Reconsidering Physicality

Inspired by our changing cultural contexts moving in constant acceleration toward disembodiment, architecture is eagerly attempting to transcend its static nature bound by gravity, and counteract its inherent inertia. At a time when technology encourages hyper-connectivity to the point of challenging established notions of *place* and *physicality*, a stream of flexible architecture has been appearing on the scene,

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presenting ways to make architecture move, respond, interact, sense, mimic, display, and change. So far, this search has mostly yielded mechanistic proposals that act as prosthetics attached to an otherwise apparently *incapable* architecture, and digital surfaces or landscapes that reduce architecture to a physical supportive framework or backdrop; both drives seemingly unaware of architecture's potential.

The desire to augment the intensity with which our constructed context can surprise, stimulate, and acknowledge us, feeds such proposals. With multiple variations and shifts in appearance, designs obediently respond returning our gaze, as if subdued to our will while simultaneously arresting our attention. These proposals hold places for design desires that emerge outside of architecture, and when imported during the creative process, seldom integrate completely.

ARE WE OVERLOOKING ARCHITECTURE?

Architecture is the *medium* we inhabit, a mediator between the context and the self, that grounds the self and gives it a sense of place and belonging. What defines architecture is varied and fluid. From the discipline's standpoint its definition may be perpetually open to debate. Yet from the experiential point of view, architecture is the result of complex relationships between material, space, context, and the individual. In its physicality, although concretized and fixed by its own weight, architecture involves more than the measurable object. It also provides references to perceive that which is intangible, unmeasurable, and ephemeral.

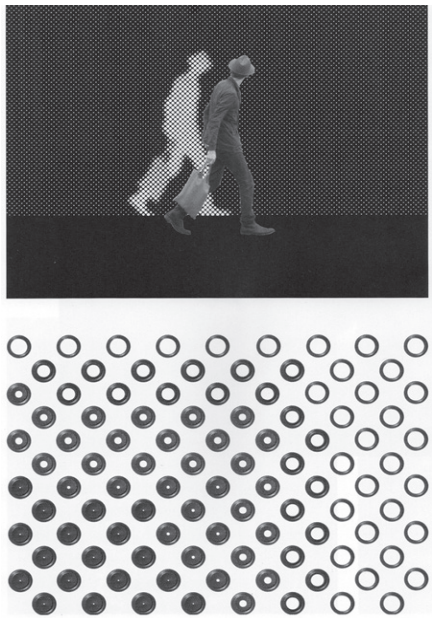

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Figure 1: LAb[au], *Touch.1*

THE MEASURABLE

The perception of architecture as object has been present throughout history, and was challenged, possibly for the first time, during the Renaissance. Lorens Holm in *Brunelleschi, Lacan, Le Corbusier: Architecture, Space and the construction of subjectivity,* presents Brunelleschi's development of perspective as a crucial moment in the history of architecture where *space* was conceptualized and foregrounded. He writes:

> Architecture began not only to make space, but... may now be said to represent space. We call this—following Lacan—'the mirror stage' in which architecture and space emerge together, and compare it to the emergence of the identity of the self. [3]

Prior to Brunelleschi's 'discovery' of space, magnificent objects were constructed in the landscape that were the product of available local materials and technologies, systems of order, and ideologies, as in the case of the pyramids, classic temples, roman engineering feats, and medieval architecture. Though they can all be considered spatial in their own way, spatial qualities were more often a byproduct than a premise. During the Renaissance space was given a fundamental role in the making of architecture, a role that included the incorporation of the subject through the point of view. Since then, space, as a design premise, has fluctuated throughout history while the focus on the concrete object continues to prevail.

