

PHASE 1

KELSEY SPRAGUE | FEIRAN ZOU

WHAT ARE PARKLETS

“PARKLETS CONSIST OF THE EXTENSION OF TEMPORARY PUBLIC FOOT-PATH (SIDEWALK) OCCUPYING SOME AREAS WHICH, UNTIL THEN, WERE DEDICATED EXCLUSIVELY TO PARKING VEHICLES, THROUGH THE IMPLEMENTATION OF A PLATFORM EQUIPPED WITH BENCHES, TABLES AND CHAIRS, ROOFS, EXERCISE EQUIPMENT, OR OTHER STREET FURNITURE HAVING RECREATION FUNCTION.”



PRECEDENT STUDIES



MODULAR FORMATION

THE STREET WITH WOODEN MODULAR

LOCATION: PONTA DELGADA

FUNCTION: FESTIVAL SPACE

SEATING

GREENHOUSE

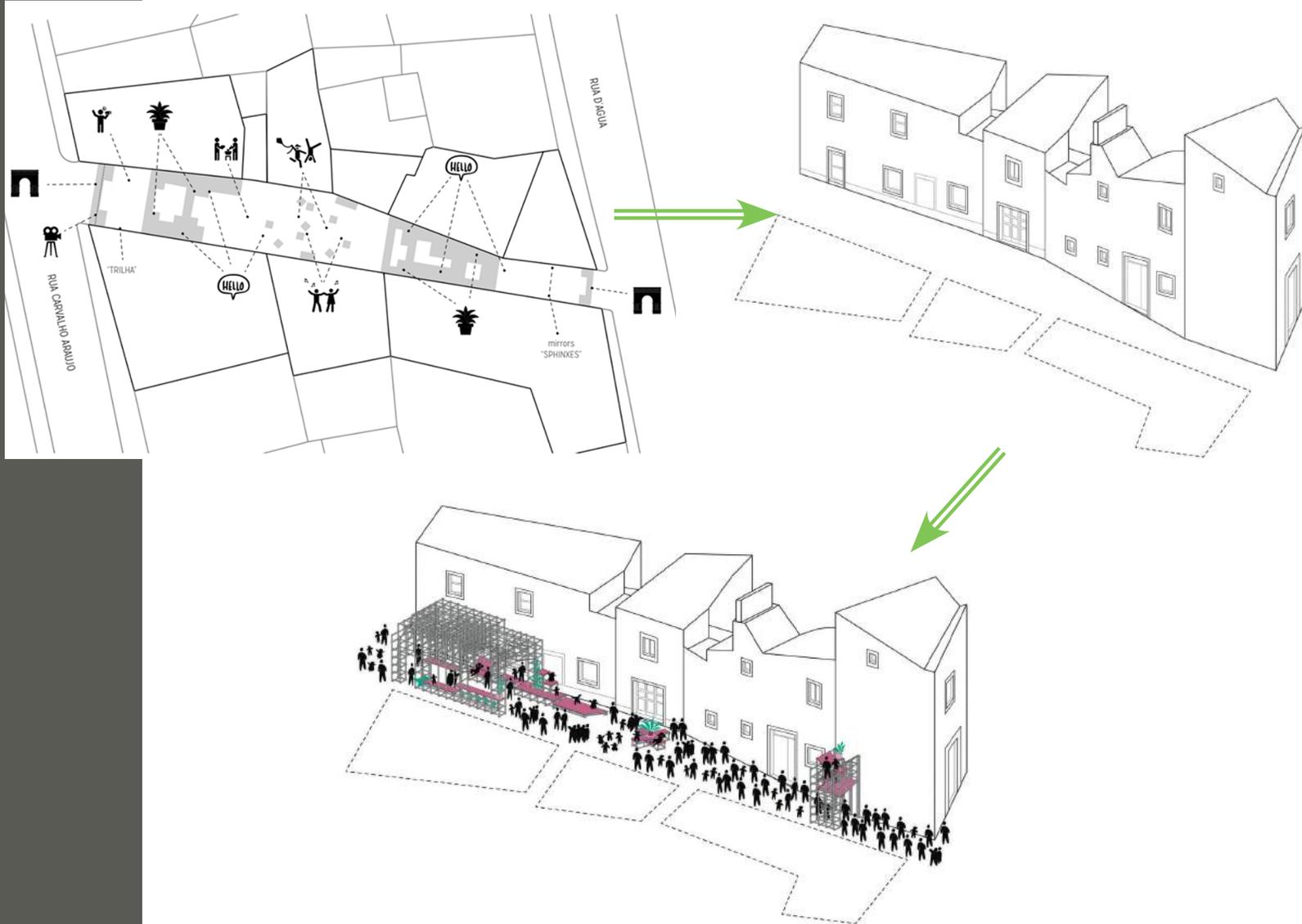
CIRCULATION

MATERIALS: RECLAIMED WOOD



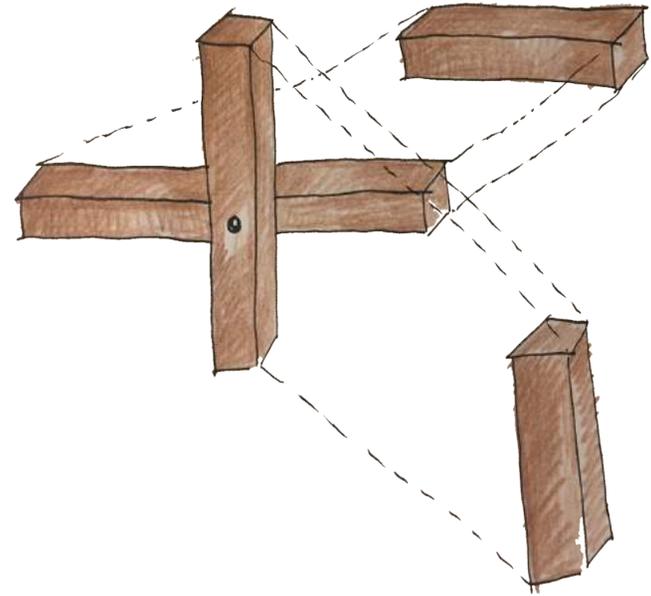
MODULAR FORMATION

THE STREET WITH WOODEN MODULAR



MODULAR FORMATION

THE STREET WITH WOODEN MODULAR



MODULAR FORMATION

THE PLAYFUL STREET FURNITURE IN SEATTLE



LOCATION: SEATTLE, WA.
FUNCTION: MODULAR OUTDOOR USE
MATERIALS: RECLAIMED WOOD
PLASIC
SCREWS



MODULAR FORMATION

THE PLAYFUL STREET FURNITURE IN SEATTLE_



locations:

(past, present, and future installation sites)

