appeal towards broad notions of "the common good." Likewise, students within schools of architecture across the country are finding potential clients through university-initiated service-learning partnerships, allowing for students to meet directly with community stakeholders and work collectively on problems that otherwise are not addressed through typical architectural practice. By inviting architectural students to engage with real people, participatory methods of design become a critical component in navigating the complex relationships between students and the diversity of residents, stakeholders, and authorities in any given community. These scenarios often encounter adaptive challenges because the available technical answers have been unable to solve the problem. It is in these educational opportunities that design skills can foster meaningful participation through active listening, working reflexively, iterating quickly, and producing collective social spaces. By learning to address adaptive problems at a foundational level, the current generation of architecture students may soon represent the next paradigm shift in architecture: Design that seeks to address "why" and "who" we build for, as much as "how" and "what" is built.

## ORIGINS OF COMMUNITY DESIGN

Dotte Agency is certainly not unique in its attempt to develop a design practice grounded in theories of community, social justice, and reflexivity. In fact, the history of social impact design practices is rich with examples of pioneering architects that have successfully navigated academia, non-profit, and private practice to enrich the field of community design. Rather, Dotte Agency may be seen as an attempt to further continue the lineage of architectural collaboratives finding sustainable models of community-based design practice.

In the 1960s, the Civil Rights Era coincided with the first community design center in Harlem. At the 1968 American Institute of Architects (AIA) Convention in Portland, Oregon, Whitney M. Young, Jr. — outspoken civil rights activist and head of the Urban League at the time — gave a keynote address that challenged the status quo among the architecture profession on issues of social responsibility and diversity within the profession. "[As] a profession, you are not a profession that has distinguished itself by your social and civic contributions to the cause of civil rights, and I am sure this has not come to you as any shock. You are most distinguished by your thunderous silence and your complete irrelevance."<sup>1</sup> Young challenged the profession to re-examine the policies that have shaped,

and continue to shape, our cities. “We are going to have to have people as committed to doing the right thing, to inclusiveness, as we have in the past to exclusiveness.”<sup>2</sup> Following this motivating speech, the AIA initiated a Minority Disadvantaged Scholarship, established the National Organization Minority Architects (NOMA) and created other initiatives that began to highlight the struggles to find common ground in order to engage in discussions about the future of the city.

A decade later, established in 1977, in order to meet the needs to provide access to design, the Association of Community Design (ACD) was created “to offer design and planning services aimed” to enable the poor to define and implement their own planning goals.”<sup>3</sup> This network of individuals, organizations and institutions initiated their charge under traditional pro bono practice models, where brand identity, mission, and goals were made available to serve a community group, most commonly in association with universities.

In the 1990s, several important initiatives were created to broaden the approach of design for social impact and reach a wider audience. Design Corps was founded by Bryan Bell “to provide the benefits of architecture to those traditionally unserved by the profession.”<sup>4</sup> Auburn University’s Rural Studio Design/Build Program, co-founded by Samuel Mockbee and D.K. Ruth, was created in a remote location to engage an underserved population in one of the most impoverished counties in the country. Students and faculty were immersed in the rural poverty found within Hale County, Alabama, and through participation alongside residents they influenced a new generation of empathetic designers.

In 1994, the Detroit Collaborative Design Center, at the University of Detroit Mercy, was founded by Dan Pitera to “foster university and community collaborations and partnerships that create inspired and sustainable neighborhoods and spaces for all people.”<sup>5</sup> Rather than focusing on traditional architecture and community design practices, they worked at multiple scales to address Detroit’s numerous challenges. At the same time, Ernest Boyer and Lee Mitgang, through the Carnegie Foundation for the Advancement of Teaching, influenced academics and practitioners with their book, *Building Community: A New Future for Architecture Education & Practice* (1996), with a chapter titled “Service to the Nation,” which introduced the concept of service-learning and community outreach as an integral element of a relevant architecture curriculum: “The profession could be powerfully beneficial at a time when the lives of families and entire communities have grown increasingly fragmented, when cities are in an era of decline and decay rather than limitless growth, and when the value of beauty in daily life is often belittled.”<sup>6</sup> Since its publication, architecture accrediting bodies have set criteria for assessing architecture degree programs for the purposes of professional licensure, although the exact nature and scope of the criteria dedicated to community-based learning remains vague.

In 1999, Architecture for Humanity (AFH) was co-founded by Kate Stohr and Cameron Sinclair to initially focus on architectural solutions to humanitarian crises. Their work documented their methods, and together they published *Design Like You Give a Damn* (2006), enlightening readers on the challenges of design globally. AFH's stated mission was to leverage professional design to build "a more sustainable future." Through a robust network of thousands of volunteers, their global chapters continue to provide design and construction services, despite the closing of its primary chapter in 2015.

Over the last fifty years, many other community design firms have contributed to the field of design serving the public good. Most emerged through university initiatives, while others were supported by foundations and nonprofit organizations.<sup>7</sup> These initiatives provide evidence of a commitment to examine both local and global issues to ensure that new forms of practice, service and products are created in attempts to involve citizen participants as collaborators and co-creators. While these efforts are the product of individual designers and academic courses, most are the result of interdisciplinary teams comprised of designers and technical specialists working alongside partner communities. This has served to challenge the assumed limits of pro bono design typically held by traditional architectural practice. Instead, collaborative designers have begun to assume an ethos of social responsibility and deployed their design skills with a high degree of innovation in areas outside their normal professional boundaries.

In acknowledging these preceding models of community design practice, and then seeking to integrate various aspects of them within Dotte Agency, we find ourselves exploring this new paradigm of user-based design as one rooted in issues of social justice. By offering design services to individuals and communities otherwise disconnected from the construction of the built environment within which they live, design provides advocacy for and agency to the social networks where adaptive problems are felt most severely. Issues of race, class, status, and poverty are grappled with over the course of each semester. However, we are finding that by aspiring towards notions of the common good (i.e. public health), our work and the work of our students have the capacity to invite participating residents to engage in dialogues and co-create visions that respond to the latent adaptive challenges waiting to be addressed in the built environment.

## TOWARDS A PARADIGM OF ADAPTIVE DESIGN

Much of what we consider to be architecture today responds primarily to a client's specific needs. Clients often present architects with a site, a design challenge, and an aspiration to a specific architectural style. After engaging with the client, the traditional course is for the architect to begin making pre-design decisions about site orientation, aesthetics, and scale. The process then moves from schematic and conceptual designs to more

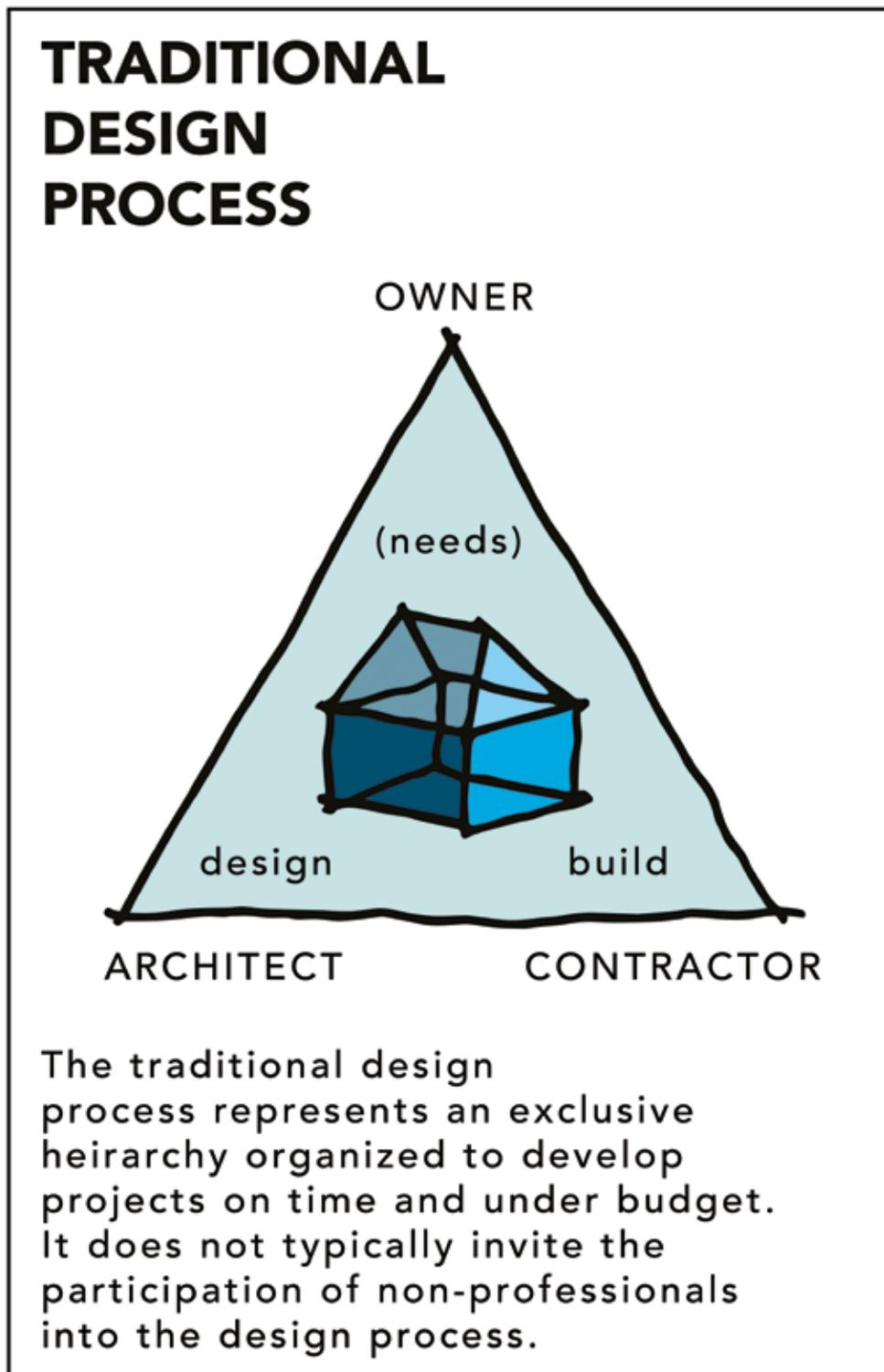


Figure 1. Traditional design process.

developed designs, ultimately resulting in a set of construction documents that serve as a contract between the owner, architect, and general contractor (Fig. 1). This relationship is largely governed by the AIA, which

has set up legal documents intended to help the architect manage the expectations, risks, and liability of the architect in their contracts dealing with owners and contractors.

In his 1969 lecture and subsequent essay “Architecture’s Public,” Giancarlo De Carlo challenged this version of standardized architecture as one that subjected itself to the whims of the privileged elite, arguing that “the architect became a representative of the class in power.”<sup>8</sup> In his essay, De Carlo questioned architecture’s credibility and its capacity to maintain a sense of “public,” often to the detriment of ordinary people. He suggested that architecture’s “credibility disappeared when Modern Architecture chose the same public as academic or business architecture; that is when it took an elite position on the side of the client rather than on the side of the user.”<sup>9</sup> Instead, De Carlo argued for a process that required collective participation to introduce a plurality of objectives and actions. He proposed that design be used to identify with the needs of the user, where architecture does not plan “for” them, but rather plans “with” them. To De Carlo, this approach could be liberating and democratic for architects, “stimulating a multiple and continuous participation.”<sup>10</sup>

The difficulty in transposing this notion of participatory design towards traditional architectural practice is that existing processes have evolved over time to be inherently technical; architects move along the prescribed path to navigate their available time, budget, and design intent. While an architect’s response to design challenges may be adaptive as it relates to form-making, a framework that is client-centered nonetheless prevents greater consideration of the needs and desires of a community. It is in this sense that De Carlo’s assertion rings true: Architects became preoccupied with “working on ‘how’ without rigorous control of ‘why’ inevitably [excluding] reality from the planning process.”<sup>11</sup> Modern Architecture’s promise of liberation through design neglected to respond to the very same rigid socio-economic systems that provided them with the resources to produce space, thereby limiting their capacity to respond to adaptive problems. In so doing, Modern Architecture presented little change except for its aesthetics. Today, as social impact design moves towards a more adaptive design paradigm that concerns itself with issues of social justice, there remains a lack of appropriate processes and frameworks to move through on the path towards a substantial resolution of a given design challenge. The basic progression of schematic design, design development, construction documents, and contract administration is not formatted properly to deal with more ambiguous design challenges such as building coalitions, advocating for social equity, and responding to the needs of the community. For this reason, many architects that engage in social impact design as professionals or as part of a firm are often limited in their ability to be effective advocates. Rather than meeting communities where they are, architects often attempt to frame their relationship through standard contracts and agreements, budgeting their time with communities in need of social impact design services as they would with a client. The use of

memorandums of understanding (MOUs), in place of standard architect/client contracts amongst architectural design firms engaged in social impact design, suggests that architects are attempting to respond to the need to provide clarity and establish boundaries to their design services. This well-intentioned evolution of an architect's role and responsibility is still nonetheless limited by a paradigm that is client-centered, and therefore unable to adapt to design challenges where the community is the client, and the design services rendered are for the common good.

In response to the limitations presented by taking a client-centered approach, human-centered design principles have emerged out of the Stanford D-School and IDEO. In their "Human Centered Design Toolkit", IDEO defines their approach as being focused squarely on the needs of people. Their process asks designers to listen to those needs, co-create proposals that have a positive impact within a community, and then deliver a completed proposal to the community's stakeholders. By framing their design solutions through the lenses of "desirability," "feasibility," and "viability," IDEO provides social impact designers an alternative model of practice, one that is more suitable to navigating adaptive design challenges. This filter allows for a more flexible approach than the traditional architectural model, where the desire of the community is given primary consideration, while issues such as whether it can be built efficiently help to guide the process towards a final design solution. A major challenge for conventional architectural firms attempting to be hyper-responsive to the desires of the community is that traditional funding sources rarely budget for sufficient engagement work within communities. The financial incentive to keep projects on time and under budget leads to a reduction in time spent by architects on design challenges that might be otherwise considered as too ambiguous or adaptive in nature. One alternative to this financial incentive structure is found in the "triple-bottom-line" approach, made popular in design circles through the work of Majora Carter, a community design activist. In her TED Talk on triple-bottom-line sustainability, she makes the case for architects to balance the roles that economic, environmental, and social factors play in determining the potential outcomes of a project.<sup>12</sup> This mindset incorporates elements of social and environmental justice, acknowledging that communities of color in the United States are disproportionately at a higher risk for developing chronic diseases from exposure to environmental toxins and a lack of access to essential health services.

In an awareness of the impact that the environment has on all of us, in recent decades architects have begun to align their design processes with the United States Green Building Council (USGBC) and their Leadership in Energy & Environmental Design (LEED) standards. However, while this formal approach goes far in providing design guidance towards resolving technical design problems measured through environmental outcomes,

it has little to say in response to social impact outcomes. Furthermore, LEED is framed within the context of client-centered design, where new buildings are developed exclusively for the clients that can afford them. While reducing greenhouse gases and minimizing the carbon impact of new construction can be taken as a positive step towards addressing climate change, it does little to mitigate the alarming impact that polluted ecological systems are having on millions of people today. By adopting a unifying view of human-centered and triple-bottom-line design principles, it becomes apparent that formal design hierarchies are ill-equipped to provide standardized solutions to these complex problems. More concerning, however, is that, even were architects able to solve these problems through technical processes alone, most individuals in society would nonetheless be unable to afford traditional architectural fees. In attempting to address adaptive design challenges, architects must not only respond to the needs of the community while balancing a project's social and environmental outcomes, they must also consider that they themselves must practice within a model of architectural practice that is economically sustainable.

One economically sustainable way for architects to align their objectives with that of the common good is in the healthcare setting. Historically, the relationship between health and architecture has typically been played out within hospitals:

A lead architect says [that] the new hospital “embraces the idea that good architecture is an integral part of the healing process,” creating “an environment that is cheerful, inspirational and intimate, despite its large size.” He continues: “We’ve aimed to design an environment for people, not just machines”... Another lead architect says: “somehow the human scale should come in”; he sought to design a sense of “smallness” into the space... This discourse of a humanistic building was in keeping with various inspirational phrases used to describe the new space and the work it facilitated, epitomized by words of one of the hospital’s senior administrators: “Our vision is to heal humankind, one patient at a time, by improving health, alleviating suffering and delivering acts of kindness.”<sup>13</sup>

Emerging design firms such as MASS Design Group have been successful in incorporating better health outcomes as a means towards achieving greater social impact through design. While still framed within the client-centered approach, their work extends “beyond the building” to consider local community stakeholders. By inviting communities to be participants in the process of both a building’s design and its construction, their success reflects how projects that improve health can be a viable path forward for architects wishing to integrate social impact design with architectural practice.

The most innovative path forward for social impact design and public health may be in the context of “community health design.” By identifying the common good as an appeal towards greater quality of life for disenfranchised members of a community, architects will find that there exists other organizations, institutions, and foundations that are motivated to find ways to improve health outcomes “upstream.” Enhancing preventive care by redesigning the built environment to improve health outcomes before patients need emergency health services is an inherently adaptive design challenge. By adopting a “social determinants of health” mindset, design skills that improve the built environment, to enhance access to spaces and support greater community health outcomes, become essential. A client-centered approach is anachronistic in this context; the client is replaced with the community, but communities do not act with a single voice. This is where technical design processes most commonly fail architects; they expect to operate within a traditional process that communities are unfamiliar with or unable to operate within. Leading a design process in pursuit of improving community health requires new methodologies for the successful production of collaborative space. By framing these new methodologies as adaptive design tools, architects can begin to make more meaningful progress towards resolving the complex challenges facing communities today (Fig. 2).

#### AN ADAPTIVE DESIGN FRAMEWORK FOR COMMUNITY HEALTH

The role of the architect serving as an intermediary between top-down authorities and bottom-up grassroots efforts is expressed by Jeremy Till, Nishat Awan, and Tatjana Schneider in their book *Spatial Agency: Other Ways of Doing Architecture* (2011). By operating as agents for spatial change, architects can thus define their role as one of mediator; probing, asking questions, bringing parties together, and finding agreeable solutions. By incorporating "spatial agency" as a framework for design advocacy, architects can develop tactics appropriate for bridging the gap between community stakeholders and decision-making authorities. The approach is a collaborative one in which agents act with, and on behalf of, others. This fosters interpersonal exchanges, which can trigger powerful new interpretations and translations of public space, allowing for "citizen experts" to provide the necessary context and awareness that more technical design practices typically fail to include in the design process. In a traditional sense, the role of the architect is to translate their vision and intent through drawings and other visual representations in a manner that makes sense to those fabricating a building. Likewise, architects advocating for better community health through a framework of spatial agency must also translate the needs of the community to those that have the authority and capacity to shape the built environment for public use. For that translation to occur, however, architects must first develop a shared vocabulary at both top-down and bottom-up levels of communication. Together, these frameworks provide a scaffolding upon

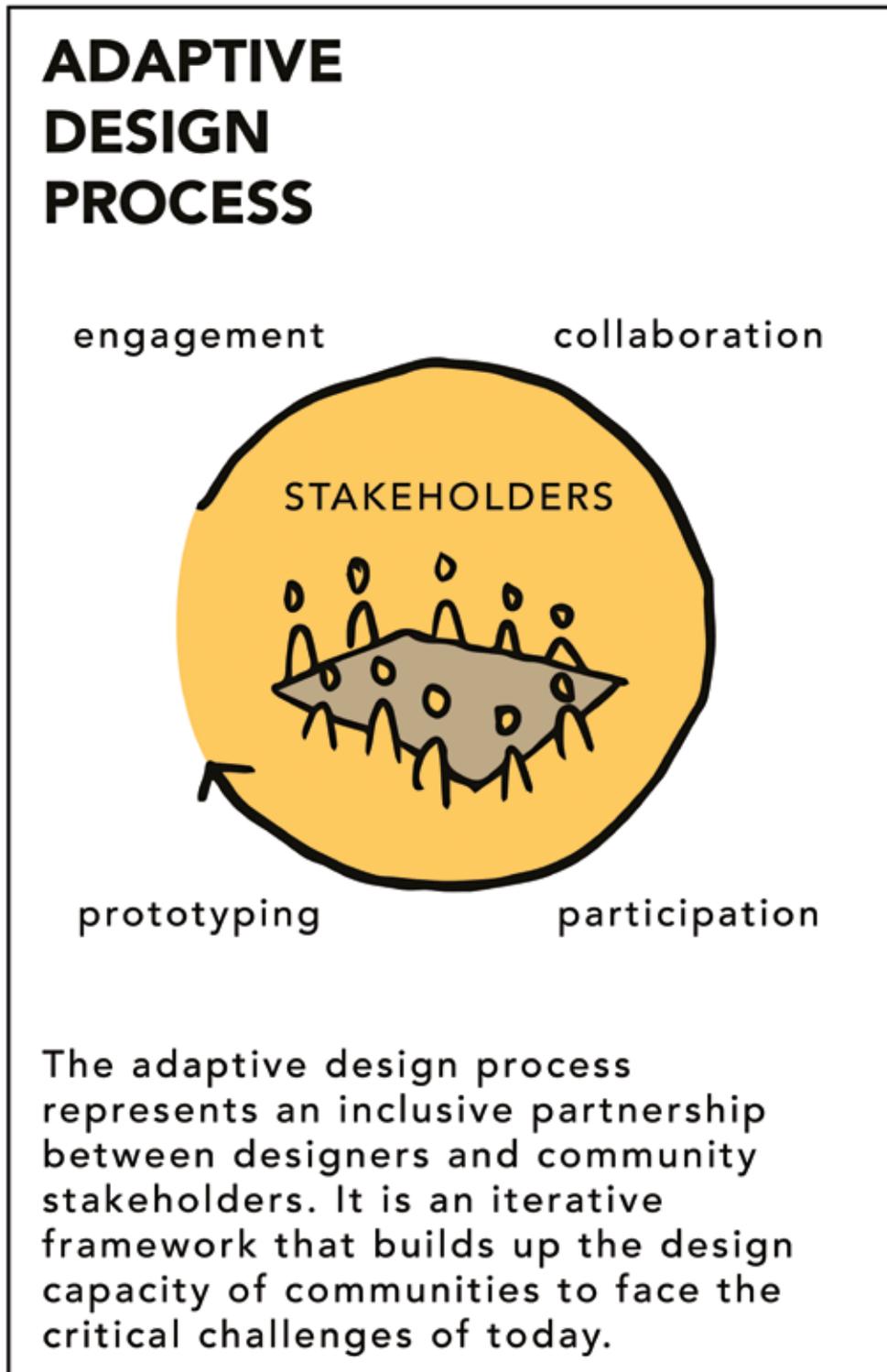


Figure 2. Adaptive design process.

which community health problems can be addressed through adaptive design, leading towards a design that advocates for greater community health outcomes (Fig. 3).

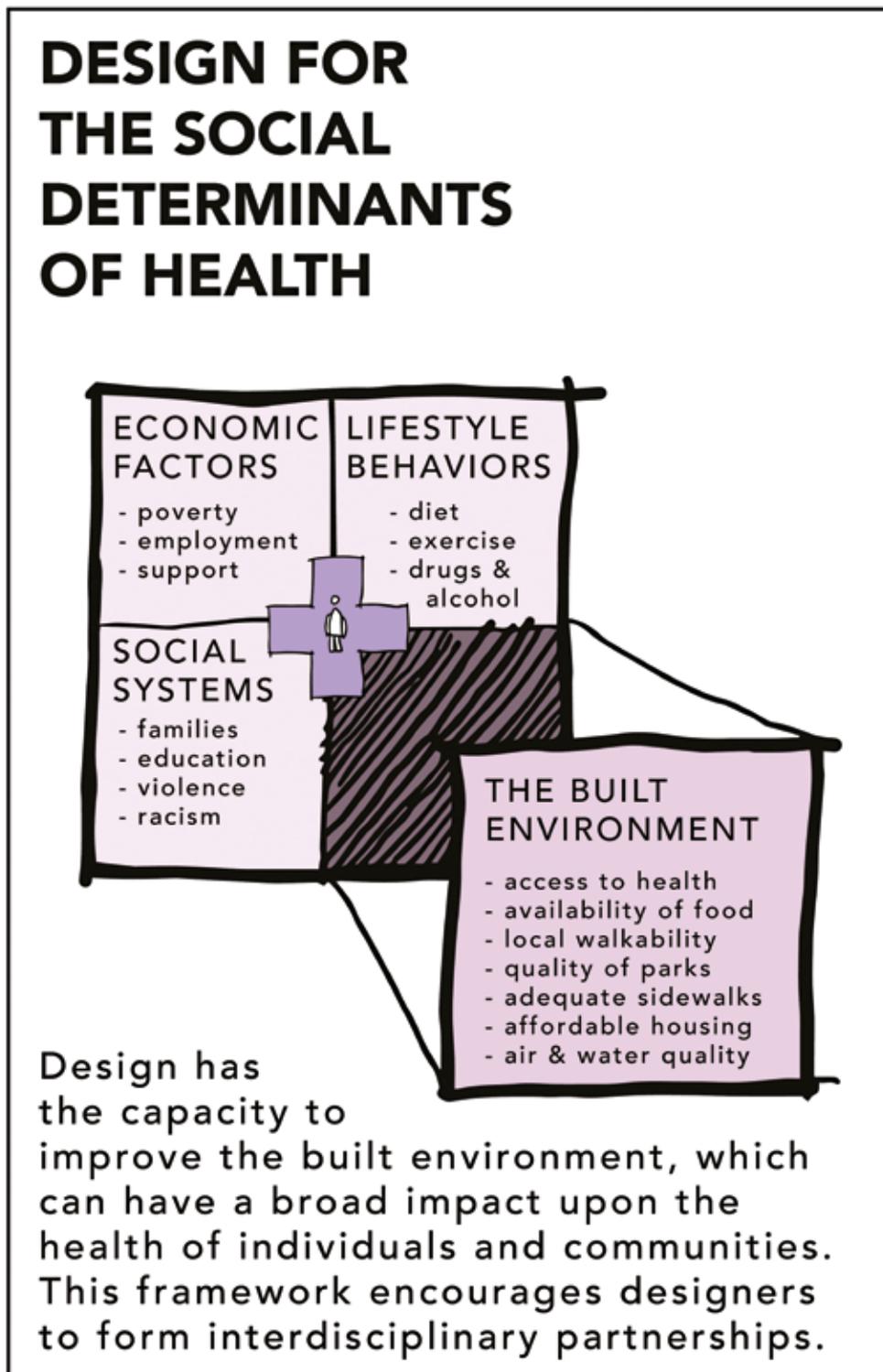


Figure 3: Design for the Social Determinants of Health.

With many years of education and training required to become a licensed professional, architects are generally qualified to speak to matters of design. Likewise, other professionals such as engineers, city managers,

urban planners, and elected officials are expected to have their own relevant expertise appropriate for their position. It is not necessary for architects to become masters of each independent discipline, only that they become fluent enough to have a conversation using a shared vocabulary. Certain fields, such as urban planning and community development, lend themselves well to this type of translational work, and are an easy entry into interdisciplinary collaborations. Other fields, such as public health, social work, and the nonprofit sector, may require a more in-depth understanding of the respective goals and motivations of each. Architects that desire to leverage their skills in social impact design to improve health outcomes should expect that they will likely be asked to understand the basic concepts of health access, chronic disease, and socioeconomics.

Many architecture firms today are finding that when their client is a civic entity (e.g. libraries, police departments, cities, etc.), community engagement is no longer an option, but a necessity. That engaging the community is now an essential component of responding to adaptive problems is a welcome development, but it comes with a caveat: not all engagement strategies are equal. In Sherry Arnstein's "A Ladder of Citizen Participation" (1969), she outlined the various forms of community engagement, and described participatory nature – or lack thereof – for each rung of the ladder.<sup>14</sup> At the bottom of the ladder, Arnstein argued, was non-participatory methods, such as "Manipulation" and "Therapy." As you move up the ladder, token forms of participation provide community members limited involvement through "Informing," "Consultation," and "Placation." It is only at the highest rungs of the ladder that true citizen power is attained, through "Partnership," "Delegated Power," and "Citizen Control." Arnstein's levels of participation were written for urban planners in 1969 and she critiqued the Model Cities Program, where community groups were given limited authority in the planning process.<sup>15</sup> This chronology speaks to the need for translational interdisciplinary work, for, while urban planners were discovering that effective community engagement should operate as a partnership with the community at the minimum in the 1960s, public administrators continue to accept token methods of community engagement ("Informing" and "Consultation") as acceptable forms of community participation today.<sup>16</sup> This has implications for architects operating within the traditional boundaries of engagement on behalf of civic institutions, where they may be either unaware or uninterested in pursuing more progressive forms of participatory engagement in the initial design phases of a project. In seeking a common ground for responding to adaptive design challenges regarding public health, adopting a community health framework for effective community engagement is necessary. The Centers for Disease Control and Prevention (CDC) and the National Institutes for Health (NIH) commissioned a report on effective principles for community engagement.<sup>17</sup> In it, nine principles for effective community engagement were laid out, including: building trust, partnering with the community, mobilizing the

community, being flexible, and engaging in a long-term commitment.<sup>18</sup> Used as a surrogate model for effective community engagement, architectural designers may find that the process laid out by the NIH and CDC mimics the adaptive design process, leaving room for effective participatory design to emerge (Fig. 4).

One of the primary challenges when working directly with communities at the grassroots level is how to cultivate a sense of trust with community partners. This process can be slow going for architects used to collaborating with other professionals within a client-centered framework. For architects engaging in new community collaborations, an effective first step towards building trust is being vulnerable to the context and stakeholders one encounters. In many communities that have been systematically neglected, the scarcity of resources in the community available to potential community partners can breed an initial mistrust of new partners that might be seen as a threat to existing funding sources or territorial relationships. Whenever an architect is interested in partnering with community groups, it is important to first recognize that the resources supporting the architect's efforts may be perceived as inaccessible to that community group. Explaining the circumstances and the intent of the partnership fosters greater transparency and goodwill, helping to establish a bond between architects and community groups.

A saying that is sometimes expressed in communities that are too often asked to be participants in community engagement exercises is that they have been "charretted to death." There can be a sense of burnout among community members when they are asked to continuously participate in engagement activities. This is often attributed to over-engagement, but it is also partly due to engagement that did not result in a tangible benefit or action for the community that was engaged. Building trust asks that not only are participants willing to meet the community where they are and listen to their needs, but also take responsibility for that engagement so that its effort is not wasted. For this reason, architects working on adaptive community health design problems should be upfront with community groups about the potential limits to their advocacy, while also appealing to authorities so that what is collected can be translated to decision-makers and top-down authorities.

In neighborhoods that have been systematically neglected, one consequence of there being decades of disinvestment is that traditional community organizational structures can fall apart (schools, churches, neighborhood associations, etc.). In their absence, residents that self-organize do so aware that there are limits to what they can achieve without appealing to support from local authorities. Due to their nature, however, many community groups that face similar community health concerns view themselves as isolated from each other, despite a relative proximity and similar demographics. Through community mobilization, residents that work together to tackle health disparities have the capacity

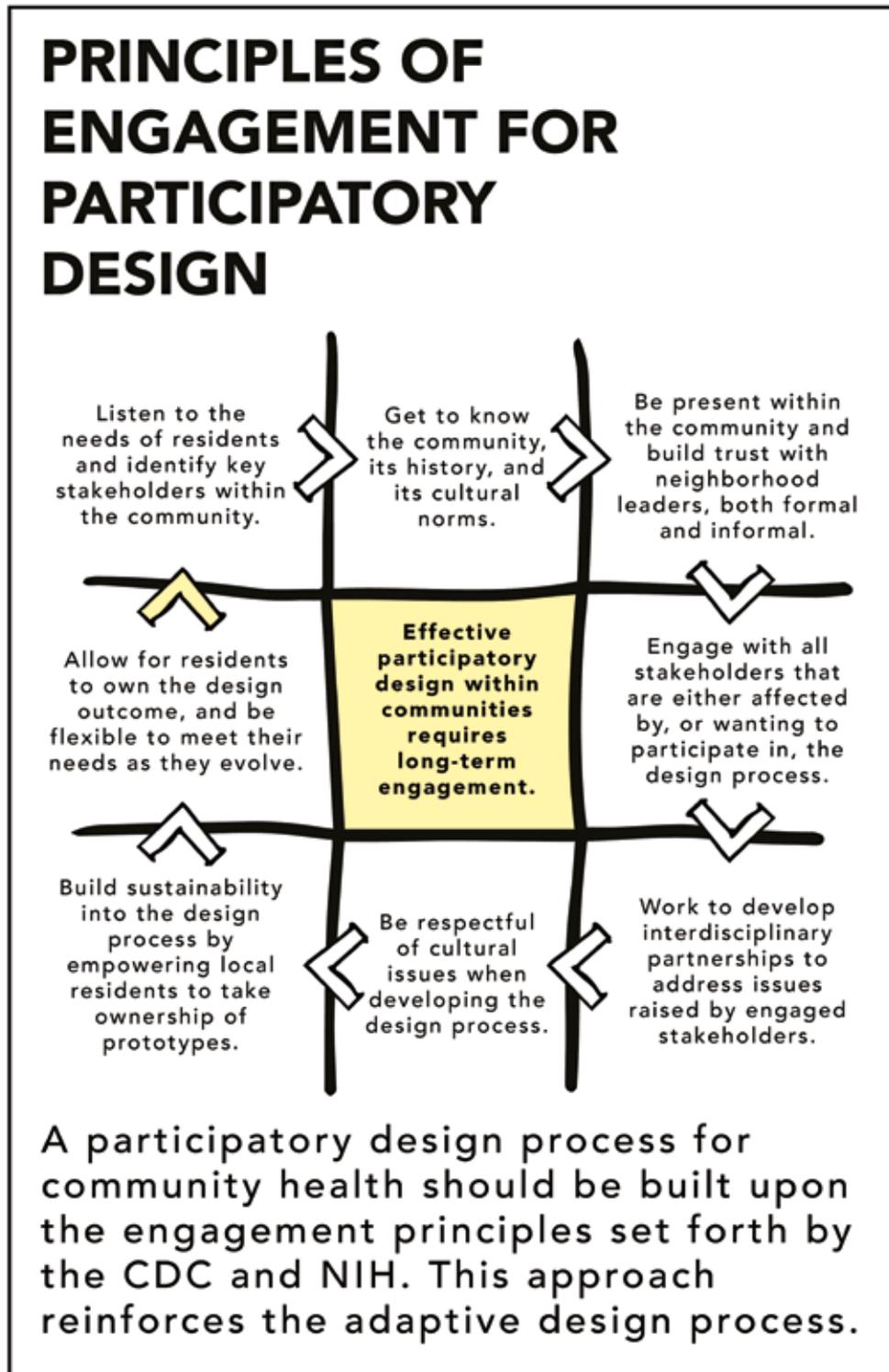


Figure 4. Principles of Engagement for Participatory Design.

to take ownership of neighborhood spaces and petition authorities to make changes to the built environment. By reframing the ownership of city-owned public spaces (parks, schools, playgrounds, trails, sidewalks,

streets, etc.) to what spaces can serve the greatest public good, asking residents to be involved in the restoration of public space through participatory design methods can equip residents with the tools and empower them with the visions needed to reshape their environments.