Events and advances of the beginning of the twentieth century, including the development and mass production of automobiles and aircrafts, the building of the world fairs, the surge of advertising and media, among others, strengthened the object-nature of architecture now presented in a new light as a desirable commodity. In her essay *L'Esprit Nouveau: Architecture and Publicité,* Beatriz Colomina, illustrates how the magazine published by Le Corbusier and Ozenfant between 1920 and 1925, which promoted mass production and intensely advertised industrial products, presented both the architecture in it, and the idea of 'home,' as industrial products. In the second issue of *L'Esprit Nouveau*, Le Corbusier and Ozenfant wrote, "houses must go up all of a piece, made by machine tools in factory, assembled as Ford assembles cars, on moving conveyor belts ... It is in aircraft factories that the *soldier-architects* have decided to build the houses."[4] Architecture became the functional, efficient 'machine for living,' programmed to program life. Like the mass-produced soldier-architect, the body too was recast as a machine, living in a machine made by a machine.

Architecture, until then predominantly known through personal experience, now became known through its photographic image, reaching a wider audience distributed by the media, and confirming *sight* as the primary sense for the experiencing of architecture. Kengo Kuma, in *Anti-Object,* describes how Le Corbusier and Mies van der Rohe, in part, led architecture in the direction of widespread communication by creating "works of architecture that were sufficiently new and individualistic to be recognized as such in a single, decisive, black-and-white photograph." Furthermore, "[t]o be decisive, the photograph had to show the entire building," consequently

enhancing its perception as an object.[5] Kuma recognizes the inevitable tendency toward the objectification of architecture but differentiates those buildings which "are deliberately made distinct from their environment," from those which "attempt to mitigate this isolation."[6] He later adds that, "[n]o particular skill or effort is required to turn something into an object. Preventing a thing from becoming an object is a far more difficult task."[7]

It is not the intent of this essay to censure the objectification of architecture, but to become aware of, and overcome the too familiar inclination toward default objectification and the comfort of the measurable, with the consequent *inattention* of the unmeasurable, hence rendering architecture incomplete.

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Figure 2: G. Green, F. Eyl, *Aperture.2*

THE UNMEASURABLE

Along with the collective reaction to the definition of the modern man, objectified and anonymous, phenomenology aided in restoring the identity of the individual by drawing attention to consciousness and perception. Gaston Bachelard returns the *self* to the previously mass-produced body, by underlining the importance of daydreaming, a practice that is inherently human. He presents the house as the shelter of daydreaming and the dreamer; as "one of the greatest powers of integration for the thoughts, memories and dreams of mankind."[8] But beyond being a container for the self, the house establishes with the self a dynamic and mutually transformative relationship, transposing their virtues into each other. Bachelard adds, "A house that has been experienced is not an inert box. Inhabited space transcends geometrical space."[9] It can be said that the object when inhabited by the *self* becomes architecture; and that the *subject* becomes the embodied consciousness of the temporal relationship between material and space, established through experience.

Jun'ichirō Tanizaki, in *In praise of Shadows,* describes wonderful architectural spaces made so by their relationship to the environment and the careful manipulation of light and shadows, supported by the simplicity of surfaces and materials. His description of his experience of the traditional Japanese toilet clearly illustrates this point.

> The parlor may have its charms, but the Japanese toilet truly is a place of spiritual repose. It always stands apart from the main building, at the end of a corridor, in a grove fragrant with leaves and moss. No words can describe that sensation as one sits in the dim light, basking in the faint glow reflected from the shoji, lost in meditation or gazing out at the garden ... surrounded by tranquil walls and finely grained wood, one looks out upon blue skies and green leaves.[10]

He exalts an architecture that in its subtlety establishes compelling relationships between the self and the environment that enrich and augment the sensorial experience. Like Tanizaki, Peter Zumthor draws attention to the virtues of sound in the architectural experience, but he does so by including *silence* among architecture's desirable qualities. In *Thinking Architecture* he writes about what could be called *architectural silence*. He explains that "[he]

listen[s] to the sound of space ... and to the silence that is a prerequisite of hearing."[11] Furthermore, he finds "beautiful silence" in buildings that do not represent anything but are just themselves, in contrast with architecture that talks "unceasingly from every detail," for only quiet architecture enables the visitor to experience it.[12] With equivalent insight Louis Kahn places *light* in a generative role when he writes, "A vault is a choice in character of light,"[13] rather than a choice of form, and acknowledges light's role toward a nuanced experiencing of space by underlining its "[e]ndlessly changing qualities ... in which a room is a different room every second of the day."[14]

A significant number of architects today engage architecture in this inclusive manner, where material and context bring into awareness through sensorial experience the unmeasurable qualities of architectural space.

