Participatory Lighting Design in Puerto Rico

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ABSTRACT

Puerto Rico is significantly jeopardized by sociopolitical contexts reflecting among other issues in the access to lighting design. After hurricane María (2017) residents lacked power for over a year as a result of the vulnerable electric infrastructure. A community in Comerío addressed the lack of civic participation in rural public areas inviting 22 Studio to co-design a solar lighting infrastructure.

Through participatory design methods and techniques we helped expand knowledge and practiced democracy by shifting sociocultural components of light and architecture to inform design outcomes. Stakeholders developed surveys, presentations, plans, photographs, layouts, renderings, and elevations to analyze architectural and light components. Throughout the process we provoked questions to challenge visual culture and imposed current lightscapes to explore concrete solutions to the community necessities. The construction phase was organized by the community's leadership, employing neighbors and coordinating with external manufacturers the acquisition of solar energy equipment.

Keywords:

Lighting design; Solar energy; Solar power; Puerto Rico; Comerío; La Maraña; Brigada Palomas; 22 Studio; Social Lighting Design; Participatory Design; Imaginación Post - María; Light poverty.

INTRODUCTION

Generally, architectural lighting design is accessible to those with economic resources. Often low income communities are built from spontaneous and unplanned architectures. The case study Prende Paloma (PP) a co-led project between La Maraña (LM), Brigada Palomas (BP) and 22 Studio (22) intends to explore social lighting design by adapting participatory design and social lighting methodologies to create a revised model that helps to articulate relevant and meaningful lighting environments. The project model is designed for public spaces with the potential of extrapolating its core structure and intentions to other socio-spatial configurations. The ultimate goal is to assure fair negotiations between stakeholders as well as to contribute to the body of research and work of social lighting design.

The model draws from Social Sciences, participatory design and social lighting to inform public space lighting design outcomes in organized communities. The intent was to increase community capacity providing its stakeholders with basic social lighting tools to understand, adapt and thrive their public spaces with the potential of impacting other structures of everyday life.

Social lighting is an approach to lighting design that is intrinsically in constant dynamism, is multi-layered, complex and intrinsic to all lighting manifestations since lighting is always an instance of collective life. Lighting design organizations such as Social Lighting Movement, Configuring Light/Staging the Social, Lighting Designers Without Borders, Guerrilla Lighting and Light Follows Behaviour, among others, have developed a body of work addressing social issues in lighting. However, Prende Paloma is a case study that fills a gap in social lighting practice by working long term processes with stakeholders to create self sustaining systems. PP problematizes assumptions in order to transform lightscapes, so that built environments become more relevant to sociocultural realities.

While social lighting contemplates societal structures and relationships to address design solutions, Participatory Design (PD) targets action as a way of exercising the democratization of knowledge, spaces and goods. Thus there are significant differences between the awareness of a set of issues and the articulation of change of circumstances. A synergy of social lighting and participatory design is needed to achieve optimal outcomes.

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The model is adapted from case studies and social sciences techniques. We have not found yet that the social lighting groups mentioned before instruct stakeholders to incorporate lighting tools such as field measurements, digital models or project management skills. Even though these groups have worked with communities, their work seems to be more precisely for design professionals that want to gain social lighting tools. Brigada Palomas (community-based organization) and La Maraña (social architect group that develop Imaginación Post María) actively co-designed solutions to situations previously thought as beyond their capacities, demonstrating ability to shape and design different futures.

Phase 1. Agreement & site analyses

Goals: Develop a written agreement between a representation of all involved parties in the design that includes a review of the model and how it is relevant to the community life and empowerment, through the practice of social lighting.

Deliverables: A work plan, schedule and list of potential lighting and community resources was developed and shared. In parallel during Phase 1, site analyses were conducted to better understand necessities and desires; climate, spatial contexts and characteristics. These investigations helped to anchor further specific design conversations and to gather meaningful information that shaped the process.