1570 2nd Ave
Seattle, WA 98101

3108 SW Webster St
Seattle, WA 98126

Seattle Design Festival
381 Occidental Ave S
Seattle, WA 98104

3450 3rd Ave
Seattle, WA 98181

University of Washington
Seattle, WA

Benaroya Hall
200 University St
Seattle, WA 98101

MODULAR FORMATION

THE PLAYFUL STREET FURNITURE IN SEATTLE

Modular Unit Assembly Type 2

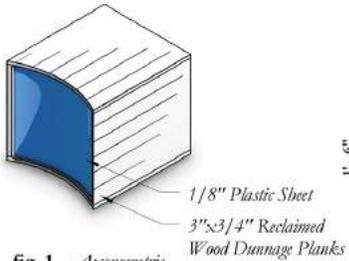


fig. 1. - Axonometric

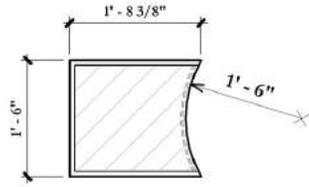


fig. 2. - Plan

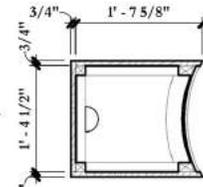


fig. 3. - Plan-Section

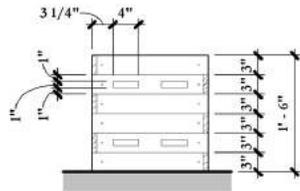


fig. 4. - Elevation

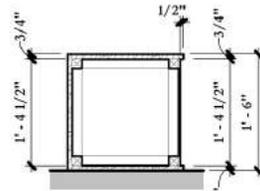


fig. 5. - Section

Modular Unit Assembly Type 1

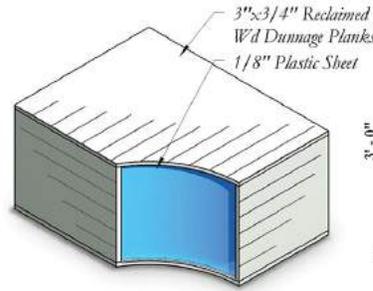


fig. 1. - Axonometric

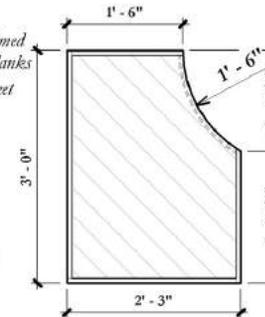


fig. 2. - Plan

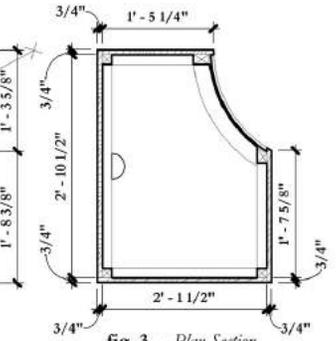


fig. 3. - Plan-Section

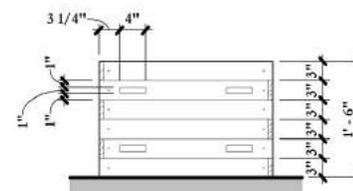


fig. 4. - Elevation

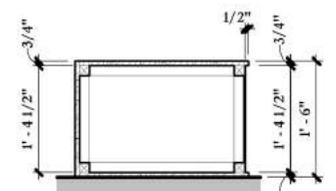


fig. 5. - Section

Modular Unit Assembly Type 3

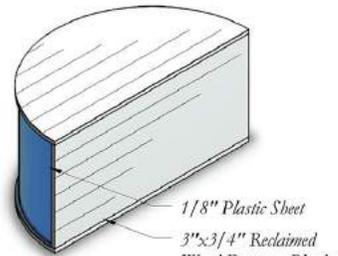


fig. 1. - Axonometric

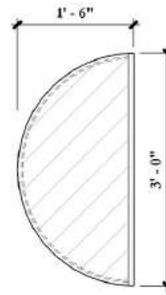


fig. 2. - Plan

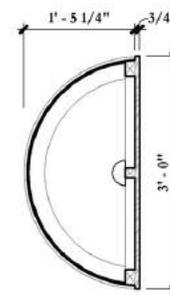


fig. 3. - Plan-Section

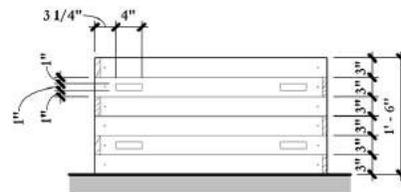


fig. 4. - Elevation

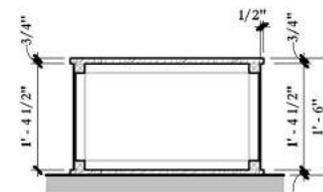


fig. 5. - Section

MODULAR FORMATION

THE PLAYFUL STREET FURNITURE IN SEATTLE

Unit Assembly
And Variations

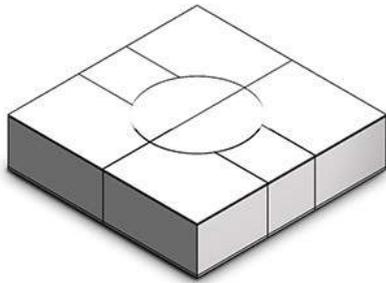


fig. 1. - *Unit Assembly*

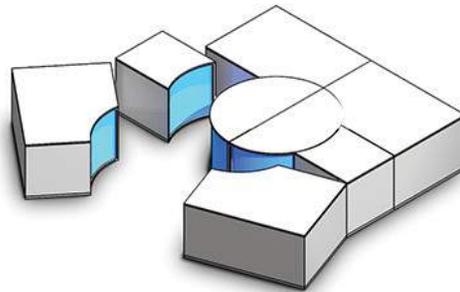


fig. 2. - *Variation*

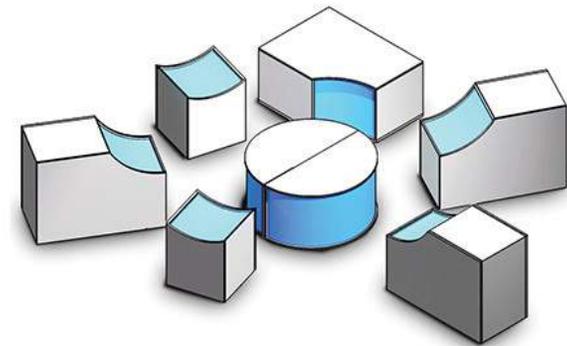


fig. 3. - *Variation*

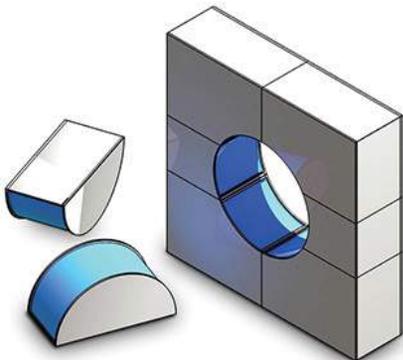


fig. 4. - *Variation*

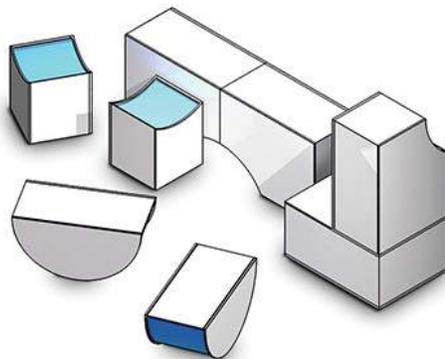


fig. 5. - *Variation*

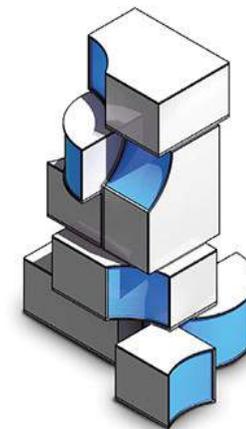


fig. 6. - *Variation*

TEMPORARY INSTALLATIONS



TEMPORARY INSTALLATIONS



SO? Architecture and Ideas, London, England

TEMPORARY INSTALLATIONS ARE AN ESSENTIAL PRINCIPLE WHEN IT COMES TO PARKLETS. "DIGITAL INSTALLATIONS -IN WHICH NEW TEMPORARY ART SPACES ARE SHAPED AND FORMED BY OBJECTS, SCREENS, LIGHTS AND SOUNDS- ARE EMERGING ARCHITECTURAL ENVIRONMENTS THAT CAN BE ENCOUNTERED INDOORS OR OUTDOORS, ANYWHERE AT ANY TIME." MANY PARKLETS ARE DESIGNED TO BE MOVED FROM PLACE TO PLACE, AND THEREFORE MUST INCORPORATE WHATEVER SETTING IT MIGHT BE IN. IT CAN EITHER MATCH THE LOCAL ENVIRONMENT OR STAND OUT FROM IT. TAKE FOR EXAMPLE THE INSTALLATION OUTSIDE LONDON ROYAL ACADEMY OF ARTS. THE ORNAMENTAL EXTERIOR OF THE BUILDING CONTRASTS WITH THE PASTEL COLORED GEOMETRIC DESIGN OF SO? ARCHITECTURE AND IDEAS.

TEMPORARY INSTALLATIONS



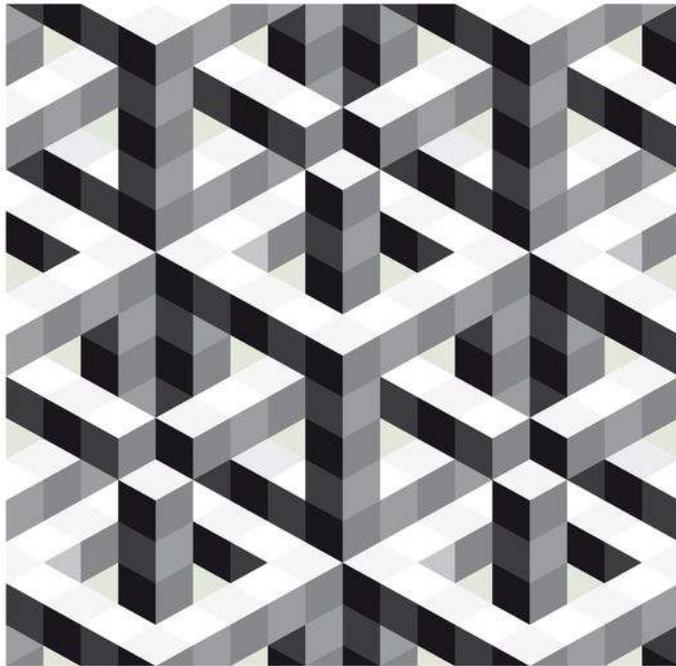
Fushun Road, Yangpu District, Shanghai, China

TEMPORARY INSTALLATIONS HAVE ALSO BEEN INCORPORATED IN ARCHITECTURE IN DIFFERENT EXHIBITIONS SUCH AS THE SERPENTINE PAVILION. "INSTALLATION ART IS A TERM THAT ENCAPSULATES A REALM OF ART PRACTICES THAT MAY SEEM DIFFERENT FROM THE OUTSIDE BUT SHARE COMMON QUALITIES." THE DESIGN OF THE INSTALLATIONS CAN BE DETERMINED BY MANY FACTORS. THE TEMPORARINESS OF THE INSTALLMENTS, MAY AFFECT THE LOOK AND OUTCOME OF THE DESIGN AND CONSTRUCTION DEPENDING ON HOW LONG THE INSTALLATION MAY LAST. TAKE FOR EXAMPLE THE ARUP ASSOCIATES DESIGN AT FUSHUN ROAD IN SHANGHAI, CHINA. THE SIMPLE SHAPE CONSISTS OF CAREFULLY DESIGNED PIECES THAT INTERLOCK WITH EACH OTHER, LEAVING OUT THE NEED FOR NAILS OR SCREWS IN CONSTRUCTION.