TRANSCENDING PHYSICALITY?

For decades media and technology have been flooding and shaping our cultural contexts. The contexts that once provided us with familiar references that helped us define and establish our identity are now testing our ability to adapt as we strive to fight exponential obsolescence, and information overload. *Place*, once understood as a physical point of recognition and reference, a geographic destination, a location that acts as an anchor offering orientation and a familiar context supporting the self, has been put into question by the notion of *event*. The fixed nature of place dissolves now with the potential to detach from its geographical location and becomes nomadic turning into flowing moments of convergence and recognition. Holm writes, "[W]e seek relations; instead of objects, [we seek] the encounters that relations give rise to."[15] These encounters are the events that speak about the fluidity in the changing notion of place.

We inhabit today the twilight zone between a physical world, where we deplete resources, navigate oil crises, and brace ourselves for the consequences of global warming, and a digital world, a synthetic world of abundance, infinite possibilities, and variations, that allows for the extension of the self through its avatar. An alternative manifestation of Lacan's mirror stage, it can be said that the avatar becomes the *reflection* of the self, now with the possibility, unlike what occurs with the mirror reflection, of editing and adjusting the reflection of the self at will. Although the avatar, as the constructed reflection, informs the identity of the self, it also conceals the self, which through its avatar finds in virtual space similar conditions for encounters, or place making. Holm writes "[t]he spatiality of architecture lies in the flow of signifiers that create situations within which encounters happen ... between people and spaces, subjects and others, things and ideas."[16] In virtual space, virtual signifiers create virtual situations, or places for interaction, within which virtual encounters happen. Through these encounters the avatar's presence is acknowledged, thus the sense of identity of its corresponding individual is remotely reinforced. Interaction in virtual space returns a response, yet another form of reflection of the self, an evidence of its existence, both virtually and physically.

Virtual worlds simulate our real world but with the advantage of allowing us to transcend our 'sense' of physicality, teleporting freely through virtual space in seconds. *In-world* time has no relationship to natural cycles, and the avatar never ages. Familiarized with these technologies, we unapologetically consent to engage relationships, space, and life in increasingly digitally mediated ways. Despite this, the body is unable to transcend its physicality, and continues to act as the connective tissue to the physical environment that the self attempts to transcend.

THE MACHINE BREAKS DOWN

Contemporaneously with the launching of production-line automobile manufacturing, and the Wright brothers' successful flight of an engine-propelled airplane, E.M. Forster published *The Machine Stops*. This seemingly dystopian story imagines a future where technology has pervaded every possible aspect of daily life. Although written in 1909, it brings forward notions of hyper-connectivity, virtual social networks, and the gradual rejection of the physical in favor of the virtual. The story begins:

> Imagine, if you can, a small room, hexagonal in shape, like the cell of a bee. It is lighted neither by window nor by lamp, yet it is filled with a soft radiance. There are no apertures for ventilation, yet the air is fresh. There are no musical instruments, and yet, at the moment that my meditation opens, this room is throbbing with melodious sounds. An armchair is in the centre, by its side a reading-desk, that is all the furniture. And in the armchair there sits a swaddled lump of flesh—a woman, about five feet high, with a face as white as a fungus. It is to her that the little room belongs.
> An electric bell rang.[17]
> …
> But it was fully fifteen seconds before the round plate that she held in her hands began to glow. A faint blue light shot across it, darkening to purple, and presently she could see the image of her son, who lived on the other side of the earth, and he could see her.
> …
> "I want you to come and see me."
> Vashti watched his face in the blue plate.
> "But I can see you!" she exclaimed. "What more do you want?"[18]
> …
> "You know that we have lost the sense of space. We say 'space is annihilated,' but we have annihilated not space, but the sense thereof. We have lost a part of ourselves.[19]