To encourage effective turnout for participation, often grassroots efforts are needed (petitions, fliers, door knocker campaigns, public rallies, etc.). Where design skills can directly play a critical role in framing the dialogue around public space is in the production of community maps, visual aids, and compelling narratives (Fig. 5). For architecture students, new design technologies can help to curate design aspirations from the community, translating their intent through visual media. Like traditional architectural practice, these methods of rapid representation and prototyping have been largely inaccessible to impoverished communities. However, when community advocates working in interdisciplinary partnerships can come together to present a cohesive vision for greater public health access in the built environment based upon community engagement and participatory design, this process can serve to reframe an affected community's relationship with local authorities that may have previously ignored them. Design that attempts to solve complex community health problems through adaptive design challenges authorities to respond, which helps to spark momentum towards a resolution.

#### PARTICIPATORY METHODS AS ADAPTIVE DESIGN

At its core, Dotte Agency's design and research agenda is to improve access to fresh food and physical activity for residents of Wyandotte County, Kansas. By listening to residents, hosting community engagement pop-ups, using participatory design methods, and student design/build fabrication, Dotte Agency serves to support the efforts of neighborhood business revitalization organizations, community development groups, and community health foundations. This effort has been developed to define an advocacy design process at three levels: first, identifying and framing health outcomes in collaboration with community partners; second, collecting and sharing stories with community partners to advocate their interests to decision-makers; and third, catalyzing public momentum behind community improvements while receiving feedback through rapid prototyping.

As architects work towards eliminating health disparities, they must explore how improving multi-modal means of transportation (sidewalks, bike trails, public transportation, ride-sharing, etc.) access to public parks, and access to fresh food venues are critical to improving health in the built environment. The roots of social and cultural problems are not easily revealed through individual "site visits" typical to architectural processes. Within communities, good health results from the interplay of many factors, of which only some are within an individual's control: "More than one-half of what determines a person's health outcomes

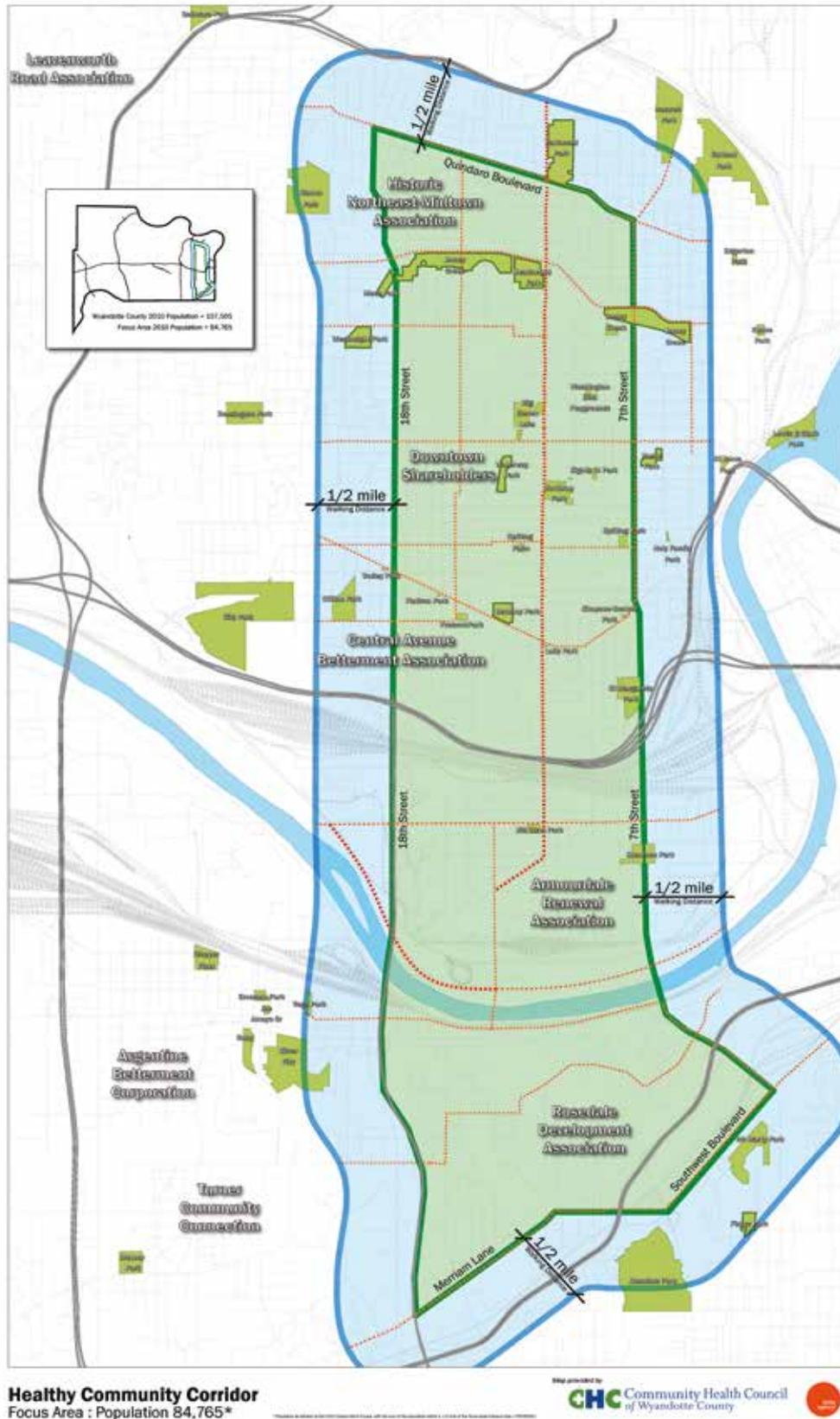


Figure 5. The Healthy Communities Corridor Map helps hold in one drawing a community-wide vision to improve access to parks.

results from influences in the social and built environments.”<sup>19</sup> There is an uneven distribution of health outcomes across the country that can be demonstrated to a high degree between geographic overlap between poor health outcomes and neighborhoods with limited resources. In Wyandotte County, Kansas, a study by the Kirwan Institute of The Ohio State University found that the average life expectancy for urban residents was lower by as much as sixteen years when compared to their suburban and rural counterparts, only a few miles away.<sup>20</sup> By relating to public health disparities like this, we find ourselves responding to both environmental and social injustices embedded within the very bricks and mortar of a place.

Rather than responding to acute disease in the setting of an emergency room, adapting the built environment to support active, healthy lifestyles is a more efficient and equitable form of health care, and is at the heart of preventive medicine. To provide the best insight for how neglected public spaces can be improved, it is essential to invite resident input. This requires the designer to be regularly present in the built environment, rather than working remotely from an architecture studio or office. The role of the designer, beyond the process itself, is to develop the capacity of the resident and stakeholders to articulate the needs in a shared vision. At the same time, architects and designers can identify the underlying determinants of health through available census data and survey instruments that public health, behavioral scientists and civic partners regularly collect and share.<sup>21</sup> With rich data tied to specific places in the built environment, it is possible to find “hot spots” that are impacting neighborhoods and individual residents. Together, being present and leveraging shared public health resources, design can visualize evidence-based responses in the built environment that can lead to better health outcomes. As our work within Dotte Agency has evolved, it has become apparent that our design process is most useful when it is made visible early and often to all those individuals potentially impacted: residents, stakeholders, leaders, and policy-makers. By producing clear representations of adaptive challenges, participants are better able to determine their own contributions and limitations, which in turn provides the necessary iteration for the next phase of the design process. This process generates a “joint commitment,” whereby each participant contributes to the collective body of understanding, while acknowledging the participation and contributions of others around the table (Fig. 6).

Through engagement events, participatory design in community spaces can shape advocacy and civic discourse to gain multiple perspectives on what spaces add value and what spaces can have the greatest potential impact (for better or worse). Through an iterative process, the direction becomes self-evident, discerning what public spaces have the potential for the greatest public impact, rallying the most interest and support to engage volunteers, and presenting a compelling vision to decision-makers



Figure 6. Shannon Criss works with Javin Martin and Terry Jackson, both “citizen experts” in bicycling, to collaborate on a composite map for transit access and advocacy.

to support publicly. This layered and long process has made it possible to identify the parks and networks of trails and sidewalks that gains local interest, as well as the political buy-in to identify which potential projects are most feasible. When it works best, participatory process can cut through siloed, institutionalized boundaries, connecting various neighborhoods in the name of the common good. Data that is made alive through visualizations such as maps can make explicit the social and economic determinants of health. There is catalytic power in a shared idea that can make tangible the desires of residents, attracting partners, resources, and momentum along the way towards new initiatives on behalf of the health of the community (Fig. 7).

For architects interested in engaging with communities, one method that has proven effective is the collecting and retelling of stories from residents within the community. It is in these stories that community members identify with and can find representation on the issues that they face. In recording stories of the community, the goal of architects should be to allow community members to reflect on their community’s strengths and weaknesses in their own words. Once shared with other members of the community, this process allows for a critical dialogue to emerge, which makes the act of storytelling a powerful participatory tool for community stakeholders. Additional methods can be coupled with community storytelling events, such as focus groups, participatory mapping, surveys, participatory budgeting, and other methods of design collaboration that build evidence towards community project (Fig. 8).



Figure 7. Wyandotte County, Kansas, residents participate in the programming of a Mobile Market to address issues of food access in their community.



Figure 8. A Community Film Workshop, hosted by a partnering organization, allowed for a shared dialogue around community advocacy and master planning representation to emerge.



Figure 9. Shannon Criss invites Broderick Crawford to share his experiences in Wyandotte County through the Photovoice method with KU Architecture and Public Health students.



Figure 10. First set of prototype exercise elements designed and tested by community partners at an event hosted by community partners.

Telling stories as a method can also be very effective in resolving the difficulties that many decision-makers face; despite compelling quantitative evidence, anecdotes are often more relatable and easier to articulate. By presenting compelling narratives in a visual format, the process of connecting community design proposals to what the community has expressed as a need or a desire in physical space becomes easier to achieve. Modern technology permits a wide array of digital photography and videography tools to record stories, however more participatory processes should be considered, such as the “photovoice” process described by Caroline Wang and Mary Ann Burris.<sup>22</sup> Photovoice was developed as a public health tool for communities to participate in identifying key public health concerns through their own photographs. The images can then be represented at a community forum, where participants can tell stories about what they responded to. This visual narrative can provide designers with insight into community health concerns, and allow for participants to see their own creativity be incorporated into the process of a design (Fig. 9).

Rapid prototyping is a process that blurs the lines between architecture and industrial design. However, with community feedback it can be a powerful participatory design process for residents, advocates, and designers to engage in. By transforming new ideas for public spaces into tangible elements, design prototypes formed through rapid iteration and dialogue are one of the best methods for building trust within communities. Taken as a form of spatial agency to address the public health needs of a community, it offers a fundable and fresh approach that does not typically emerge from traditional classrooms, offices, or board rooms. Evidence also backs this approach as an instructional tool, for both students and the community.<sup>23</sup> By approaching adaptive design problems with low-risk, low-investment solutions arrived at through a more inclusive process, the design process itself can allow for generative ideas to emerge and become available in visible ways through drawings, scaled models and material investigations (Fig. 10). The work relies upon the “citizen expert” exchanges, where through collaboration no one group leads nor limits the other. As prototypes develop, designers should continue to invite additional “experts” — both formal and informal — to propose ways of installing, programming, maintaining, and fostering built elements installed in public spaces. By working back and forth, within the constraints of the site, and working with those that will maintain the elements in the future, partnerships are formed. Trust is then built through the development of elements as progress is self-evident. By conceiving and describing them as prototypes — to the designers, partners, other community stakeholders, and residents — the process is more experimental and gains the advantage of responsive feedback for future prototypes and “final” elements.

## CONCLUSION

The work of Dotte Agency attempts to encourage the capacity that architects and designers have in utilizing creative forms of participatory design, and leveraging it in new avenues of social impact for public health. It is an alternative approach that limits the common impulse of architects seeking to design a solution, but instead asks architects to first listen to communities and identify basic human needs that have been systematically neglected.

By listening to the experts in the community, design can propose small bets that can have a large impact, giving students and practitioners alike the ability to resolve adaptive design problems through thoughtful but site-specific and community-relevant design interventions. By coupling these interventions with performance measures and health outcomes in the built environment, we expect to see architecture's relevance to public health increase. This vision for user-based design that responds directly to public health concerns may guide architecture from what Giancarlo De Carlo referred to as its "congenital irresponsibility" towards a discipline that is both more compassionate and relevant.

For it to be sustainable, this process requires collaboration with various partners in a variety of fields to develop new perspectives and modes of evaluation. While this approach steps outside the norm of what is typically considered as "architecture," we believe it has the capacity to explore issues that are not easily solved, and expands upon notions of who to include at the table.

Perhaps, most critically, this process begins to address the question "Why do we build, and for whom?" We build to objectively improve the quality of life for those unable to otherwise benefit from design. To the latter question, "How and what do we build?," we build relationships through shared dialogues and stories to foster authentic and responsive designs.

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## Credits

Figures 1, 2, 3, and 4: Diagrams by the Authors.

Figure 5: Image by Matt Kleinmann.

Figure 6: Photo by Matt Kleinmann.

Figure 7, 8, and 9: Photos by Matt Kleinmann.

Figure 10: Photo by Shannon Criss.

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# Gentrification and the Heterogeneous City: Finding a Role for Design

Sally Harrison, Andrew Jacobs

*ABSTRACT - That cities will change is indisputable: urban evolution mostly signifies healthy growth, but it is also true that in the contemporary context, gentrifying neighborhood change increasingly operates on an extraterritorial plane, happening quickly, opportunistically and unilaterally. Neighborhoods are evaluated and disposed of as trading commodities in a process that violates the citizen's fundamental right to the expectation of a stable dwelling situation. Gentrification also threatens a city's spatial heterogeneity which, through its diverse forms and meanings, can support the enactment of democratic urban life. It leaves little room for a broader discourse around place – a discourse that might lead to the creation of more porous urban space, to the emergence of hybrid institutions and to new sites of pluralistic engagement. This paper will consider a pair of contiguous neighborhoods in Philadelphia where market-driven gentrification has come face to face with powerful grassroots civic advocacy; and it looks at what architects, landscape architects and urban designers can do to help neighborhoods resist gentrification and support heterogeneity in making places where the hand-print of multiple publics might be found.*

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**Keywords:** gentrification, right to the city, spatial heterogeneity, economic segregation, city ownership

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In cities where de-industrialization has left large segments of their populations in poverty, once stable working class neighborhoods are increasingly threatened by market-driven gentrification. Change happens as

if over night, and longtime residents, finding their communities transformed in terms of economic class and race are subject to a rising cost of living and often pressured to move. With their departure, the local culture built up over time is eroded; cleansed of its unique qualities of place, it is replaced with spatial products of the dominant commercial culture. Here gentrification violates not only the citizens' primary right to the city but poses a threat to the city's spatial heterogeneity which, in its diverse forms and meanings can support the actualization of democratic urban life.

That cities will change is indisputable: urban evolution mostly signifies healthy growth, but it is also true that in a contemporary context neighborhood change increasingly operates on an extraterritorial plane, happening quickly, opportunistically and unilaterally. With the invisible hand deftly at work, neighborhoods are evaluated and disposed of as trading commodities with "exchange value" rather than as mosaics of places for diverse constituencies. Lost in this singular profit model is the notion held by Lefebvre of the citizen's right to appropriation including access, use and pleasure that constitute a broader conceptualization of ownership.<sup>1</sup> Gentrification and its tightly defined spatial and programmatic tropes leave little room for a broader discourse around place – a discourse that might lead to the creation of more porous urban space, to the emergence of hybrid institutions and to new sites of pluralistic engagement.

This paper will consider a pair of contiguous neighborhoods in Philadelphia where market-driven gentrification has come face to face with powerful grassroots civic advocacy; and it looks at what architects, landscape architects and urban designers can do to help neighborhoods resist gentrification and support heterogeneity in making places where the hand-print of multiple publics might be found.

#### WHAT DOES DESIGN HAVE TO DO WITH IT?

The literature of gentrification – theories, processes, and social impacts – resides primarily in the realms of political science, sociology, urban studies and geography, addressing careful place-based studies through the lens of larger cultural and economic drivers.<sup>2</sup> These are serious critical analyses and by nature do not propose resolutions, especially not in material spatial projections that architects employ. But the consequences of gentrification are played out in actual physical space, so it is important that a discussion of the phenomenon that has radically changed neighborhoods worldwide be more fully explored in the literature of architecture and urban design practice.

In the 1960s and '70s when the agents of gentrification and displacement were clearly defined public entities empowered by urban renewal policy, architects were active, vocal advocates for change. Then battle lines were clear. Not so in our contemporary neoliberal economic environment



Figure 1. The corner store renovated as a café in a bike-friendly youthful environment are ubiquitous hallmarks of urban gentrification. Photo by Sally Harrison



Figure 2a. A neighborhood survey engages designers and residents. Cultural patterns invisible to the outsider are experienced and recorded as part of the spatial inventory. Photo by Sally Harrison.

where the prime movers in gentrification operate behind the scenes. Private developers, seeking profit in emerging new markets in neglected, strategically located neighborhoods partner quietly with public policy makers. Together these public-private partnerships build tax revenue and national status, marketing the gentrified neighborhoods as a product of the “creative class” and young people are welcomed into “up and coming” neighborhoods. First gradually, then rapidly, the ragged edges are smoothed, rents rise and poorer old-time residents relocate. A far cry from the ethos of creative risk-taking that the hip emerging neighborhoods were meant to represent, a haunting predictability begins to pervade the newly gentrified urban spaces. Cafes, bike shares, dog parks, galleries, and pop-up parks proliferate and are replicated from city to city.<sup>3</sup> (Fig. 1.)

Many architects and designers feel that they are powerless in the face of this economic juggernaut. Among them many who are social advocates often find themselves mirrored in this branded environment and are ambivalent about their complicated relationship with gentrification: they are both its agents and consumers.<sup>4</sup> Yet this very ambivalence could be instructive and valuable. Since architecture and its allied design professions are inevitably entangled with capital and production of space, both sides of the issues surrounding gentrification are present in design practice, and can be used to mitigate its negative social impact.<sup>5</sup> Far from being without agency in this struggle, architects, planners and landscape architects have the

skills to closely read patterns of spatial use, to anticipate gentrifying trends, to imagine and co-design community futures to pre-empt gentrification – in essence to help secure the right to the city for its diverse constituents. (Figs. 2a and 2b.)

Indeed, important social impact design practices tackle project-based work that addresses inequity and a weakened democratic context.<sup>6</sup> While these practices have created a movement that benefits the public interest, most do not explicitly situate the work in the broader political and cultural framework of gentrification. There are notable exceptions: Rios and Aeschbacher – each steeped in community-based practice – have argued that designers “who intervene directly in the world can create physical social spaces for others and in some cases seek to redefine asymmetrical power relationships.”<sup>7</sup> The work of Estudio Teddy Cruz in San Diego border communities and of Alex Salazar in Oakland that both seek a redefinition of the role of design as a means of challenging neoliberal policies around housing, zoning and real estate development. All argue for an expanded political context for design thinking in a world that embraces privatization, deregulation and market bias. While making conceptual links with the macro-environment,



Figure 2b. The experiential map visualizes the place identity. Photo by Sally Harrison.

practice is locally grounded, at a scale understood in depth by ordinary citizens. With this knowledge powerful place-centered partnerships can be forged and asymmetries can be recalibrated. Teddy Cruz exhorts us to “focus on the issues of the local [because we will find] every issue converges there.”<sup>8</sup>

#### THE GENTRIFICATION DEBATE: CHANGE AND HETEROGENEITY

In the 1960s, as the suburbs began to lose their appeal, a back-to-the-city movement was begun led by those willing to take risks on “dodgy” neighborhoods – the young and well-educated, do-it-yourselfers and artists looking for unique and affordable residential and working space. Seeking escape from banality, to the authenticity, grit and diversity to be found in the city, they were often unaware of the social consequences of their colonization of poor neighborhoods as well as of the invisible mechanisms that increasingly have supported and guided their “pioneering spirit.”<sup>9</sup> Much like the westward expansion in its quest for resource accumulation, the urban pioneers’ blind appropriation of space disregards the underlying human value of what appears wasted and uncultivated. (Fig. 3.)



Figure 3. Pausing to chat below a graffitied overpass, middle class urban pioneers are willing to take on “grittiness” in the name of authenticity and real estate bargains. Photo by Andrew Jacobs.

There is an on-going debate between those who would tout the emancipatory nature of gentrification<sup>10</sup> versus those who condemn the “brutal inequalities and economic fortune that are produced in the process.”<sup>11</sup> The short-term effects of gentrification on so-called quality of life issues are often positive, and longtime residents have expressed mixed feelings about neighborhood change. The study of Harlem for example showed only minimal displacement, and many neighbors appreciated the improved amenities, reduced crime rate, school improvement and increased housing values.<sup>12</sup> But over time costs tend to outweigh the benefits in the form of increased taxes, rents and the influx of expensive retail making local shopping unaffordable. And the immeasurable costs are more subtle and affective. Observers like psychiatrist Mindy Thompson Fullilove have eloquently expressed the damage to the emotional ecosystem done by uprooting people from their homes.<sup>13</sup> Those who can afford to stay often suffer from feeling like a stranger in their own neighborhood where the social capital is found in familial ties and history.<sup>14</sup> And with this the dismantling of cultural patterns and neighborhood ethos come the development of new hip, socially exclusive establishments.<sup>15</sup> In a poignant capitulation to the commodification of the dwelling, residents will often sell out at a considerable profit only to find they cannot afford housing in as good a neighborhood and must again forge new communal bonds.

#### PARALLEL WORLDS: A CASE STUDY

In this context we examine the emerging transformation of two adjacent neighborhoods in the Kensington area of eastern North Philadelphia. Research and design partnerships with both neighborhoods have been established over several years. Questions of gentrification; shared and differing neighborhood agendas; and overlap and intersections of spatial claim have been explored through meetings and interviews with stakeholders, residents, leaders, and policy makers. In addition, physical spatial analysis and projections have been undertaken through community-based studios in architecture and in a thesis project in landscape architecture.

Despite their close proximity, Fishtown and Norris Square have grown as separate parallel worlds, ethnic enclaves with intensely inscribed identities that owe much to different underlying spatial structures and development histories. Fishtown, an historically white working class neighborhood is in the full throttle of gentrification, with artists and other well educated young people moving into what has become Philadelphia hottest “creative” neighborhood. Across a sharp geographic boundary where different street grids collide at a scruffy commercial corridor darkened by the elevated train, is the poor, but well-organized Latino neighborhood of Norris Square. The neighborhood has its own unique spatial and visual identity, built incrementally over several decades. Market pressures spreading to Norris Square are forcing conflict over affordable housing and along the

border zone between the two neighborhoods. Here the unequal power relations inherent in gentrification beg the question of social justice as a spatial function. (Figs. 4a and 4b.)

The Norris Square neighborhood is a product of Philadelphia's rapid late nineteenth century industrialization; after the late twentieth century industry collapse the neighborhood depopulated becoming known as the "Badlands." Members of Puerto Rican community displaced by the publicly sanctioned gentrification of urban renewal resettled in this "ghetto of last resort"<sup>16</sup> drawn by the large square, a spatial anomaly in the otherwise undifferentiated gridiron layout of central North Philadelphia. The square, surrounded by struggling institutions and vacant brownstones was in the 1970s a famous drug market, but a group of young mothers bent on building the neighborhood into livable place for displaced Latino families, rallied the local Catholic church and police and occupied the park, holding midnight prayer vigils and peace marches, and gradually appropriated the space.<sup>17</sup> The community commands a remarkable identity-building amenity in the park, which is now well tended and a site for relaxation and active recreation, movie nights and community gatherings.

Grounded in grassroots activism the Norris Square Civic Association (NSCA) has acquired and renovated much of the housing surrounding the park for preschools and social services; it has built 150 units of affordable family and senior housing, and it is developing a large community center in a cluster of buildings once occupied by a monastic order.<sup>18</sup> Particularly moving is a gardening initiative has appropriated multiple vacant lots just off the square for urban farming and sites for the expression and celebration of Latino culture. Flower and vegetable gardens, a *casita* with an outdoor kitchen and a chicken yard, brilliant murals and installations of everyday artifacts form the growing landscape of "Las Parcelas." (Fig. 5.)

In contrast, Fishtown grew from its colonial origins as an urban village, expanding in ethnically identified clusters as different groups arrived from Europe. Its intimate and irregular street grid derived from the geometry of the riverfront, evolved organically with smaller manufacturing sites, churches and graveyards woven into the residential fabric. It maintained a fierce clannish ethos around parish and workplace,<sup>19</sup> but by the 1990s job opportunities had dwindled, housing lost value, crime rates grew. Younger Fishtowners moved from the old neighborhood, leaving a fabric of relatively intact housing and by the early 2000s saw an influx of young, but savvy artist-gentrifiers, many of whom became small-time developers. Seizing on the economic and status advantage of the young creative class and seeking to reverse the decades-long depopulation trend, a commercial/arts corridor was conceived in 2004 on Frankford Avenue. A study touted the advantages of art as a branding agent for commerce and development as well as for its commodity value. So blatantly catering to the middle class taste, there was barely any mention of the very nearby Front Street with its bodegas,

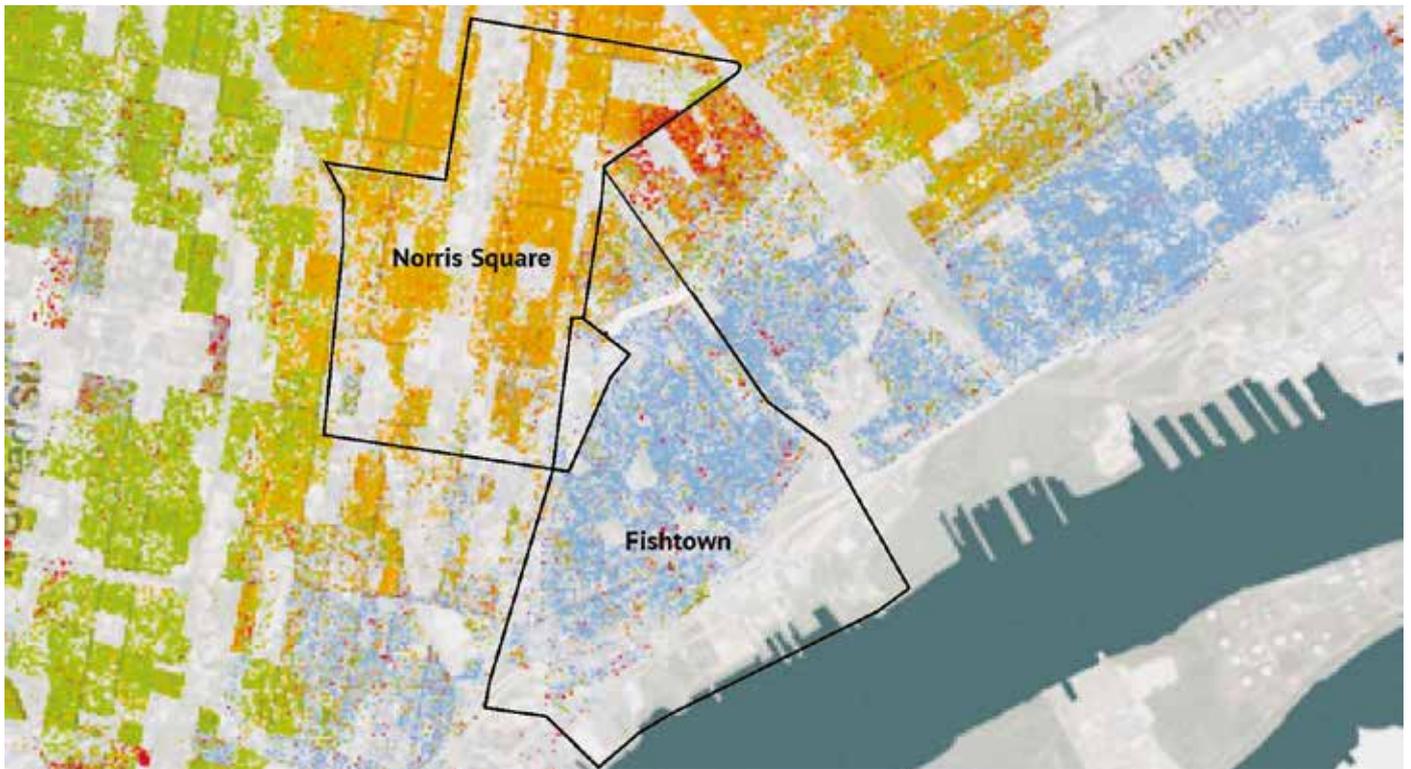


Figure 4a. Racial dot map showing the dramatic divide along the Front Street corridor between Norris Square and Fishtown. The long triangular space in between the two neighborhoods was for years a "terrain vague." (Yellow: Latino; Blue: Caucasian; Green: African American). Image © 2013, Weldon, Cooper Center for Public Service, Rector and Visitors of the University of Virginia (Dustin A. Cable, creator).



Figure 4b. Below the EI on the Front St. corridor. Photo by Andrew Jacobs.

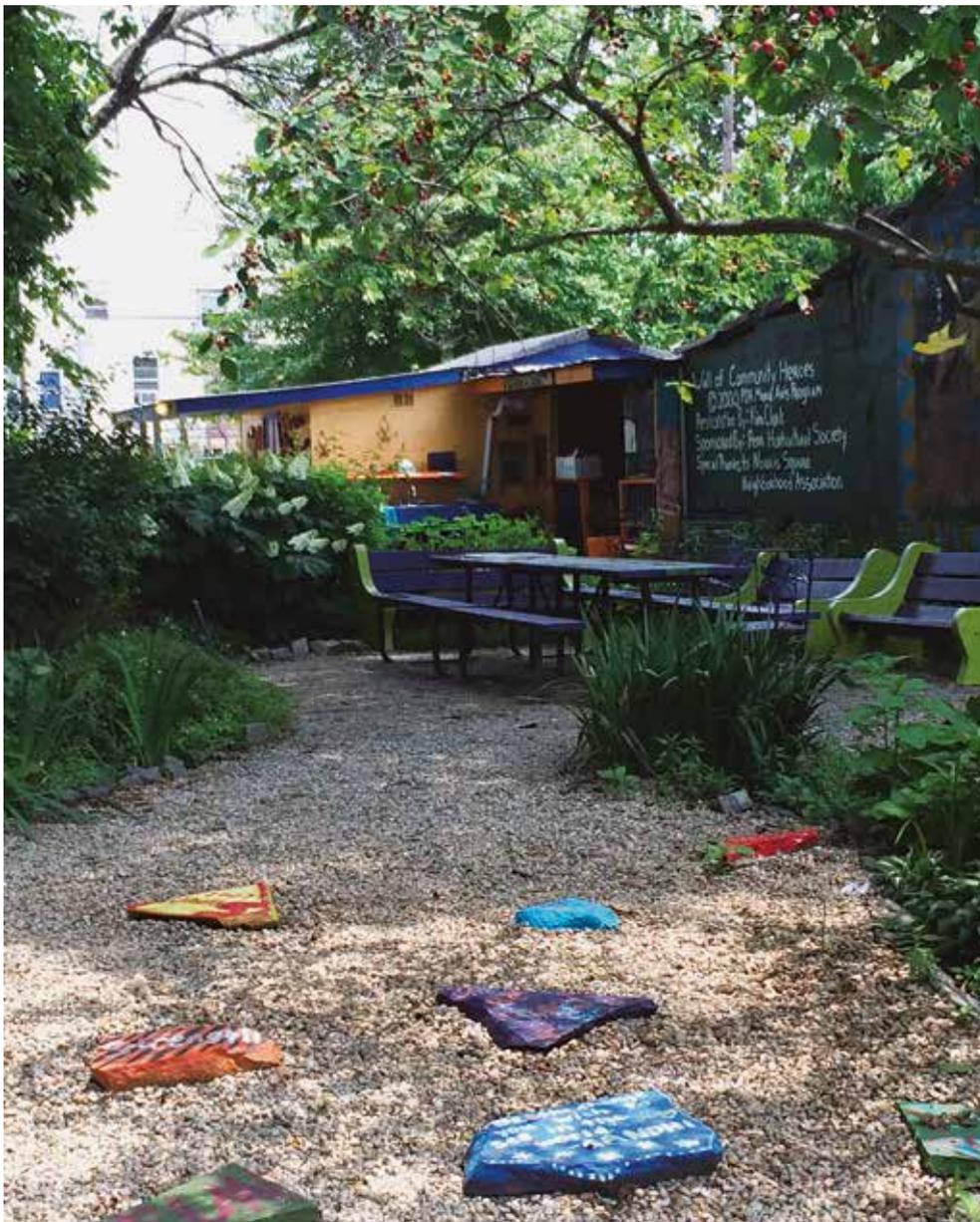


Figure 5. La Parcelas, Norris Square. A garden built in vacant lots by a Norris Square community group, celebrating Latino culture and heritage. A casita houses everyday artifacts from domestic life in Puerto Rico and in its kitchen residents can prepare meals for celebrations. Photo by Sally Harrison.

dollar stores and check cashing establishments as a potentially competing viable commercial corridor.<sup>20</sup> (Fig. 6.)

#### IN-BETWEEN TWO WORLDS: A *TERRAIN VAGUE*

Interactions between the two neighborhoods were rare, resulting from burnished physical as well as social conditions. Racial hostilities had been decades in the making. The collision of street grids at Front Street created



Figure 6. Bus shelter, Fishtown. A smartly designed bus shelter branding the Frankfort Avenue Arts corridor proclaims First Friday, a monthly art event. Photo by Sally Harrison.

a disorienting, discontinuous cross-movement network, a divide reinforced by the elevated rail, darkening the struggling commercial street below.

A vacant seven-acre site that had been the terminus of a defunct rail line stretched along Front Street for several blocks toward the end of the commercial corridor expanding the divide between the two neighborhoods – creating a *terrain vague* filled with abandoned vehicles and inhabited by small colonies of homeless drug users. The only evidence of border

crossing was a narrow beaten path connecting Fishtown to the El stop at Berks and Front Street. The path originated in a break in what was referred to as the Fishtown Wall – a four-foot retaining wall demarking the community boundary.