RESEARCH INTERPRETATIONS



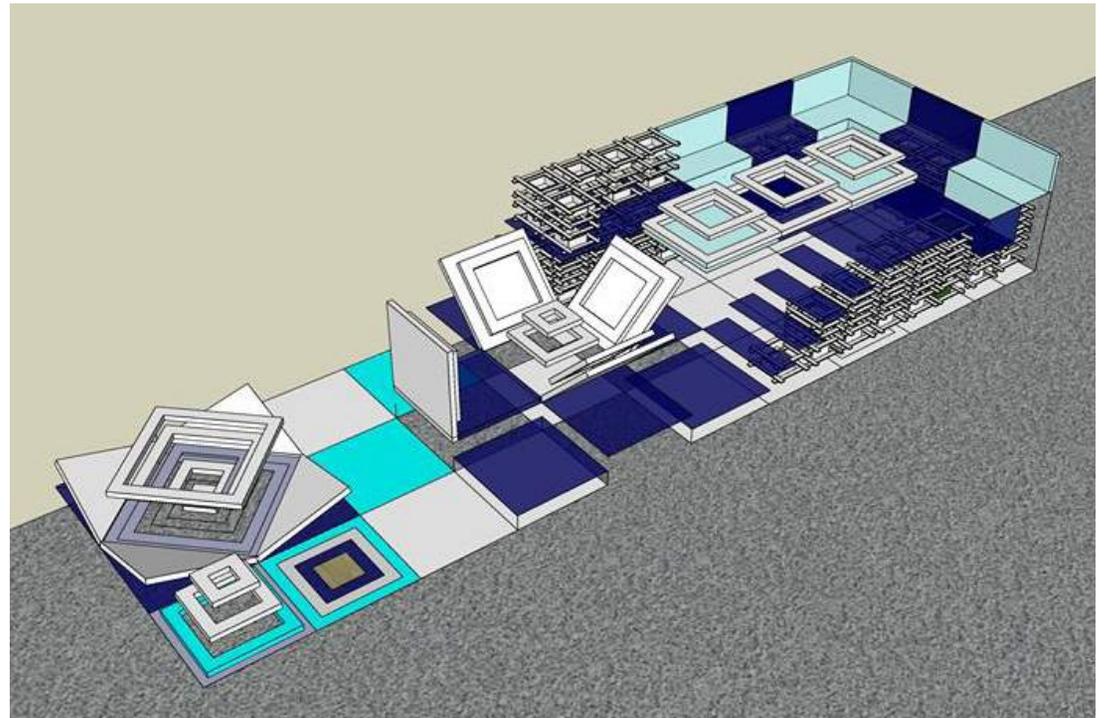
DESIGN PROPOSAL



SUGGESTED PROGRAM

SEATING
INDIVIDUALS
SMALL GROUPS

TABLE SURFACES
CIRCULATION
GREEN SPACE
SHADING
WASTE RECEPTICALS

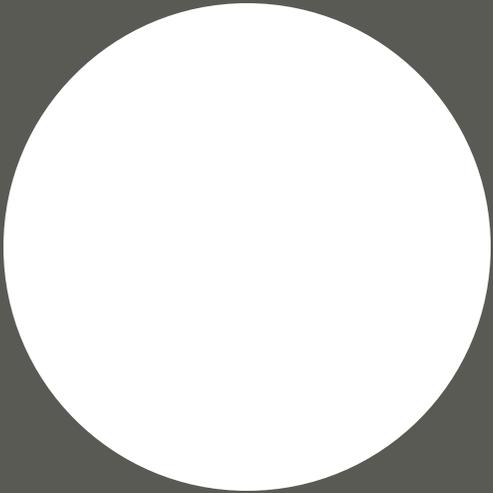


SCHEMATIC DESIGN

CONCEPTUAL MODELS



DISCUSSION





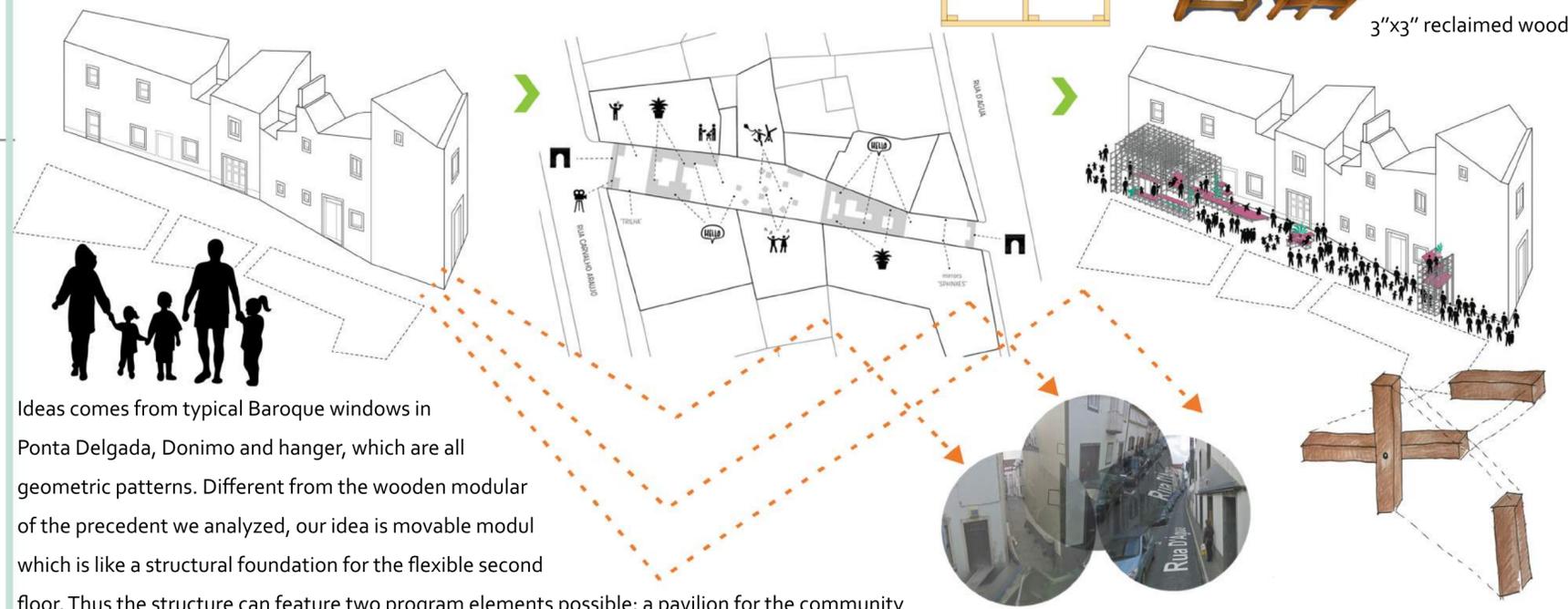
This real-world design is located in Ponta Delgada, in which held the Walk&Talk 2016 festival, promoting a favorable outer space both for citizens and for tourists across the country. If you love travelling, you should have heard of this seaboard city. Actually, it is a small island city where is famous for its Portuguese Customs but PRIVATE houses everywhere in this undeveloped island seems like that inhabitants are a bit close and incestuous. However, as a tourist city in which intends to attract more people around the world here, the most significant concern is to build up more PUBLIC areas in no time, providing a relatively comfortable environment for forthcoming hundreds of thousands of travellers. For the diagrams, traffic everywhere with limited physical facilities, especially for the central section, have made a whole assembly city broken down into small insipid pieces. A collective greenhouse is necessary for the community to rebuild up a social balance between citizens and tourists, thus a permanent dialogue with the territory, the culture and the local community, can survive.

Most importantly, people gathered. Where there has people, there is full of stories.



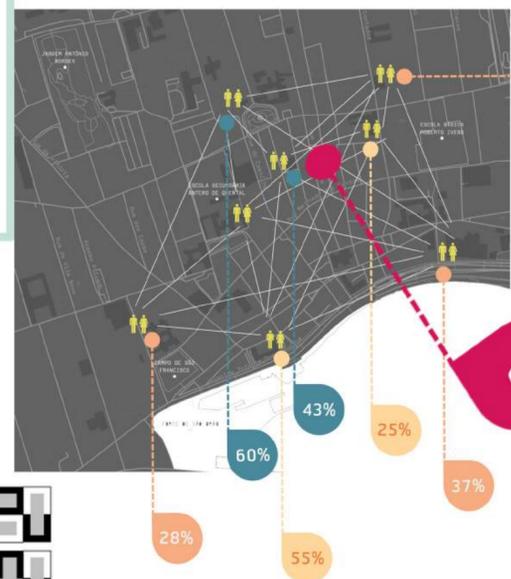
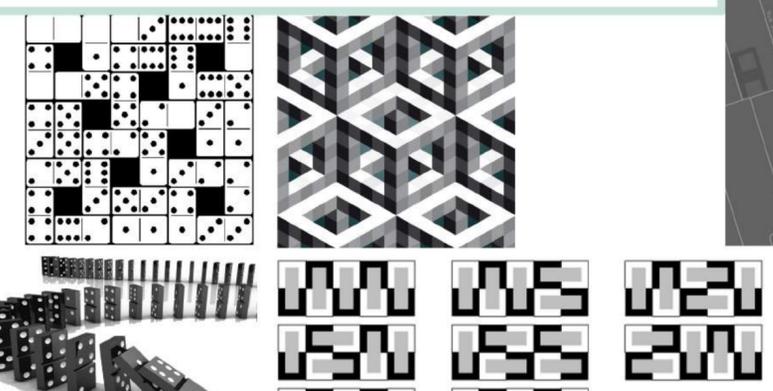
MODULAR FORMATION

Wooden Modular in Ponta Delgada



Ideas comes from typical Baroque windows in Ponta Delgada, Donimo and hanger, which are all geometric patterns. Different from the wooden modular of the precedent we analyzed, our idea is movable modul which is like a structural foundation for the flexible second floor. Thus the structure can feature two program elements possible: a pavilion for the community gather and hold events and a small structure with a terrace to provide a cozy room for someone need. For the project, every cross section, the 1/2-in. hole is made with a rotaryhammer and the anchor is tightened with a 1/2-in. impact wrench. Although it looks quite amazing, it will takes time to remodel due to its individual wood. It says that these wooden modular has been setted but in fact, they still have not been united as a one thing. Therefore, we want to fix this problem to make it better. That is why we do research on temporary installation.