The story redefines the self, the body, and space. The physicality of the body and the environment had long been depreciated in favor of the simulated virtual world constructed by *the Machine*. By privileging the mind, the sensing physical body had reduced its functions and mobility to its minimum and, consequently, the sense of physical space had been "annihilated." The disembodied self searches for the aimless generation of ideas, for that is all that is left. The stimuli previously perceived through bodily sensorial

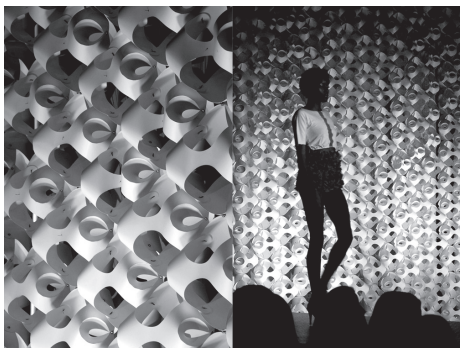

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Figure 3: Destiny Jackson, Zack Rattner.
FMDS Kinetically responsive panel.

experiences, that generated pleasure and informed life have been lost. Naturally, the story ends dramatically.

In a less dramatic description of the present context, Solà-Morales writes, "[w]e live today in the estrangement between self and others, between the self and the world, on the margins even between self and individual."[20] Our perception of our environment is fragmented and constantly changing. Terabytes continue to accumulate infinitely faster than they can be translated into meaningful structures. In a nomadic state of mind, induced by the cultural context, the self negotiates an environment that is constantly fighting for its attention.

Can architecture engage the technological advances without neglecting its essential qualities? In what ways can this search find more meaningful and timeless manifestations? Architecture can *represent* its time, but it can also continue to provide the much-needed places for repose and contemplation, the spaces for daydreaming.

INTERACTIVE ARCHITECTURE AND RESPONSIVE TECHNOLOGIES

Architecture is by nature interactive, the swinging open of a door being the simplest form. Yet in what is known as 'Interactive Architecture' today the subject changes the configuration or quality of the architecture by engaging and moving its parts. 'Responsive Technologies', applied within Interactive Architecture, carry a programmer's computer intelligence that "senses" human presence or conditions in an environment, and in response outputs scripted performances. Interaction and, more effectively, responsiveness mitigate feelings of estrangement by offering the self the illusion that its presence not only has been acknowledged but also has an effect: it excites or provokes a response from the animated material.

These ideas have been present for decades. In the *Fun Palace,* designed by Cedric Price and Joan Littlewood in 1964, spaces could be reconfigured at people's will by moving parts of the building with a crane. About this project Omar Khan in *Responsive Architecture/Performing Instruments* writes that, "[t]he building's visual incompleteness was a provocation to its inhabitants to change and adapt it."[21] The Fun Palace's virtual end was planned by assigning it an expiration date, a date of demolition ten years after its unrealized construction. Although unrealized, this project still spawned a strong legacy of proposals that invite users to collaborate in the shaping of their environments.

Archigram envisioned both interactive and responsive architecture in a highly mechanical, robotic, and technological world. In *House For The Year 1990* commissioned in 1967 "The enclosures of the living area [including floors, were] no longer rigid, but adjustable, programmed to move up and down, in and out" by the inhabitant.[22] The responsive architecture positioned the subject in a place of effortless, almost capricious, creator. The house "was served by machines and facilities that responded to an immediate and passing whim of a single person and the passing moment's assembly became the environment."[23] The *Cushicle* and the *Suitaloon,* are examples of interactive, portable and deployable, architecture that enabled nomadism,

freeing the subject from architecture's foundation. *Control and Choice Housing Study 1967* promised to turn over to the inhabitant the determination of their environment, 'constructing' a sense of freedom, in actuality limited by the scripted performance and physicality of the architecture.