The NSCA had acquired the site, and to catalyze activity, had developed a market and lunch spot featuring Latino specialties in a small warehouse along the path the El. To build on this the NSCA invited design proposals for the site's development. Could this no-man's land become a shared amenity transforming the *terrain vague* into a connective node between the two neighborhoods? Strategically located, it had transit access to the whole city – potentially a place of larger scale civic intercourse. Proposals followed this ethos of inclusivity looking to develop spaces of mutual interest and encounter, with mixes of uses including commerce, urban horticulture, education, recreation, and entertainment. Underlying patterns of circulation and public space would build in porosity creating multiple cross-neighborhood linkages within and through the site. (Fig. 7.)

But unable to achieve the financial support to develop the site, NSCA sold it to the school district. A magnet school for the creative and performing arts was finished in 2011 – a LEED platinum building that was part of the trend of urban greening that Fishtown had also eagerly adopted. With development funds from the water department the 7 acre site was branded “The Big Green Block” in the zip code “Sustainable 19125.” Virtuous as the sustainability goal may have been, and as appropriate to an inter-community scale a magnet school may be, it did little heal the divide between the two neighborhoods: the school and its elevated playing field fill the site, allowing no informal “loose spaces” that Stevens and Frank speak of that might encourage public



Figure 7. A discussion map annotates places of value and conflict.  
Photo by Marci Schumaker.

encounter.<sup>21</sup> Even the passage to the El stop was swallowed up: a narrow footpath enwalled with chain link fence.

In the end a project so potentially rich in opening up possibilities for building heterogeneous democratic city life, closed the door. Reinforcing a boundary, it became a victory for gentrification; new expensive housing filled in on longtime derelict lots adjacent to the Big Green Block, and developers began to eye land across Front Street. Fishtown continued rapidly gentrifying, with new row housing once valued at \$100,000 being sold for five times as much. The Frankford Avenue Arts Corridor was now enlivened with bike racks salvaged from industrial machinery, smartly designed bus shelters, and an annual “energy” festival, with a slew of coffee shops, galleries, and art supply stores all with trendy names, the Rocket Cat Café, the Sculpture Gym.

Despite their sophistication the gentrifiers tend to cling to their parochialism, having maintained fixed boundaries in their own mental maps. A three year resident and art school educated waitress in the Soup Kitchen (not a soup kitchen) yearned for open space but was completely unaware of Norris Square Park only three blocks away. She reported also her boyfriend owned a building on Front Street and was disgusted by behavior of the other occupants of the street – not picking up trash, hanging on street corners etc. The point was confirmed by the North Philadelphia city planner “my Fishtown folks never cross Front Street; they wouldn’t know about Norris Square park.”<sup>22</sup>

## DESIGNING THE HETEROGENEOUS CITY

With the seven-acre site transformed from *terrain vague* to the Big Green Block, Front Street has become what a board member of the Fishtown’s community development corporation described as “the sharp boundary... where the real fight is going to happen.”<sup>23</sup> Residents of Norris Square are legitimately fearful of gentrification, especially those who can remember their expulsion forty years ago from the now fashionable Fairmount area. However, in their decades-long isolation in the Badlands, the NSCA managed to consolidate ownership and claim of the neighborhood’s strategic land resources. For-profit developers who know the value of green space have begun to swarm into Norris Square only to be frustrated by the barriers put in place to defend against displacement.<sup>24</sup> Venting on blogs, the would-be gentrifiers accuse the NSCA of hoarding properties some purchased cheaply from the city; others accuse the director’s protective stance toward securing an affordable culturally focused neighborhood as being close to racist.

There is indeed a kind of inevitability in this contest: not that Norris Square will be gentrified, or alternatively that it will block all neighborhood change, but that spaces of negotiation will be required. Rather than a boundary that separates or belongs to either one or other of the cultures, the Front Street



Figure 8a. A river of green flows below the EI. Temporary grass streets provide continuity across the Front Street divide. Image © Andrew Jacobs

corridor in all its fragmentation presents the opportunity to create another layer of citiness, a broad irregular seam that loosely laces together the two neighborhoods with spaces and spines of interaction and mutual utility.<sup>25</sup> Design focused on porosity rather than closure of the street edge can allow interpenetrations of all kinds: of light, movement, sight lines, vegetation into otherwise bounded territories. Overlapping programs and heterogeneous public spaces can invite interactions: simple civil contact in a shared environment or passionate debate among co-habiting interests. A landscape proposal envisions crossing the divide by “turfin” the streets as they pass below the EI, a temporary installation where spatial continuity can replace discontinuity, and where public encounter and cross-cultural dialogue can energize the breach even as it is becoming ever more contested. (Figs. 8a and 8b.)

And a spatial reminder of the transcendent temporal quality of urban life, it would serve well to reuse the nineteenth century fabric that predates ownership of either competing group. Design speculations transforming Front

Street's uninviting aspect include renovating a historically significant vacant bank as a community market and town hall and developing retail with upper story housing setback from the noise of the EI and allowing light to enter the dreary space below. On a site linking Front Street and Norris Square is proposed a hybrid democratic institution, combining library and a maker-space, offering use value to both constituencies, and potential learning and social intersections. In its presence at the border zone, the building both represents the colorful imagery in Norris Square, and offers a physical threshold into the neighborhood. (Figs. 9a and 9b.)

### FINDING A ROLE FOR DESIGNERS

The city, framed as oeuvre, as Lefebvre says, "is closer to a work of art than to a simple material product."<sup>26</sup> In these terms, neighborhoods, especially those built through sustained grassroots efforts, may possess the underlying complexity to withstand exogenous forces if given representation. If designers expand their role beyond the consultant-client product/service-delivery model, they can act both as partners in a shared civic endeavor and as agents capable of representing and advancing the oeuvre. Redressing the banal heartlessness of gentrification can be viewed as a design challenge writ large, where principles of architecture, landscape architecture, and urban design can be brought to bear: context, spatial layering, growth, porosity, pattern, public-private interface, materiality, luminosity.



Figure 8b. Stitching together elements of diverse culture in informal event space. Image © Andrew Jacobs.



Figure 9a. A proposed hybrid library/maker-space brings together elements of Norris Square's literacy initiative and Fishtown's art community. Image © Arjumand Anjum.

Designers can first employ their skills to help communities build a layered narrative of neighborhood spatial culture. This narrative can weave together practices and meanings inscribed in the physical environment, representing often hidden strengths – from the front stoop and the corner store that support social and economic interaction; to the multi-functionality of school and church buildings that give new meaning to neighborhood institutions; to patterns of connectivity; to homes that reconfigure to accommodate changing occupancy and informal businesses; to vacant lots and bounded streets appropriated for play and celebration. In the context of gentrification's bent toward branding the neighborhood as consumable



Figure 9b. A street-level public space and a passage through the building creates spatial porosity, connecting Front Street to the Norris Square Park. Image © Arjumand Anjum.

product, visualizing this kind of complicated – often messy – place-identity is ultimately a more potent platform for future development. It corrects asymmetries of power by framing a dignified expression of a collective presence saying: We are here; our neighborhood is valued as a place, not a site of exchange.

This expression of neighborhood culture forms a core of resistance that initiates habits of analysis and design thinking. Embedded in this holistic conception of place, are information sets that map out sites of opportunity, vulnerability and contestation, and with this knowledge a strategic rather



Figure 10a. Anchoring community identity a neighborhood map strategically identifies its *topos* of education and community institution. Image © Christina Guerrero, Václav Peji, Anna Delzingaro, Tien-Ho Lin. Image © Arjumand Anjum.

than reactive approach to control of land can be adopted, either by formal acquisition or informal appropriation. Designs that emerges from these explorations of place may look different than concept-driven plans; they would operate on multiple fronts and at diverse scales, employ tactics that energize larger systems, and create new spatial hybrids that take cues from need-driven adaptations. A plan might include the build-up of an identity-reinforcing web of key neighborhood gathering places (grand or modest), while exploring the potential of critical sites in border zones and projecting forays into territories beyond the pale. (Figs. 10a and 10b.)

When the complexity of lived space is valued beyond simple currency of exchange, a broader expression of the city as oeuvre is free to unfold. Now

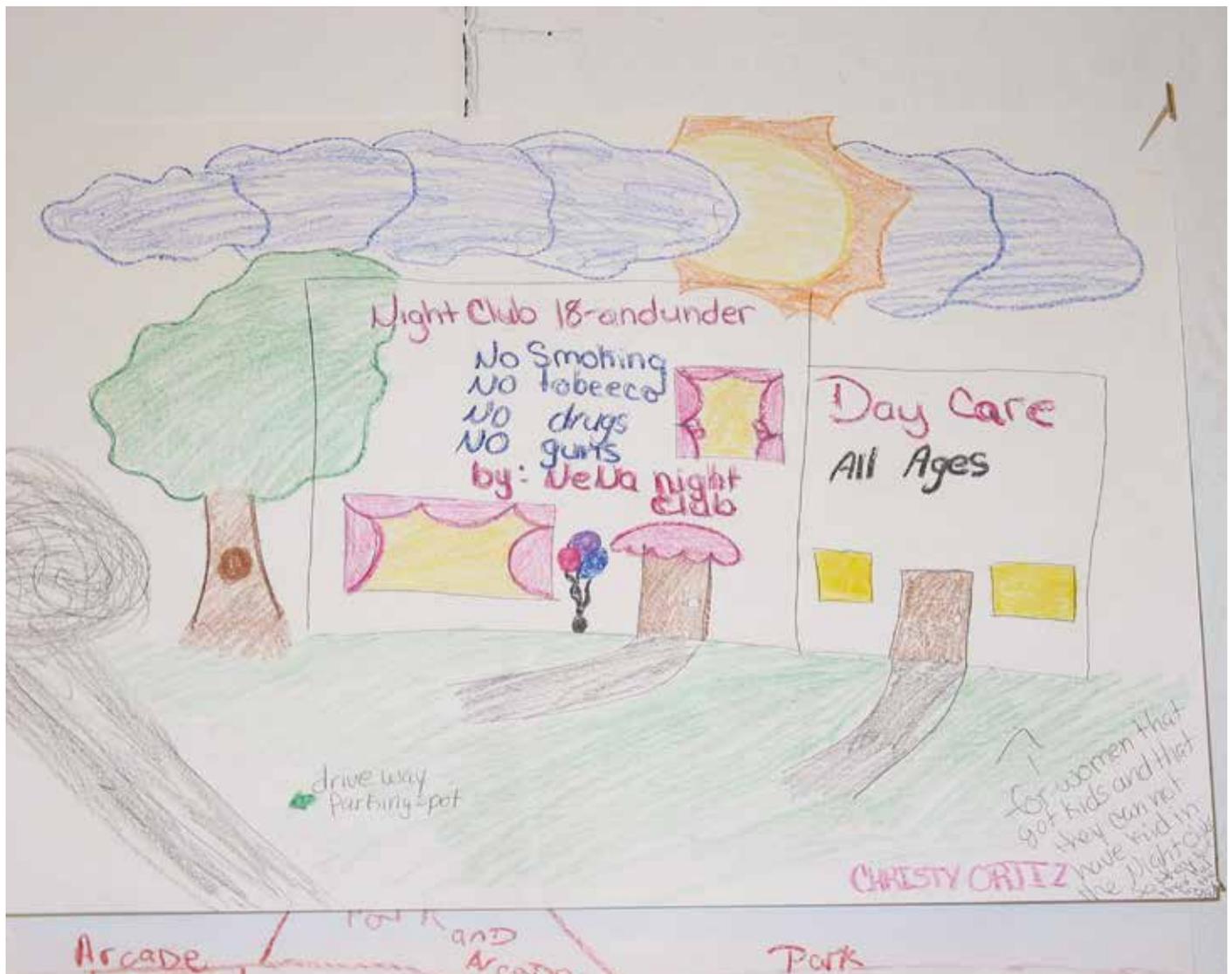


Figure 10b. A hybrid institution- a daycare/nightclub proposed by a Norris Square teen parent. Image © Christy Ortiz.

the goal is not just to preserve a community's "right to stay put," but having established a secure base, to serve the interests of the next scale of urbanism in the space where different communities overlap. Here, day-to-day contact with others' spatial habits and expression accumulate. Sometimes highly ambiguous and fluid, the margins can be vigorously engaged, indeed celebrated, as sites of negotiation and contestation, where hybrid forms of collectivity are actualized. If together designers and communities are willing to engage with rather than flee from conflict, they can contribute to a broader authentic discourse on how we shape the city around shared values of a democracy.<sup>27</sup> Here designers are not accessories to a narrow agenda, but can orchestrate differing cultural perspectives and visualize spaces of encounter where a mosaic of multiple publics is represented on the larger urban stage.

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# Unconventional Engagement: Reviving the Urban Marketplace

Ahmed K. Ali

*ABSTRACT - In this paper, the outcomes of a two-year design research study that investigated the impacts of architectural design on the social, cultural, and economic factors influencing the revitalization of the urban marketplace are summarized. These two case studies in designing and building urban markets in Central Texas — one in the city of Austin, and the other in the town of Bryan — are presented and synthesized. Both cases were initiated, designed, and built by university students in the disciplines of architecture, construction science, and landscape architecture, in collaboration with a cross-disciplinary oversight team of experts, government officials, and professionals. Platforms for engaging in active and dynamic learning experiences in the specific areas of planning, budgeting, and scheduling, as well as design and construction, within the broad field of community development, were provided to the students in both cases.*

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**Keywords:** marketplace, design education, build education, collaborative design, urban agriculture

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Marketplaces —also known as market halls, market sheds, or market districts— have always played an important role in the history and development of cities around the world. While these markets are still present in many countries, they have all but disappeared in the United States, a casualty in an urban landscape that has changed quickly to accommodate growing populations and increasing urban density (Brown 2002).

Permanent farmers' markets, for example, have mostly vanished from the scene as a building typology that carries a strong sense of place-making in towns and cities throughout the United States. Recent social changes, however, have spurred the gradual reappearance of the local marketplace, most commonly in the form of weekly or biweekly farmers' markets (Johnson, Aussenberg, and Cowan 2014). Unique opportunities for integration, interaction, and expression along diverse urban contexts are provided by this uptrend in urban development across America. Opportunities to revitalize economically struggling communities, change consumer habits, educate consumers on nutrition and other topics, and celebrate diversity in places where it might otherwise be stifled, are inherent in such urban markets, which also provide a basis for improving public health, incubating small businesses, and promoting food safety.

Permanent markets existed long before the invention of the lightweight, collapsible tent that is quickly assembled over the bed of a pickup truck in open parking lots on weekends. Studies on the behavioral ecology of supermarkets and farmers' markets shed light on their distinct social differences, the consumer response to each, and the values, both positive and negative, found in the shopping experiences at each. Cleanliness, friendliness, efficiency, price, sociability, and happiness resulting from the experience were among the topics surveyed. In almost every category, respondents placed the supermarket on the negative end of the spectrum, and the farmers' market on the positive end. Face-to-face interactions with producers, whom customers consider trustworthy and who increase customers' knowledge about the origins of the food they consume, are the preferred shopping experience (Gale 1997).

What has displaced the urban marketplace during the past century? What changes in modern societies have caused the gradual and sporadic reappearance of marketplaces in cities and towns? What is the role of architecture in reviving the contemporary urban market? Specifically, how do the evolving urban food initiatives in Central Texas determine the functions and relationships between a context of struggling communities and the modern urban marketplace? The published work about what constitutes the architecture of the market is surprisingly sparse. In fact, a collection of old postcards from David K. O'Neil's private collection for the Projects for Public Spaces (PPS) effort was the only source that revealed the architectural beauty of markets in the United States. Unfortunately, most of the markets depicted have been demolished (O'Neil 2013).

#### *Commercial Food Production and the Decline of the Traditional Marketplace*

The decline and displacement of the marketplace in the United States is due in large part to the growth of commercial food production. The shift from local to global food distribution, which occurred with the rise of

dependable highways and improved transportation systems after the Second World War, was noted by Monika Roth. The supply-demand chain became less dependent on local farming, and “big box” supermarket chains started utilizing central warehouses to distribute goods. Roth affirmed that small producers eventually “went out of business or turned to direct marketing” (Roth 1999).

High-demand, large-scale aggregation of products, as well as quality control protocols, were introduced with the advent of streamlined food production and distribution. The shopping habits of urban populations changed with the emergence of local supermarkets and grocery store chains. As cities and suburbs grew, consumer habits became more efficient and “pre-packaged.” According to the United States Department of Agriculture (USDA), there currently are more than 8,100 farmers’ markets nationwide, an increase of almost 5,000 from the previous decade (Johnson, Aussenberg, and Cowan 2014).

#### *Consumer Response to the Decline of the Traditional Marketplace*

The increased interest in reviving the marketplace in recent years perhaps has been due to the public’s sense of social isolation and desire for more personal interactions (Roth 1999). The social dynamic of the grocery store or supermarket experience has given way to a desire for shopping as a “personal experience.” As Roth noted, consumers have “moved from a price/product orientation to a value/experience orientation,” and that farm direct marketers “have changed in response to changing consumer interests and lifestyle” (Roth 1999).

Consumers are not the only ones desiring this type of personal exchange. As Fred Gale reported, a survey of vendors at nine farmers’ markets in rural New York found that the primary reasons identified by vendors for selling in this venue related to social interactions. Gale, for example, quoted a farmer who said, “We enjoy visiting with customers and other vendors.” The social aspects of the venue were rated higher than “We want extra income,” or “Our other sources of revenue are limited.” It also is likely that many of the small, urban-fringe farms, that participate in direct selling are run by part-time farmers who depend primarily on off-farming income sources. For the operators of these farms, the motivation to farm is often non-economic (Gale 1997). In another study, conducted by James Kirwan, a respondent who was a producer from Wiltshire, U.K., stated that

I want to be dealing with people directly and to be producing the food that people want, rather than just producing some commodity that gets shipped off somewhere and processed. It’s making the farm more visible to the local population, bringing them back in touch with food production. (Kirwan 2006)

The traceability of food products, especially produce, also is becoming more important to consumers, who increasingly value products that are healthy and grown organically, with little to no pesticides. The perceived authenticity found in interacting directly with the producer has significant implications for the sudden popularity of the direct marketing of food products through farmers' markets (Kirwan 2006).

#### THE ROLE OF THE MARKETPLACE IN CREATING A SENSE OF PLACE

Studies in urban design have highlighted that creating a sense of place is fundamental to the realization of the modern, public space (Salah Ouf 2001). The staff of Projects for Public Spaces, based in Austin, Texas, reflected on the growth of cities and noted that increased traffic and "greater road capacity are products of very deliberate choices to accommodate the private automobile," and that city planners could instead "design our streets as comfortable and safe places for everyone" (PPS 2014).

In this manner, the marketplace helps public spaces thrive in cities and towns throughout the world. Designing the built environment around the market in a way that creates a sense of place is vital to the success of these public spaces (Watson 2009). In Melbourne, Australia, for example, City Council House 2 is a municipal office building, the staff of which seeks to increase the number and vitality of public interactions within the surrounding communities by being "connected to the surrounding neighborhood, fostering street life and creating a strong sense of place," by using architectural design elements that result in "a comfortable place and an integral part of the community" (PPS 2014).

The market, in that sense, becomes both origin and destination, helping community residents recognize and value the public space as integral to their collective identity. The market is more than merely a location where one obtains food and other necessities, but also embodies the community's unique sense of place. It becomes what Ray Oldenburg called a "third place" that forms the "core settings of informal public life" and is host to "the regular, voluntary, informal, and happily anticipated gatherings" of people "beyond the realms of home and work" (Oldenburg 1989).

#### THE ROLE OF DESIGN ASPECTS IN SUPERMARKETS AND FARMERS' MARKETS

Consumers are provided bland, sterile, and anonymous shopping experiences at today's supermarkets and large grocery stores, and the farmers' market redefines this experience by leveraging interactions between the consumer, producer, and merchant that are inherently trustworthy and personal. Sommer et al. identified a self-serving culture as

featuring “[t]he process of de-socialization <sup>¾</sup> that is, the elimination of opportunities for human interpersonal encounters in the marketplace is accelerating in retail settings in general, and in supermarkets in particular” (Sommer, Herrick, and Sommer 1981).

Sommer et al. explained the behavioral ecology of both supermarkets and farmers’ markets, of which architectural design is a part. Customers’ circulation through the store and exposure to products were the primary differences between the two. The supermarket design intentionally prioritizes traffic flow, thus eliminating spaces where shoppers could hold conversations. Similarly, store aisles are designed to maximize product display and shopper pass-through, and eliminate the possibility of easy communication between people on opposite sides. As Sommer et al. noted,

Shoppers at the farmers’ market, however, are free to talk across the low stands or boxes containing fresh produce. Physical objects at the farmers’ market serve more as bridges than barriers. Farmers’ market customers carry hand baskets and paper bags which don’t increase conversational distance or block interaction to the same degree as shopping carts. (Sommer, Herrick, and Sommer 1981)

An ease of communication and personal interactions in their shopping experiences are increasingly sought by customers. Farmers’ markets have become both a shopping destination and a preserver of such interactions. Opportunities to change the social habits of consumers, build on public spaces in urban communities, and provide a necessary and widely desired pleasant and humane experience for the buying of groceries, have resulted from this trend. As McGrath et al. explained:

Farmers’ markets belong to a class of marketplaces experienced by consumers in a very particular way. The structure of such markets unfolds along the dimension of a formal-informal dialectic, and the function along that of an economic-festive dialectic. (McGrath, Sherry, and Heisley 1993)

Such markets exhibit great semiotic intensity; that is, the tension of the marketplace structure and function is “palpable to participants and seems to energize them as well” (McGrath, Sherry, and Heisley 1993). Karen Franck, in her article “The City as a Dining Room,” gave profound insights on the importance of architecture in the revival of the marketplace. She noted that the city functions as “dining room, market, and farm,” and that Modernism’s “segmented and sterile” approach to dining and shopping should be replaced with “a correct mixing of land uses” that creates “places and ways for growing and selling local produce as well as for consuming it” (Franck 2005).



Figure 1. Pike Place Market, Seattle.

## EXAMPLES OF A PERMANENT MARKET AND A FOOD HUB

### *Permanent Market: Pike Place, Seattle, Washington*

One of the few successful examples of a permanent market in the United States today is Pike Place Market in Seattle, Washington. Factors such as strategic planning, an excellent site and location, an appropriately sized marketplace, and a diverse, culturally rich larger community helped it succeed after being renovated (Fig.1). Factors that play a critical role in its ongoing success include the existence of the market as a well-known landmark before renovations, the gradual building up of vendors and tenants, and the shift toward social consumer habits at farmers' markets in general. Operating since the early 1900s, Pike Place hosts ninety to one-hundred-twenty farmers and artisans in a central urban public market, while housing permanent restaurants and shops (including the original Starbucks coffee shop and Sur La Table kitchenware retailer), which collectively generate more than \$100 million in annual sales. Approximately sixty percent of the ten million annual patrons are tourists including 900,000 from cruise ships (TXP 2013).

Organized as a redevelopment authority, Pike Place owns and manages fourteen buildings on nine acres, including three-hundred-fifty affordable apartments for the elderly, centers for children and the elderly, and a medical clinic. David O'Neil, an international market consultant and expert

in the management and development of public markets, spoke of Pike Place’s relevance to the emergence of similar permanent markets across the United States, noting that “there’s been an enormous revival of interest in these markets,” and that these markets often begin in “some public open space but they can mature into covered market sheds” and other, more sophisticated and permanent physical structures (PPS 2014).

*Food Hub: 21 Acres Center, Seattle, Washington*

Operations on a larger scale than the marketplace are known as *food hubs*. The green-built 21 Acres Center for Local Food & Sustainable Living, just outside Seattle, Washington, is a comprehensive campus with a farm, school, food hub, commercial kitchen, and market. The site is the region’s first operating, community-oriented food hub, aggregating regionally produced food and delivering it across Seattle and Tacoma. It also helps local farms increase their profitability by providing a central point of purchase, thus reducing the logistics related to travel. The Puget Sound Food Network,

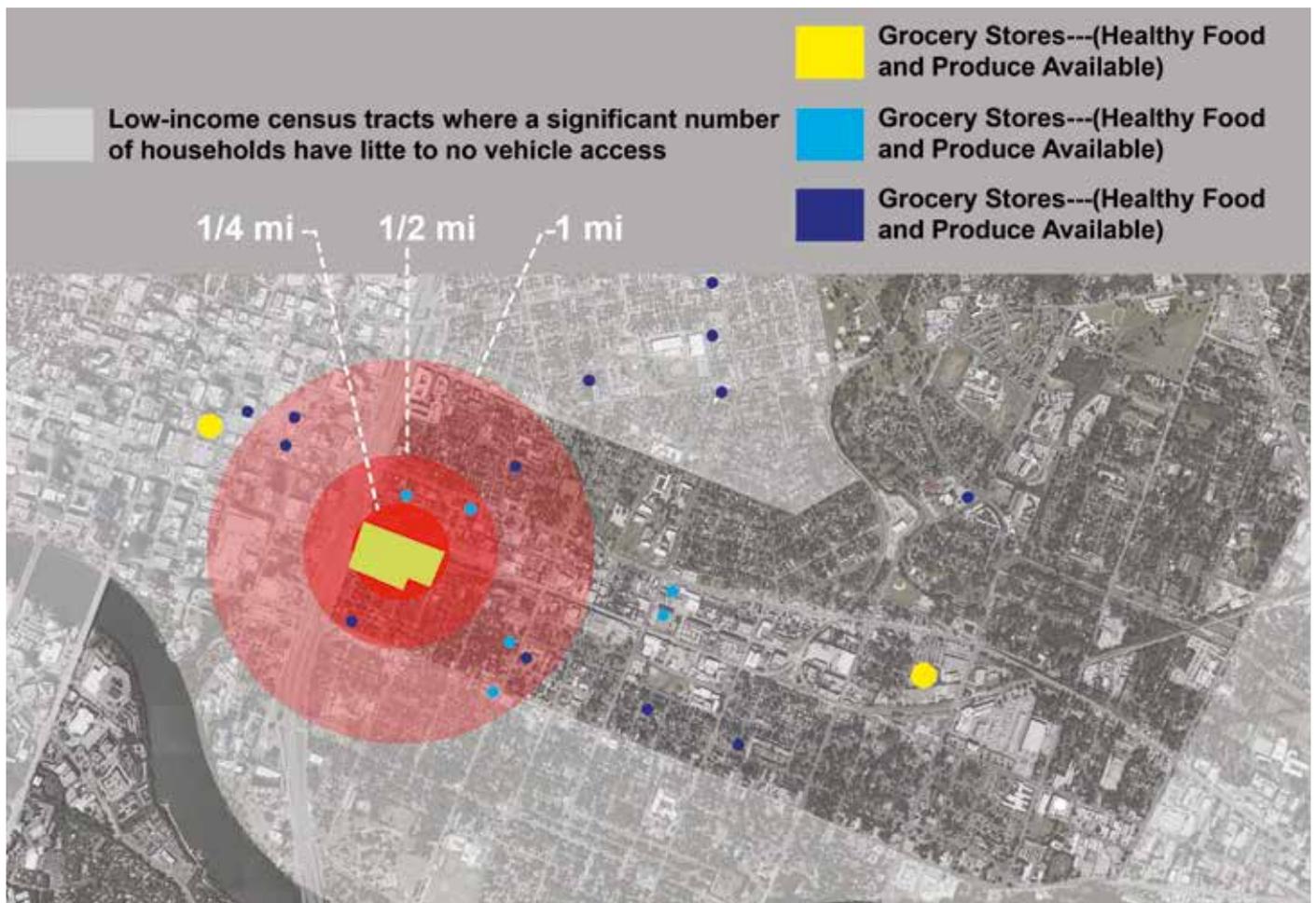


Figure 2. A large number of residents live more than a half-mile from the nearest supermarket.

which is associated with 21 Acres, supports increased production, distribution, and consumption of regionally produced foods (TXP 2013).

## METHODOLOGY

In this section, case studies in the design and construction of two urban markets in Central Texas, one in the state capital of Austin (population 932,000), and the other about 100 miles to the northeast, in Bryan (population 76,000 and adjacent to College Station, population 106,000), are presented. Platforms for engaging university students in active and dynamic learning experiences in community development through project planning, budgeting, and scheduling, as well as facility design and construction, were offered by each project. The objective of this paper is not to compare the case studies, since one was designed and built, and the other was designed only. Instead, a contribution to architectural education through the power of design research, and an unconventional engagement with many entities outside academia in reviving the marketplace, are explored. Since post-occupancy evaluation was not possible, the author relied on the scholarly literature to measure design decisions and on experts to evaluate the proposals.

## CASE STUDY ONE: AUSTIN PUBLIC MARKET (MASTER PLAN + DESIGN)

Recommendations for additional feasibility studies related to the creation of permanent food markets and food hubs, based on findings that highlighted the significant economic value of the food sector, were made in a recent report by the City of Austin on the economic impact of Austin's food sector. The enhancement of Austin's food sector and a projected increase in economic and social benefits to both visitors and residents were linked in the report (TXP 2013). Total sales activity in Austin MSA food-related sectors exceeded \$10.6 billion in 2012, and provided about 100,000 jobs (TXP 2013). The study stated that the local marketplace is a valuable component in the revitalization of urban communities. Setting a precedent that is growing both in popularity and relevance, the farmers' market (or direct marketing of food stuffs in general) can provide direct and tangible benefits socially, environmentally, and economically. These include retaining land for productive agricultural use, adding to the community's economic diversity, providing meaningful employment, supporting local businesses, utilizing local resources, and adding to the tourism industry. According to Roth, farmers' markets are "proven business incubators" that have "helped to revitalize urban centers and bring back a sense of community" (Roth 1999).

A design proposal for a major, permanent public market in Austin, which was initiated, researched, and designed by Zach Wise under the direction and mentorship of the author, was the first project. Establishing a sense of place within the East Austin community, reducing food deserts within the

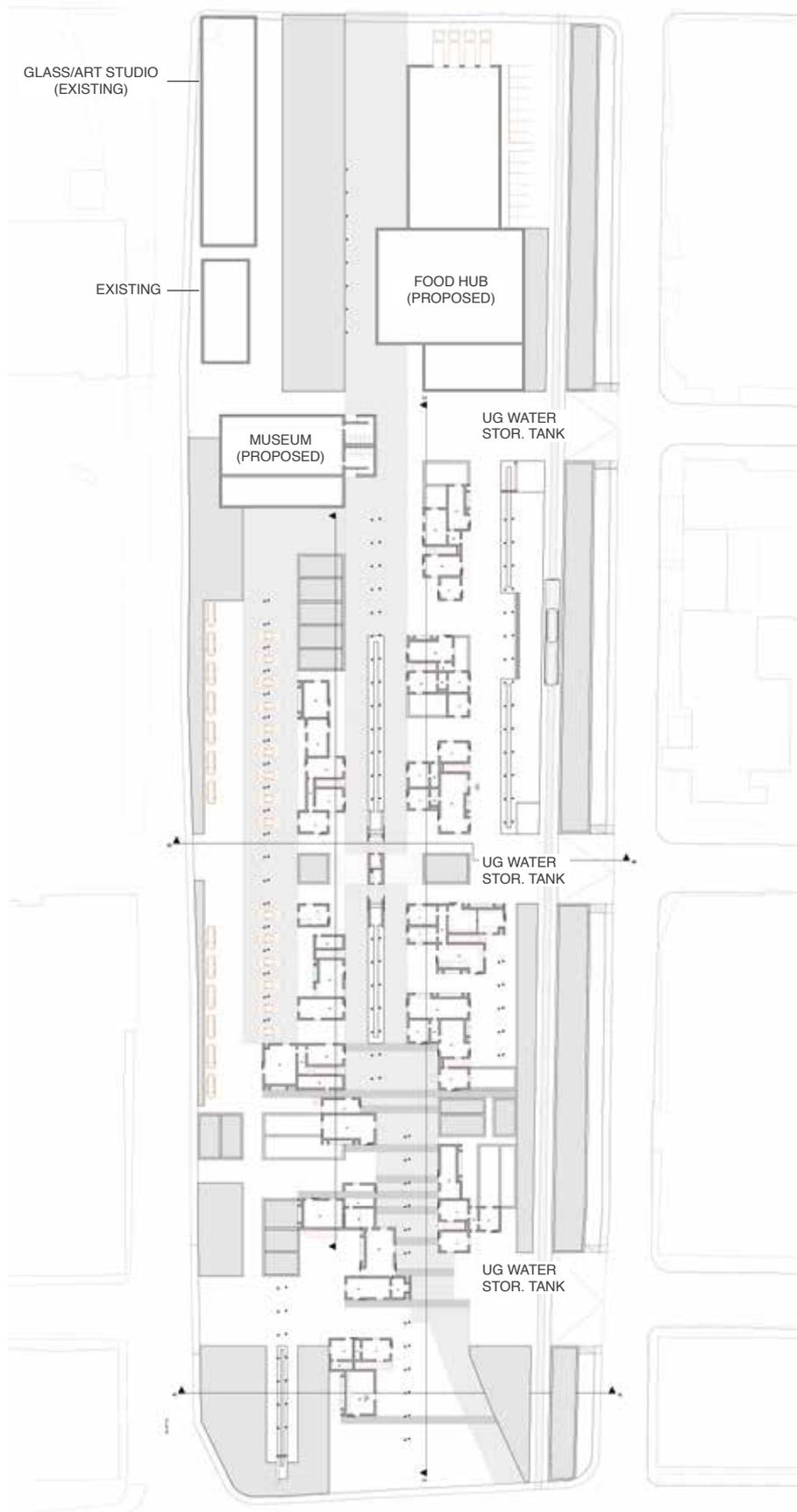


Figure 3. Austin Public Market Master plan.

city, creating an attractive and vibrant public space, and building on Austin's growing urban food and agriculture sector, were the project's objectives. Through the design of buildings that supported a sense of place (in this case, in East Austin) the market could enhance the vitality of the community infrastructure and increase the connections among residents of the surrounding neighborhoods. Furthermore, through collaborative qualitative research conducted with respondents from the Sustainable Food Center (SFC) and the Projects for Public Spaces (PPS) in Austin, it became clear that the city was ready to take a leadership role in "food urbanism" and establish a permanent, public market similar to Seattle's Pike Place Market. An area of approximately three and a half city blocks directly east of downtown Austin and Interstate 35, where access to healthy, fresh food is limited, was selected as the site (Fig. 2).