CONCEPT AND ANALYSES



According to hot spot analysis of human flow, the target site is only 6%, but actually it is a interactive gather which can benefit surrounding people. When the same situation happens, it is necessary for government to try Parklets for city management.



TEMPORARY ARCHITECTURE: AN URBAN MIRAGE

Tracing the journey of digital installations in the (mind/ body) memory

SUKAINAH ADNAN ALMOUSA

The University of Sheffield, UK

Email address: s.almousa@sheffield.ac.uk

Abstract. One of the emerging multidisciplinary contemporary art practices is interactive installation art, which is concerned with constructing a temporary artistic environment that is digital, responsive and engaging. It is usually displayed within existing architectural context whether indoor in a gallery space or outdoor in a public space. Recent examples of such art projects show that interactivity and illusion are effectively present and highly influential in the perception and memory of the place. A digital display on a building façade can remain attached to the history of the site in the spectator's memory even after the display is removed. An interactive space that involves body response and emotional sensory interaction can determine the narrative perceived from the experience. These trends seemingly bring together the physical context and the digital space to contain the spectator. The two mediums are merged to provide a new genre of space, hence a new mode of perception where the art space mediates people's movement and overlay the context with new meanings. Multiple backgrounds are involved in the creative process of interactive installation art, all of which involve examining various concepts through artistic engagement with temporary spaces. Here, particularly because of interactivity and immerseveness, the spectator becomes part of the performance (the subject); with his moving and reacting he activates the narrative and probably gives it its shape. This paper aims to explore the potentials of the digital spatial display to enhance or weaken our sense of belonging to the surrounding environments while creating an illusionary space within the real physical one. It also aims to discuss how this influence would affect the memory of the mixed experience; the installation being digital, temporary and illusive and the space being physical, permanent and real. What happens to the "spectator" when contained by the digital-interactive and the physical medium(s)?. In order to unfold the mentioned questions, the study uses theories of perception and performance reflected on live case studies of recent art projects where the researcher becomes a member of the audience and an observer at the same time in order to trace the journey inside this new medium. In an era where time is being more difficult to grasp and identities of visual culture is becoming more difficult to define, temporary responsive environments can provide some openings where space becomes durational, yet, influential, and where people's movements become more meaningful in the visual terrain.

1. Installation Art Place Among Art-Architecture Complex: A Brief Background

Installation art is a term that encapsulates a realm of art practices that may seem different from the outside but share common qualities. Within installation art, a wide range of specific art types occur (interactive art, site specific art, virtual installation, land art...etc.) yet these categories are claimed to be characteristics rather than types, which means that some works may be digital site specific, interactive land art, and so on. Despite the ambiguity that accompanies categorizing installation art, most of them tend to be temporary. According to a number of dedicated critical studies, temporality seems to be a phenomenon that mediates the experience of any artwork of such (Bonnemaison and Eisenbach 2009) (Kwon 2004) (Saltzman 2006)

Digital technologies have been widely involved in the development of these temporary structures that are the concern of this paper. Digital installations -in which new temporary art spaces are shaped and formed by objects, screens, lights and sounds- are emerging architectural environments that can be encountered indoors or outdoors, anywhere at anytime. These environments of objects enclosed with lights and sounds create multimedia mediums or surroundings that the spectator can enter, walk through and explore. Moreover, they do not exist on their own. Just like a painting concept and painting colors need a canvas, these environments need a background to “hold” them; their background is the building or urban space, which in this case acts like a canvas being the context of the work-of-art without which the perception of the installation cannot happen. Reading this statement backwards, one can also say that because these multimedia installations are spatial, they create a lens or a window from which the background (the urban) can be re-viewed.

Within these two complexities, come the question of belonging that Christopher Alexander describes as a necessity and an emotional fact of life and the question of the stability of visual identity (Alexander 1978). In a complex medium where the spectator is contained by a temporary architecture that acts as an illusion over the permanent architecture, how can the spectator differentiate between the two mediums and their embedded messages, or does he or she need to? Does the spectator in such event belong to the real surroundings, or is consciousness taken completely and shifted to the virtual story?¹

The paper starts and ends with this moment described above in order to de-collage this from its attachments and thus to reveal the conditions that create the final perception of this moment. The aim of this paper is not concerned with the aesthetic of these digital art spaces, nor the history of the art movements that have influenced such digital installations. It is mainly addressed to the **emerging conditions of the perception of architecture** that emerge from digital occupied spaces. These conditions have been consequently realized during the development of temporary artistic spaces that have a digital input, where the digital display becomes part of the environment's territories.

In live practice, these conditions are unveiled through the movement of space: because it is digital, the space becomes alive rather than static, and time becomes a dimension that is strongly present. Each moment is a new story, a new visual appearance and a new environment. The spectator finds a whole narrative unfolds while they are moving. Slowing down, speeding up, the story can change, and with its change the “background” changes, with consequences for architecture and the urban environment already mentioned.

This text constitutes part of a larger PhD project, where I trace the journey of ‘disappeared spaces’ by tracking memories of the mind and body of spectators during and after the experience in such an installation, as well as tracing the footprints of the artwork to find

where exactly or fragmentally it remains. Here, I am considering the emerging conditions that were dominantly noticed as a result of the use of multimedia technologies that cause illusion to be a part of the space. The potentials of these meanings (concepts) that form the interest of this study are to firstly transform our understanding (awareness of the surroundings), and secondly, to affect the sense of belonging to the surrounding and to possibly displace our consciousness to elsewhere rather than the physical reality.

2. One Context, Two Spaces within

2.1. CARROLL/FLETCHER GALLERY, LONDON: TWO LIVE JOURNEYS

I will discuss a live field studies which I undertook in 2012 and 2013. This is a case study of a small contemporary art gallery in London, which hosts exhibitions of art works including installations. One year in between, I conducted two visits to two different artworks that I experienced by situating myself as a “viewer”, practicing the role of spectatorship in order to follow the changes of the image of the place in my mind, I inhabited the spaces whilst perceiving the interior architecture of the gallery as well as the structure of the two installations.

Each installation had its own physicality residing in objects distributed within the gallery rooms in a certain narrative that the viewers could become aware of as they were moving. In addition, some parts of the gallery in both installations had digital media displays that were carefully embedded within the building.

Where digital meets physical I will slowdown and re-view the surrounding of those moments where the gap between the gallery’s interior and the art work nearly fades, and they become one. I will re-view the remaining images in my mind and the materials I have collected to see how it looked like at the time. After that, I will re-view how and to what extent the architecture has been transformed by the virtual, how the temporality of each work has produced a new space out of the permanent architectural layout of the gallery.

In 2012 Carroll/ Fletcher Gallery hosted an installation by Spanish artist Eulia Velderosa titled (*Blood Ties*). The artwork was arranged among the gallery spaces dominating the atmosphere by kinetic compositions, and ending with a collection of photographs before the final room where a film was projected on a wall of a dark space, telling stories of the special ties between objects and humans.

The kinetic pieces consisted of a spinning light projection over a number of objects and that becomes a pattern over the first three spaces of the gallery; the middle part had multimedia projections but instead of using the walls as screens the artists used jars as both screens and sound enhancement instruments.

Let us unfold the space here: although the rest of spaces involve elements of virtuality in the space, here in this spot I find the digital layer, as a spatial component, is powerfully present. The jars were turned into “messengers” of ideas that the artist wanted to declare. The objects are humbled to the subject and together they become one medium (or one media). While watching the show, it was difficult to separate the concentration, but revising the artwork now, I can picture myself meditating in both mediums. I can detail the experience and deconstruct it. While this is useful for the analysis of what happened then, it shows that

liveness (when a space is performing live) can totally transform (shape) the perception of the space. This is a particular quality of the digital-filled-space that it adds to its architecture: Liveness, unrepeatability and newness.