Phase 2. Social lighting workshop

Goals: Introduce concepts and lighting principles as tools to observe light environments critically. By doing so, participants developed a rationale to support the design intention and purpose of the model applied to their specific spaces.

Deliverables: Presentations, nightwalk, group exercises, diagrams, plans, elevations, observations, photography and mockups on site.

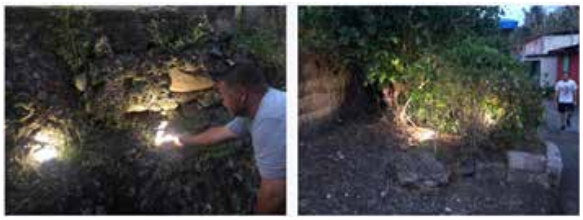

Figure 1. Nightwalks and observations Image: 22 Studio.

Phase 3. Community workshop

Goal: Gather information and data to better inform the design outcomes by conducting a research of social relationships within and around the site.

Deliverables: Surveys, design iterations, sketches, diagrams and meetings to study and identify general problems of the community as these may lead to unforeseen light-space relationships.

Figure 2. Sketches of iterations and ideas. Image: La Maraña - Brigada Palomas

Phase 4. Design workshop

Goal: Sharpen a common rationale by discussing social lighting knowledge gained in previous phases to articulate a lighting design for the site. Train community members in softwares such as Adobe Photoshop and Adobe Illustrator to democratize the access to professional technical tools.

Deliverables: Presentations of luminaire typologies, design iterations, renderings and glow plans. Individual and group discussions were conducted before the final design selection.

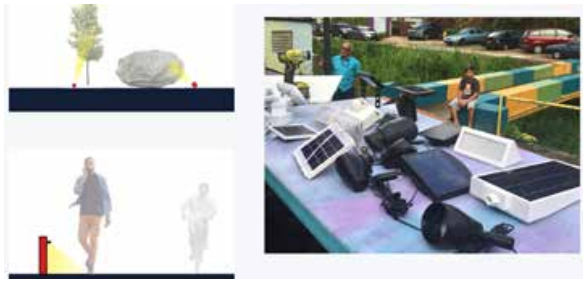

Figure 3. Types of luminaires. Image: 22 Studio.

Figure 4. Group discussion for final design selection. Image: La Maraña - Brigada Palomas

Phase 5. Validation & revision

Goal: Make an in depth design revision among stakeholders to validate if it addresses the goals defined in Phase 1. If needed co-designers may revise lighting research and/or social research factors.

Deliverables: Document the feedback of participants and stakeholders.

Figure 5. Presentation of final plan. Image: La Maraña - Brigada Palomas

Phase 6. Giving back knowledge & findings

Goal: Presentation and discussion of the social lighting design process and findings to the community, Brigada Paloma and La Maraña.

Deliverables: Create a report documenting the process to be published inside and outside the lighting design community.

Phase 7. Installation

Goal: Coordination between co-designers and construction teams.

Deliverables: Train community members to perform the installations and construction.

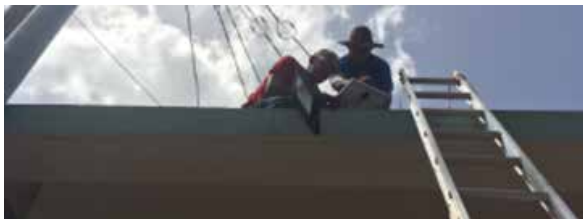

Figure 6. Installation. Image: La Maraña - Brigada Palomas

LIMITATIONS

Some limitations are: funding; access to manufacturers; participation, continuity and interest of stakeholders throughout the process; identification of forums to publish outcomes; identify potential interested and committed design professionals; break preconceptions about light intensity, distribution and darkness.

RESULTS - CONCLUSIONS

The community accomplished energy independence by getting off the grid and creating a solar energy system. The activation of gathering spaces and rehabilitation of the main stair was successful. We had overall good impressions and feedback, although funding is necessary to have more time and contact with the community improving the design process.

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