Given that local markets are considered catalysts for urban vitality and economic growth, the proposal positioned the market as a place of commerce for local businesses, which could play a significant role in the area's socio-economic revitalization. Successful markets in major cities generally are not broad, central markets, but rather are a network of strategically placed, small markets. Therefore, this project was intended to bring together the residents of a culturally isolated and diverse community. An understanding of urban regionalism and ecological design within the context of Austin gave insight into the potential role of an urban marketplace in creating social and economic vitality and cohesion in an otherwise divided community. The marketplace was envisioned as a social, public space with permanent and temporary market stalls to allow both ongoing and temporary market activities. Areas for community-supported agriculture and subsistence farming, as well as for educational programs, were preserved in the proposed site master plan. Providing these spaces, along with areas for small-scale agriculture and gardens, and variable, outdoor public spaces for both coordinated activities and leisure, was important (Figs. 4a, 4b).

### *Project Goals, Objectives, and Criteria*

A review of the literature, as well as field studies and intensive engagement with the East Austin community and potential project stakeholders, resulted in the development of seven goals that formed the basis for master planning and site design. Strategic objectives that included measurable evaluative criteria were the basis for each goal (Fig. 4a, 4b). The seven goals were as follows:

1. Design the new marketplace as an urban catalyst that would enhance activity at the site, foster street life, increase community vitality, and embrace the physical and spatial characteristics of the market hall as it relates to the Austin food sector.
2. Create vibrant public spaces that encourage activities, social interactions, and dynamic connections between the diverse resident

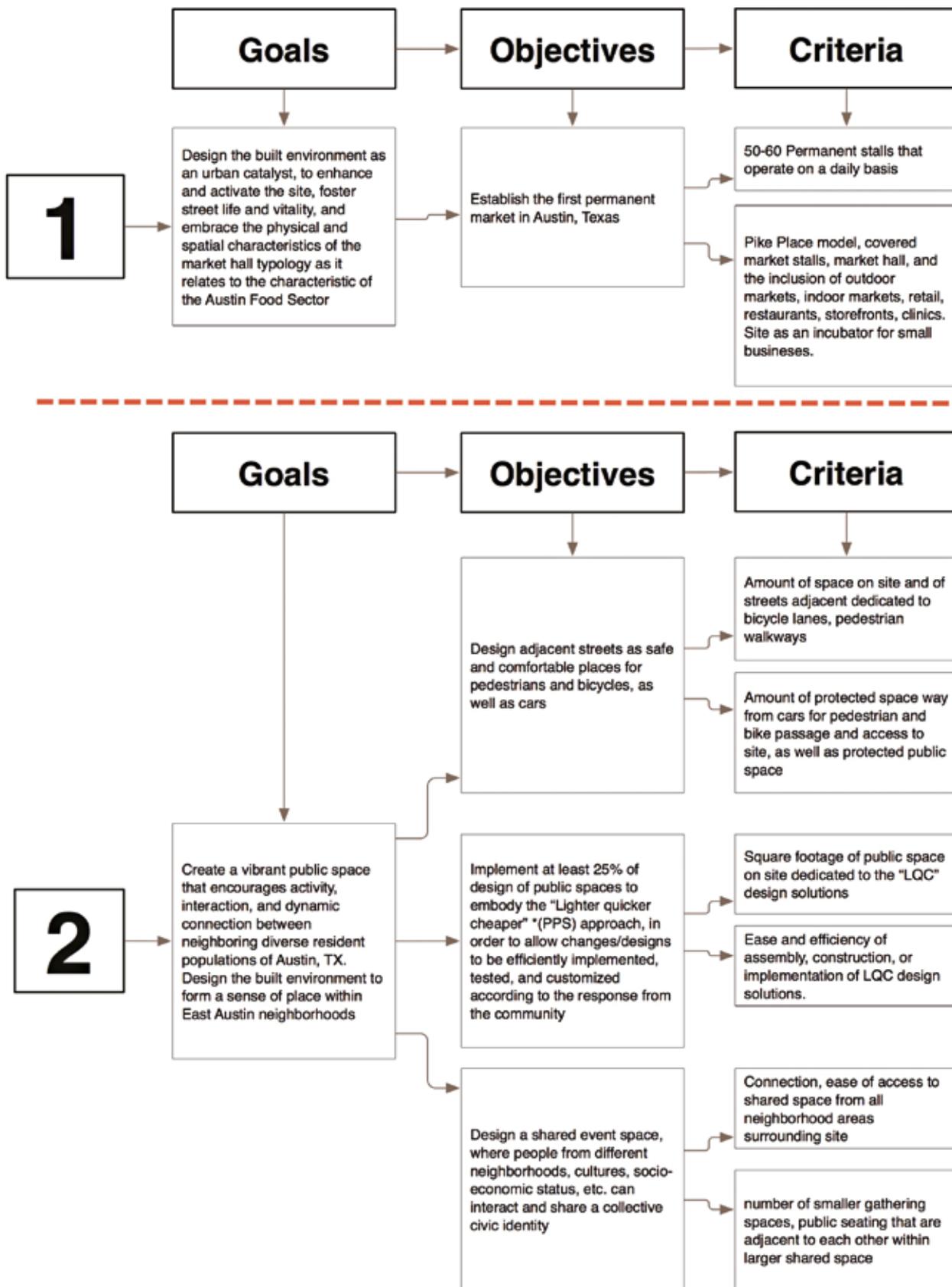
- populations of East Austin. Create a sense of place within East Austin neighborhoods.
3. Reduce the number of “food deserts” in East Austin and provide opportunities for easier access to healthy food in the surrounding communities.
  4. Facilitate the organization, development, cooperation, and implementation of the variety of urban food applied systems and research in cooperation with higher education institutions and research centers in Austin.
  5. Provide opportunities to celebrate and express cultural diversity, and cultivate community development, in these East Austin communities.
  6. Provide opportunities for community involvement and education in the areas of urban agriculture, nutrition, recycling and adaptive reuse, technology, and design for social impact.
  7. Create a practical and ecologically responsible facility within the master plan of the site.

Based on a site analysis and feedback from the community and industry experts, six strategies to achieve the desired goals were proposed (Fig. 5). A permanent market, intended to be an urban catalyst, was designed for the north side of the site, and a food boulevard (where the original train tracks bifurcated the site) were added to connect the surrounding communities as a public space. A food hub, to be established at the southeast corner where a new train station is planned under the city master plan; an open space on both the north and west sides to celebrate diversity; and several Agri-Pods, the author’s unique solution to facilitate efficient urban agriculture and community gardens in Central Texas; and a recycling/composting facility to integrate natural systems, also were included.

These goals were addressed in the initial site master plan, which served as a foundation for discussion with community members and obtaining feedback from experts at the Austin Sustainable Food Center, Downtown Austin Alliance, and other organizations. Inputs from experts were addressed through several iterations until consensus was reached. Objectives and criteria were tied to the project goals in a diagrammatic matrix that was used in soliciting feedback, and that helped participants make design decisions.

#### *Agri-Pods: A Unique Solution to Urban Agriculture*

A raised-bed solution to small-scale agriculture was transformed into an architectural proposition. In contrast to big box grocery stores, the Austin Marketplace would consist of cast-in-place concrete boxes, ranging from 100 square feet to 300 square feet, called “Agri-Pods,” to be situated between linear, butterfly canopy roofs to harvest rainwater. The boxes had two parts: a rooftop agricultural bed and a vendor space below, connected with exterior stairs and a network of sky bridges. The Agri-Pods are the



Figures 4a and 4b. Goals, objectives, and criteria matrix for the proposed Austin Marketplace.

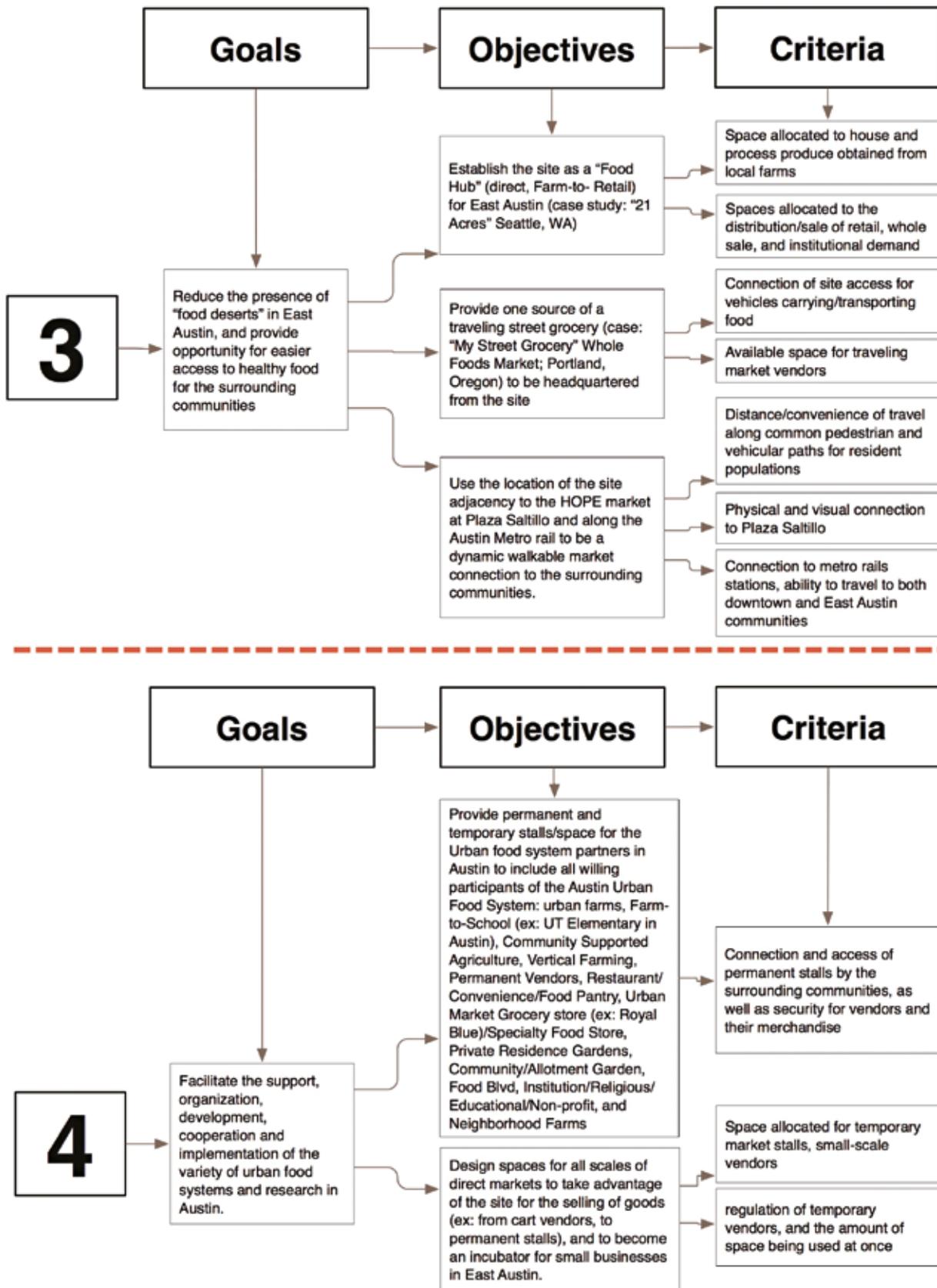


Figure 4b. See caption for Fig. 4a - Ed.

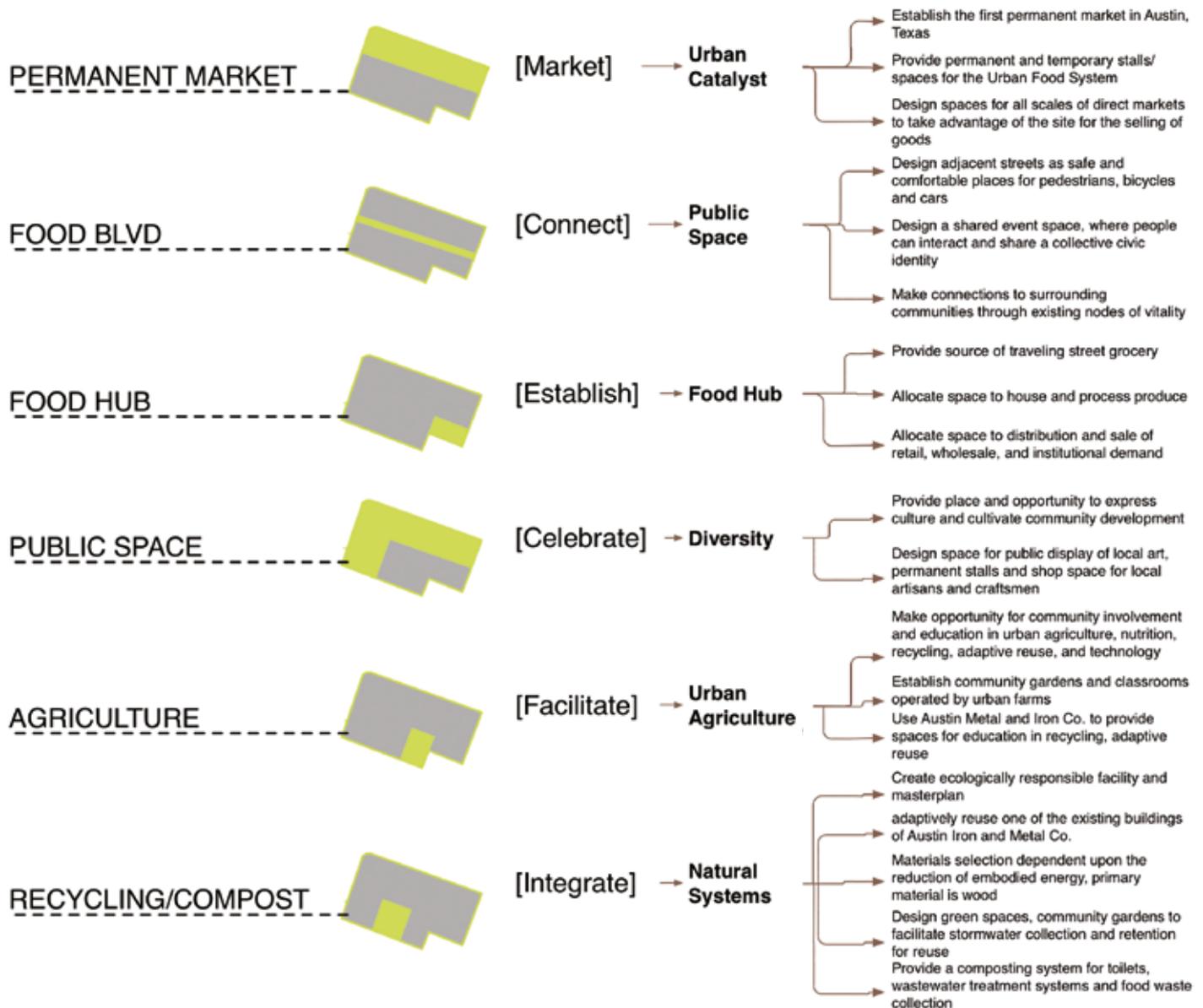


Figure 5. Six strategies to develop the Austin Marketplace.

permanent individual vendor spaces and are linked for pedestrian access, while the adjoining timber butterfly pavilions serve as temporary stalls for suppliers, as well as an outdoor leisure area (Figs. 6, 7).

A passive cooling strategy is implemented through the walls of the Agri-Pods. The depth of the roof structure, along with multiple layers of soil and a drainage system, provide thick thermal insulation for the indoor area, as well as protection from direct sun exposure. The walls, designed in the “Trombe” system, allow warm air to pass through a wet pad, then drop and circulate within the space. This type of natural and passive cooling is common to many public markets (Fig. 8).

### CASE STUDY TWO: BRYAN URBAN FARMERS' MARKET (DESIGN + BUILD)

The second case study was designed and built by an interdisciplinary group of university students majoring in either architecture or construction science as part of a university curriculum in design/build education. The process from design to realization spanned a full academic semester. Collaboration with city officials and professional engineers, preparation of construction documents, and securing the building permit were all performed by the students. The City of Bryan is located in the heart of the seven-county Brazos Valley. Its total area is approximately 44.5 square miles. Bryan was incorporated in 1871 as a small-town stop along the state's expanding railway system (University of North Texas 2016). It quickly grew into a thriving, permanent center for agriculture, business, and trade, which helped set the city apart from similar train stops across the state.

The arts and culture that characterize Bryan are recognized nationally, especially since the town is adjacent to College Station, home to the

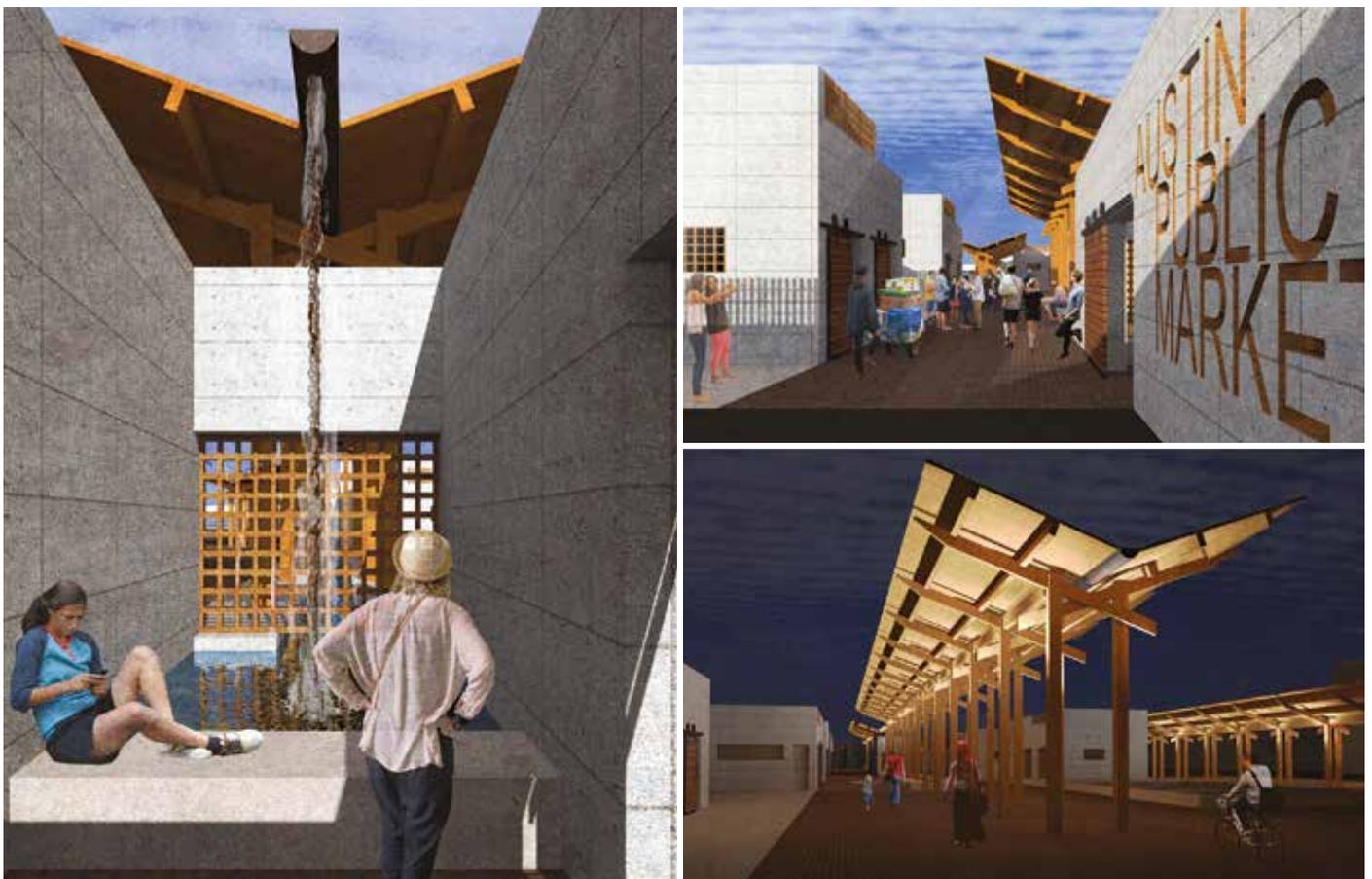


Figure 6. Rainwater collection, outdoor food boulevard, and temporary stalls.



Figure 7. View of the Agri-Pods from the rooftop agricultural beds.

world-class Texas A&M University. The distance between the nearest College Station city limits and downtown Bryan is about four miles. College Station, which grew up around Texas A&M and was not incorporated until 1938, does not have a central downtown area. In the 1970s and 1980s, shopping centers were built in other parts of Bryan-College Station, putting a strain on downtown Bryan that caused its steep decline. The downtown area, however, currently is experiencing a remarkable urban revitalization, with numerous activities to introduce people to the city's culture and commerce (Burriss 2009). As stated in a City of Bryan report, "In the late 1980s, a movement toward downtown revitalization began in Bryan, bringing businesses and interest back to the downtown area. Today, businesses are opening, expanding, and relocating in Downtown Bryan, breathing new life into the area" (City of Bryan 2016).

The deterioration of downtown areas is a problem in many American cities. A shift in traffic and shopping patterns, the development of new businesses and regional shopping centers elsewhere, vacant and dilapidated storefronts and homes, increased levels of crime, and a lack of



Figure 8. Agri-Pods' passive cooling system and partial floor plan.

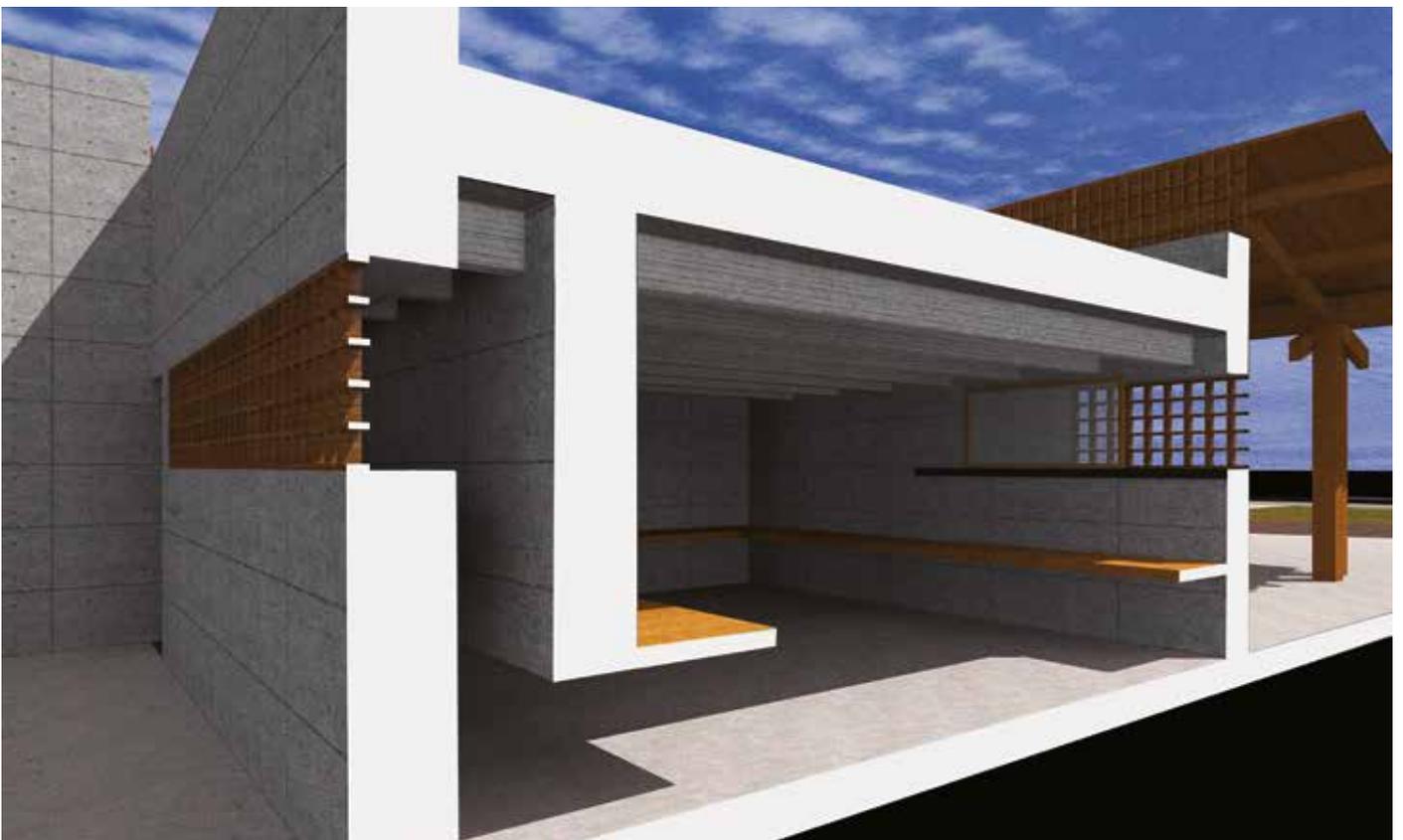




Figure 9. Bryan Farmers' Market, circa 1925.

funding for revitalization, all contributed to this decline. Today, many cities are investing in their downtowns in hopes of transforming them into thriving urban districts. The establishment of regular public events showcasing downtown merchants, music, and food is one popular strategy. Ongoing public events help drive positive awareness of a city's downtown and make area residents aware of the many unique opportunities that exist there. Farmers' markets and music festivals are examples of the kinds of activities that draw people to downtown. In addition, these events, as well as special tours, give residents an overview of the historic buildings and cultural landmarks that often are found in downtown areas and are important parts of a city's unique heritage.

The farmers' market currently held every Saturday in an open parking lot in downtown Bryan is not the city's first. A recently published photograph revealed that there used to be a permanent, covered farmers' market, apparently built in 1925, on the east side of the railroad tracks at the present-day intersection of William Joel Bryan Parkway and Tabor Road (Fullhart 2015). In the photo, several 1930s-era cars are parked around the market, and people are buying and selling goods throughout the entire area (Fig. 9). In the background, several buildings that are still standing today are visible. According to historians, the market was closed in 1960,

and the site was sold to a local businessman, who converted it into a parking lot (Costa 2015).

The current weekend market consists of approximately thirty-two vendors from the Brazos Valley Farmers' Market Association, who use portable tables and tents that they install and uninstall each week. Acknowledging the logistical issues associated with temporary farmers' markets, and redefining the role of architecture within a community, the Design + Build Interdisciplinary Studio in the Texas A&M University College of Architecture approached the city and the Farmers' Market Association and offered to design and build a permanent farmers' market structure as a service learning project for architecture students. As part of this effort to make a big impact through a small-scale intervention, as well as to demonstrate the power of design to enhance the community, the College of Architecture awarded a small grant and made available a fabrication facility. Meetings with city officials and members of the Farmers' Market Association were conducted to better understand the association's needs and the operation of the weekend market. Through a partnership between the City of Bryan, the Farmers' Market Association, Texas A&M, and several local professional engineers, the project was launched in fall 2015.

Small-scale, pavilion-type markets are not only great incubators for the small businesses associated with them, but also provide projects of a manageable size and scope for semester-long design/build university curriculums. The success of the recent two markets designed and built by architecture students in Virginia and North Carolina as part of the new design/build education model offered in schools of architecture is a testament to the power of design in reviving the small-scale urban marketplace (Dvorak and Ali 2016). For example, gardens near a farmers' market encourage the public to get hands-on instruction in gardening, while also providing healthy produce and a venue for positive social interactions. Many special events, such as the annual Blues Festival and Texas Reds Festival, and monthly First Fridays, are held in downtown Bryan throughout the year. Since the farmers' market site is near downtown, spaces suitable for activities associated with these specific events were designed and placed within the project site.

#### *Project Goals, Objectives, and Criteria*

The designated site near downtown Bryan is approximately two acres. The east boundary is public parking for St. Joseph Catholic Church. There are two historic structures on the site: a residential house dating to 1871 and a carriage house dating to 1880. The remainder of the site is undeveloped, with a few trees. All of the surrounding properties on the block are publicly used. Since the site was designated for public use by the city and the gifting foundation, a master plan for the entire two acres was necessary (Fig. 10). The following five objectives were identified through meetings



- |   |   |
|---|---|
| <p><b>1. Entry Plaza</b></p> <p><b>2. Sculpture</b></p> <p><b>3. Planting Beds</b></p> <p><b>4. Main House</b></p> <p><b>5. Community Garden</b></p> <ul style="list-style-type: none"> <li>• Gathering place</li> <li>• Shelter</li> <li>• Variety size block</li> <li>• Green wall</li> </ul> <p><b>6. Picnic Area</b></p> <p><b>7. Carriage House</b></p> <p><b>8. Herb Garden</b></p> <p><b>9. Community Gathering</b></p> <p><b>10. Silos</b></p> <p><b>11. Sitting Area</b></p> | <p><b>12. Open Lawn</b></p> <ul style="list-style-type: none"> <li>• Community gathering</li> <li>• Multi-field</li> <li>• Outdoor yoga</li> <li>• Show/stage</li> <li>• Outdoor food</li> <li>• Shelter</li> </ul> <p><b>13. Visitor Center</b></p> <ul style="list-style-type: none"> <li>• Restaurant/Cafe</li> <li>• Sculpture</li> <li>• Museum (History display)</li> <li>• Gift shop</li> </ul> <p><b>14. Farmers Market</b></p> <ul style="list-style-type: none"> <li>• Seating area</li> <li>• Tree canopy</li> <li>• Lightings</li> <li>• 30ft pathway</li> <li>• Movable table and chairs</li> </ul> <p><b>15. Parking Lots</b></p> <ul style="list-style-type: none"> <li>• East Side - 25 stalls w/ 2 handicap included</li> <li>• South Side - 29 stalls w/ 2 handicap included</li> </ul> |
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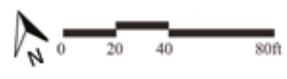


Figure 10. Master plan showing the visitor centre to the east and farmers' market to the south.

with city officials, community residents, and representatives of the funding entity:

1. Propose a program to reclaim the site and enhance it economically, socially, and ecologically.
2. Provide connectivity to surrounding properties, such as St. Joseph Catholic Church.
3. Provide greater context between the site and the community.
4. Provide new features and characteristics in re-imagining the identity of the site.
5. Provide spatial quality for the program's proposed activities.

Along the site's south boundary, a long, permanent farmers' market designed as a modular pavilion unit, named The Tree, was proposed. The Tree unit acts as an autonomous shading structure, with a multilayered roof stemming from a cluster of columns. The proposed series of identical sections, placed side by side, creates a row of farmers' market stalls. Each section, or "tree," provides approximately 100 square feet of shaded area (8 x 12 feet of vendor space) supported by a cluster of four 6 x 6 inch timber posts. Traditional Japanese architecture inspired the market structure: repetition is the logic of the roofing system, and the design serves both structural and architectural needs.

The outdoor market structure was designed and built by university students majoring in architecture and in construction science. The effort was part of Real Projects, a community outreach initiative that engages college students from multiple disciplines in projects benefiting communities in the Brazos Valley (Fig. 11). The planning, design, pre-construction, and construction of the Bryan Farmers' Urban Market were carried out by these students. The interdisciplinary studio worked collaboratively during the entire design and build process. The studio was divided into three teams, each assigned to produce specific documents required for obtaining the building permit and building the pavilion.

The power of architectural design and the efforts of the students participating in service learning were leveraged through the project to make a direct, positive impact in the Brazos Valley. A space and shelter where local farmers could sell produce, and where residents could have an outdoor "living room," was provided by the permanent market. The pavilion is used for musical performances and classes on farming and nutrition. The permanent pavilion, designed to be both beautiful and functional, encourages residents to develop a greater appreciation for architecture, and a greater practical understanding of the importance of a healthy lifestyle. The engagement between a top-tier research university, local residents, professional consultants, and city officials was a successful example of designing for social impacts that improve the quality of life for both project participants and end users.



Figure 11. Students constructing the modular market units called “the tree.”

## ARCHITECTURAL EDUCATION FOR POSITIVE SOCIAL AND ECONOMIC IMPACTS

At a time when the cultural differences and diversity that could enrich a city's social fabric are under threat due to political agendas, the marketplace appears to be a possible missing link for healing divisions and restoring trust by offering a unique opportunity for people of all ages, and from all cultures, social classes, and walks of life, to interact and build mutual respect. The biological necessity for food is not separate from the social need of humans to interact, which makes the market an excellent facilitator of interaction between those who otherwise might not ever come into contact with each other. People whose lives are seemingly disparate in every way would benefit from the chance encounters and interactions that inevitably occur at such a place.

In both cases presented in this study, enhancing the development of urban communities through engagement between university students participating in real-world architectural education and residents of the university's adjacent communities was the overarching goal. Because the marketplace was positioned to become a venue where diversity within the community would be celebrated, conducting all aspects of planning, design, and construction using comprehensive community input and participation was critically important. Community involvement at every step of the process, and empowering citizens to advocate for themselves, are encouraged by this participatory strategy. Texans in East Austin and Brazos County could benefit profoundly from this approach. The involvement of residents in the surrounding communities in jointly providing input on their specific needs for a public space, and the subsequent organized community response, ultimately resulting in the creation of a shared public space, also could be a development tool for uniting a divided community.

Unexpected solutions to complex problems are offered by architecture in the facilitation of unconventional social engagement. Whether in a major city such as Austin, or a smaller town such as Bryan, the architecture of the marketplace encourages and cultivates inherent social dynamics, provides the opportunity for cultural expression, and promotes community cohesion and economic development. Ecological design in the practice of adaptive reuse, construction processes, and the harvesting of materials, is informed in the marketplace by local agriculture, farming, and artisanship. A market could be a module, an urban catalyst for growing a network of community markets within the urban fringes of a city or town. As demonstrated in these case studies, architecture has the power to offer synthetic solutions to highly complex problems, and all of these solutions begin with the education of the architect.

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## Credits

Figure 1: Photo by the Author.

Figures 2 and 3: Image by Zach Wise.

Figure 4a, 4b and 5: Figure by the Author.

Figures 6, 7 and 8: Image by Zach Wise.

Figure 9: Photo courtesy of the Downtown Bryan Association.

Figure 10: Figure by Jingwen Lu.

Figure 11: Photos by the Author.

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# Social Impact through Design: Experiments in Urban Agriculture

Sallie Hambright-Belue, Martin J. Holland

*ABSTRACT - This paper describes the work of students at the School of Architecture and the Department of Landscape Architecture at Clemson University with a local, non-profit organization - the Feed & Seed - in creating alternatives to the current threads that affect the urban area of West Greenville, South Carolina. Starting on the definition of Food Desert as an area without access to fresh and whole foods, students address issues of economic equity, community building and social justice by developing urban agriculture solutions that focus on food hub and food cycle, promote education and foster social cohesion. With the gaps between the haves and have-nots apparently widening each and every year students perceive, challenge, and test the role that designers have in the decision making processes that constitute possible solutions of fractured neighborhoods, cities and regions.*

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**Keywords:** urban farming, food desert, health deficiencies, food cycle, building construction cycle

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This paper details the ongoing studio design efforts within the School of Architecture and the Department of Landscape Architecture at Clemson University with a local, non-profit organization, the Feed & Seed, whose mission includes addressing the social inequities present within the disenfranchised, and predominantly, African American neighborhoods located in West Greenville, South Carolina. The Feed & Seed provides affordable, nutritious, and locally grown foodstuffs to these neighborhoods,

and has engaged us as educators to conduct a series of collaborative design studios focused on providing a holistic and systematic rethinking of food production within the City of Greenville. These civic interventions and productive community landscapes were meant to also create compelling spaces and places, and were to be perceived as valuable, civic assets within the communities themselves.