DUCKS AND DECORATED SHEDS[24]

Interactive and responsive examples today, although inspired by these precedents among others, are also strongly driven by current technologies, biomimetics, and science. In some cases these influences inform the performance or behavior of the architecture, but in most cases, where the impetus lies more heavily on architecture *expressing* those influences, they become *ducks* or *decorated sheds*. Ducks can be said to represent and express either the idea of performance, or the scientific metaphor adopted, thus yielding designs more fitted for landscapes in the 1966 movie *Fantastic Voyage: Journey Into the Living Body of a Man,* than for any place on earth. Decorated sheds, on the other hand, include the cases where the architecture becomes the framework to support lavish media surfaces.

Deleuze and Guattari present "the body without organs"[25] not as an incomplete or mutilated body, but as the body that is not limited, in its action, to the pre-determined processes of the physical organs; a body that freely associates different zones into virtual organs in response to a desire. The body without organs exists in the state of greatest potential. It is fluid, flexible, reconfigurable, and yet, its sense of unity or order is never lost. In contrast to this body, Delueze and Guattari also present "organs without the body"[26] as the fragmented body, the body that has lost unity, and thus exists in a confused state, unable to define itself. Certain strains of architecture are participating in creating what could be called "landscapes of organs without a body," where, by not integrating completely the desired external references in the creative process, they produce a landscape populated with "organs" that do not coalesce into a coherent philosophical structure, in other words, into an architectural body, as fluid, flexible and reconfigurable as it may be. The use of biomimicry, cellular systems, and responsive technologies must continue to strive to transcend their literal representation, or the desire to express. It is through appropriating the intrinsic qualities of the chosen metaphors in response to architectural necessities that they can find an essential translation into an architectural equivalent, and return to the "body without organs."

RESPONDING TODAY

Explorations with responsive technologies at present span over a wide range of interests that have resulted, among others, in products and environmental systems for energy efficiency in buildings, for mediated environments that increase the autonomy of the elderly and the physically challenged, and for ambient manipulation in response to a *user's* mood and desire. In most cases within these alternatives the technology is *implicitly* engaged, and remains invisible to the senses, privileging comfort, performance, and efficiency. Other initiatives have been yielding a variety of temporary intricate installations and constructs; objects that inhabit spaces

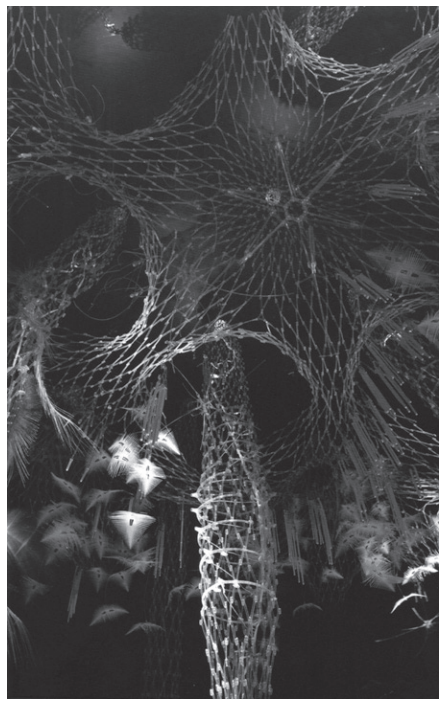

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Figure 4: Phillip Beesley, *Hylozoic Soil.*[27]

Figure 5: Jean Nouvel*, Arab World Institute32*

and respond to human presence in poetic and intimate ways. They could be said to present yet another alternative manifestation of the mirror stage, where the constructs, now *explicitly* affected by the presence of the self, return scripted responses that, like reflections, heighten the awareness of the self.