Figure 7. a sequence shots of the rooms with the jars. One jar (approximately 60 cm high) acts as a screen where a narrative of images is projected. This corner becomes the point of attention during the loop of the show and attention is shifted to other corners following the directions of the projection. *Source:* Author

“Liveness”, in other words, is the space moving and interacting in real time enclosing the complete narrative of space. This meaning is borrowed from theatre studies, particularly recent works that emphasize the distinction between performance art and other types of literature. This approach is used in this study for what it reflects on my observations from both visits. What I am seeing now, I know when I come back to the same (mise-en-scene) I won’t be able to see. This is not a new phenomenon. Liveness has been always thought about as a precious fragment of time and space that cannot be stored, that can only be lived and inhabited (Auslander 2008). The new phenomenon here is that artists (and architects) have recently been able to create that quality in space by using digital technologies, such that they have been able to create a *live space* rather than a *live show*, something that a spectator can explore from *within* (physically being in) rather than explore it by watching as an outsider. Moving on, to the main hall where the main act of the installation took place, incorporated a combination of physical settings and virtual (light projection) carefully designed to fill the architectural boundaries of the hall. Unlike many artworks that use projection, the room was not darkened and the show was silent. Therefore the interior of the gallery at this spot was visible and clearly a part of the artwork. The artists designed her show for this particular layout. So one can understand that this type of work can highlight the surroundings whether indoor or outdoor by using the site as a parameter for the art installation.

The projected shadows were moving along the walls bending with the corners, taking the eyes of the spectator back and forth, distracting them from the stillness of the (other) surrounding and “*durationalizing*” the space in the timeframe of the journey. The starting and ending moments of the show govern the time that spectators spend in this gallery space. A spectator like me would be determined to capture what is going to disappear. The virtual controlled my inhabitation of the place, concluded the experience and encapsulated the piece in its motion and time. Moreover, to a great extent, it determined the perception and the impression I kept with me after leaving the space.

One year later, Carroll/Fletcher Gallery hosted another installation entitled (*Orange Between Orange and Orange*) by artist Michael Joaquin Grey. I revisited the gallery with this new installation in it. Interiorizing the space with white and orange, the layout of the exhibits still allowed me to see the same small gallery in London, but now dressed in different color, textures and light. The space was open and bright, the walls that were previously dividing the

entrance area had been removed *or shall I say disappeared*. For the purpose of this paper, I will concentrate on the same main hall, where again the artist's most interesting work for this study was located. There were two video screenings on opposite walls of the room. The space has been darkened; I was not able to define any element of the space. The floors, ceilings and corners had disappeared in the dark, and the space was two floating videos (figure 2). My eyes had no choice but to follow the images of the display as this were the only points that I could relate to and could relate me to the reality despite being digital. The architecture of the space that I could recall from my previous visit had dissolved in this installation and became one tied medium that mediated my bodily presence and my spatial awareness.



Figure 8. A number of sequence shots of one wall in the main hall show the very temporality of the visual terrain in this room challenging the eye to capture a seen that would remain in the memory of the spectator and at the same time, immersing the body in the dynamics of the dark room. Thus, the digital environment becomes the “reality” of the moment. *Source:* Author.

Now that I am reviewing and comparing both experiences of the same physical site, they are in my memory two different places that belong to the same context and that I have embodied each once. They are distinct materially, aesthetically and immaterially. They each have their poetic narrative that I've perceived at the time, the later installation transformed the previous situation of the space into a new state of presence within the dark and the moving images.

When the two exhibitions are compared in my memory, I always start with the picture of that room and carry on differentiating what has happened in the two periods. The same location, the same place, the same building, the same inner envelope and the same spectator, leave *the variable of this relational thought to become the space*. It seems that when the space becomes the variable, it associates with time to change the content of what we encounter in experiences like those set out above.

Digital art installation becomes a temporary space; that is a space tangled in its existence with time, therefore becomes a durational space. Adopting this particular description of art space mobility, Critic and theorist Mieke Bal emphasizes on the quality of movement and time. Additionally, She emphasizes on the capability of mobile art structures to challenge modes of coexistence carrying narrative from different origins to new cultural contexts (Mieke 2008).

2.2 SPACE AS REVEALED AFTERWARDS: RE-VIEWING WHAT HAPPENED

If the two narratives are put together, what happened in the two spaces appears to be an event space in which architecture was neither hosting an event, nor a stage for an event, but became an independent event that, with the power of illusion, involves the spectator to become a part of it.

“In architecture's adaptation of event as concept, the unpredictability of what happens and what is experienced is related to temporality and processual becoming.” (Jakobsen 2012)

Architecture in this case is occupied by a new temporary medium that inhabits its settings and attach its lines to it, it is transformed to a “space of flow” of images, sounds and motions followed by emotional (walkthrough) that enables the space to become, to arise as one medium, to contain and to activate the “creative perception” of which I mean –referring to Deleuze’s notion of perception (Deleuze 2006)— the ability of the human to unfold the perception of the *whole* into the perception of the *sum* by absorbing all of the components of the surrounding environment(s) (temporary and permanent) and recreate it as an image in the mind in relation to the body.

2.3 PERCEPTION IN THE FOLDS OF DIGITAL-OCCUPIED TEMPORARY SPACES

“Thought as practice of immediation is not producing knowledge but edges at the verge of perceptual actuality into unknown potentialities of the future. It enables creative abstraction, as a way of being attentive to the unknown. Abstraction not in the sense of a transcendentalizing tendency (such would be closer to knowledge) but rather a technique” (Brunner 2012).

Unlike the perceiving process of an ordinary situation of architecture, a complex of encounters is involved in perceiving digital art installations. When architectural space is *digitalized* -by attaching a digital display to it-, it turns into an immersive envelope. Likewise, when digital art is *spatialized* -by taking it out of the screens- it occupies its physical architectural space. Then, two components of the experience become necessary for understanding the new mode of perception of this (situation):

- *Temporality*: none of what I see now is going to last like the normal building’s life, what I see is going to fade within a duration of time and with it will disappear a narrative, a space, and an artwork. (Disappearance of the space (or part of it))
- *Collaged space*; a space that consists of different layers of materiality over-layering each other, merging to create the immersive environment that the spectator would encounter as a result.

Cultural writer Lisa Saltzman has written a number of studies on installation art practice addressing in her inclusive review the above temporality of space in broader terms. She refers to temporary installations -being a “gone space”- as a tool of remembrance replacing –in some cases- monumental architecture (Saltzman 2006), the current work goes from the opposite direction exploring how mind can remember the disappeared art spaces, considering architecture as a tool of remembering the disappeared. In terms of collaged space, in addition to following my personal footprints in the disappeared installations, I revisit writings about digital installation art that discusses the condition of multilayers of space. Professor G. Bruno is one key writer in the field of contemporary art practices who describes what I call *collage* as “Public Intimacy” referring to the merge between the physical and digital medium to be one and contain the human body and mind in an artistic illusion that may leave a long lasting remains (Bruno 2007). Both studies along with a number of other recent studies that lie between art and architecture, following a critical study on the details of a small temporary-art-space experience, reflect on the wider context: the site that hosts the art work, and by reflecting on this, they give a sense of new modes of belonging to surroundings that only occur with the presence of such spaces.

It is worth noting that the situation of an indoor digital installation is read differently from an outdoor digital installation since each has its own poetics and politics of display. Nevertheless, there are certain conditions that are shared in both in addition to the two main components mentioned earlier; spatial quality, newness, slowness and meeting with architecture that can be seen in one example and taken forward along with the embedded theories for further investigations. Revisiting the same architectural context over a period of time whilst it is occupied by different content, the experiential field study has materialized to me *as the spectator* what the literature has provided as a theoretical body of work that is not entirely directed to these types of platforms. It helps to see with the eye, to sense with the body and to remember with the mind as well as to experience (what happens then) on a live stream of information. Thus, live-witnessing the change would be a missing tool if other examples of *gone* art installations have been studied instead.

3. The Value of the Encounters in the Digital-Architectural-Space Experience

What has been encountered so far suggests ways in which illusion and temporality should be connected as fundamental ingredients of the investigated experience. Places are important to us as the immediate connection with the outer world. Once this connection is strong enough that we retain it safe from loss, the place becomes one of our preferred zones in which we find ourselves. In fact, it may be possible that what we need in the present moment is a more immediate medium that we can fit in, one that is just there for a while to relocate us in the world in a way that fulfills our need to belong. Perhaps living our lives in modern cities within the fast moving effects of technology we need some moments of slowing down and entering a smaller *space- of- time* that would be nothing but a theatre of direct dialogue between our bodies as our lower-selves, and our minds as our higher-selves. These moments of bringing us to ourselves again are perhaps the moments of urban meditation that we need from time to time to free our perception from everyday restrictions created by the surrounding environment.

These qualities appear to be crucial to provide a complete vision of today's architecture from an architecture perspective; it is reflected on three levels: the user, the site (building), and the architect.

Sylvia Lavin (2011), a contemporary architecture critic, in an essay on contemporary installations, offers to the reader a view of what architecture can value from projects involving digital display, this might not directly fall in aiding the design process but rather in aiding the experience of the interior or the exterior of any architectural context. Having live spatial event that negotiate the spectator's familiar territories and test them out to set alternatives of how the user can look, use, interact with a particular site, can bring the site to the front of the eye and reveal hidden aspects of its layout and thus offer the user with new narratives that he can inhabit.