We believe as the educators and investigators behind these studio projects that we are engaging a potentially new model of design practice, born out of the understanding that at the most basic level, architects, landscape architects, planners and designers are fundamentally critical thinkers and creative problem solvers. Our students can offer the communities of West Greenville with real and viable alternatives to the existing conditions that challenge the area as a Food Desert. The studios encouraged and utilized the passion of millennial students to engage in meaningful and thoughtful debate concerning issues of economic equity, community building and social justice. In addition, the Feed & Seed is not only a nexus concerning food production, but also provides an educational primer regarding the best current practices of urban agriculture, nutritional meal planning and cooking sessions, and needed vocational training for the residents.

Ultimately, it appears that the design projects that have the greatest social utility address the issues of sustainability and resiliency of entire communities. Instead of focusing on the products or outcomes that are usually generated by a design studio by students for practicing professional, this utilitarian perspective of sustainability and resiliency offered more credence to the design disciplines understanding of the measure of our impact as practitioners and activists. Design that has social impact and utility does not have predetermined, professional audience, but instead, almost by necessity it weaves itself through communities creating real change that affects the lives of all citizens.

## FOOD DESERTS AND THEIR IMPACT ON COMMUNITY HEALTH

This project is based within the city of Greenville located in the “Upstate” region of South Carolina. While Greenville is one of the fastest growing areas in the country in terms of population, there are many existing communities that are being disenfranchised from the economic benefits from such growth.<sup>1</sup> This is not an unusual occurrence within South Carolina, and is a common problem in many cities and regions throughout the rest of the United States. These communities are often the home of the most vulnerable and at risk citizens, and are often so called Food Deserts. A Food Desert is defined by the United States Department of Agriculture (USDA) as an area that does not have access to fresh and whole foods.<sup>2</sup> Food Deserts are often linked to areas of significant poverty, and when the two factors coexist, the obesity rate with affected communities typically increases. According to the *American Journal of Preventative Medicine*,

adults who have neighborhood access to stores that sell fresh foods have a 21% obesity rate, compared with 32-40% for those living in neighborhoods with no such access.<sup>3</sup>

According to a recent South Carolina Community Loan Fund study, one million South Carolinians are without adequate access to grocery stores that sell perishable goods, geographically removed from fresh food markets or lack accessibility to affordable and convenient transportation networks to get to such critical places.<sup>4</sup> These disturbing statistics are not limited to South Carolina, as the USDA estimates that 23.5 million people, including 6.5 million children, live within Food Deserts in the United States.<sup>5</sup> These statistics contribute to an obesity rate of adults in the South Carolina Upstate that is 67.9%.<sup>6</sup>

### THE COMMUNITY

These community design projects all occur in the neighborhoods of West Greenville which possess qualitative characteristics that indicate that they are either existing Food Deserts or are very susceptible to become a Food

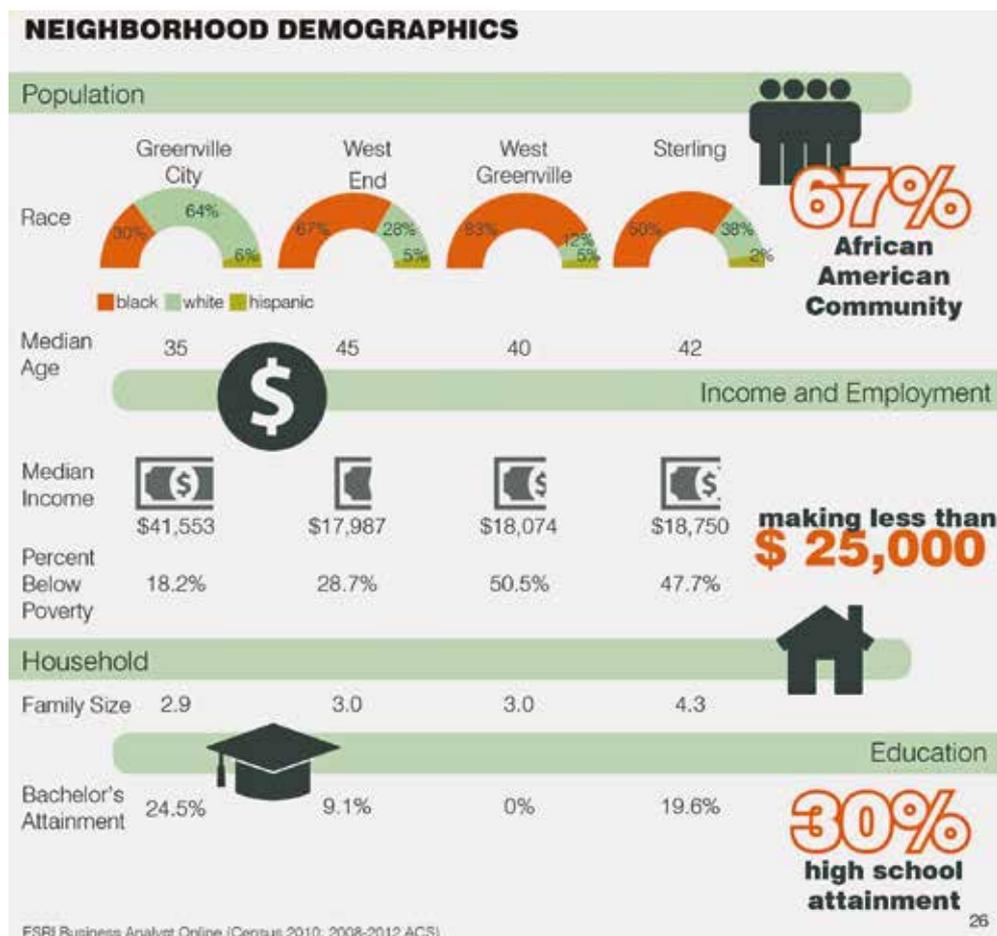


Figure 1. The neighborhoods in the western section of Greenville, South Carolina, tend to be predominantly African American, and have lower than average median incomes and lower rates of post secondary education than Greenville City.

Desert in the near future. The selected neighborhoods have less than half the median income of the City of Greenville, are 50% - 83% African American, have larger number of residents per average household, and have less formal education than their more affluent counterparts.<sup>7</sup> All of these factors contribute to the likelihood of obesity of the residents and the absence of a local neighborhood grocery store with fresh food and produce only compounds the problem.

## FEED & SEED

The Feed & Seed organization is attempting to address the community issues of obesity, health, and food access from a regional perspective. The USDA defines a food hub as a regional business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand. In turn, food hubs are a “scaling up” strategy that allows an expanded reach into communities for locally grown and produced food.<sup>8</sup> Currently, South Carolina only has one existing food hub, Grow Food Carolina, located in Charleston and approximately two hundreds of miles away from Greenville. Charleston, and the adjacent coastal areas of the state provide ideal for growing conditions for vegetables and other consumable crops while Greenville and other areas located in the Upstate are environments better suited for livestock production. Grow Food Carolina and the Feed & Seed envision working together across the entire state to maximize as much South Carolinian grown and raised food as possible. The Feed & Seed will provide a large warehouse facility that will meet the wholesale demand for foodstuffs, while also providing access to everyday family dietary requirements the form of a market with fresh produce, meats, dairy, and baked items. The organization also intends to educate the community and farming community in the advantages and processes of sustainable agriculture, and therefore will have an educational urban farm in the surrounding landscape of the facility. Finally, food distribution locations will be located throughout the region in order to get the fresh food items into the community and to lessen the effects of existing Food Deserts. The following projects identify and address concepts including; the food hub, the urban farm, and the Food Desert distribution locations.

## FEED & SEED STUDIO: FOOD HUB

The first interdisciplinary studio course entitled “Feed & Seed Studio: Reconnecting Farms, Markets, and Tables” was completed in Fall 2014, and provided a holistic approach to address food access issues as well as social, economic, and environmental concerns in order to generate a greener, sustainable, and healthier city. The studio evaluated and assessed existing farm to market conditions and looked for opportunities to increase effectiveness and efficiencies within the local food system.

The studio also sought to answer the question that many students asked, namely “What role does architecture play in the local food community?” The purpose of the studio was to generate financially viable alternative conditions for the non-profit Feed & Seed which would allow it to function in areas where traditional groceries saw little chance of profit, while also gaining critical information regarding how these neighborhoods functioned as a community network. Such information included, but was not limited to, understanding the broader potential impact that the Feed & Seed could have on the existing communities, site strategies, programmatic development ideas, as well as ideas for how the building and site themselves could become a civic asset. The students quickly realized through their research that the failure rate of food hubs in the United States is actually quite high. Successful food hubs are ones where they are fully embraced and utilized regularly by the majority of the residents of a community, not just a select few interested citizens.



Figure 2. Plan view of the Proposed Food Hub, by Kathleen Peek and Aaron Peter.

The students realized that in order for the Feed & Seed to be successful it would need to become an integral and needed part of the community; therefore the students sought out ways to create meaningful spaces for the community as well as researching the outreach programs that were most needed within the community. Three basic strategies arose from the studio; create an extension of the Swamp Rabbit Trail recreational corridor and connect it with a major transportation and leisure corridor in the city of Greenville; integrate an understanding of the site as a former mill and integrate the mill's history with that of the neighborhood; and to create a building and site strategy which reveals all of the necessary cycles associated with farming, in order to educate the community about the processes and requirements of urban agriculture.

**FOOD HUB DESIGN SOLUTION 1 - FOOD CYCLE (TRANSPORTATION)**

Students: Brianne Burdy, Yue Ren, Sarah Stumpo

The first project recognized that the surrounding community lacked not only access to fresh foods, but also suffered from an insufficient transportation nexus with the other parts of Greenville. The team discovered that one in five African American households did not own a car; and that bike used by African Americans doubled from 2001 to 2009 and was continuing to expand at a rate five times faster than cycling among whites.<sup>9</sup> The students also discovered that the Greenville bike share program was more affordable and more accessible than the current public transportation (bus) system. The economic investment was startling in its contrast - the price of the bike share program is \$0.16/day while the cost of a bus ride is \$1.35/day. The bike share program is

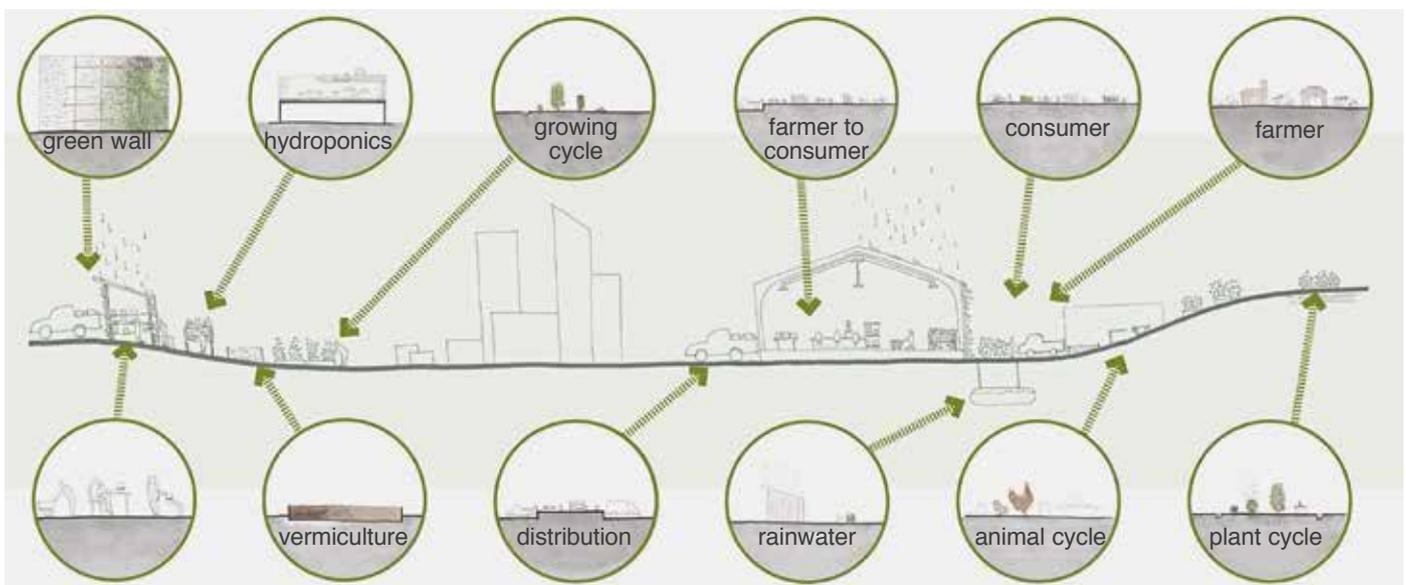


Figure 3. Section of the active Food Hub, by Kathleen Peek and Aaron Peter.

accessible from 5 am to 11 pm everyday of the week, while the bus suffers from limited hours of operation; 5:30 am - 7:30 pm Monday through Friday, and 8:30 am - 6:30 pm on Saturday. No rider services are offered on Sunday.<sup>10</sup>

The student's design proposed a synergistic relationship between the existing and rapidly growing bike share program with Greenville's Swamp Rabbit Trail. The addition of bike share stops at the food hub and urban farm offered the local community more flexibility and more affordable transportation opportunities than the current bus network. In addition, such service allowed better access and connectivity to the other parts of the city, enabling community members to take advantage and participate within Greenville's growing economy. The connection with the Swamp Rabbit trail allowed the community to take advantage of one of Greenville's most valued active recreation assets, which are scarce in the West Greenville neighborhoods. The synergy between increasing access to fresh food and the availability to live an active lifestyle addresses the health issues found in at-risk communities from a holistic and common sense perspective.

#### FOOD HUB DESIGN SOLUTION 2 - EXPOSURE (EDUCATION)

Students: Kathleen Peek and Aaron Peter

The second design team realized that most Americans know very little about the cycles of food production and food processing, as well as little idea of what was involved with the construction, maintenance and reinvestment cycles of buildings and site infrastructure systems. Up to 72% of Americans know little concerning farming or food production.<sup>11</sup> This lack of basic understanding of how food is grown, handled, processed, stored and transported lead to uninformed choices, which can often lead to poor and unhealthy individual decisions when it came to healthier food options. Chronic diseases linked to diet account for 75% of healthcare costs, which could be saved if diets of Americans were changed.<sup>12</sup> The team understood that while poor food choices contributed to poor health, poor building designs and wasteful infrastructure decisions also lead to negative impacts on the environment and economic systems.

The students design solution revealed shared commonalities between the cycles of farming and building construction by using transparent materials and the weaving of public space throughout the food hub facility and urban farm. No part of the production systems was hidden from public view and, in turn, such visibility encouraged the community to watch and engage with the processes of each. The studio realized that architecture's role in the local food community was more than simply creating usable spaces for the selling of fresh food products, rather architecture and landscape architecture offered unique opportunities to integrate local food systems back into the community. By understanding the programmatic needs of the communities in question, and by revealing key moments in what is otherwise and

“invisible” and “closed system” (such as the handling and sanitization of produce, or the expense incurred for engaging long distance transportation systems) the designers ensured that these newly visible spaces were meaningful to the surrounding communities.

## FOOD DESERT

The Food Desert component of the Feed & Seed proposed a collaboration with a private, locally owned, gas station chain, known as Spinx. The Spinx convenience stores are located throughout the region, many times being situated within Food Deserts. These stations already have an established system for distribution and delivery of material goods, and are often the closest place where low-income residents can spend their Snap dollars on approved food items. In addition, the Spinx company owns many undeveloped land parcels adjacent to their existing stores. Therefore, the distribution strategy offered by the Feed & Seed sought to place their fresh food products within the Spinx convenience stores and to extend the idea of the urban farm into community gardens by inhabiting the adjacent parcels of open properties owned by Spinx.

This project was performed in collaboration with the Communications Department at Clemson University, by offering a collaborative creative inquiry course that presented a service learning opportunity at the intersection of global issues and local communities. Using ethnographic interviews and focus groups, as well regional historical research, students identified and researched key audience segments adjacent to intersections of community, identity, and culture (e.g., German Expatriates, Latino Youth, Low-income Whites). The concluding project included the content and design of the physical spaces as well as opportunities to communicate the message of the Feed & Seed to the community as a whole. It was necessary that each of these design interventions be appropriate to the specific communities that they were to be located, as the communities were vastly different in terms of ethnicity, food culture, educational levels and disposable income. It was imperative that these designed spaces be accepted as being part of the surrounding community in order for the members and stakeholders of the neighborhood to take active ownership of the community gardens and actually purchase the fresh food items available for sale within the Spinx convenience store.

## FOOD DESERT DESIGN SOLUTION 1 - OUR BACKYARD (LEISURE)

Students: Colin Bland, Sally Dunaway, Taylor King, Sana Mirza, Josh Rowell

“Our Backyard” identified the need and provided an area for three neighborhoods - West Greenville, West End, and Sterling - to come together to play, grow, and relax. The student design team worked to develop playful, creative, and appealing signage, messaging, and architectural designs that would engage the elderly, children, parents, families, and other members of the community as a whole. The particular

focus was on developing strategies that would encourage children to play, adults to relax and yet still supervise their children, as well as the elderly to feel as a vital part of an intergenerational community. The intention was also to allow everyone to grow through shared activities while also enhancing a social bond across all three communities, and encouraging overall healthier and more active lifestyles.

The design team discovered that communities with lower income levels and lower formal education have reduced access to parks and other recreational spaces, as well as having less quality leisure time.<sup>13</sup> By blending recreational spaces into the community garden, the garden reconnects the community with active food production while also providing areas where the community can remedy its lack of public park and open space.

#### FOOD DESERT DESIGN SOLUTION 2 - CREATE GREENVILLE (HISTORY)

Students: Hannah Harrison, Amanda Hill, Taylor Shank, Lindsay Wehmeier, Logan White

“Create Greenville” aimed to create a new community hub for West Greenville by drawing upon its rich history and the active members of the neighborhood to maintain the original community character and culture while still updating and reinvesting in the neighborhood. Greenville is a constantly changing and expanding city; with the downtown and immediately adjacent areas surrounding areas undergoing the most radical and intense transformation. This project provided the neighborhood with a strategy to allow their culture and identity to be preserved, even in the face of the ever-changing development of the city.



Figure 4. Interior perspective of the Food Hub, by Kathleen Peek and Aaron Peter.



Figure 5. Create Greenville, proposed to install equipment normally associated with playgrounds which could also be adapted to allow and encourage food production to also occur.

“Create Greenville” found that the surrounding neighborhoods to the downtown were the most historically significant, and engaged African American communities. The first African American high school in Greenville County was located in the area, as well as some of the oldest traditional black churches.<sup>14</sup> This rich history is important for the community to recognize while looking ahead to future opportunities. The community garden design provided tells the story of the history of the neighborhoods while simultaneously addressing the lack of fresh food availability.

Welborn Street Site - The Urban Farm. Located in the neighborhood of West Greenville, along the banks of the Reedy River and adjacent to the popular civic asset and greenway of the Swamp Rabbit Trail, the Feed & Seed has purchased a portion of an abandoned storage facility and adjacent property to use as an additional location to counter the effects of the Food Desert in the area. Part of the Feed & Seed mandate to serve the public good is the sustained commitment to provide educational classes regarding the growth of organic produce, safe food handling procedures, seasonal planting strategies along with the best practices of



Figure 6. Create Greenville, recognized that embracing and celebrating the African American experience and their contributions to the neighborhood was essential in recognizing community buy in to the project.

companion plantings - a technique that associates different produce types to be grown in close proximity to one another allowing the effects of one produce type causes beneficial conditions for another kind of produce. In addition, informational cooking classes and primers on how to start small scale restaurant and other food focused businesses are planned.

Essential to having this site operate achieve its mission, the Feed & Seed facility on Welborn Street is the ability to grow produce on site for educational purposes, but also to have a reliable and local source of nutritious produce that will also provide a partial source for the intended restaurant. Unfortunately, this site, like many other former storage facilities located on the urban fringe of urban areas, suffers from a host of environmental maladies. The site used to serve as a storage facility to a once active rail line, and in turn, has multiple locations of hazardous and toxic pollutants on site, with the most pervasive being the presence of coal ash. Coal ash is a common term for the waste produced through the burning of coal for industrial purposes, leaving such toxins as mercury, lead, arsenic and other heavy metals as a by-product. The remediation



Figure 7. The calculations performed to understand the economic capital and logistics to make the Welborn Street facility a viable, urban agricultural facility. Graphic by Austin Allen.

of sites that contain coal ash can often be a laborious and expensive endeavor, and must adhere to the Environmental Protection Agency’s (EPA) significant regulations with regards to proper storage and approved mitigation strategies. While the Welborn Street facility has only slight traces of coal ash on site while compared to other sites, it effectively removed the possibility for the existing land and soil to be used a medium for the growth of produce for consumption.

One of the primary focus of the undergraduate landscape site design studio held in the Spring of 2016 was to assess and to explore the feasibility of the installation of a combination of movable and permanent, above grade, planting areas to provide a clean and safe growing media



Figure 8. Plan view of a proposed design scheme that reconnects disrupted ecological niches back into a comprehensive whole. Graphic by Allison Chan.

for the necessary produce to be grown. The Welborn Street facility has an additional and significant issue beyond the presence of coal ash, as part of the facility is located within the 100 year floodplain of the Reedy River, and the water quality of the river itself contains a high percentage of fecal matter from a yet to be determined source upstream to cause the site to be continually monitored for its water quality. It was this consideration of the potential of a significant portion of the land to be submerged in a flood event, and the presence of human excrement within the water necessitated the need for mobile planters to be investigated as a design solution.

One student became preoccupied with the logistics and the requirements to test to see whether the Feed & Seed could be a viable entity based

upon these substantial limitations. Austin Allen discovered that the clean soil required to use as a growth medium would be one of the Feed & Seed's largest capital expenses. Based upon projected estimates by the Feed & Seed, an acre of land would be required to grow the fresh produce needed for the facility. It was this thorough attention to the specific requirements of the facility that reinforced the value of soil to the students, who often took access to clean soil for granted.

Allison Chan's project used the idea of *Kintsugi*, a form of Japanese pottery that uses a gold lacquer to hold the fragments together as a parallel of repairing a broken food system within Greenville. Chan's thoughtful investigation of how to reveal the past assumptions and erroneous farming practices to indicate how the land was mistreated, and in turn, how such neglected and fallow land could be transformed into a product civic asset in the form of Urban Agriculture.

## BENEFITS FOR COMMUNITY

There are multiple benefits for the communities that these projects are based that extend beyond the design product being proposed. While the design work is important for the Feed & Seed as they are counting on the successful production of urban agriculture foodstuffs, and since they are working within extremely tight budgets with a small, but dedicated staff, we also witnessed the transformative power of the design process for the organization, the students, and the community. The benefits included:

1. The Feed & Seed was assisted to understand the project's process rather than being provided the finished and finalized design product. This process educates them about the use of design investigations but also assists them in understanding the scope of work, indicates the limits of professional responsibility, and provides a primer in how to obtain professional expertise. In this particular case, it provided a grounding of the finances that would be required before hiring a professional architect. In the "Food Hub" projects the student developed the working program for the facility, and in turn, the executive director of the Feed & Seed was able to use that student work to obtain realistic bids from builders.
2. The community centered projects allowed for the non-profit organization to reach out to the larger community and start a conversation addressing persistent and serious issues. Community members were open and friendly with the students, and these projects allowed the community to take part in the project much more organically from a "grassroots" perspective, rather than having the organization, or the city solicit opinions from a skeptical community. This also benefited the non-profit as it

built a degree of trust and familiarity and community buy in that is required for a successful endeavor.

3. This engagement also allowed for the establishment of trust to be developed within otherwise disparate social groups and neighborhoods where trust did not exist before. Not only were the student presentations new ways to hear about community concerns, they also provided a new opportunity for the organization to build trust and relationships.
4. The project descriptions and operational sites can be leveraged to reuse and to assist non-profits, non-governmental agencies, and community groups to increase and expand the level of critical engagement of their physical site over time.

## CONCLUSION

The projects detailed beforehand address issues of social justice that are invaluable tools in the context of a design school, as it allows us as educators to inform our students to become engaged and socially empathic citizens. This understanding of how designers operate, being more than just the creators of useful products or places, positions designers as integral to the decision making processes that constitute of neighborhoods, cities, and regions. Designers bring useful skills that can expand the discussion and the dialogue concerning economic equity, issues of community building and how to create social just spaces. With the gaps between the haves and have-nots apparently widening each and every year, we need to be attuned, concerned and engaged regarding the political and economic decisions being made to ensure our cities are not contributing to or accelerating this disparity. This is the real value we are giving the society - educating future designers to become engaged citizens and knowledgeable about how their decisions and impacts can affect others.

## Notes

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# Designing with Dignity: Health and Design Research for Underserved Communities

Yvonne Michael, Diana Nicholas

*ABSTRACT – “Designing with Dignity” is a course that examines how Health and Design research can inform problem-solving for underserved communities. The educational arm of the new Center for Health in the Designed Environment (CHDE) received a foundation grant for a course entitled “Health and Design Research: Designing with Dignity” that was piloted spring 2016. In this pilot, students from multiple disciplines examined the relationship between the built environment, health and behavioral health issues. The course linked these issues with the over-arching theme of housing insecurity. Within this central theme, the students were particularly concerned with underserved groups who may be suffering poor health outcomes due to their lack of access to safe and healthy living spaces. Frameworks within the course exposed the students to multi-level social determinants of behavioral health for underserved groups. Students then learned techniques to innovate solutions for these groups that would improve their limited access to housing resources. Taught by faculty from health and design, this curriculum is designed to help students ask questions and create solutions. They engage in a process that centers on melding human-centered design approaches with public health research. The course participants are taught to create fresh solutions that will have positive impacts on behavioral health in the urban environment.*

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**Keywords:** health and design research, human-centered design, interdisciplinary education, underserved communities, housing insecurity

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At Drexel University, “Health and Design Research: Designing with Dignity” is a new course that examines how design and health research informs problem-solving and the development of appropriate solutions for underserved communities facing complex problems. Predicated on creating a process for strengthening the relationship between the built environment, health, and behavioral health issues, the course creates opportunities for developing new solutions to urban housing insecurity. Focused on interdisciplinary education and pedagogy, the instructors created a process that melded social determinants of health frameworks and design thinking techniques with the central theme of safe living environments and access, or housing insecurity. The students in the course were particularly focused on solutions for underserved groups who may be suffering poor health outcomes due to their lack of access to safe and healthy living spaces. Housing insecurity is defined as high housing costs in relationship to income, or insufficient quality or access by the Department of Health and Human Services.<sup>1</sup> Underserved groups are defined through cultural and socioeconomic status and can differ regionally.<sup>2</sup> The main pedagogical goal was to examine multi-level social determinants of behavioral health for underserved groups and then innovate access-based solutions for these groups using processes that would draw on students’ up-close explorations. The goal was to combine these viewpoints and develop ideas that would improve the residents’ and urban dwellers’ limited access to housing resources. The thesis of this paper, and the pedagogy presented, is that the interdisciplinary linkage of health research and design process will create new ways of thinking and unique inter-professional experience in both disciplines. Designed to help students ask the right questions for successful problem solving, the pedagogy centers on creating new solutions that would have positive impacts in the urban environment.

This course is a central part of the mission of the Center for Health & The Designed Environment (CHDE), and was developed in partnership with the Scattergood Foundation, a local behavioral health foundation. An interdisciplinary center comprised of university faculty from Interior Design, Public Health, Engineering, and Science, Technology & Society, the mission of CHDE is to address urban inequities through new health and design research. Selected through a competitive application process in 2015 to become one of the inaugural cohorts of the American Institute of Architects’ Design & Health Research Consortium, (AIA Consortium) the group works to advance research centered on the designed environment and related health outcomes. CHDE works to develop a shared multi-disciplinary research process that builds on the strengths and expertise of all disciplines and informs practice in design and public health. The educational arm of CHDE received a foundation grant for the course and it was piloted in spring 2016. In this article, we examine how transdisciplinary exploration and identification of meaningful guiding frameworks from each discipline informed the design and implementation of the course in support of the thesis stated above. At the same time, we will describe our team process and the development of

initiatives in education, research, and outreach in the urban community. The paper will also examine the ways that multi-disciplinary collaboration can inform educational initiatives to ensure that social determinants of health drive informed design in the built environment. The future plans for the design challenge and the course will also be described here.

## SCATTERGOOD AND DESIGN CHALLENGE BACKGROUND

The “Designing with Dignity” course and program were funded and collaboratively developed with a local and regional Philadelphia nonprofit, The Scattergood Foundation. The mission of Scattergood is guided by the belief that behavioral health is the cause of many larger societal problems. A philanthropic, grant-making foundation, they advocate for improving the behavioral health system in the Philadelphia region by funding projects that change how behavioral health is viewed and practiced. The foundation was named after Thomas Scattergood, a nineteenth century Quaker minister who protested the deplorable conditions and treatment of the mentally ill. An early patients’ rights advocate, Scattergood played a vital role in advancing the moral treatment for those unable to advocate for themselves. His work was partially responsible for the advances in mental health treatment and the founding of the nation’s first private psychiatric hospital. Foremost in Scattergood’s mission and that of the hospital he inspired was the idea of treating those suffering from mental illness with dignity and respect, a new concept at that time.<sup>3</sup>

Thomas Scattergood’s vision for fair treatment of society’s most underserved constituents is part of the Scattergood Design Challenge, an annual competition that allows people from all backgrounds and experiences to submit new ideas for complex social problems where previous, traditional solutions have proven ineffective. Hosted in conjunction with Drexel University’s Dornsife School of Public Health, the Scattergood Design Challenge provided a platform to create new ideas for previously unsolved problems as well as funding, press exposure, and collaboration opportunities with various community organizations, for the winning solution.<sup>4</sup> In past years the design challenge has been run through the efforts of Scattergood staff and School of public health interns. The course described here builds on the successful foundation of that partnership.

## COURSE DIRECTION AND GOALS: HEALTH AND DESIGN RESEARCH FOR INNOVATION

In today’s educational environment, it is increasingly recognized that students must be trained to understand and use multiple disciplinary viewpoints as a way of accessing problem solving.<sup>5</sup> The Association of Schools and Programs of Public Health have recently endorsed four core competencies for interprofessional education: values and ethics for interprofessional practice, roles and responsibilities, interprofessional communication, and

teams and teamwork.<sup>6</sup> Created for students to examine and experience interdisciplinary problem solving and problem-solving applications in different disciplines, the course framework was informed by these core competencies. The students worked in teams and overtly discussed the ethics of each situation. Social determinants of health, or the features in underserved groups setting (outside of genetics or biology) that shaped their likelihood of disease,<sup>7</sup> are especially helpful in creating the kinds of open discussion that facilitated the students in building a clear and up-close understanding of the problems, challenges and solutions. “Designing with Dignity” created an original framework based on participatory research and thinking for problem solving; punctuated by public health best practices and design-based empathy building.

The course practices included the “Double Diamond Method” in which students work iteratively to brainstorm and apply both divergent thinking and convergent thinking in their work. This model is referred to in design thinking literature, including Nigel Cross’ seminal book *Design Thinking: understanding how designers think*.<sup>8</sup> Divergent thinking is defined as being able to develop many solutions to a problem; convergent thinking is identifying the links between these quick solutions and synthesizing sound and original ideas from them. Drawing heavily on criticality and synthesis deployed at the right junctures in the process, convergent thinking can give meaning to initially simple ideas.<sup>9</sup> Here, issues and problems are framed through informed perspectives that come from “deep dives” or participatory interactions with the communities.<sup>10</sup> In using the deep dives and divergent and convergent thinking, students started to explore an empathy for their group that led to original insights. Students then re-visited the social determinants of health framework to inform empathy building with their communities. Using divergent thinking they itemized their deep dive information, then used the convergent technique of affinizing the information in order to generate human centered ideas that were drawn from their experience with the users. One example of this from the class could be found in the work of the group examining LGBTQ youth issues. This group found that mobility and anonymity were two major needs for LGBTQ youth, stemming from their experiences with abuse and bullying. Through interviews with care and service providers to this community and some observations of the community themselves, solutions that would honor those needs were then brainstormed and included a new web resource that is at the same time crowd-sourced and privately accessed.

## PEDAGOGICAL APPROACH AND PROCESS

### *Social Determinants of Health as Engine for Change*

The course began with an introduction to the concepts of social determinants of health, social gradient, and health inequity. Briefly again, the social determinants of health are the factors in the social environment (outside of genetics or biology) that shape the burden of disease.<sup>11</sup> For example,

social determinants of health include the environments and settings in which people are born, live, work, and age. These environments and settings are influenced by economics, social policies, and politics. The larger theoretical model involves multiple layers of influence ranging from the individual biology to individual behaviors to social and community networks (including family and neighbors), to socioeconomic, cultural and environmental conditions (such as housing, work environment, education, water and sanitation). The idea of social gradient is that the patterning of health occurs across the entire socioeconomic spectrum.<sup>12</sup> In other words, no matter where a person is on the social ladder, those people who are higher fare better in health outcomes than those who are below them. Finally, health inequities are avoidable inequalities in health between groups of people. For example, the gap we see in longevity when comparing higher income countries to lower income countries or within a country like the United States, the gap we see between African Americans and white Americans.<sup>13,14</sup>

These concepts are fundamental to understanding the role of the built environment, including housing, on mental and physical health. To apply these concepts, the class participated in a “But Why” activity.<sup>15</sup> The goal of the activity was to think about the social determinants of health inequities to get to the cause of a problem. For the activity, we used the example that the prevalence of asthma among children living in public housing is double the national prevalence of all children.<sup>16</sup> Then we asked the students “Why?”. They began to identify things like mold and dust. Next, we asked the group to consider “But Why?” They identified poor building maintenance and lack of knowledge. Then we again asked, “But Why?” Eventually, after several rounds of questions, we got beyond the immediate causes of ill health began to talk about issues such as local and state policies that affect the housing options that are available to people and that inform the planning of public housing projects. After this kick-off, we introduced the students to IDEO’s *Human-Centered Design (HCD) Toolkit*, the main design framework for this course. The Scattergood Foundation initially drove their internal process through the framework set forward in Jeanne Leitdka and Tim Ogilvie’s guide *Designing for Growth: the four questions for innovation*. These four questions define how one might examine a problem to gain original and innovative thinking and solutions. The four questions are: What is?; What if?; What wows?; and What Works? <sup>17</sup> By funneling the idea generation process through the four steps of the Design Thinking Framework, the original Scattergood group invited the public to develop not only new ideas to solve society’s health problems but new ways of thinking about health. The course built on that foundation with additional best practices in design thinking that were drawn from multiple sources.