Michael Fox and Miles Kemp in *Interactive Architecture*, present a wealth of examples organized according to their qualities and performance, providing a rather comprehensive genealogy. The authors position interactive architecture (IA) as "a transitional phenomenon with respect to a movement from a mechanical paradigm to a biological paradigm."[28] While this reading about the trajectory of IA is accurate, the question remains: If architecture is neither a machine nor a living organism why impose such paradigms on it? While the question of architecture needing external paradigms can be entertained, the paradigms here engaged appear myopic with regard to architecture's physicality, and are not informing architecture. Most examples remain as discrete objects and architectural prosthetics centered on the self. More effort is seemingly applied toward creating synthetic environments to clad architecture with, than toward establishing grounding relationships between the self and the existing context through the architectural experience and architecture's physicality. Are we in our infatuation with technology overlooking architecture? What validates the use of these technologies in architecture, when as Louis Kahn implied, the sun traveling through the sky already offers vast potential for effective design? How can these technologies participate in the making of architecture without relegating it to a subservient role?

In *Kissing Architecture* Sylvia Lavin offers a promising direction for exploration. She describes "superarchitecture" as that which results when architecture and another medium, foreign to architecture, kiss. "Kissing is a means of extending and intensifying architectural effects through the short term borrowing of a partner medium's flavor."[29] She adds, "[It] is not a collaboration between two that aims to make one unified thing; it is the intimate friction between two mediums that produces twoness—reciprocity."[30] The examples Lavin discusses in her book are acts of kissing between the architectural *surface* and the projected *image*. This pairing however, rather than producing reciprocal effects, produces decorated sheds, where the architectural surface is effaced by the content of the image, while the image's effect is intensified by means of the architectural scale. In this process relationships between architecture and the environment that could potentially intensify both, are excluded from consideration, and the intensified image's effect excludes those that are visually impaired from the promised architectural effects of this particular kiss. Although these image-based examples contradict the expressed desired effect, the desire itself of "extending and intensifying architectural effects" is key.

Anni Albers's work and essays on design provide a practical perspective through which to engage this desire. In *Design: Anonymous and Timeless,* she writes that, "[t]he material itself is full of suggestions for its use if we approach it unaggressively, receptively. It is a source of unending

ENDNOTES

1. Bonnemaison, Sarah, and Ronit Eisenbach. 2009. *Installations by architects: experiments in building and design*. New York: Princeton Architectural Press. p. 174-175. The authors write, "The Dexia Tower has 4,200 windows that can be individually lit by RGB-LED bars, turning the immense façade into a display surface…[F]rom a kiosk placed in the plaza, people used the multitouch screen to manipulate the color pattern of the tower."
2. Fox, Michael, and Kemp, Miles. 2009. *Interactive Architecture*. New York: Princeton Architectural press. p. 149.
3. Holm, Lorens. 2010. *Brunelleschi, Lacan, Le Corbusier: architecture, space and the construction of subjectivity.* London: Routledge. p. 13.
4. Colomina, Beatriz. 1994. *Privacy and publicity: modern architecture as mass media*. Cambridge, MA: MIT Press. p. 159.
5. Kuma, Kengo. 2008. *Architecture Words 2. Anti-Object: The Dissolution and Disintegration of Architecture*. London: AA Publications. p. 13.
6. Ibid., Preface
7. Ibid., p. 51.
8. Bachelard, Gaston. 1969. *The poetics of space.* Boston: Beacon Press. p. 6
9. Ibid., p.47.
10. Tanizaki, Junichiro. 1977. *In praise of shadows*. New Haven, CT: Leete's Island Books. p. 3.
11. Zumthor, Peter, Maureen Oberli-Turner, and Catherine Schelbert. 2006. *Thinking architecture*. Basel: Birkhäuser. p. 86.
12. Ibid., p. 33.
13. Kahn, Louis I., and Robert C. Twombly. 2003. *Louis Kahn:*

stimulation and advises us in most unexpected manner."[31] While the digital and the responsive technologies seem at first glance immaterial, and foreign to the conventions of architecture, considering them a *material*, rather than discreet objects or constructs housed by, or attached to, architecture, may facilitate their incorporation into questions and explorations on architecture.