Also, as much as these installations can emerge to the viewer as an experience, it can also offer architecture a chance for a *change*. In addition to changing the architecture's visuals, the change –arguably– has the ability of changing the histories of the site too; overlaying

existing memories embedded in the place with others that are just new, temporary and different

In 2012 an A/V festival *Duration* took place in Newcastle upon Thames, UK for one month in which I have taken part. A number of installations, screenings and performances were happening in different venues according to a specific timetable. The event was an illustration of the power of temporary-digital-themed events that occupy buildings in creating new connections between different sites of the city in a chosen period of time. A visitor of the entire event can now relate to the involved institutions in Newcastle and the routes between them in a *new* way creating a *durational* urban sphere that is connected by artistic temporary spaces occupying Newcastle.

An experience like A/V festival highlights the significance of this contemporary practice to architectural practice. Museum design is one of the directly influenced processes in this matter as museums now should be always prepared to host non permanent dynamic spaces and this has been detailed in various multi-disciplinary studies. The relevance found to architecture reveals the need to extend the architectural theoretical thinking of these types of structures: virtual, cinematic, digital spaces meeting the physical. Designing interactive environments has become a multi-disciplinary field. Therefore, it has not been widely addressed in architecture theory. However, claiming this direct influence on the architecture experience encourages deeper investigations.

On the practical side, designers now have the opportunity to set out public spaces that are open to possibilities and fluxes of spatial temporalities. Taking time dimension into consideration, a public space can be designed as a stage welcoming mini spaces that perform within it. This is said to add lenses and newness to the place and make it ever changing and appealing to the user (Foster 2011). As a result the user would be invited to practice certain patterns according to the spatial event offered which in turn can intensify the connection between the user and his surroundings an independent practice itself, designing the described digital spaces can challenge the constraints made by existing architecture as the architect's role is not always to build new places from scratch but also to challenge the weakness of the urban fabrics by filling it with narratives that – by staying for a short time- bring the space back to display

Lavin concludes by naming this kind of moment *Kissing Architecture* (Lavin 2011), referring to installation art's intimate meeting with its context and drawing from theories in philosophy and art architecture history. The intention of this text has been to carry on testing the potential of this close overlay in the temporary/ permanent complex, focusing on the time dimension and the journey of the spectator between the two places which, while they may not define the nature of the interaction between digital and architecture, do offer to address the emerging issues that are involved in reading the poetics of this meeting.

Acknowledgments

I am grateful for the support, the constant review and constructive feedback of my supervisors in the University of Sheffield: Dr. Stephen Walker, Director of Graduate School

of Architecture, and Dr. Mark Meagher. Their Knowledge in the addressed research area and the broader area has been a great guidance towards finishing this text.

Endnotes

¹ Media Theorist Marshall McLuhan in his theory “The Medium is The Message” offers an insight to understand how the conscious presence of the human being can shift towards the inner self or be displaced to other worlds when the senses are engaged with one form of media (McLuhan and Fiore 2008).

² Mise-en-scene is a term used in theatre and film practice. It is in this paper a metaphor for the art settings occupying architecture, and the architecture becoming a stage for a scene (the art installation) that takes place and changes constantly with the movement of the narrative. This term is used as a metaphor in an architecture study by William Mitchell as he describes the contemporary relational place experienced within architecture and urban context (Mitchell 2005)

References

- ALEXANDER, CHRISTOPHER. 1978. *A Pattern Language: Towns, Buildings, Construction*. OUP USA.
- AUSLANDER, PHILIP. 2008. *Liveness: Performance in a Mediatized Culture*. 2nd ed. Routledge.
- Bonnemaison, Sarah, and Ronit Eisenbach. 2009. *Installations by Architects: Experiments in Building and Design*. Princeton Architectural Press.
- BRUNNER, CHRISTOPH. 2012. “Immediation as Process and Practice of Signaletic Mattering.” *Journal of AESTHETICS & CULTURE* 4 (0) (June 15). doi:10.3402/jac.v4i0.18154.
<http://www.aestheticsandculture.net/index.php/jac/article/view/18154>.
- BRUNO, GIULIANA. 2007. *Public Intimacy: Architecture and the Visual Arts*. MIT Press.
- Deleuze, Gilles. 2006. *The Fold*. New edition. Continuum.
- FOSTER, HAL. 2011. *The Art-Architecture Complex*. Verso Books.
- JAKOBSEN, ANNETTE SVANEKLINK. 2012. “Experience In-between Architecture and Context: The New Acropolis Museum, Athens.” *Journal of Aesthetics & Culture* 4 (0) (June 15). doi:10.3402/jac.v4i0.18158.
<http://www.aestheticsandculture.net/index.php/jac/article/view/18158>.
- KWON, MIWON. 2004. *One Place After Another: Site-Specific Art and Locational Identity*. New Ed. MIT Press.
- LAVIN, SYLVIA. 2011. *Kissing Architecture*. Princeton University Press.
- MCLUHAN, MARSHALL, AND QUENTIN FIORE. 2008. *The Medium Is the Massage: An Inventory of Effects*. Penguin Classics.
- MIEKE, BAL. 2008. *2 Move Video Art Migration*. Actar.
- MITCHELL, WILLIAM J. 2005. *Placing Words: Symbols, Space, and the City*. The MIT Press.
- SALTZMAN, LISA. 2006. *Making Memory Matter: Strategies of Remembrance in Contemporary Art*. New edition. University of Chicago Press.

Development of parklets by using parametric modeling

Henrique Benedetto, Fabrício A. Kipper, Vinícius Marques, Underléa M. Bruscato

Federal University of Rio Grande do Sul

henrique.benedetto@ufrgs.br, fakipper@gmail.com,
vini3dz@gmail.com, underlea.bruscato@ufrgs.br

Abstract. The lack of urban planning has made the recreation areas increasingly smaller in the cities. Parks and squares gradually gave way to streets and avenues to try to accommodate the growing number of cars and motorcycles. An alternative that tries to balance recreation areas and urban roads was found in the city of San Francisco (USA). Parklets are temporary extensions of urban sidewalks that occupy a few parking spaces. This article aims to demonstrate the potential of parametric modeling in the development of parklets. Thus, anthropometric studies, amount of parking spaces and types of benches were used as input parameters. Rhinoceros and grasshopper programs were used for modeling, while 3D Studio Max was used for rendering. With this study it was possible to verify that when the project is parameterized the processes of creation and modification became faster, reducing design and implementation time.

Keywords: Grasshopper algorithm editor, parametric model, parklets.

1 Introduction

The Industrial Revolution was a breakthrough for society because the production form went from a handcrafted scale to an industrial scale. Thus, the demand for jobs in factories caused a lot of migration of peasants to the cities.

The pace of growth of most cities could not keep up with all the needs that this new reality presented. The streets, which were former exclusive areas for chariot circulation, started having the circulation of cars. In favor of urban mobility, public leisure spaces were being gradually replaced by streets and avenues. [1]

However, the solution for urban mobility is not associated with the increase in the number of roads, but with the way people move. Stimulating the displacement by collective or non-motorized means of transport (bicycle, for example) is indicated in the guidelines of the National Policy on Urban Mobility (PNMU) established by Law No. 12.587/2012. [2]

Initiatives that aim to rethink the space of circulation have already been taken in some cities. In London, there are signs that indicate the walking distance from the main sights. In Philadelphia and New York, street space is being turned into multipurpose spaces: bike paths, sidewalks and squares. [3]

The creation of squares in urban centers is a problem because there is a lack of large public spaces in central areas of big cities. To try to change this situation parklets, or mini-parks, originated in the city of San Francisco (USA) [3].

Parklets consist of the extension of temporary public footpath (sidewalk) occupying some areas which, until then, were dedicated exclusively to parking vehicles, through the implementation of a platform equipped with benches, tables and chairs, roofs, exercise equipment, or other street furniture having recreation function [4]. The great benefit in implementing parklets is increased awareness and coexistence between people and transport vehicles, both conventional (cars and motorcycles) and alternative (bike, skateboard). Parklets, because of their ephemeral construction features, give cities a significant aesthetic movement, regarding the perspectives of the cities, which are full of static buildings in the urban scenario. Parklets are dynamic, constantly changing the visual of the city and in a healthy way, the population. The parametric design concept applied to parklets contributes to the excellence in a contemporary character design, taking into consideration the essence of project design and manufacturing.

This project aims to meet the current demand for public spaces in the form of parklets and considers anthropometric dimensions for the design of a set of street furniture items, chairs and loungers, besides the development of a roof.

Using the paradigm of parametric design, this furniture can be manipulated to generate alternatives that meet the needs of different available public spaces. Thus, the purpose of this study is to investigate the potential of parametric modeling for the development of parklets.

2 Methodology

To verify the potential use of parametric modeling we opted for the development of parklets whose main function is to provide the user with a rest area. For this purpose, a chair composition and a covered area were created. That definition was based on the design time (3 months) and on the size of the available staff. This research was carried out in a course of the Post-graduate Program of Design at the Federal University of Rio Grande do Sul in 2014 with the objective to verify the development process of parklets by using parametric digital modeling.

The research was organized in two phases: exploratory literature review and the virtual and physical simulation of parklet prototypes. In the exploratory phase, the objective was to verify which design requirements should be considered in developing a parklet. These requirements were used as input parameters in the algorithm to be created in the Grasshopper program.