### *Design Problem Solving and Human Centered Processes*

IDEO’s *Human-Centered Design (HCD) Toolkit* is a 101 page, step-by-step, e-book outlining the elements to Human-Centered Design—an

international innovation process created by IDEO in collaboration with IDEO, Heifer International, and ICRW that is responsible for innovations such as the HeartStart defibrillator and the Red Cross Blood Donor System. Human-Centered Design allows students to use a style of idea generation where they “hear” the needs of residents in new ways, “create” innovative solutions to meet those needs, and “deliver” financially sustainable solutions.<sup>18</sup> In addition to the methods outlined in the *HCD Toolkit*, the curriculum also walked students through the previously mentioned four steps of Design Thinking: What is? What if? What wows? What works?<sup>19</sup> By designing the curriculum around two innovation methods with parallel frameworks, and with grounding in social determinants of health theory, students were able to gain a thorough understanding of some of Philadelphia’s most pressing social and health problems. They could then generate unique solutions to those problems, and internalize a framework for innovating in the future. The more dynamic sessions were the ones in which students were challenged to think divergently and suspend their critical mind. They had to approach the material in a fresh way and were not allowed to presuppose the workability of suggested solutions.

<b>Question 3: please state the most important thing you have learned about working in teams so far</b>
Answer: Learning the research process and how they differ in respective fields
Answer: collaboration
Answer: be positive and be active and communicate with other people actively and say whatever you want to say
Answer: Patience and motivating each other collaboration with other discipline give wider perspective.
Answer: It is much easier when the focus is on the process and not the final product. It easier to work as a team than as individual parts of a whole.
Answer: To express is very important, whether it is a question or an idea, we have to speak it out.
<b>Question 4: How have your group skills changed?</b>
Answer: being able to think both critically and in design across studies
Answer: More inclined to participate and take the lead at some times
Answer: I have become more aware of how important simple group discussion is; we have reached most of our major conclusions simply by having dynamic conversations
Answer: As we start to work together, it is also important to build respective and friendly atmosphere in the group.
Answer: listening versus speaking
<b>Question 5: What has been challenging for you about working in a group?</b>
Answer: I sometimes be a little passive in the group, and do not know what we should do next.
Answer: the ideas of certain group members may be more considered than others

**Table 1.** This table shows questions and responses form course evaluations. Note the emphasis on learning to work together, students admit it is not always easy but that it adds to their skills.

Students began the course with preliminary research into some of the more complicated and multifaceted housing issues that affect underserved communities. This led students to understand better how the built environment can have disproportionately adverse effects on the health of low-income individuals and families. Based on their findings, students formed research teams comprised of two interior design students and two public health students. Each of the teams began an initial “deep dive” into available research to identify a knowledge base in their areas of interest. With areas of research defined, students began preparing for the “hear” phase of the HCD framework by finding target populations, choosing interview methods and strategies, and identifying stakeholders. With this information and professor feedback, students began conducting interviews with their identified target populations, and presented their findings in a “deep dive” report, outlining existing scientific knowledge, populations/ individuals interviewed, methods used, and significant findings. The group studying the needs of women with children found themselves faced with much new data after their observational deep dive. They were invited to observe an onsite meeting at a local facility. In hearing what the mothers had to say about their living struggles, they concluded that the women needed more extensive ways to integrate their case management. Could they become their own case managers? What type of design project could support such a finding? This group refined their problem statement through their deep dive experience.

Next, with a substantial understanding of the problems they were attempting to solve, the class moved into the “Create” phase of the HCD model and began to brainstorm possible solutions while reviewing data and identifying challenges faced by users. Students were asked to utilize multiple brainstorming techniques, including the Triz Method of Creative Destruction which involves gaining perspective on a problem through comparing it to the worst case scenario.<sup>20</sup> In addition, we deployed a “How Might We” exercise and the FDV (Feasibility, Desirability, and Viability) assessment. In this model where Feasibility, Desirability, and Viability overlap, successful solutions can be found.<sup>21</sup> These two exercises were conducted in class through having interchange between established groups to lend outside perspectives on ideas and assumptions. All of these techniques allowed for the suspension of criticality in idea generation, the exchange of multiple ideas in a group setting, and various allowances for assessment and reinvention of solutions. In the final stages of the course, students were given various materials to make and present prototypes of their solutions. The course culminated with students “delivering” their final prototypes utilizing the Mini Pilot method—a technique that identifies simple, low-investment next steps before making large, full-scale investments—via one minute, single video pitches.<sup>22</sup>

This year, the group solutions, some of which are mentioned above, include: a website to network LGBTQ youth to safe situations; a gallery

owned and run by single mothers who could then leverage that business into a livelihood for their families; an at-home asthma robot that could detect the relative safety of living conditions for those with asthma; a food access job training truck for homeless; and a resource for disabled students to travel more independently through campus housing. Each of the groups followed the process and each uncovered unexpected solutions along the way. The asthma group started by studying how air quality affected housing insecurity. This group linked health issues with housing issues through user and expert interviews. They found that resources to understand this problem were scarce. Families were often in the dark as to how to track the treatments for the asthma-based conditions that arose from the urban indoor and outdoor air pollution in the city environment. The asthma group, as they were now called, developed the idea of a robot who could act as a health advisor, caseworker and administrator. It could track treatment, and educate the child on how to properly take the medicine while entertaining at the same time. For young asthma patients, this was identified as an important need that such an innovation could fulfill through both expert interviews and user research. Figure 1 shows an early prototype for the robot on the right.

By utilizing the HCD model—a model based on the constant exchange and revamping of ideas with a variety of constituents—a community of innovators was created in the classroom that extended to the community outside of the classroom that students were innovating for. In putting the end user at the center of the design process, students were able to establish human connections that went beyond a computer screen or a textbook. Taking a broad view of the relationships between health, behavioral health, and issues in the living situation, the course was grounded in multi-disciplinary problem seeking and question making to examine complex challenges with a new perspective. In synthesizing their deep dive research, the students also created a variety of personas to describe the types of users for whom they might design solutions, and these personas led to a reframing of the initial design questions for each team. The personas for each group dug deep into the needs of the groups and were a way of framing those needs in an understandable profile. Groups also engaged in a series of iterative problem-solving sessions derived from exposing ideas to repeated discussion, reframing, brainstorming, and finally, testing against their knowledge. They also tested ideas through the lens synthesized and promoted by IDEO, a well-known human-centered design firm: feasibility, desirability, and viability.<sup>23</sup> The students used these tools to work iteratively and test their ideas.

### *Building a New Community in the Classroom*

One important element in the course that was essential for success was the intentional building of community among the course participants. A number of different approaches were used to build



Figure 1. Students presenting and discussing their initial prototypes.

community. Students were asked to take meals together on a regular basis, the class itself had a weekly pizza dinner for the first part of the term that created outside-of-class conversations. Another approach was a “wagon wheel” activity in the first class. Based in processes learned through the “Inside-Out” educators training program at Graterford prison, the wagon wheel is a community participatory process. In this exercise, the group arranges itself in an inner and outer wheel, these two wheels rotate in relationship to each other stopping and creating small group discussions every 90 seconds around a given topic.<sup>24, 25</sup> The wagon wheel builds empathy and group understanding and can uncover unexpected connections between seemingly unconnected participants.

Another community-building technique was the implementation of an on-going opening round or community meeting held at the beginning of most class periods. In the opening round, the class sits in a circle, and everyone in the circle responds to a question. For example, after we read a chapter in *Evicted* by Matthew Desmond,<sup>26</sup> class participants were asked to reflect on what factors kept one of the key figures in the book from finding a different (more affordable) place to live.<sup>27</sup> For the opening round, students are often asked to check in with how they feel about a relevant topic or share a personal perspective with the group when appropriate to the process. Additionally, students were intentionally placed into mixed discipline groups early in the course (in the second week) and participated in guided activities with their group each class period. Anecdotal feedback from the participants included surprise and fascination with each others’ disciplines and excitement at collaborating in a meaningful way.

## COURSE THEMES: URBAN HOUSING AND INEQUITIES

How do you design a course to involve students from multiple disciplines in a process to address complex societal issues, and give students a perspective on the problems society faces through the lens of health and design thinking? Faculty worked to create an informed cycle in the class and the groups worked in class on modeled process. Student groups then were expected to deploy those processes outside of class without guidance. The faculty developed a mode of design research and thinking paired with a public health perspective in which both frameworks were revisited along the way. The students were pushed to deploy these frameworks on their own outside of class whenever possible. Initially, the funding foundation and the faculty collaborated to identify the topic for the students in the course to study. Criteria included topics that would allow some flexibility and at the same time unify the class around issues of health, mental well-being and equity. Housing and the lack of access for underserved groups, when examined in some detail, proved to be a topic that will define the urban condition for the foreseeable future, and unify multiple disciplines.

Housing insecurity leads to poor health outcomes, and public health and housing sectors often do not collaborate to solve these issues. Stress created through insecure housing access is a major contributing factor to the ill health of underserved urban residents. Housing costs are so high for many urban dwellers that they are unable to afford preventative doctor visits or preventative health measures.<sup>28</sup> Emerging mega-regions and urbanization have created changes in the housing market and new levels of housing deficiencies, including not enough affordable units for lower income renters; compromised units; and rising rates of lower income renters in the face of these shortages. These issues create new problems for lower-income families in retaining their homes. The class cohort was introduced to these evolving developments in both public health and design to change the system through novel thinking.

The report "Beyond Health Care: New Directions to a Healthier America" examines housing inequities and how they link to infection, disease and problematic childhood development.<sup>29</sup> High blood pressure and diabetes are linked to the emotional stress of housing insecurity.<sup>30</sup> Rapid urbanization leads to deteriorating health among the least advantaged of our population. Some federal policies have had a ripple effect on the availability of affordable housing in our modern cities and the attendant health of urban dwellers. These recent policies, which include financing policies, are connected to segregation and the creation of sprawl in the suburbs. Creating financial stress for low-income families, high housing costs reduce pre-tax income and difficulty in affording necessities.<sup>31</sup> In planning the course, it was agreed that there was strong evidence that housing access and reliability is a topic that can touch on health, design, and behavior. Significant overlap between the ongoing research practices



Figure 2. Students working collaboratively on HCD methods.

of each faculty member in the course, and the chosen topic, enabled a situation where faculty experiences would allow the course to be enriched.

## CONCLUSIONS

### *Course Outcomes and Student Discoveries*

Participation in the course was designed so that the students were able to examine and experience interdisciplinary problem-solving processes. In this first iteration, students reviewed and discussed the possible application of these methods across their respective disciplines. The class collectively was exposed to participatory research and thinking for problem-solving through the techniques described here for building community and empathy. The group deployed, with gusto, the idea of getting close to the users and truly trying to understand their situation to build design empathy. Creative brainstorming techniques including affinity matrices created an understanding of the challenges faced by these underserved groups in maintaining a stable housing situation. Students then went through a process of iteration and collaborated to come up with original solutions they could attempt to test and understand. The core competencies stated above, the students values and ethics for interprofessional practice, roles and responsibilities, interprofessional communication, and teams and teamwork were discussed and re-enforced as part of the course process.<sup>32</sup> The course incited the students to progress their skills in design thinking and ethical design but the subtler skills related to core competencies were also developed. Through both space and place based solutions, drawn from the students' self driven team work, the teams built empathy and understanding between their disciplines and experiences as well.

Recent research links housing insecurity to the prevalence of poor urban health including heart and respiratory-related morbidity.<sup>33</sup> Design and public health have both acknowledged that the complexity of these problems call for new solutions beyond what one discipline may produce.<sup>34</sup> As a cross-listed course in the School of Public Health and the Department of Architecture, Design & Urbanism at Drexel University, “Designing with Dignity” allowed students to collaboratively study and understand several underserved groups and their relationship to housing. This area of study is one that neatly overlaps both disciplines and created many opportunities for the core competencies mentioned above to be developed. The cohort created unique synergies that are more than both disciplines could create working independently. Outcomes include the development of realistic solutions that could later be prototyped in more detail through the design challenge. See Figure 2 for images of the groups working to produce and present their outcomes. In working together to develop shared design and health expertise to take back into their respective professions, the cohort has undoubtedly improved their future practices. Students were also asked to enumerate their new approaches to problem-solving and collaboration in the anonymous course evaluations. The table below shows that they had responses in line with the learning priorities for interdisciplinary learning stated above.

#### *Design Challenge Future*

The value of the informed design loop in which research and exposure to users can drive innovation has had an impact on the students in the class and faculty. We hope this course will be a model for inter-professional courses at the intersection of design and health. Here, students explored concepts and methodologies of design, health research, design thinking and human-centered issues. The outcomes were deemed unusual, and successful by all involved. In the Fall of 2016, The Scattergood Foundation agreed to an expansion of the course and funding into a three year-long cycle program for behavioral health innovation. Intended to take the place of their existing design challenge, this course will become the linchpin of a yearlong health and design research process in which students and faculty will work to create, prototype and present similar solutions that can be brought forward and developed in the real world. The goals of The Scattergood Foundation and the Center for Health in the Designed Environment align and we are pleased to expand this partnership for Health and Design to make a difference in the urban environment.

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# How Does Work Shape Informal Cities? The Critical Design of Cities and Housing in Brazilian Slums

Ana Rosa Chagas Cavalcanti

*ABSTRACT - This essay is conceived as a reaction to the past conference Shaping Cities of the Urban Age at the 2016 Venice Biennale, Reporting from the Front. In light of numerous global crises, urban explosion, housing shortages and rising social movements, contemporary architecture is increasingly being pushed to investigate the social dimension, impact and implications of urban design.*

*In particular, architectural education institutions and practices are expected to be more focused on the social fabric and to address current economic and politic scenarios. How could design dialogue positively influence the great social phenomena in cities where the scarcity of resources, migration, urban informality, global warming and economic crises are the most thriving endeavours? The essay speculates that the importance of labour of slums' dwellers can assist planners and architects to design with social impact. Authors who study informal settlements usually do not mention that labour practices are the main driving force behind the design of slums. Labour is currently shaping the slums, in terms of material usage and otherwise.*

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**Keywords:** labour, incremental housing, informal settlements, favelas

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In this essay I will discuss the design of *favelas* in Brazil. The aim is mainly to highlight how labour can be used as a design tool to address social and economic phenomena shaping the slum. This will be done by analyzing the informal aspects of slums, the rising inequality and urban-rural migration patterns in Brazil. A critical analysis of the presentations delivered at the

conference “Shaping Cities”<sup>1</sup> of the Urban Age at the 2016 Venice Biennale, *Reporting from the Front*, will be reported. (See also Brunella Angeli, *The Plan Journal* 1, no. 1 [2016]: 119-128. - Ed.)

These findings will be compared to empirical data that were personally acquired from Brazilian slums<sup>2</sup> during the period from 2009 until 2016. Overall, the objective will be to try and consider social aspects within a method of design.

Research has shown that *favelas* have a different land status, different patterns of urban conglomeration and parcelling. However, when compared to formal urban planning the same logic of investment and housing commodification applies. Within *favela* societies, people sell, use and divide their properties according to non-institutionalized rules, and their notion of what is shared, public or private is slightly different from that in formal urban planning environments. This leads to a greater presence of tighter, more close-knit communities. A block of houses may be a single house, with various owners sharing it (e.g. villas), the first floor of a house may be for one person and the second for another. In fact, most of the *batidas de laje*<sup>3</sup> are made for other people. The alleys and stairways are public spaces shared by all. Parcelling a house depends on the economic aim or need of a dweller. Finding a piece of land or a house to buy or rent depends on negotiations with the residents of a *favela*. The right to “verticalizing” depends on the expertise of the masons who are responsible for building the roof and/or the economic resources of the property owner. The need for shelter is considered as a way to acquire land in the outskirts of the *favela*. The centre is often more expensive, but still targeted by people in need for shelter. Finally, when residents move to vertical or mass housing units they repeat the social practices that they do in the *favelas*.<sup>4</sup>

With the same logic, the price of rent, land and property in *favelas* is consistently rising, almost proportionately with prices in the cities. Residents generally compare the prices of rent within the *favela* itself. In 2014, a typical house for rent in a *favela* (50 m<sup>2</sup>) would cost 350 Brazilian reais per month (US\$106.88).<sup>5</sup> in the city of Maceió. In general, this is practically half of what one could ask in a middle class neighborhood within Farol, a neighborhood where a typical house for rent (50 m<sup>2</sup>), would cost circa 600 Brazilian reais per month without taxes (US\$183.22).<sup>6</sup> Such discrepancies are slightly higher amongst people who live in big metropolitan areas such as Sao Paulo and Rio de Janeiro, which makes it much more affordable for low-income groups to dwell in slums.

In this scenario it may be observed that a capital incursion is developing within *favelas*: supermarket chains and products are expanding, real estate has arrived: people who received houses from the PAC (*Programa de Aceleração do Crescimento*) are illegally selling their tenure for higher prices.<sup>7</sup> Hipsters, creative classes and *gringos* are moving to *favelas*, in the process of which they contribute to the gentrification of land and goods. Apart from this, one may note that investment in hotels, museums, social



Figure 1. Man building a house in the Favela Sururu de Capote. Photo by Author, 2009.

activities, NGOs, UPPs (*Unidades de Polícia Pacificadora*) and other similar activities are constantly increasing.

The aforementioned notions express the fine line between considering the *favela* as an idealistic, unknown dimension with an abstract logic (this is a typical way to *romanticize* poverty), or stating that favelas are entirely articulated with materialistic and accumulative values. The difference between these two views should be highlighted.

The needs and patterns of *favela* communities have been studied by the author since 2009. Although the collected data can be used in the design of *favela* houses, it is still somewhat blurry to be adopted by established disciplines such as architecture and urbanism. The results come from an ethnographic study of the *Favela Sururu de Capote* in Maceió as well as the social housing that has been conceived to shelter its removed inhabitants in light of the recent Brazilian urban challenges. This research shows how residents' labour activities have transformed both public spaces and private homes in the favela and how practices of various scales and modes have been contributing to the distribution of urban inequalities and the growth of social informality. (Fig. 1.)

## SLUMS AND FAVELAS

The definition of "slums" varies significantly from one country to another. Slums relate to various phenomena such as urban informality, industrialization processes, rural-urban migration and lack of housing

policies. Nevertheless, the UN defines slums as dwellings with a lack of minimum hygiene standards, infrastructure and living spaces. They are often attributed to countries of the Global South, but there are numerous records in literature showing the presence of slums in the Global North. The depictions of slums in London by Friedrich Engels in the nineteenth century, the *bidonvilles* in Montparnesse, *bairros de lata* in Portugal, *Little Italy* in New York and the *lamiere* in Italy are only a few examples. In these countries, slums are not just something of the past, but they exist even today, and can be instigated by factors such as social inequality (e.g. Clarkson Avenue in New York) and migration from war and poverty (e.g. the *bidonville* near Porte de Clignancourt in Paris).

Slums were an issue in the past, they are a challenge in the present and they will continue to be a great concern in the future. Slum populations will be on a significant rise in the next few years according to seminal public debates and institutions such as the “Urban Age” by the London School of Economics and Alfred Heerhausen Society, Habitat III, as well as the Venice Biennale.

In contrast to other slums, *favelas* are some of the most consolidated slums because they are located in Latin America, which is the most urbanized continent in the world. In Brazil, more than 80% of the population lives in urban centers. *Favelas* seems to be the only affordable option for most of the low-income groups in Brazil. Many of these people are not connected to the sewage system and do not benefit from waste collection services. In this sense, informal processes can be seen as having a leading role in shaping urban environments. The high housing deficit in Brazil has caused the Federal Government to establish a Program to House low-income groups and removed inhabitants of slums: *Minha Casa Minha Vida* (MCMV).

*Favelas* are very emblematic spaces but they are stigmatized as having high crime rates and poverty. State agencies and institutions show little interest in working within such contexts (e.g. *Favela Bairro*) by removing inhabitants from risky areas and relocating them to social housing complexes (e.g. MCMV). Nevertheless, such projects would not consider the social practices of inhabitants and thus fail to achieve qualitative results in the design process. These complexes are located at the peripheries because land is cheaper, infrastructure is poor, and building designs are usually standardised.

Furthermore, there is a capital incursion in the *favelas*. Shopping malls and supermarket chains are investing in *favelas* and inducing a consumption model that addresses the new favela middle class. This model mirrors the standards found in the middle class in Brazil to the classes C and D.<sup>8</sup> Goods can be paid through instalments, and credit given to most low-income groups. Some of the pitfalls resulting from such capital incursion is gentrification, which forces the poorest of the poor to move to peripheral areas to build new slums. The population in slums is not homogenous. This

has been partially due to the migration of artists, *gringos*, creatives, and hipsters to favelas who are attracted by the romanticized idea of slums or lower rental prices. This can be viewed as a *hipsterization* of slums. Another important aspect is that the actual participation of slum dwellers in political life is still challenged, with laws such as the *Estatuto da Cidade* and the *Lei de Assistência Técnica* still in dire need to overcome bureaucracy. Also detrimental to this inclusion is the political interest by mayors or institutions, political clienteles and a strong patriarchal rationale, especially in cities that are not located in highly urbanized areas.

#### A SLUM FROM THE FIELD: SURURU DE CAPOTE

The Favela Sururu de Capote is located in Maceió, the capital of Alagoas State, Brazil. In 2007, it was considered by FAO-ABRANDEH (UN related institution in Brazil) as one of the worst human settlements located in an urban area. In the Favela Sururu de Capote planning is deeply related to the labour of its inhabitants. In this particular case, 80 % of inhabitants live from the fishery of *sururu*, which is a mussel abundant in the lagoon located along the Southern border of the slum. Most of the inhabitants are migrants who travelled from the rural areas of Alagoas State to Maceió, after losing their jobs in the sugar cane farms (*Usinas de Açúcar*), which is one of the main economic activities in Alagoas. In the morning, the fishermen go to the lagoon, search for *sururu* and then deliver it through the favela alleys to women of the community, who are responsible for cleaning it. After this, other members of the community transport the goods from the women's houses to the sales point, which is generally located at the border between the favela and the formal city. People from all over the city go there to buy *sururu*. Labour produces a particular *urban porosity* that conjunctionally addresses the informal city and the formal city, the low-income groups and higher income groups. The *sururu* of the Favela Sururu de Capote can be ordered in a wide variety of restaurants in Maceió and it can also be exported to other regions of Brazil and of the world. It costs 2 reais per kilo (US\$0.58) per kilo in the *Favela Sururu de Capote*, 13 reais (US\$3.82) per kilo in a typical supermarket and 20 reais (US\$5.89) per kilo plus taxes to national and international exportation companies.<sup>9</sup>

The working practices described above are not only necessary to allow the subsistence of dwellers, but tackle a broader ecology of slums indicating the emergence and slum growth in the world within a greater economic system. It seems that a new cartography of economic flows is falling into place, whereby some international manufacturing sectors can benefit from the work of slum dwellers. However, it is worth mentioning that inherently, a spatial inequality is embedded within the process of emergence and slum growth through the rise in migration of dwellers from rural to urban areas. These migrants are thriving through labour opportunities in cities. An example is the *Favela Sururu de Capote*, whose makers are actually migrants from rural areas.



Figure 2. Window-shop, a spatial device that allows inhabitants to trade products and preserve their domestic lives. Photo by Author, 2009.

According to Alejandro Aravena,<sup>10</sup> social practices address the need for synthesis, which architects and urban planners consistently seem to face. Adding to that, I believe that labour provides a synthesis for the design of slums. Numerous spatial attributes and planning rationales indicate how labour was imperative to the design of the *Favela Sururu de Capote* slum, literally shaping it. The alleys of this slum are straight because they have to facilitate the transportation of *sururu* from the lagoon to the women's houses or to the sales point of *sururu*. This contradicts predominant literature on informal settlements which states that *favela* alleys are "rhizomatic."<sup>11</sup> Moreover, many spatial attributes or incremental capacities of space are related to the need to work and dwell at the same time. (Fig. 2.)

There is also an awareness towards the fact that the social practices within slums are replicated in social housing, especially those related to labour. Also, the incremental qualities and processes of building which were also documented in the literature of slums (e.g. John F.C. Turner and Charles Abrams<sup>12</sup>) should be not taken for granted. The expansion of a house is not always related to the expansion of a family but is also related to working practices. Labour activities are not directly related to design processes in the literature of slums, but it is usually tangentially addressed.

The "logic of labour" was so strong that when inhabitants moved to institutional social housing (such as one project which was financed by MCMV), the inhabitants started to change the design of the buildings. Walls were turned down and new economic activities such as hairdressing salons; electric services, clothes repair services, *sururu* sales points and other improvised spaces (such as ones to sell *sururu*) became apparent within this social housing complex. The importance of labour to inhabitants who have been removed from slums is also very important and perhaps more urgent

in the context of inhabitants who are transferred to social housing. Once relocated, inhabitants have to pay bills, electricity and legal fees and although they have their tenure secured, they have to maintain their dwellings. Finally, it has been observed by researches in other slums that what happens in the Favela Sururu de Capote cannot only be noticed in Brazil, but also in Dharavi (Mumbai, India),<sup>13</sup> *Makoko* (Lagos, Nigeria) and so on. (Fig. 3.)

### SLUMS SHAPED BY LABOUR

In *favelas*, residences are usually spaces where inhabitants both dwell and work. These are the kind of inhabitants who open nurseries, praying services, grocery shops, ice cream shops, sewer services, carpentry, masonry, or magnificent ironwork workshops, car repair shops, market sellers, hairdressers, clothes shops, bars, restaurants, and tattoo shops. They are also taxi drivers, maids, hairdressers, shop vendors, market vendors, public school teachers, hawkers, carter drivers, guards, policemen, masons and others who live in the *favela* but work in the so called “formal city.” The *favela* can be described as a place with a network of opportunities and skilled individuals who continually transform the space. People in *favelas* are well informed, hardworking and routinely update their knowledge and capabilities. Thus, it is somewhat symbolic to state that a favela is a doorway for the proletarian class to thrive as there is a healthy, active network of opportunities and skilled workers.

The need to work and thrive goes beyond the constitution of a space, but it is part of its phenomenology. A house is shaped around the needs of



Figure 3. Man carrying *sururu* along the alleys of the Favela Sururu de Capote.  
Photo by Author, 2009.

survival making steady work (or perhaps income) fundamental for a dweller. Residences, houses and space attributes do not stop negotiations between dwellers, which set the basis for designing the house. Therefore, when inhabitants of the favela Sururu de Capote moved to a mass housing unit in Maceio (3 storeys in height), such residences were a completely new, unknown territory for the automatic provision of the inhabitants. Vertical housing methods and mass housing blocks do not stop incremental spaces; nor the formations of working spaces. (Fig. 4.)

However, the feature of work in slums in Brazil and all around the world is not very well documented. Usually, academics do not go beyond a short emphasis on the subsistence or importance of work, implying that work is an important feature of proletarian working construction. According to AbdouMaliq Simone<sup>14</sup> who documents slums in Jakarta (Indonesia), work suffers a sort of dissimulation: “homes pretending to be factories, factories pretending to be homes, prayer groups pretending to be political parties, pretending to be commercial associations pretending to be clubs.”<sup>15</sup> For Sheela Patel,<sup>16</sup> who studied the Dharavi slum in India, labour could have been addressed by institutional and corporate projects whose ambition is to shelter inhabitants who are removed from that slum. Mike Davis points out how labor is important to slum dwellers.<sup>17</sup> Paola Berenstein,<sup>18</sup> who studied the aesthetics of *favelas*, talks about work and subsistence as an epicurean rhythm. Robert Neuwirth says that it is “stoic” when he describes the work of slum dwellers in Nigeria.<sup>19</sup>

However, in the two case studies concerning *favelas* that have been studied through ethnographic research (i.e. the same methodology) there is barely work dissimulation: inhabitants place signboards and are proud to show their economic activities, especially at the bottom of houses. Work happens in the street, and it is evident to see the place thrive in alleys and spaces around the slums.

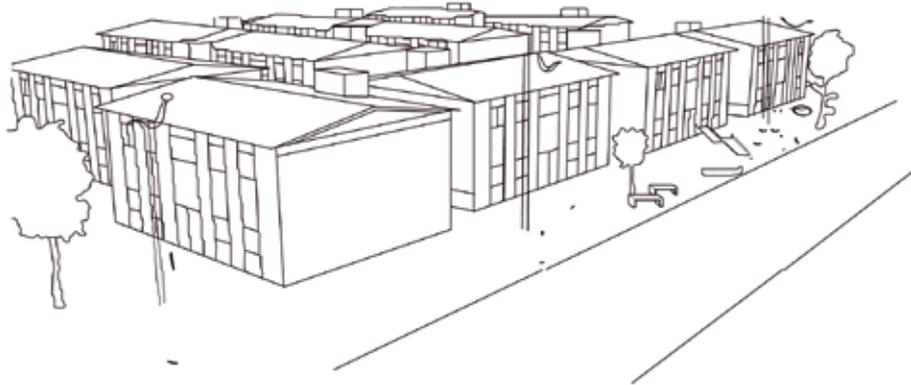
From what was experienced in these two slums through seven years of research, it can be concluded that slums are shaped by labour on three scales. These aspects are part of a slum ecology and they can address epistemological gaps in the literature of informal settlements and clarify relationships that have been defined otherwise. Slums can go beyond state simplifications in which formal planning is a form of simplified planning (e.g. norms, control and regulations) and they can also contribute to the ongoing planning discussion, reinforcing the fact that informal planning corresponds to the existing practices and relationships of people who, in the slum scenario, are being constantly redefined.<sup>20</sup> Perhaps slums may address the post-colonial author’s work from Homi K. Bhabha<sup>21</sup> who states that political force erases plurality. It may also address institutions and associations of slums with lack of structures such as stated by Gilles Deleuze and Felix Guattari:

“The smooth spaces arising from the city are not only those of worldwide organization, but also a counterattack combining the

**Mudancas no conjunto MCMV Para Sururu de Capote (2010-2015)**  
*MCMV Housing: Favela SDC (Changes from 200 until 2015)*

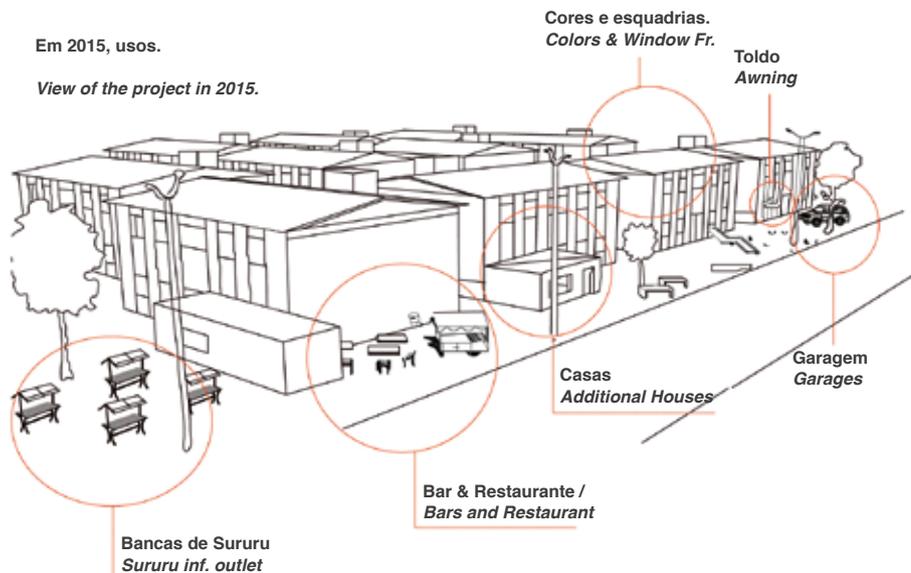
*Em 2010, entrega do conjunto.*

*View of the project in 2010, when it was delivered to the inhabitants who where removed from the Favela Sururu de Capote (FSC).*



*Em 2015, usos.*

*View of the project in 2015.*



Source: Ana Rosa Chagas Cavalcanti, 2016

Figure 4. Modifications in social housing buildings related to working activities.  
By Author, 2009.

smooth, and hole and turning back against the town; sprawling, temporary, shifting shantytowns of nomads and cave dwellers, scrap and fabric patch-work, to which the striation of money, work or housing are no longer relevant.”<sup>22</sup>

Finally, the parochial concept of Ananya Roy<sup>23</sup> is brought forward. She claims that there is a new epistemology expressed by dwellers who produce concepts which are equally rich for us to understand informality. Informal planning is a varietal form of planning and it redefines relationships that are not contradictory to those of formal planning and has its own logic and synthesis (labor shaping spaces and forces within slums is one of these proofs).

Above all, the aim is to explore labour in slums in a way that uncovers binary generalizations of formal and informal processes, which shows informal planning as a terrain where work, housing rules and market are not normally applied.

#### WORK ON SEVERAL SCALES: AN INTELLECTUAL DEBATE

In the following section, the impact that labour has on shaping spaces in the *favela* at several scales (the territorial scale, the city scale and the *favela* scale) will be showed. On a territorial scale, the capital and the formation of capitals within cities will be discussed. Across the world, labour territories contribute to the emersion and growth of a slum. The distribution of labour and settlement with respect to opportunities, provision of infrastructure will be discussed, bringing to light new assemblage opportunities of work. Finally, at the *favela* scale the design of houses produced by inhabitants are discussed. These houses are designed to flourish, securitize, and perpetuate work activities yet at the same time to preserve the concurrent domestic lifestyle.

*Territories (Cities): a thesis on urban-rural migration, global market and the emergence and growth of slums*

The 98 % of future urban development is going to occur in the developing world.<sup>24</sup> Latin America is the most urbanized region on earth. In addition, according to Joan Clos, from UN Habitat, the spare rates of urbanization in that area is tending to be de-urbanized in the next few years. Nevertheless, also according the studies by Eduardo Rojas, Maceio has one of the fastest rates of urbanization in the world.<sup>25</sup>

Cities are concentrations of opportunities, jobs, education, health and recreation. Thousands of people move to cities everyday. Cities are also social vehicles which deliver public policies aimed at improving people's qualities of life; They have more efficient access to sanitation, to education and transportation. Critical mass and knowledge creation are also other important features of cities.