The Arab World Institute, by Jean Nouvel, is an encouraging example in this regard. Combining tradition and environmentally responsive technologies in an architecture with a layered façade, it borrowed geometries from traditional latticework and incorporated photosensitive diaphragms that adjusted their aperture in response to the levels of sunlight. With a facade originally programmed for efficiency and comfort, the design was able to produce in its interaction with light and shadow-patterns meaningful architectural spaces. Unfortunately the system broke down and the building may not have performed as efficiently since, yet the architecture remains as meaningful and effective, supported by its *unmeasurable* qualities, and the relationships it establishes between the self and the environment.

In his essay *Breathing Walls*, David Leatherbarrow suggests that architecture, with its 'behavior,' continues to change the environment, when the *passive activity* of its elements "result[s] in the creation of qualities the world lacks."[33] The reciprocity implied in this thought could be read as the result of architecture engaging in a kiss with the environment. Can media and responsive technologies participate in this kiss and find rewarding roles in architecture? Where they may not need to *actively* respond to human presence, mimic lie, or produce image, thus fostering an imbalanced perception of architecture, but where they can instead contribute to architecture's measurable and unmeasurable qualities with their passively active behavior, to extend and intensify architecture's physicality. ◆

essential texts. New York: W.W. Norton. p. 161.

14. Ibid., p. 232.
15. Holm, Lorens. 2010. *Brunelleschi, Lacan, Le Corbusier: architecture, space and the construction of subjectivity.* London: Routledge. p. 209.
16. Ibid., p. 209
17. D.R. Barnes, R. F. Egford, editors. 1979. *Twentieth Century Short Stories*. London. George. G. Harrap & Co. p. 126.
18. Ibid., p. 127.
19. Ibid., p. 144.
20. Solà-Morales Rubió, Ignasi, and Sarah Whiting. 1997. *Differences: topographies of contemporary architecture*. Cambridge, MA: MIT Press. p. 23.
21. Beesley, Philip, and Khan, Omar. 2009. *Situated Technologies Pamphlets 4: Responsive Architecture/ Performing Instruments*. New York: Architectural League of New York. p. 19.
22. Cook, Peter. 1999. *Archigram*. New York: Princeton Architectural Press. p. 62.
23. Ibid. p. 68.
24. Venturi, Robert, Scott Brown, Denise, and Izenour, S .1977. *Learning from Las Vegas: the forgotten symbolism of architectural form*. Cambridge, MA, MIT Press. p. 87. The authors define two main groups in architecture according to how symbols are conveyed to communicate meaning:
    1. Where the architectural systems of space, structure, and program are submerged and distorted by an overall symbolic form. This kind of building-becoming-sculpture we call the *duck* in honor of the duck-shaped drive-in, "The Long Island Duckling," illustrated in God's Own Junkyard by Peter Blake.
    2. Where systems of space and structure are directly at the service of program, and ornament is applied independently of them. This we call the *decorated shed*.
25. Deleuze, Gilles, and Guattari, Félix. 1987. A thousand plateaus: capitalism and schizophrenia. Minneapolis: University of Minnesota Press. p.164
26. Ibid., p.171
27. A. Ponte, K. Crossman, editors. *Architecture and Ideas. Vol IX. Architecture Technology Sense*. p. 83.
28. Fox, Michael, and Kemp, Miles. 2009. *Interactive Architecture*. New York: Princeton Architectural press. p. 19.
29. Lavin, Sylvia. 2011. *Kissing Architecture*. Princeton, NJ: Princeton University Press. p. 42.
30. Ibid., p.54.
31. Albers, Anni. 1971. *Anni Albers: On Designing*. Middletown: Wesleyan University Press. p. 6.
32. www.trekearth.com/gallery/Europe/France/North/Ile-de-France/Paris/photo114931.html/floorpattern.jpg
33. Leatherbarrow, David. 2009. *Architecture oriented otherwise*. New York: Princeton Architectural Press. p. 37.