In Brazil, the municipality is responsible for the creation of regulations for operating parklets. During the research, it was found that few Brazilian cities have the operating regulations. The city of São Paulo, for example, has already created a handbook with regulations for those who want to implement a parklet. [5]

These regulations are divided into six categories, namely:

types of parking spots-if it is an oblique or parallel parking space;

distance from the corner - parklets cannot be installed less than 15 meters from the edge of the alignment of the street cross section;

limitations- parklets cannot obstruct curb cuts, bus stops, taxi stands, pedestrian crossings and elderly and handicapped parking spaces;

accessibility – they must meet the technical standards established in Art.5 of Decree no.55.045/ 14;

drainage -the installation should not occur on manhole covers or in areas with occurrence of floods;

sloping streets- parklets can only be installed on roads with up to 8.33% of longitudinal slope.

As input criteria to create the algorithm the type of parking space was selected (Figure 1) which defines the maximum space of occupation in parallel parking spaces positions 2.20 m wide starting from the alignment of the street curb and 10m long. Regarding perpendicular or oblique parking spaces, the alignment should be 4.40m wide and 5m long.

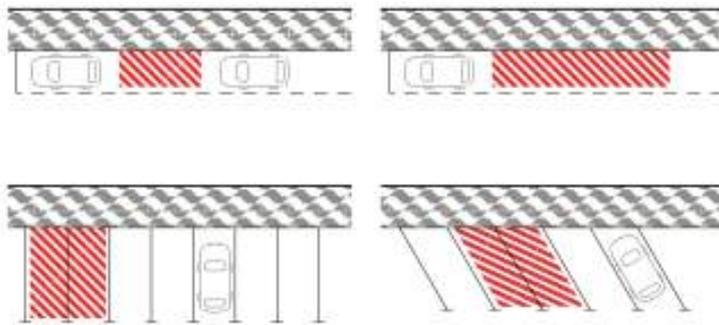


Fig. 1. Graphic representation of the maximum space for the implementation of parklets in the city of São Paulo. [5]

Accessibility criteria and slope of the streets were not used in this study because they would increase the control variables and, as a result, the complexity of the algorithm to be created. However, this implementation is recommended for future studies. As for the other criteria presented (distance from the corner and drainage), they are not considered input parameters that influence the project design.

Other data used in this project are the dimensions of benches and ceiling. For these data, we used the results of the master's thesis by Ana Claudia Vettoretti titled "Benches to read and talk: Design parameters for generative design system" [6].

In her thesis, Vettoretti surveys the several postures users of park benches adopt while reading and chatting. Taking this information into consideration, the author checked the postural tendencies adopted while performing those activities and developed a guideline for the design of these types of benches.

To verify the input parameters 9 bench profiles were selected (Fig. 2), where the user can keep their legs extended or flexed.

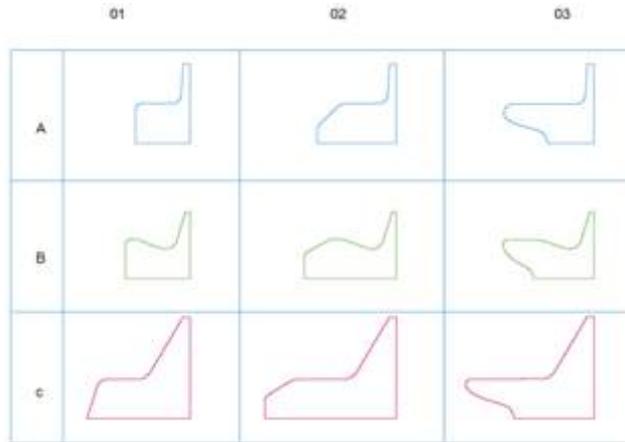


Fig. 2. Profiles selected as input parameters in the algorithm

Because this project is based on digital manufacturing, the wood sheet thickness and the distance between sheets will be considered, as this information will be essential for the generation of parts for laser cutting.

For the second phase of this study, which consists of virtual simulation, the program Rhinoceros was used to visualize the object generated from the algorithm developed in the Grasshopper program. Since the focus of this research is to verify the potential for using parametric modeling when designing parklets, a full-scale prototype was not developed. Instead, a physical scale prototype was developed and a 3D Cliever printer (type Black Edition) was used.

3 Results and Discussion

For the generation of the 3D models the program Rhinoceros (Rhino) was used with plug-in Grasshopper (GH) by drawing all geometric elements of the base curve of the structure to be projected. Although this method allowed a total mastery of design variables such as height, width and length of the roof, height and depth of the bench, whether there are curves or not in the layout of the bench, wave effect on the height and top of the bench, it provided a very poor result and did not allow an ergonomically proper design. Figure 3 shows an example of the first result obtained.



Fig. 3. Concept study

Since the first results it was easy to identify GH potential to assist in the development of complex models, test several concepts of product design, try new approaches and allow the designer to develop a relational and adaptive design. [7].

In search of a better definition to the model in terms of shape, visual design and ergonomics, it was decided that the project would start with a set of previously defined curves, instead of generating the curves in the GH. A set of projects of benches ergonomically designed by Vettoretti [6] was then taken as a basis and it was added a more organic and fluid form, based on the concept of the “Great Wave off the coast of Kanagawa” painted by Hokusai, which served as inspiration, for example, for the construction of the Yokohama International Marine Terminal in Japan by FOA (Foreign Office Architects) [8] as shown in figure 4 and 5.



Fig. 4 -The great wave



Fig. 5.Reference curves developed

The definition of the curves increases the degree of project control and makes it possible to generate different models of parklets with the addition of new geometries. When a new curve is inserted, it is projected and added to the model base set, which regenerates and accommodates to the new geometry. One of the positive aspects in the parametric adjustment of curves is the transition control between them, because this is one of the ways to ensure that the predicted ergonomic aspects will not change (Fig. 6). Therefore, when this control is used it is possible to ensure a smoother transition between curves.

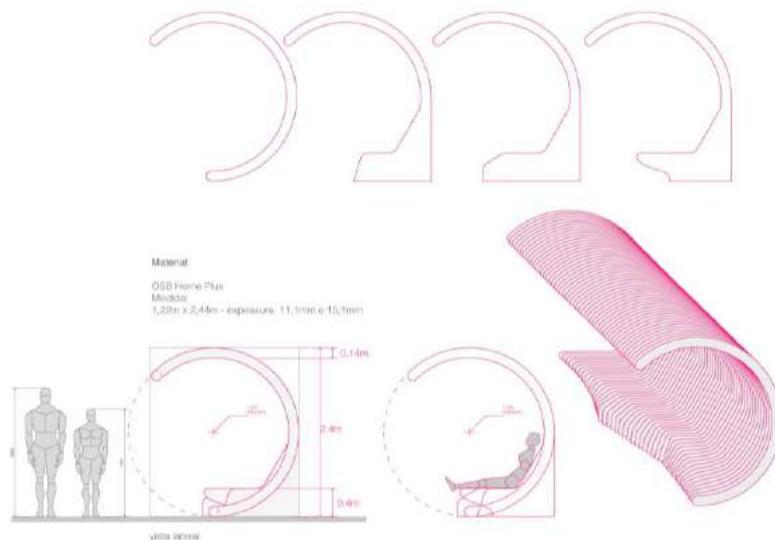


Fig. 6.Reference curves developed and ergonomic aspects

The algorithm developed in the GH consists of some building block models. Figure 7 presents the parameter block, both of the sheet to be considered for the production and of the curves that will be used as a basis for building the model.

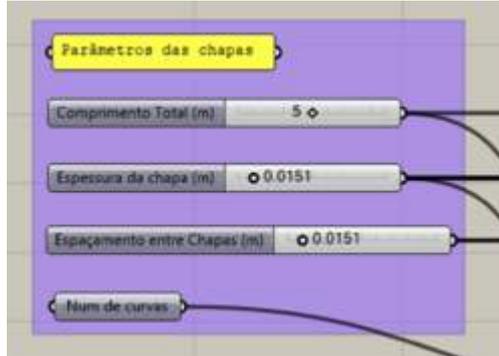
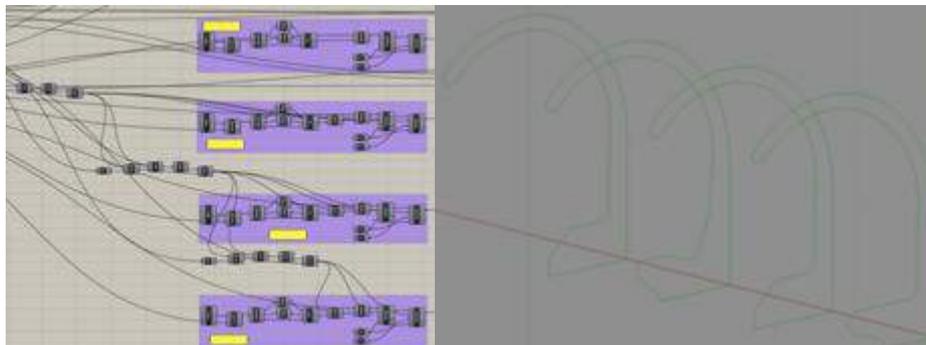


Fig. 7.Model parameters

Once the curves are defined, whether the same or different, and the dimensions of the project, the project itself was developed. It consisted of 4 geometry modules, which was defined by the fixed number of curves that would be used. The correct curve positioning was reached with the fractions of codes shown in Figure 8a.