The difference between rural and city dwellers' income is crucial to understand the housing crises that most are currently facing. Institutions and corporations tend to turn a blind eye towards the increase in slums because the more jobs offered by the city, the bigger the housing problem, and this is a problem that cannot be solved instantly. Generally, countries without rigid regulations do not pay much attention to the relation between jobs, opportunities and housing, a situation that is further enhanced by the global crisis.

According to David Harvey,<sup>26</sup> informality is the core process of neo-liberalism. Thus, labour opportunities and business networks are attracting people to go to cities. This migration is indisputable and unfair for those people who save money in the rural setting. Slums are a consequence of that process. The cheap price of labour and goods which are produced in the informal

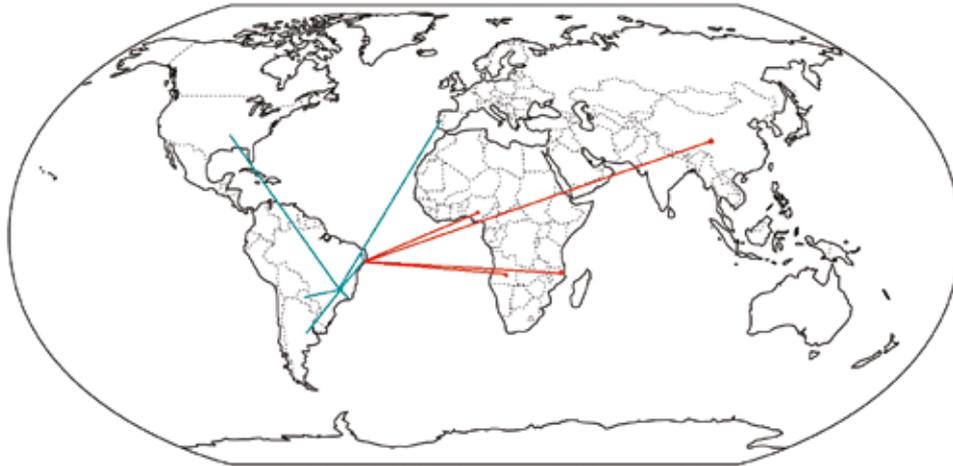


Figure 5. Flows of people and goods to the slums in Maceio (red) and destination of goods produced in slums in Maceio within a broader economic system.

settlements also stimulate eastern countries to set parts of their productive system in the southern hemisphere. The production of food is greatly processed in agricultural fields in China, retail manufacturers have factories in India or employ slum workers from the southern hemisphere. A new cartography and epistemology of labour in the world is crucial to understand the appearance and growth of the slums. (Fig. 5.)

It is important to remind that according to London School of Economics, slums are becoming important economic actors in a global scale. Adding to that the lack of research in how labour shape slums also causes blunt knowledge on the effect of work. Indeed, The economy in slums is perhaps a less discussed dimension of informal development, as stated by Edesio Fernandes who claims that the costs of informal planning to society are surprisingly high.<sup>27</sup> (Fig. 6.)

*Inequality infrastructure: peripheries and centres (skilled and non skilled labour distribution in the city)*

This section covers the infrastructural needs required by workers who commute between the suburbs and the city centres. Work in the slums can be an option for rural and urban migrants. City centres may be defined as conglomerations of companies in need of other auxiliary companies around them. Thus, since both skilled and non-skilled labour is heavily concentrated in this area, those whose income is below average would have to live within a commutable distance. Typically, these slums would imply that further infrastructure is needed to accommodate the proletarian classes living in the peripheries of the city.<sup>28</sup>

However, slums create their own central nodes within themselves, points of architectural relevance, which should be explored in terms of their spatial quality, cartographic nature and territorial infrastructure. Slums and centres are often referred through these binomials. Despite their material limitations, informal cities are becoming relevant economic actors on a global

scale.<sup>29</sup> Interestingly, such distribution patterns of centres and peripheries seem to be the same in the suburbs in Europe.

This is also explicit in literature in the fact that *favela* dwellers are mostly people from the countryside: people who live in the suburbs but work in the city centre or new industrial areas as was explored in the case studies. Upon examination of Brasilia, Edesio Fernandes and Peter Keller observe that there seems to be a wider process in place, and they state that Brasilia was planned out of the blue. Workers built the boundaries of the city by contributing to it through manual labour and nowadays it has some of the vastest slums in Brazil (such as the Favela Sol Nascente). In this context, formal and informal are inseparable and undefined. Similarly, Alfredo Brillembourg states that slums are recycling machines.<sup>30</sup> Slums are not mere entry doors of the work in the cities as modern theorists such as John Turner believed, they are permanent places in the cities, especially because there is labour opportunity within the slum. It is important to stress that diligent business strategies do happen in reality, sometimes using child labour who are paid less than a minimum salary. In total, slums may become significant labour working forces in cities and there must therefore be some awareness to dignify the working conditions within them.

#### *Cities and design as tools: porosity and work opportunities within favelas*

Within the material agglomerations and spatial attributes of a *favela*, work and all that revolves around it becomes highly important. Throughout seven years of research on the Favela Sururu de Capote (FSC) it has been observed that many of the houses and spatial attributes were related to work practices of the inhabitants.<sup>31</sup> The incremental capacity of the space should not be taken for-granted or associated with the bucolic idea of a family which finds itself a piece of land and self-builds its own home due its uncontrolled growth. Many of the modifications and spatial adaptations have a purpose related to the working activities of the inhabitants. Alleys were built straight to allow for the working activities, thus there is a planning rationale to protect both the domestic and commercial activities of slum dwellers, allowing them to co-exist at the same place, and a planning rationale to dispose the *sururu*, transport it and so on. Houses and shops in the slums have to be connected to working areas and this should be considered by any social housing project addressing removed inhabitants of slums. Unfortunately the two projects delivered to the FSC, a self-help project in the 1980s and a mass housing project in 2010, did not address the social practices of people.

## CONCLUSIONS

The aim of this essay was to provide an insight for designers who want to address social housing plans in the context of slums and proletarian classes, combining results from personal fieldwork with theoretical



Figure 6. Migrants and inhabitants of *favelas* (transnational migration from Africa and rural northeastern regions). Photo by Author, 2015, 2009.

studies presented at the 2016 Venice Biennale. The importance of considering labour as a design factor within informal settlement development was highlighted here to stress questions raised at the Biennale. At that forum, Aravena stated that, irrespective of their political, economic or environmental views, architects are ultimately designers.<sup>32</sup> In today's world, the impact of architectural design in cities is not only an effort to synthesize issues on a single project, but also an effort to theorise on how complex social phenomena directly affect individual lives in everyday life.

The search for a social position in architecture may go through the observation of everyday life. New methods, tools and definitions of informal architecture and informal planning are needed. Experimental methods and tools must address issues that are never taught to architects, as says Aravena.<sup>33</sup> Social practices are taught as something very different from the architecture education, but architecture is born from a social practice. Social practices need to be taught as a relevant aspect of design, there is a need for synthesis of social practices into architecture pedagogy.

Architecture practices in slums should not be a monolithic activity but more like a summary of many other disciplines such as political economy, sociology and anthropology. Independently of the orientation of architects who aim to work within the existing contexts of slums

(activists, or institutional architects), there must be an awareness of the social practices within these slums. They are still considered to be part of another field of inquiry: instead, they must be translated into a design language as pedagogical tools for future architects and urban planners.

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# The Pursuit of Inclusion in Unequal Contemporary Cities. Learning from Cape Town Desegregation

Miriam Bodino

*ABSTRACT - One of the greatest challenges of contemporary cities is to engage with their emerging inequality. This research argues that public spaces play a key role in contrasting the process of this growing marginalization. The objective of this paper is to determine whether it is possible to contrast the spatial disparity within the contemporary cities, through the design of more “just” and inclusive spaces. In the past two decades South Africa has been the subject of many studies regarding inequality and segregation, because of its entrenched history of apartheid and its severe imbalanced income distribution. The desegregation process of Cape Town has been attempting to use public space as social infrastructure to bridge its divide. Firstly, the shift towards a more inclusive city happened in academic writing. Secondly, the shift also occurs in municipal public space programmes. And lastly, the shift materialized in several innovative projects, which have been carried out mainly in township areas. Through the analysis of this progression, it is possible to delineate some visible improvements – punctual but fundamental steps towards a “city for all.”*

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**Keywords:** social segregation, spatial injustice, post-apartheid, municipal policies, rainbow South Africa

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The last decades have seen an increased interest in development processes worldwide, starting from the UN Millennium Development Goals (MDG) to the most recent UN Sustainable Development Goals (SDG).

Poverty has always existed, but thanks to the MDG, it has been treated as a global issue. The amount of goals has increased from eight in MDG to seventeen in SDG. This demonstrates the complexity of the international issues, and the determination to find as well as to measure the appropriate indicators. The tenth goal of the UN Agenda 2030 has been defined as:

Reduce inequality within and among countries.

While income inequality between countries may have been reduced, inequality within countries has risen. There is growing consensus that economic growth is not sufficient to reduce poverty if it is not inclusive and if it does not involve the three dimensions of sustainable development – economic, social and environmental. To reduce inequality, policies should be universal in principle paying attention to the needs of disadvantaged and marginalized populations.<sup>1</sup>

In other words, although the Gross Domestic Product growth has been achieved in many countries, the benefits of this progress have not been distributed homogeneously. One of the simplistic consequences has been to create “growth” instead of real development. Of course, the understanding of the relation between growth and development is not an easy challenge. Hence, it involves the definition of development, the beneficiaries of development, and the policies that can implement as well as to put these developments into practice. The economic sector cannot be ignored in our globalized economy, but the economic indicators are not enough to represent the complex social, cultural, spatial and economic reality (as stated in the UN Goal n.10). This research assumes that the focus on the wrong indicator - or at one indicator alone - could mislead the find of effective solutions. Therefore, an inclusive approach is mandatory when analysing the contemporary cities.

The diagram of the world income distribution by the economist Yuri Dikhanov shows that:

the richest fifth of the world’s population have three-fourths (74.1 %) of the world’s entire income, while the poorest fifth of the world’s population have only 1.5 % of the world’s income.<sup>2</sup>

It is not by chance that the Sub-Saharan Africa region is mainly represented by the poorest percentile. At the same time, it is useful to look at the Gini coefficient, which is considered as the standard economic measure of income inequality. It represents the income distribution for the residents of a nation. Consequently, the analysis of the Gini index by the World Bank<sup>3</sup> may help to understand better the existing economical contrast within some countries. According to the last estimate, South Africa has the highest levels of income inequality – therefore it can be considered as an extreme case study – by considering the economic indicator.

Looking at the global scale – since more than 50 percent of the world population currently lives in cities and the major increase in urban population is happening in developing countries – the focus on urban inequality have shown an increased interest between scholars. This research claims that spatiality has a fundamental role in the process. As a matter of fact, the built environment and the city context – first of all public spaces – have a key role in helping or contrasting this process of growing marginalization. Therefore, one of the greatest challenges of contemporary cities is to engage with the emerging inequality. The objective of this paper is to determine whether it is possible to contrast the spatial disparity within the contemporary cities, through the design of more “just” and inclusive spaces.

### *Spatial and Social Impact*

Investigating the spatial aspect of inequality – instead of focusing only on economic ones – is the starting point of this research. Indeed, the design of spatiality includes consideration of social, cultural, environmental and also economic aspects. It is more complex and inclusive, but also closer to reality.

The chosen case study is South Africa, where the spatial inequality has been inherited by the apartheid. The apartheid has minutely planned the separation and the differentiation of races through the use of space. It is obvious that those spatial divisions had a huge social impact on the urban population. The social struggle, together with the political struggle, had the power to break the apartheid system in 1994. On one hand, the year 1994 embodies a radical shift and a formal rebirth; however, on the other hand:

it is not yet possible to conceive of the country without reflecting on apartheid. Apartheid and post-apartheid remain fundamentally linked.<sup>4</sup>

The term post-apartheid indicates not only the temporal period after the first democratic election held in 1994, but for many scholars it represents a process of transformation of South African cities, a process called “desegregation.” Nelson Mandela first objective for his Country have been to create a “rainbow nation,”<sup>5</sup> based on equality for all South African citizens, especially for the one previously discriminated. The implementation of this project is today struggling facing the reality.

### SEGREGATION IN CAPE TOWN, SOUTH AFRICA

The uniqueness of South Africa has its roots in the colonial period. The first European settlers arrived in the Cape in 1652. The Dutch and the Britain shaped the settlement of Cape Town during that time, by applying European aesthetics and spatial traditions.

From the establishment of Cape Town in 1652, a fully colonial world began to sprout. In the course of the following two hundred years, that world developed an important urban component.<sup>6</sup>

In this context, the public spaces were used as “places for trading and performing the dominant social order.”<sup>7</sup> After 1900, the modernization and the separation became more evident. The control over space to divide racial groups was intensified and formalized by the institution of apartheid, in 1948 (under the newly-elected Afrikaner National Party). The racial distinction existed since the first moment of colonization, even if many authors recognise the relatively “mix” of some Cape Town neighbourhood (District Six is one example). From 1948, the racial policies have been implemented and became increasingly severe as per the notorious “Group Areas Act provided for areas within the urban environment to be declared for the exclusive use of one particular racial group,” such as the “White only” area.

People were only allowed to own or rent residential property or businesses in areas classified for their racial group. Unlike previous acts, which proclaimed new areas for particular races, the Group Areas Act was also retrospective in its planning. It allowed for the rezoning of existing residential and business areas for particular race groups.<sup>8</sup>

Hence, the major noticeable result of the Group Areas Act has been the great demolition of existing neighbourhoods or portion of urban areas – mainly located in the inner city and in well-located districts – to host the new “White only” areas. The consequent evictions of local residents have been remedied by planning and building of townships divided by racial groups (Coloured, Indian, and black African). Compared to the “White only” areas, the townships were distinguished by their lack of public spaces and institutions. The organization of the space was structured with a great influence of modernization, and with the specific intention of “control (to access easy access for military tanks) and to discourage social interaction.”<sup>9</sup> The urban environment has changed a lot due to a growing process of privatization.<sup>10</sup> Moreover, there has been an increase construction of highways and road infrastructures, which are connected with the rising use of private cars.

In this context, the places of encounter and opportunity for relations between social and racial groups were “either eliminated or highly regulated and divided.”<sup>11</sup>

The spatial segregation worked as social segregation – as scheduled (Fig. 1).

As mentioned earlier, the election of Nelson Mandela represented a memorable point of shift and an opportunity to transform the apartheid segregation into South African integration. This transformation brings huge challenges. The impact of its history is still very visible in Cape Town, even if many attempts have been done during the post-apartheid period. There



Figure 1. This photo shows how roads are used as means of separation, in which crossing is not easy and even dangerous. As a matter of fact, highways and overhead power lines have been used to divide racial groups and to control entry or exit points of settlements.

are evidences of the ongoing process of desegregation. These evidence can be traced from the 1990s through the analysis of three main elements: firstly, the publication of articles and books; secondly, the changing policies about public spaces, and thirdly, some innovative projects carried out mainly in the township areas. Such evidences might serve as markers of movements towards inclusivity.

#### DESEGREGATION: PUBLIC SPACE POTENTIAL

By introducing this paragraph, it is important to clarify the following words and their definition in the research context: desegregation, integration, public space and inclusion are then briefly described.

The word desegregation refers to the attempts to “rebuild the apartheid city into its antithesis: the integrated city.”<sup>12</sup> This desegregation process in Cape Town has been attempting to use public space as the social infrastructure to connect urban fragmentation. Hence, spatial integration has been the goal to be achieved through urban policies. Public spaces are here indented as social, cultural, economic and political infrastructure of the city. They can include public buildings, open areas, but also streets and places to gather, meet and interact, where people affirm their shared rights to the city. They can be labelled as private or public. Public spaces are where urban life is being made. They are promoted by the City, planned by architects and planners, and used by the local communities. The South Africa government is encouraging a vision for open, integrated and inclusive public spaces. Inclusion means that no one has to be excluded, that everyone has the right to access to those spaces; and therefore potentially create the integrated city.

It is not possible to fill the significant gap of income inequality with the creation of inclusive public spaces. However, in the South African context, the planning – and place-making – of vibrant and sustainable public elements can provide the long-term infrastructure to improve the quality of life of the poorest and therefore to reduce the spatial inequalities.

In the past two decades South Africa has been the subject of many studies regarding inequality and segregation, because of its entrenched history of apartheid and its severe imbalanced income distribution. By looking at scholars and researchers' rising interest in South African transformation, it is possible to define a brief list of progress achieved. Architects and planners started in the 1990s to see public space as the means through which promote social and spatial connection. In other words, the use "public space to bridge divides"<sup>13</sup> has become the objective of Cape Town transformation. Firstly, this shift happened in academic writing; secondly, in municipal public space programmes; lastly, the shift materialized in several innovative projects carried out in, but not only, the township areas.

#### *Academic Shift*

The Municipal Spatial Development Framework of Cape Town (called MuniSDF) assumed as major city problems:

- the poor quality of the urban public spatial environment
- the sprawl generated by the planning around the use of private cars
- the low density
- the considerable distances between poor peripheries and the city centre.

The objective of the framework was "to built a city that works for all."<sup>14</sup> This vision of the future was developed by Prof. David Dewar, hired in 1997 by the City of Cape Town metropolitan government to lead the MuniSDF. The innovative planning approach established the following determining issues: "integration, equity, redistribution and quality of life."<sup>15</sup> The draft was published in 1999 and it is still considered a fundamental document in understanding the post-apartheid shift. The framework underlined the unequal distribution of "interchanges" and "centres" of the city. Therefore, the proposal focused on integration modes, promotion of activity spines or corridors, resolution of functional conflicts, creation of key pedestrian links and attention to railway system.<sup>16</sup> Within this context, political and academic attention started to see in public spaces the potential to sew apartheid spatial and social's wounds. The achievement of high-quality public space was considered as the heart of any positive approach to settlement making and urban management. Dewar affirmed the importance of public space as follows:

Urban public spaces - streets, squares and promenades – are the most important form of social infrastructure in urban settlements: they act as "urban living rooms", especially for people living in over crowded conditions; they connect communities and inform people's "mental maps of the city." Public spaces are particularly important in the lives of poorer people, whose housing is often too small for household needs.<sup>17</sup>

Despite the meaning of public space having its origin in Western countries, the essence of public realms is the same. One of the inherent values of cities is to meet and increase opportunities through encounter: squares and public spaces have always been crucial all over the world to realize those expectations. At the same time, it is essential to recognize that "Western influence has directly (through colonization) or indirectly exported the concrete forms of European public space to many other parts of the world."<sup>18</sup> In South Africa public spaces assumed a particular meaning during what we have called post-apartheid period. In 1991, Cape Town public spaces of the poorest areas are described by two University of Cape Town's prominent professors: David Dewar and Roelof Uytenbogaardt (in the book *South African Cities. A Manifesto for Change*), as inhospitable, dangerous, and frequently serving as dumping grounds for rubbish. Some of the important statements of the book can be considered revolutionary, especially considering that the apartheid regime was still ruling.<sup>19</sup> Nevertheless, they became crucial in the imagination of the reconstruction programme proposed for the city. After the year 1994, the re-appropriation of some public spaces, banned during the apartheid to the "non-White" ethnics, represented the first step toward the building of a more inclusive country. As a matter of fact, public spaces are particularly relevant in an urban context because they are spaces for sharing and meeting. Consequently, they are inclusive by definition.

#### *Municipal Policies and Innovative Projects*

Since 1994 the City of Cape Town has addressed its planning approach to mediate between the world class city's ambition and pro-poor strategies. Globalization and capitalism have influenced the ongoing transformation process, often exacerbating already existing issues. Social and spatial polarization is a consequence of this dual ambition. On one hand, investments in city centres tried to attract foreign and private interests; and focused on the international image of the city. On the other hand, subsidized housing programmes and pro-poor strategies took place in the townships and suburbs.<sup>20</sup> Accepting that "Cape Town's increasing global strength has not alleviated poverty or segregation in the city, and that the spoils of globalization have not been equally shared,"<sup>21</sup> this article focus its attention on the importance of new municipal policies and on the related projects of public spaces.

The Spatial Planning and Urban Design department (SPUD)<sup>22</sup> of the City of Cape Town became the reference city's office whose role of coordination, development and monitoring has been crucial. The department has been responsible for preparing the city-wide spatial development framework coordinating the other departments eventually involved. In 1996, the metropolitan area was still politically divided into six municipalities and the so called "Unicity" was created just in the year 2000. In this context, the integrated department of SPUD has been an important innovation.

In 1999, the first important programme of the urban design division started under the name of Dignified Places Programme (DPP), also called Dignified Public Space, managed by the urban designer Barbara Southworth.

The Programme to date has prioritized projects at such structurally and symbolically significant locations, where a public space intervention has the potential to integrate the city; promote accessibility or establish a new and positive sense of place.<sup>23</sup>

The redistribution of public spaces and the acupuncture approach concentrated a great amount of interventions in township or periphery areas. "Five principles have consistently guided the planning, design and implementation of the programme. These are equity, place-making, integration, minimalism and generation."<sup>24</sup> Projects like Downs = Market Plaza in Manenberg, Philippi Market Plaza, Philippi Station taxi and market plaza in Mitchells Plain, Manenberg Play park, Nyanga street markets & bathhouse and Langa Cultural Precinct Public Square were completed in townships area. In the city centre Pier Place and Church Square have been redesigned also. The DPP ended officially in 2008. A new programme called Quality Public Spaces replaced DPP; it has been similar in content and it has lasted until 2011.

The Soccer World Cup in 2010 made the City concentrates its attention on the international event and on the city centre, where the majority of the tourists were hosted. The main event legacy projects have been: the Gran Parade restyle, a new stadium, the Fan Mile which linked the central business district and the soccer facilities; and the Green Point urban park. The great opportunity created by this event modelled the inner city into a global attraction. At the same time, it neglected – or even concealed – the urban poor. The N2 gateway project, for example, has been presented as a pioneering housing solution for informal inhabitants of Langa. In contrast, due to its strategic position, it can also be conceived as a camouflage to improve the urban view for foreigners when driving from the international airport to the city centre. When the international attention moved away, the city department started to evaluate the application of its programmes and the city commissioned a review report to external professionals. The aim of the report was to adjust the policies to better answer to the Cape Town's needs. The limited operational funding and the inadequate management and



Figure 2. The photo on the left shows the Guga S'Thebe cultural centre's entrance. On the right, the new theatre.

maintenance capacity represented the main challenges to take into account.

In the same year, thanks to initiatives of non-governmental organizations, private associations and architects, some innovative projects have been built within the boundary of Cape Town and some experiments and innovations have been proposed in order to address the significant housing problem. Nevertheless, we will concentrate on the public facilities and spaces for encounter and inclusion completed in the last two decades. Some examples are presented below. The comprehensive understanding of each case study would require a much deeper analysis. And this is not the aim of this paper. The objective instead is to show that different and multiple projects have attempted to foster inclusion; and to state that those interventions would be inconceivable 25 years ago.

The construction of the Guga S'Thebe Arts, Culture and Heritage Village in Langa, designed by Carin Smuts Studio Architects lasted from 1996 to 1999. It is considered an example of sustainable design and it works as a post-apartheid public building. It is an attraction point for tourists who are interested in visiting the oldest township of the city. At the same time, it gives new opportunities to the local community. Its success made possible the recent addition of the theatre, completed in 2015 (Fig. 2).

Dunoon neighbourhood is a formal housing settlement built after 1994. Although it should represent the "rainbow nation" approach, its location,



Figure 3. The panoramic view shows the contrast between the closed building of the school and the Dunoon settlement in which it is placed. The small photos show – from left to right – the interior main hall that can be used both by the school and the local community, the interior courtyard, the sport intervention next to the school, the contrast between the Dunoon street and the school's façade, the main entrance where the library is placed and a typical Dunoon street.

its poor urban planning and the lack of opportunities for inhabitants makes it look like a township. The area is composed by a mixture of small formal housing surrounded by informal expansions, commonly called “backyard shacks.” Within this context the Inkwenkwezi Secondary School was commissioned by the Western Cape to Heinrich Wolff architect. The school is structured around an interior courtyard and it includes spaces that can be open to the community when the school is closed. The refined architecture stands out in the Dunoon context: it represents an unexpected opportunity for the community (Fig. 3).

Manenberg Human Settlement Contact Centre by Ashley Hemraj architect was completed in 2012. It obtained the 4 Star Green Star SA thanks to its focus on sustainability. The “eco-beam & sand technology” is one of the construction methods used in the project. This method combines together an innovative technology with the use of simple materials. Therefore, the surrounding community can be employed and involved in the construction process (Fig. 4).

Since crime is one of the main challenges facing Cape Town – especially in township areas – it has been established a partnership between the City of Cape Town and the German Development Bank to create a programme called VPUU (Violence Prevention through Urban Upgrading). The aim of this programme is to set up a model for how to use safety as a public good to develop human potential and improve the quality of life. The first exemplary project carried out in Khayelitsha consisted of a mix of economically and socially oriented facilities. The connection between those amenities assures a safe path in Harare from the Khayelitsha station to the Luleka Primary School. A second interesting project by VPUU is the Kuyasa interchange, also in Khayelitsha township. The urban planning design strategy considers



Figure 4. Photo of the Manenberg Human Settlement Contact Centre's main façade – on the left – and of the “eco-beam & sand technology” used – on the right.

safety, integration and active surveillance as central issues to be addressed (Figs. 5-6).

Within the MyCity municipal project (Cape Town Integrated Rapid Transit – IRT – system) the SPUD department designed a skate park connected to the Garden's neighbourhood MyCity station. The vacant area below the Jutland Avenue Bridge hosts the new open-air public space since 2014. This is one of the few cases in which the City have used a waste



Figure 5. The panoramic photo shows Harare Square, the core of the Harare project. The small photos show – from left to right – the interior of the library, a detail of the Harare square, a soccer field space, one “Activity Box” next to the station and a portion of the Urban Park.

piece of land for a special leisure need and to offer chances for encounter (Fig. 7).

Innovative private or NGO's project influenced the City method of planning and evaluating. As a matter of fact, the projects explained above mirror the current Municipal integrated approach. The VPUU programme set the current model used to design area-based public spaces projects. The key flagship agendas focus on:

- upgrading of informal trading areas
- attention to spaces associated with transport infrastructure
- coordination with state assisted housing areas
- informal settlement upgrading

The implementation of the integrated approach is still a great challenge within the current structure of the city. As a matter of fact, as pointed out by Cedric Daniels and others, "there is no single asset owner or line department for the public structure in its entirety, the creation of a more integrated institutional structure is required."<sup>25</sup>

## CONCLUSIONS

The discussion around spatial consequences of apartheid has been fundamental for the author (that comes from a European background) to define the framework in which the research is settled. The brief list of projects presented in the previous section gives a simple idea of various interventions done in the last two decades. Each case study would deserve a longer analysis that includes the peculiar context in which it is settled and its real impact in the local communities.

On one hand, the very peculiar context of this research prevents from any kind of generalization. On the other hand, the drastic spatial injustice visible in Cape Town reveals the need to define new ways of looking at urban spaces; to define their responsibility in creating inclusion and spatial justice in contemporary cities; and to include minorities of the society. The focus of designing should not be on symptoms of inequality and poverty, but on causes and effects that create those. The pre-1994 spatialized social inequality makes a:

meaningful improvement to black South African's lives, in terms of measure such as jobs, housing and education [...] difficult to realize. The ending of apartheid may have brought political freedom or "formal citizenship," but what James Holston identifies as "substantive citizenship" continue to elude most South Africans.<sup>26</sup>

The impact of the single project may be limited to the neighbourhood around it, but the effect of this acupuncture might be connected with other projects' influence. The aspirations of a rainbow South Africa can only be



Figure 6. The panoramic photo shows the Kuyasa interchange project, with the taxi rank on the left, the station and public transportation connection in the centre and the shops and library's building on the left. The small photos show – from left to right – the interior of the library, the façade of the main building that is hosting the library on the first floor and will host economic activities on the ground floor, a view from the library's terrace towards the sport facilities on the opposite side of the street, a detail of the use of materials and the connection towards the transportation interchange.



Figure 7. The photo on the left shows the Garden's MyCity station, while the other two photos show the skate park used as recreational area.

reached when a sufficient network of public interventions will balance the previous unequal distribution and their low quality.

Theoretical references to the current South African ambitions could be connected with the concept of the “right to the city” by Henri Lefebvre<sup>27</sup> and the idea of “spatial justice” proposed by Edward Soja.<sup>28</sup> The first notion is intended as “right to use space, right to urban life: [...] not as a ‘visiting’ right, nor as the right to shelter or seek refuge. This idea has the

potential to disrupt long established paradigms of urban order and planning.”<sup>29</sup> This is the objective that Cape Town planning must pursue. Inclusion and “interracial contact has increased slowly over the past decade, although this contact varies by race, employment status and occupation.”<sup>30</sup> Therefore, some improvements are already visible. Architects, planners and scholars need to keep aspiring to equity and integration, remembering the importance of comparing, adjustment and self-criticism.

## Notes

1. For more information see UN, “Sustainable Development Goals. 17 Goals to Transform Our World” <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>.
2. Some researcher tried to link some form of “democratization” with forms of social exclusion, poverty and polarization in the Roman socio-economic model. To find out more see Pasquale De Muro, Salvatore Monni and Pasquale Tridico, “Knowledge-Based Economy and Social Exclusion: Shadow and Light in the Roman Socio-Economic Model,” *International Journal of Urban and Regional Research* 35, no. 6 (November 2011): 1212-1238.
3. The World Bank, “Gini index data (World Bank estimate),” 1981-2014. <http://data.worldbank.org/indicator/SI.POV.GINI?locations=B8&view=map>.
4. Jane Battersby-Lennard, “Apartheid/Post-Apartheid,” *International Encyclopedia of Human Geography*, ed. Rob Kitchin and Nigel Thrift (Oxford, UK: Elsevier, 2009), 163-73 (172).
5. Kim De Readt, “Building the Rainbow Nation. A Critical Analysis of the Role of Architecture in Materializing a Post-Apartheid South African Identity,” *Afrika Focus* 25, no. 1 (2012): 7-27.
6. For more information see Bill Freund, *The African City. A History* (Cambridge, UK: Cambridge University Press, 2007), 59.
7. Sharón L. Tomer is an Assistant Professor in the School of Architecture + Design, College of Architecture & Urban Studies, at Virginia Tech. In her current research she is examining the architectural dimensions of apartheid’s ending in Cape Town. The author explains the “public space turn” into her draft work by the author titled “Cape Town. A (Re) Turn to Public Space,” (unpublished manuscript, September 30, 2016): 3.
8. Battersby-Lennard, “Apartheid/Post-Apartheid,” 169.
9. Tomer, “Cape Town,” 6.
10. The privatization is an underway process, with different modalities. For a research around recent process of privatization of public spaces see Karina Landman, “Privatising Public Space in Post-Apartheid South African Cities Through Neighbourhood Enclosures,” *GeoJournal*, 66, no. 1–2 (2006): 133–146.
11. Tomer, “Cape Town,” 6.
12. Edgar Pieterse, “Re-Building amongst Ruins. The Pursuit of Urban Integration in South Africa (1994-2001),” (PhD dissertation, London School of Economics - University of London, March 2006), 12.
13. Bulelwa Makalima-Ngewana, “Using Public Space to Bridge Divides,” January 13, 2016. <http://www.capetownpartnership.co.za/2016/01/using-public-space-to-bridge-divides/>.
14. Planning and Development Directorate, “City of Cape Town Municipal Spatial Development Framework Draft,” Planning and Economic Development Cluster, City of Cape Town, August 1999, 12.
15. Planning and Development Directorate, “City of Cape Town,” 15.
16. For more information see Planning and Development Directorate, “City of Cape Town,” 21-51.
17. David Dewar affirmed the importance of public space as “urban living rooms” in the Muni-SDF in 1999 (51) and in David Dewar and Fabio Todeschini, *Rethinking Urban Transport after Modernism. Lessons from South Africa* (Aldershot, UK: Ashgate Publishing), 2004.
18. Myriam Houssay-Holzschuch and Emma Thébaud, “Dis-locating Public Space. Occupy Rondebosch Common, Cape Town,” *Environment and Planning A* 0, no. 0 (2015): 2.
19. David Dewar and Roelof Uytenbogaardt, *South African Cities. A Manifesto for Change*

- (Cape Town: Urban Problems Research Unit, University of Cape Town, 1991), 67-88.
20. For more information about Cape Town polarization see Charlotte Lemanski, "Global Cities in the South. Deepening Social and Spatial Polarization in Cape Town," *Cities* 24, no. 6 (2007): 448-461.
21. Lemanski, "Global Cities in the South," 459.
22. For more information see <http://www.capetown.gov.za/Departments/Spatial%20Planning%20and%20Urban%20Design%20Department>.
23. Barbara Southworth, "Urban Design in Action: The City of Cape Town's Dignified Places Programme - Implementation of New Public Spaces Towards Integration and Urban Regeneration in South Africa," *Urban Design International* 8, no. 3 (2003): 125.
24. Barbara Southworth, "City Squares in Cape Town's Townships – Public Space as an Instrument of Urban Transformation: The Origins, Objectives and Implementation of the City of Cape Town's Dignified Places Programme", *ResearchGate* (January 12, 2005): 7. [https://www.researchgate.net/publication/242689030\\_City\\_Squares\\_in\\_Cape\\_Town%27s\\_Townships\\_-\\_Public\\_Space\\_as\\_an\\_Instrument\\_of\\_Urban\\_Transformation\\_The\\_Origins\\_Obiectives\\_and\\_Implementation\\_of\\_the\\_City\\_of\\_Cape\\_Town%27s\\_Dignified\\_Places\\_Programme](https://www.researchgate.net/publication/242689030_City_Squares_in_Cape_Town%27s_Townships_-_Public_Space_as_an_Instrument_of_Urban_Transformation_The_Origins_Obiectives_and_Implementation_of_the_City_of_Cape_Town%27s_Dignified_Places_Programme).
25. Cedric Daniels et al., "Public Structure. A Starting Point for Incremental Upgrading," in *Upgrading Informal Settlement in South Africa. A Partnership Based Approach*, ed. Liza Cirolia et al. (Claremont, Cape Town: University of Cape Town Press, 2016): 130-44 (139).
26. Tomer, "Cape Town," 18.
27. For more details see Henri Lefebvre, *Le droit à la ville* (Paris: Anthropos, 1968), English ed. Henri Lefebvre, and Eleonore Kofman and Elizabeth Lebas eds., *Writings on Cities* (New York: Wiley-Blackwell, 1996).
28. For more details see Edward W. Soja, *Seeking Spatial Justice* (Minneapolis MN, USA: University of Minnesota Press, 2010).
29. Ananya Roy is a Professor of Urban Planning and Social Welfare and Director of The Institute on Inequality and Democracy at UCLA Luskin CA, USA. She has been a professor of City and Regional Planning and Distinguished Chair in Global Poverty and Practice at the University of California, Berkeley. While there, she took part on the #GlobalPOV Project, a program of the Global Poverty and Practice (GPP) Minor, based at the Blum Center for Developing Economies, created with the intent of creating new ways of thinking about poverty and inequality. An interesting point of view about poverty is shown in this video lesson: Blum Center for Developing Economies, 2013, "Are Slums the Global Urban Future?," published on line July 31, 2013. <https://www.youtube.com/watch?v=1xk7dr3VG6s>.
30. Owen Crankshaw, "Urbanisation, Racial Desegregation and the Changing Character of Interracial Contact," in *Re-thinking Reconciliation: Evidence from South Africa*, ed. Kate Lefko-Everett et al. (Pretoria, South Africa: HSRC Press, 2017): 81-99 (97).