(a) Algorithm in Grasshopper

(b) Positioned curves

Fig. 8. Positioning modules of reference curves

Following the method of successive copies of these curves it was obtained the skeleton of the model structure, as shown in figure 9a, the code and in 9b the structure.

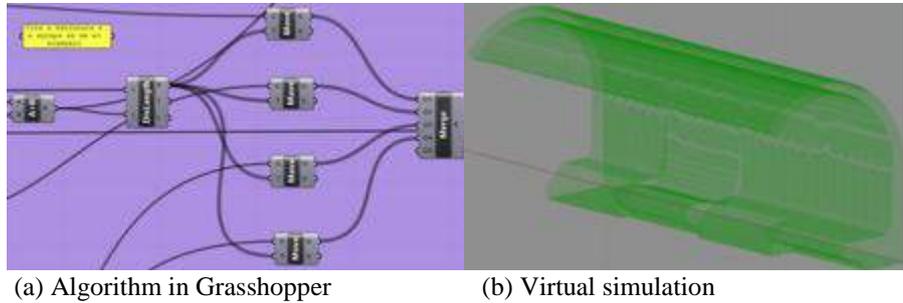


Fig. 9. Positioning modules of reference curves

We decided to generate a large number of intermediate curves to ensure a smooth transition between the curves, and, thus, ensure that there was no distortion of the ergonomic baseline study.

To ensure that the same orientation of the curves is achieved when generating the lofting of the model, the guide curves were generated in a controlled process and not at random by the grasshopper function. This attention was necessary in order to eliminate fouling in the resulting model, generated by differences between the geometries of curves and misalignments and their number of constructing points. Figure 10 shows the code and the result of this operation.

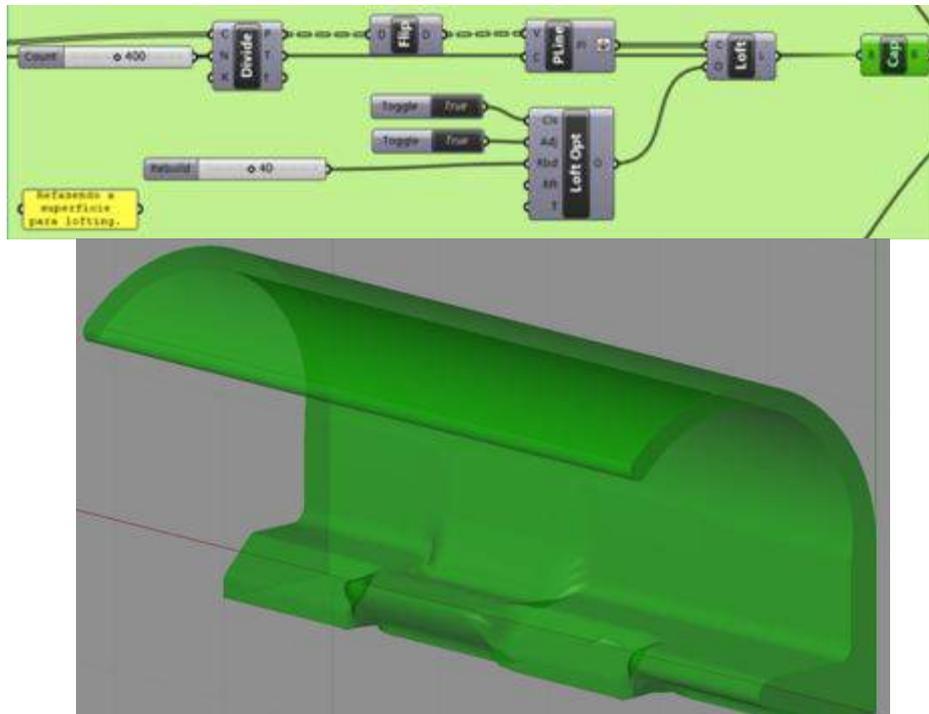


Fig. 10.Lofting control algorithm and virtual model

With the generated lofting the structure for the slicing and generation of the final model to be manufactured is obtained. Considering the initial parameters of wooden sheet thickness and distance between sheets the sections of the model were created.

Once the final model is a set of sheets separated from each other, a support was developed to be placed between the sheets, without changing the visual design of the model. This support is said to be universal since its dimensions allow its use with any geometry of curve chosen to set up the Parklet model.

Finally, the sheets and brackets are united in one element, thus concluding the desired Parklet model.

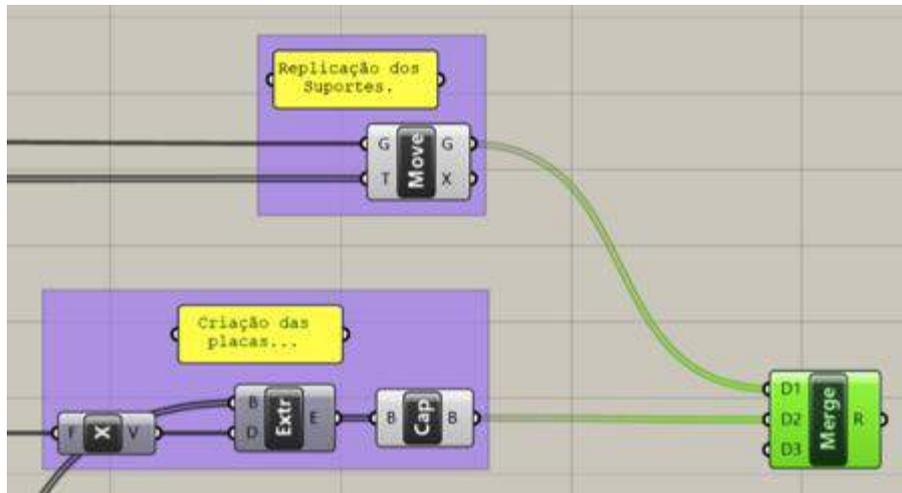


Fig. 11. Algorithm of sheet bonding

One of the advantages of using a tool such as Rhino/Grasshopper is the possibility of generating the cross-sectional profile for a nesting algorithm, and, thus, materialize the constructive elements of the model.

In this study, physical prototypes of one of the parklet variations developed were printed in 3D printers, as illustrated in figure 12.



Fig. 12.Prototype made in a 3D printer.

With the virtual model generated by Rhino / Grasshopper the file was exported to 3D Studio Max in order to create the final rendering of the project that can be seen in Figure 13.



Fig. 13.Final model of parklet

4 Conclusion

When a project is parameterized there is design time optimization, which can be enduring the phase of generating alternatives and in the manufacturing process, which makes its use a major competitive differential. The use of parametric modeling was efficient in developing parklets, because for each area of a city there can be different design requirements (inputs). The study also showed that in the project scope phase it is necessary to define the variables involved and their relationships to create the parametric code in Grasshopper. However, if there is a need to include a new parameter during the project this can be done without affecting what has already been performed.

Acknowledgement

The authors would like to show their gratitude to the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES) and the Conselho Nacional de Pesquisa e Desenvolvimento (CNPq) for providing research fellowship. Furthermore, the authors would like to thank the referees for their significant suggestions on this paper.

References

1. RUBIM, Barbara; LEITAO, Sérgio. O plano de mobilidade urbana e o futuro das cidades. *Estud. av.*, São Paulo, v. 27, n. 79, 2013. Available from <<http://dx.doi.org/10.1590/S0103-40142013000300005>>. access on 09 Oct. 2014.
2. BRASIL, Presidência da República. Lei nº 12.587 de 3 de janeiro de 2012. Brasília, 2012. Available from <http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/lei/l12587.htm> access on 20 jan 2015.
3. Brozen, Madeline. Reclaiming the Right-of-Way – Best Practices for Implementing and Designing Parklets. Available from <<http://docs.trb.org/prp/13-0464.pdf>> Access on: 09 oct. 2014
4. SIDERIS, Anastasia Loukaitou; BROZEN, Madeline; CALLAHAN, Colleen. Reclaiming the Right-of-Way: a toolkit for creating and implementing parklets. UCLA, Luskin School of Public Affairs, 2012. Available from <http://nacto.org/docs/usdg/reclaiming_the_right_of_way_brozen.pdf> Access on 25 jan 2015.
5. SÃO PAULO, Prefeitura Municipal de. Manual Operacional para implantar um Parklet em São Paulo. Available from <http://gestaourbana.prefeitura.sp.gov.br/wp-content/uploads/2014/04/MANUAL_PARKLET_SP.pdf> Access on 25 jan 2015.
6. VETTORETTI, Ana Cláudia. Bancos de ler e conversar: parâmetros de projeto para sistemas de design generativo. Dissertação de mestrado. Programa de Pós-Graduação em Design da Universidade Federal do Rio Grande do Sul. Porto Alegre, 2010.
7. Hemmerling, M. Simple Complexities: A Rule-based Approach to Architectural Design (2013), SIGraDi 2013 Proceedings, Valparaíso, Chile.
8. PORTELLA, Underléa Bruscato. De lo digital en la arquitectura. Barcelona 2006. Tesis doctoral. ETSAB/UPC