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## Credits

Figures 1-7: photos by the Author (2016).

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# Many Voices, One Project: Participation and Aesthetics in Community-Built Practices

Katherine Melcher

*ABSTRACT - In architecture and related design fields, there is a perception that community participation in design requires a compromise with aesthetic quality. Alternatively, community-built design (the practice of involving local residents in the design and construction of places) values both participation and aesthetics. Community-built practitioners value aesthetic quality because it instills a sense of pride in the project that in turn strengthens the connections between people and the place involved; it builds community. A qualitative analysis of articles written by and about community-built artists and designers illustrates how their processes work to respect the contributions of all participants while, at the same time, producing artful design solutions. Practitioners utilize a form of structured openness in their projects, processes, and roles. Community-built practices suggest that designers in fields such as architecture, landscape architecture, and urban design, should not think of participation and aesthetics as trade-offs but, instead, consider participation as an opportunity to bring new ideas into their work and to develop an aesthetic that reflects the richness and complexity of the participatory process.*

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**Keywords:** community arts, community design, creative place-making, participatory design, public interest design

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In architecture and related design fields there is a perception that socially-responsible design involves a compromise with aesthetic quality. For example, in his review of the Museum of Modern Art's exhibit "Small Scale,

Big Change: New Architectures of Social Engagement,” Nicolai Ouroussoff noted that “the big surprise of the show is that so many of the projects are actually good. ...the exhibition makes a powerful case that it is possible to create work that is both socially uplifting and architecturally compelling.”<sup>1</sup> The general impression is that when design involves large numbers of people, it cannot result in a place with high-quality aesthetics. When Katherine Crewe studied designers’ perceptions of citizen input, she found that “all interviewees expressed frustration of some kind at the public’s aesthetic tastes.”<sup>2</sup> This “ongoing ‘potential’ for conflict”<sup>3</sup> between the taste of designers and public preferences has not been discussed much since her study was published in 2001.

Community-built practices involve local residents in the design and construction of community projects such as parks, gathering places, murals, and gardens.<sup>4</sup> Professional artists, designers, and architects, who identify themselves as community-built practitioners, value both participation and aesthetics in their work. In this paper, an analysis of written texts about community-built work demonstrates how inclusive participatory processes do not necessarily require a designer to abandon aesthetic concerns. The experiences of community-built practitioners suggest that participatory designers in fields such as architecture, landscape architecture, and urban design, should not think of participation and aesthetics as trade-offs but, instead, consider participation as an opportunity to bring new ideas into their work and to develop an aesthetic that reflects the richness and complexity of the participatory process.

## AESTHETIC CONFLICTS IN SOCIAL DESIGN

As a human activity, design has always intended to solve human problems and to make life better for us humans. Social design as a subset of design raises the questions of which humans we are designing for and how we decide what a “better life” means. In our pluralistic society, there is not one easy answer to these questions; there is not one problem or need that all humans have equally. Yet, at the same time, designers must create one design. For projects in the public realm, that one design needs to serve many, ideally serving in many different ways.

The debate over how design can best serve humanity can be illustrated through the lack of consensus on terms used to describe the practice.<sup>5</sup> Terms such as “humanitarian design” and “design for humanity” capture the idea of design serving people, especially those who might have been marginalized or overlooked in society. “Social impact design” shifts the focus from the client to the outcomes of the project. Terms such as “participatory design,” “community-engaged design,” and “public interest design,” emphasize the involvement of people (again, particularly those who might not have “had a voice” in the past) in the design process. This last set of terms is less-focused on who the design is for or what the impact of the design will be, but instead on how the process is run.

Within the debates surrounding these different terms, one can find two opposing characterizations of the relationship between aesthetics and participation. On the one hand, humanitarian design (and designing “for” humanity) is criticized for prioritizing, as Cinnamon Janzer and Lauren Weinstein describe it, “the agenda of the designer and freedom of creativity” over “end-user empowerment and a deep understanding of the end-user’s worldviews.”<sup>6</sup> By envisioning design as something given to people by outside experts, these terms do not acknowledge the ability of people to solve their own problems. Because it prioritizes the designer’s aesthetic over the citizen’s input, this approach is accused of having imperialistic or neocolonialist overtones.<sup>7</sup>

The other characterization offered is to prioritize participation over aesthetics, making the designer a facilitator rather than an expert. Rising out of the social movements of the 1960s and in reaction against the top-down urban renewal projects of the time, community and participatory design’s central concerns were that people have a voice and, ideally, decision-making power in design issues affecting their everyday lives.<sup>8</sup> Nadia Anderson notes that participation in design “shifts the relationship of the architect to the public from one of expertise, in which the architect provides knowledge as a service to a passive public, to one of reciprocal partnership, in which both parties share knowledge to enhance each other’s perspectives.”<sup>9</sup> The people are considered the experts in their own lives, and “the artist is no longer the individual creative genius but rather an engaged facilitator of activities.”<sup>10</sup>

In this approach, visual aesthetics often gets ignored or overlooked. Much of the published writing about public interest design or participatory design ignores questions of aesthetics, focusing instead on the social ethics and impacts of the practice.<sup>11</sup> Within the field of design in general, Ilpo Koskinen reflects that “when the attention of design shifts to social forces, aesthetic concepts tied to products lose a good deal of their relevance,”<sup>12</sup> and “with this shift, traditional object-bound aesthetic concepts lose a good deal of their validity and may give a false impression of new social design as social science rather than design.”<sup>13</sup> Koskinen outlines new approaches that redefine aesthetics to be about social impact rather than a perceptual and sensual experience.<sup>14</sup>

Reclassifying designers as facilitators rather than experts raises questions as to what design professionals contribute to participatory process, especially in terms of aesthetics. Traditionally, design professionals’ area of expertise, their *sine qua non*, was aesthetics.<sup>15</sup> If participatory designers retain a traditional notion of aesthetics (in architecture, often considered a preference for “high Modernism”), they risk devolving aesthetics into debates about taste and style. They could be seen as imposing their class-based tastes on others. If architects no longer care about the aesthetics of physical form, what do they bring to the process that a community developer or engineer would not? When architect Alejandro Aravena argues that “these difficult complex issues require professional quality, not

professional charity,”<sup>16</sup> I think he is arguing that an architect’s expertise in how to create beautiful and inspiring forms is a valuable contribution to a participatory design process. Defining what “professional quality” means in terms of participatory and architectural design remains open to debate. But, I argue, visual aesthetics needs to be part of the debate surrounding social design instead of being replaced by other social goals.

If we reject both characterizations, if we do not accept that one has to choose aesthetics or participation to the detriment of the other, the question remains: how can a designer support and celebrate human empowerment while also creating an aesthetically-pleasing design form? Is there a way for designers to inspire the creativity of all participants, and use that collective creativity to inspire compelling and uplifting design?

### AESTHETICS AND PARTICIPATION IN COMMUNITY-BUILT WORK

Community-built practitioners acknowledge that there is, as Milenko Matanovic, founder of the Pomegranate Center says, “a precarious tension between community participation and good design.”<sup>17</sup> Community involvement is the core defining feature of their work.<sup>18</sup> As community-built artist Tom Arie Donch explains, “Community built starts with a very fundamental thing: that everyone can be involved and that everyone has a point of expression.”<sup>19</sup> However, at the same time, Matanovic admits that “... when the community decides to design ‘by committee,’ the result [can end up] being a mediocre project reflecting the lowest common denominator.”<sup>20</sup> Instead of ignoring or dismissing concerns over aesthetic quality, these practitioners value high-levels of aesthetic quality. “It’s like a good chef,” Matanovic explains, “your calories come in many different ways, but a good chef will arrange something that is pleasing and professional.”<sup>21</sup>

The following descriptions of community-built practices are based on a qualitative analysis of articles written by and about community-built practitioners.<sup>22</sup> The analysis demonstrates how they value both participation and aesthetics, even when the two conflict. Additionally, their practices demonstrate how designers who work in the public realm can negotiate these tensions in order to respect the contributions of all participants while, at the same time, producing artful design solutions.

#### *The Value of Aesthetics in Community-Built Work*

Perhaps one reason aesthetics is not often discussed in relationship to participatory design is that aesthetics is a highly subjective term that can be defined by many different criteria.<sup>23</sup> For this paper, aesthetic quality is defined by the positive qualities that community-built practitioners themselves identified within their projects. The four physical and visual qualities most often mentioned in the analyzed texts were: unique, authentic, and local; beautiful; high-quality (especially in terms of craftsmanship); and unified (in appearance and/or meaning).

If we take these four characteristics to be the primary positive aesthetic qualities of community-built projects, we can then examine the role of aesthetics and its relationship with participation more closely.

The first quality of being unique, authentic, and local is easily supported and enhanced through participatory processes. The more people are involved in the design, the more likely the project will be a unique expression of local character. In this case, participation aids aesthetic quality instead of detracting from it.

The second quality, beauty, like aesthetics itself, is difficult to define objectively; whether or not participation contributes to the beauty of a project depends on how one defines beauty. Regardless, beauty is highly valued in community-built work because it helps people develop a sense of pride and attachment to a place. For example, Matanovic states that “When beauty is baked into the design, more people use our malls, streets, bridges, and town squares and they do it with more enthusiasm, civility, and respect.”<sup>24</sup>

The latter two qualities – quality craftsmanship and unity – are more in conflict with participatory practices. Constructing a quality project with volunteer labor of varying skills is challenging. Having a unified project while at the same time valuing everyone’s ideas and contributions is also difficult. However, despite their challenges, these qualities are valuable to the community-built projects. Practitioners linked quality construction to participants’ sense of pride in both the project and in themselves. For example, mosaic artist Lilli Ann Rosenberg observed: “... you want it to look really marvelous. You don’t want them to make something they can’t be really proud of, so you make sure it’s going to look good.”<sup>25</sup> Taking pride in a well-made final product can lead to senses of empowerment and ownership, and ultimately, a close connection to the place.<sup>26</sup>

Practitioners require unity in a project because it moves the project from a simple collection of individual voices to an expression of how those individual voices can coalesce into a larger community. By finding unity in the design, people can explore how they fit into a larger group. In mosaics, Donch suggests that it can start “with a single child making the tile ... to realizing that she is part of a larger group that are all putting them together and making drawings and making tiles.”<sup>27</sup> As participants work together to develop that unified form or content, they also develop a sense of connection to others and to the community at large. Muralists Eva Cockcroft, John Weber, and Jim Cockcroft reflect: “The social nature of the process, if carefully supported, allows each child to grow, to be valued, and to define himself or herself as a member of the school community or larger community, rather than as an isolated dreamer.”<sup>28</sup>

Although these aesthetic qualities — in particular, quality craftsmanship and unified design — may be challenging to realize within participatory processes, they also contribute to the overall project goals of strengthening

people's relationships with place and with each other, which is, ultimately, the goal of community-built work. For these reasons, aesthetic quality, even if it sometimes conflicts with the participatory values in community-built work, remains valuable to the process and the final projects. In fact, many practitioners find value in the conflict itself. Artist Lily Yeh points out that "conflicting forces can be harnessed into a powerful, cohesive energy that serves to build rather than destroy."<sup>29</sup> Conflicts within participatory design can actually result in interesting aesthetics. As the Portland-based non-profit City Repair advises, "Design by consensus can be very challenging. There will be disagreements about aesthetics, style and other details—and often these differences of opinion lead to the most interesting projects!"<sup>30</sup>

### *Negotiating between Participation and Aesthetics*

As seen above, community-built practitioners value both participation and aesthetic quality in their work and are not willing to sacrifice one for the other. How do they negotiate the conflicts between the two, especially between valuing contributions of all participants and creating a unified design? How do they, as Cockcroft, Weber, and Cockcroft phrase it, "try to ensure that the active creativity of each group member is elicited and valued so that it contributes to the give-and-take from which emerges a shared vision"?<sup>31</sup> There is not one community-built process; each practitioner has his/her own approach. However, from the textual analysis, three aspects of the community-built process appeared to be especially well-suited for negotiating the tensions of inclusive participation and quality projects:

1. Community-built practitioners select materials and styles that are accessible to beginning artists and builders.
2. They use a unifying structure, such as a theme or master plan, that is flexible enough to allow for individual variations.
3. The approach and attitude of the practitioner is key in developing the appropriate give and take between participatory processes and aesthetic quality.

### *Materials and Styles*

Community-built practitioners often use low-tech materials and construction methods that allow many people to be involved in the project while producing quality, long-lasting results. Materials such as wood, concrete, stone, and mosaic tile, are less intimidating to people with a variety of skill levels. Since construction methods using these materials tend to be labor intensive, they require the help of many hands, making them ideal for participatory construction. Low-tech materials also tend to age well. Stylistic choices such as curvilinear forms can be less intimidating for beginning artists<sup>32</sup> and are also more forgiving of the mistakes that can occur in volunteer construction projects.<sup>33</sup>

Mosaics are an ideal medium for community-built work because of their accessibility, permanence, and collaborative nature. As artist Laurel True says, “there’s something about mosaics that makes people who don’t think of themselves as artistic feel they could do one.”<sup>34</sup> At the same time, Rosenberg explains, “the lasting nature of the medium speaks reams to those whose ceramic works are set in concrete, and to those who see these works in public places-- this is art for the ages, art that will last for generations. This is work that is of value, and by obvious implication the makers of it also have value.”<sup>35</sup> Clay tile mosaics also force a form of equality between participants. Rosenberg observed that clay tiles made by community members can only get to a certain size before they break, which makes sure that no one image or one person dominates the wall.<sup>36</sup>

### The Process: Open Structures

A theme seen across community-built practices is that of an organizing structure that is also open and flexible. For example, mosaic murals utilize a unifying structure that at the same time is open to variations brought in by individual contributions. Master plans, such as those used by schoolyard designers Sharon Danks, can provide a structure for moving forward but also “adapt to the shifting needs of their resident populations.”<sup>37</sup> To describe this balance between structure and openness in their design processes, practitioners use terms such as “planned indeterminacy”<sup>38</sup> and “chaordic (chaotically ordered)”<sup>39</sup> to describe their processes. Others use the metaphors of jazz and dancing:

“Up front, people involved need to know that the project is like a jazz band as opposed to an orchestra. This is a different project. Not everything in this type of project can be planned in advance.”<sup>40</sup>

“It’s like a dance. It’s a score. ... In a sense we are dancing with the community. And, but there are rules, there are patterns, there are techniques, there are things we can use and kind of flow with. In general some of the things are important to do in a specific order, but sometimes you throw them out.”<sup>41</sup>

“As in jazz, our design and building process is conversational and improvisatory, adjusting itself like a meandering river to the terrain.”<sup>42</sup>

In the community-built design process, two common open structures used are master plans (especially in place design) and themes (especially in artwork). Themes can create coherence that is open to individual interpretation. Rosenberg states that “many different ways of expressing the same theme can be integrated in an overall unified design.”<sup>43</sup> Community-built playgrounds and gathering spaces often incorporate place-based themes, drawing from local history and architecture. Murals are more inclined to express social and cultural themes, allowing individuals to make statements about their own life experiences (Fig. 1).

Deciding on a theme becomes an opportunity for a community discussion about who they are and what they value. It is not unusual for there to be conflicts over what theme should be used – between participants, between participants and the practitioner, and between participants and others in the community. Once a theme is decided upon, the practitioner works with individuals to develop ways to express their individual interpretations into images and art. Rosenberg concludes: “Thus, in each case, the collective creation reflects that which the participants hold in common. The creation of the mural becomes the blending and integration of their unique experiences of a common theme, and the finished project bears witness to their underlying unity.”<sup>44</sup>

### Practitioner Attitudes: Stepping Forward and Stepping Back

The quality of structured openness also applies to how practitioners define their roles and manage the design process. Despite claims that everyone is an expert and everyone has something to contribute, community-built practitioners define their role as distinct from that of other participants. Cockcroft, Weber, and Cockcroft recommend that “the leader must, without being dictatorial, set a pattern and method of work, insist on maintaining the unity of design and theme, instill a sense of responsibility to the group and to the community, and revive flagging spirits with tireless enthusiasm.”<sup>45</sup> In general, practitioners suggest that the community controls the theme, vision, and direction of the project, while the practitioner is in charge of finding ways to express that vision through art and design. Central to the practitioner’s role is maintaining the quality and unity of the project. Rosenberg reflects: “You’ve got to be an expert when you’re working on things like this. Because you want it to look really marvelous.”<sup>46</sup>

As mentioned above, often the role a designer takes in participatory projects is characterized as an either/or: either the designers follow the community’s desires or they impose their own ideas on them. Community-built practitioners admit both into their practice. Although what everyone brings to the process is valued, Cockcroft, Weber, and Cockcroft warn artists: “If one accepts every suggestion willy-nilly, one is likely to paint a meaningless and superficial mural that often bears no relation to anything, except picture postcards.”<sup>47</sup> Designers should have a strong point of view but also be open to whatever the community brings into the process. True discusses this tension: “I wanted to give over as much as possible to the kids but still keep an eye on the overall project composition.”<sup>48</sup> Rosenberg agrees: “I suppose you do let things happen which you think will be more interesting than other things. You do have to have an overall point of view-or you do have one whether you want to or not.”<sup>49</sup> At some point, the practitioner has to step in and make decisions on what is included in the final project and what may have to be left out. Muralist Elizabeth Raybee recalls: “Learning when to accept the stylistic differences that come out in collaborative projects, versus when to pull misplaced tiles and make



Figure 1. The use of local history to inspire a themed mural. The Imagineers, Mural, Newton KS, USA. Artist: David Loewenstein.

corrections if the original vision is lost, was not always easy, but it was discussed and exercised.”<sup>50</sup>

Over the course of a project, the role of the practitioner might change as well. True, when working with youth in Haiti, gradually took a smaller role in the project as the youth became more and more capable of running the project themselves:

“At the beginning, I co-conceptualized the tree of life as a great image to work with .... I had the kids draw pictures of trees and then took a kind of general composite tree and presented it to the group. As the design was transferred onto the wall the kids had a chance to make any changes and adaptations they wanted. I just gave them a starting point.

For the second phase the kids also did drawings and these I collaged into a larger mural.

For the third phase the kids did all the drawings and I taught them how to make an arrangement that would fit on the wall and include as many of the kids drawing elements as possible. ...

By the fourth phase of the project, the kids had it totally handled from start to finish. They had the design already transferred onto the wall when I arrived for the fourth trip down there.”<sup>51</sup>

Community-built practitioners skillfully step in and out of the process – responding to each situation in a unique way – which can be a form of artistry in itself. In addition to being flexible about their roles, practitioners try to approach the project without any preconceived solution. Initially holding back their own opinions, they remain open to new ideas or opportunities that may arise. Yeh explains that “having no pre-set ideas, I had the freedom to work with whatever resources came my way and with whoever was willing to participate.”<sup>52</sup>

Holding back and taking a second look can result in an appreciation of new aesthetic forms. Rosenberg experienced this while working with children on a mosaic project:

“When the children started to glue the mosaic to make the sky, each child concentrated on a little patch in front of him, making his own separate sky. I interjected quickly, ‘No, no... don’t do just a little piece in front of you... do the whole sky together!’ But as I heard myself demanding that they conform to my conception of how the work should be done, I checked myself and took a second look. What was happening was beautiful! The sky had a turbulent, Van Gogh-like quality.”<sup>53</sup> [...]

An important lesson can be drawn from this. Before you attempt to impose your values on a child’s work, stop a moment and taken a more critical and objective look to recognize, perhaps, the greater value of what is really occurring.”<sup>54</sup>

Within community-built practices the divide between good design and community participation is not clear cut. There are some inherent contradictions between quality aesthetics and the desire to include all voices in the process. But despite the tensions that quality design creates with participatory practices, the two can also complement each other. Practitioners use a flexible approach to projects, involving a combination of quality and accessibility, as well as structure and openness.



Figure 2. Sunnyside Piazza Intersection Repair, Portland OR, USA. Designed by the neighborhood in collaboration with City Repair.

## LESSONS FOR PARTICIPATORY DESIGN

The experiences of community-built practitioners suggest that participatory designers in other fields such as architecture, landscape architecture, and urban design, do not have to consider aesthetics and participation as trade offs. Instead, participation could be considered as an opportunity to bring new ideas into their work and to develop an aesthetic that reflects the richness and complexity of the participatory process. It may be easier to

visualize how many voices get synthesized into one design when talking about murals and mosaics, but community-built practitioners also work with gathering spaces, playgrounds, and schoolyards (Figs. 2 and 3). Many of the lessons learned from community-built practitioners can be useful for architects and other designers engaged in participatory design practices.

First of all, aesthetics do matter in participatory design. Aesthetics matter not just in-and-of-itself, but because visually-inspirational projects instill a sense of pride in the participants, contributing to some of the broader goals of social design, such as empowerment. The aesthetics of a community-built project is not a purely social aesthetic: how a project looks and feels matters to building pride, empowerment, and a sense of community. At same time, this aesthetic is not just a question of taste or style as it has traditionally been defined in “High Modernism” architecture. Instead, the aesthetics of a community-built project is about the quality and care in how the design is put together, particularly in how multiple pieces can fit together into one design. Many architects may dislike the taste and style of community-built projects because of disciplinary preferences for non-figurative art and simple forms. However, I suggest that community projects that exhibit high levels of care – in design and construction – can also be considered aesthetically-pleasing. Instead of ignoring aesthetics or redefining it to be about social impact, participatory designers should include discussions about the aesthetics of physical and visual form as part of their process, acknowledging that conflicts and differences of opinion will arise. Focusing solely on the social aspects of the process perpetuates the perception that designers have to choose between aesthetic quality and inclusive participation.

Ultimately, participatory designers can challenge the belief that accepting the creativity of others into their work diminishes the creativity of the designer and the overall aesthetic quality of the design. A carefully-orchestrated process, facilitated with a flexible approach can bring out the best in participants, potentially elevating the collective work. It might be easier to visualize how this can happen within a mural, but architects and landscape architects can explore how built structures and environments could also be designed to have a clear framework that ties the project together, while also allowing space for individual variations.

Instead of glossing over aesthetic concerns or dismissing them as superficial, participatory design can develop a complex aesthetic that arises out of the challenges of participatory processes. At the same time, the role the professional designer plays should be valued. In addition to being a facilitator, a community organizer, and a social scientist, they should strive to be experts in developing a creative synthesis that is expressed in a beautiful or inspiring form. The last part is where designers can truly distinguish themselves as aesthetic experts.



Figure 3. World of Wonder playground, Athens GA, USA. Designed by Leathers and Associates.

## Notes

1. Nicolai Ouroussoff, "Real-Life Design: Erecting Solutions to Social Problems," *The New York Times*, October 14, 2010.
2. Katherine Crewe, "The Quality of Participatory Design: The Effects of Citizen Input on the Design of the Boston Southwest Corridor," *Journal of the American Planning Association* 67, no. 4 (2001): 437–55 (451).
3. Ibid.
4. For a more complete description and definition of community-built see Katherine Melcher (2017), "Community-Built as a Professional Practice" (2017) and Katherine Melcher, "Community-Built Projects, Processes, and Practices" (2014).
5. According to the recent report "Design and Social Impact: A Cross-Sectoral Agenda for Design Education, Research, and Practice", Smithsonian Institution, Cooper-Hewitt, National Design Museum, 2013: "The field is also known as public-interest design, social design, social impact design, socially responsive design, transformation design, and humanitarian design." (8).
6. Cinnamon L. Janzer and Lauren S. Weinstein, "Social Design and Neocolonialism," *Design and Culture* 6, no. 3 (November 2014): 327–43 (331).
7. Bruce Nussbaum, "Is Humanitarian Design the New Imperialism?" *Fast Company*, July 6, 2010 and Janzer and Weinstein, "Social Design and Neocolonialism." It is also interesting to note that the titles for Cooper-Hewitt's exhibitions on social design shifted from "Design for the Other 90%," in 2007, to "Design with the Other 90%," in 2011.
8. Henry Sanoff, *Community Participation Methods in Design and Planning* (New York: Wiley, 2000).
9. Nadia M. Anderson, "Public Interest Design as Praxis." *Journal of Architectural Education* 68, no. 1 (January 2, 2014): 16–27 (19).

10. Ibid.
11. For example, texts by Abendroth and Bell (2015) and Sanoff (2000) discuss social impacts and implications of the process, but rarely bring up aesthetics or design form.
12. Ilpo Koskinen, "Agonistic, Convivial, and Conceptual Aesthetics in New Social Design," *Design Issues* 32, no. 3 (Summer 2016): 18–29 (18).
13. Ibid., 27.
14. Ibid.
15. Ibid.
16. Quoted in Amy Frearson, "Architects Have No Moral Obligation to Society Says Aravena," *Dezeen*, February 23, 2016.
17. Milenko Matanovic, *Multiple Victories: Pomegranate Center's Art of Creating Community-Crafted Gathering Places* (Issaquah WA, USA: Pomegranate Center, 2007), x.
18. Melcher, "Community-Built as a Professional Practice."
19. Tom Arie Donch, "Community-Building," presented at the Community Built Association conference, Portland OR, June 2012.
20. Ibid.
21. Quoted in Beti Žerovc, "The OHO Files: Interview with Milenko Matanović," *ARTMargins*, August 24, 2011.
22. Ninety-five texts about practitioners who self-identify with the term community-built (defined as people who are or have been members of the Community Built Association - CBA - or people who use the term "community-built" to describe their work) were analyzed using grounded theory methods. For a more detailed description of the method, see Melcher, "Community-Built Projects, Processes, and Practices."
23. One example on how aesthetics can be defined to value different aspects of a design is in Koskinen, "Agonistic, Convivial, and Conceptual Aesthetics in New Social Design."
24. Milenko Matanovic and Alison Orseman, "Building Better Communities," Issaquah WA, USA: Pomegranate Center: 29.
25. Personal interview, February 6, 1992, quoted in Ann R. Hubbird, "Lilli Ann and Marvin Rosenberg, Community Artists: A Case Study in Calling Forth Creativity," University of Oregon, 1993.
26. Melcher, "Community-Built as a Professional Practice."
27. Donch, "Community-Building."
28. Eva Sperling Cockcroft, John Pitman Weber, and James D. Cockcroft, *Toward a People's Art: The Contemporary Mural Movement* (New York: Dutton, 1977), 139.
29. Lily Yeh, Bill Moskin, and Jill Jackson, "Warrior Angel: The Work of Lily Yeh," Bainbridge Island WA, USA, 2004.
30. City Repair, *Placemaking Guidebook: Creative Community Building in the Public Right of Way*, 2<sup>nd</sup> ed. Portland OR, USA: City Repair, 2006), 83.
31. Cockcroft, Weber, and Cockcroft, *Toward a People's Art*, 116.
32. Hubbird, "Lilli Ann and Marvin Rosenberg."
33. Matanovic and Orseman, "Building Better Communities."
34. Mosaic artist Laurel True quoted in Natascha Chtena, "True Mosaics: Interview with Mosaic Artist Laurel True," *Think Africa Press*, 2011.
35. Hubbird, "Lilli Ann and Marvin Rosenberg."
36. Ibid.
37. Sharon Gamson Danks, *Asphalt to Ecosystems: Design Ideas for Schoolyard Transformation* (Oakland CA, USA: New Village Press, 2010), 14.
38. Karl Linn, *Building Commons and Community* (Oakland CA, USA: New Village Press, 2007), 88.
39. City Repair, *Placemaking Guidebook*, 140.
40. Matanovic, *Multiple Victories*, 72.
41. Donch, "Community-Building."
42. Matanovic, *Multiple Victories*, 25.
43. Hubbird, "Lilli Ann and Marvin Rosenberg."
44. Ibid., 80.
45. Cockcroft, Weber, and Cockcroft, *Toward a People's Art*, 115.
46. Personal interview, February 6, 1992, quoted in Hubbird, "Lilli Ann and Marvin Rosenberg."
47. Cockcroft, Weber, and Cockcroft, *Toward a People's Art*, 235.
48. Quoted in Chtena, "True Mosaics."

49. Personal interview, April 2, 1992 quoted in Hubbird, "Lilli Ann and Marvin Rosenberg," 91.
50. Elizabeth Raybee, "The Good Life: A Community Built Mosaic Mural," ArtWorks, California Arts Council.
51. "Laurel True Arrives in Jacmel, Haiti: Days 1 and 2." *Mosaic Art NOW*, 2010.
52. Yeh, Moskin, and Jackson, "Warrior Angel," 1.
53. Lilli Ann Killen Rosenberg, and Ken Wittenberg, *Children Make Murals and Sculpture; Experiences in Community Art Projects* (New York: Reinhold Book Corp., 1968).
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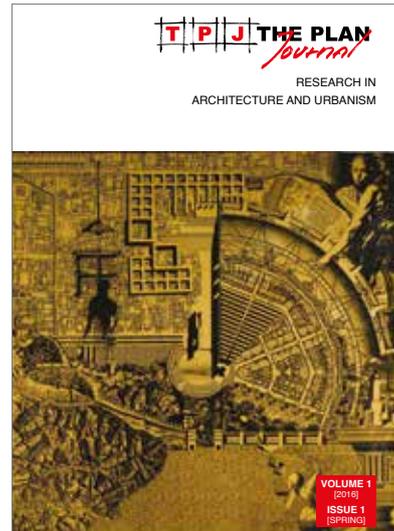
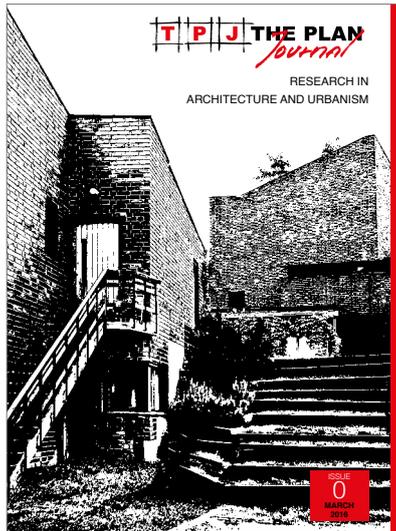
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Climate change and rising sea levels are posing unprecedented challenges for the ecology of world coastal and delta areas. As pointed out by recent studies,

"...mean sea levels could rise by 1 m or more by 2100, which will have severe impacts on coastal environments and ecosystems. ... [At the same time] coastal population growth and urbanisation rates are outstripping the demographic development of the hinterland, driven by rapid economic growth and coastward migration. ... [In addition] most of the world's megacities are located in the coastal zone and many of these are situated in large deltas, where combinations of specific economic, geographic and historical conditions to date attract people and drive coastal migration..."<sup>1</sup>

These studies project that the population rate in "low-elevation coastal zones" (LECZ<sup>2</sup>) will continue to grow from the 10% of world population it was in 2000 to about 12% by 2030. The estimated population of LECZ is set at about 914 million by 2030 and about 1.2 billion by 2060.<sup>3</sup> No matter what the actual scenario will be, it is clear that the phenomenon has already reached an alarming level. Yet, the power of design, with its knowledge and intelligence, can turn this threat into an opportunity and to propose and experiment new ideas to make these edges more ecologically resilient: from the design of new hybrid/amphibious landscapes, to floating housing systems and floating complexes and facilities, to new urban and regional planning strategies for sustainable

## Submission Options

Priority for peer-review evaluation and publication will be given to complete manuscripts, but proposals in the form of long abstracts [300/500 words] are also encouraged as a first step in the editorial review process. Authors of accepted proposals will then be invited to develop complete manuscripts, which will then go through the peer-review process. Submitting proposals as a first step is only an option and full manuscripts are encouraged also as first submissions.

## Timeline

Proposals due by	<b>June 19, 2017</b>
Invitation to develop accepted proposals into complete manuscripts communicated by	<b>July 3, 2017</b>
All complete manuscripts due by	<b>September 4, 2017</b>
Accepted and edited manuscripts expected to be published on-line by	<b>December 15, 2017</b>

## To Submit

Please log in and register on the TPJ manuscript management system “Editorial Manager”: <https://www.editorialmanager.com/tpj/default.aspx>

development. As Carlo Ratti has noted: “Water is a reconfigurable material, and it allows us to develop adaptive, ‘fluid,’ designs. ... to imagine an architecture that adapts to human need, rather than the other way around.”<sup>4</sup>

The TPJ seeks contributions that can illustrate innovative research on how we can understand and design more resilient habitats and eco-systems from a variety of angles and scales: from historical/theoretical analyses of representative casestudies, to typological and technological investigations, to cross-disciplinary studies (especially with landscape design and ecology), to projects of reflective practice for specific sites and contexts, to evaluation of, and/or proposals for, new forms of urbanism, to experimental pedagogies.

1. Barbara Neumann, Athanasios T. Vafeidis, Juliane Zimmermann and Robert J. Nicholls, “Future Coastal Population Growth and Exposure to Sea-Level Rise and Coastal Flooding - A Global Assessment,” *PLoS One* 10, no. 3, published online March 11, 2015. doi: 10.1371/journal.pone.0118571

2. According to Neumann et al. (2015), “the LECZ (low-elevation coastal zone) is commonly defined as the contiguous and hydrologically connected zone of land along the coast and below 10 m of elevation.”

3. Neumann et al.

4. Carlo Ratti, as quoted in Katharine Logan, “Noah’s Ark-itecture,” *Architectural Record* 205, no. 4 (2017): 217-23 (223).



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**Questions:** How to overcome the “White-Savior Industrial Complex” and invert the expertise model that has guided both architectural education and practice? (Fisher). **Projects:** a park in Mexico City (Bilbao), a low-cost housing prototype in Vietnam (Trong Nghia) and a prefab system for emergency struck areas in Italy (Bennicelli Pasqualis). **Pedagogies:** experimentations of social-impact driven US university projects, for new educational methodologies and hybrid models of practice, in Kansas (Criss & Kleinmann), Pennsylvania (Harrison; Michael & Nicholas), Texas (Ali), and South Carolina (Hambright-Belue & Holland). **Contexts and Strategies:** understanding the complexities of social-impact design both under specific socio-economic and political conditions (Brazil: Chagas; South Africa: Bodino) and within the larger framework of a cultural discourse and critique (Melcher).