

## Playing with History: the Architectural Toy

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*"Toys are not really as innocent as they look. Toys and games are preludes to serious ideas." – Charles Eames*

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In a state of play, our observations and actions often teach us fundamental skills, principles, and ethics that we carry on in many applications and scales throughout our lives. From the words and actions of Charles and Ray Eames, the toy offers its users the power to inspire greatness and "seriousness" beyond a land of make-believe. Requiring students to analyze, design, and build a toy inspired by a movement in architecture, our studio considered the capacity of the toy to teach the "players" fundamental architectural languages, histories, and ethics. Through design, material, and the function of play, the users of these toys are able to celebrate progress within a "new" social construction, design for and with others, embrace differences and new ways of thinking while also acknowledging an honesty within the process of making.

### History of the Toy and Education

The toy has had educational and creative implications associated with it for centuries, both consciously and subconsciously. Microcosmic formations of gender and vocational roles, and tools for training, learning, and creativity, the toy was and continues to be a way of keeping children and adults occupied while becoming an extension of their given environments (inside and outside of the home). Blending together assorted dexterities, cerebral aptitudes, forms of socialization, and creative innovation, the toy, from John Locke's Alphabet Blocks to Friedrich Froebel's Gifts, helped to introduce and reform the foundation of education and teaching systems within the Western world. (Ogata, 2013, p. 35-36) In the hopes of evolving the intellectual and artistic development of its users, the toys capacity to inspire imaginative and ingenuity outside of everyday life is paramount in developing new and improved social conditions. (Ogata, 2013, p. 35-42)

As Johan Huizinga states in Homo Ludens: A Study of the Play-Element in Culture, play predates civilization and has been a significant structure within it since the dawn of man as a "social construction." (Huizinga, 1955, p. 4) We might imagine the first architectural toys to have referenced prehistoric or ancient architectures; carefully crafted wood, stone, and/or concrete modules, architectural building blocks in miniature. They may have presented themselves as a bricolage of haphazardly hoarded items rustled into an assemblage, which assumed the role of an inhabitable structure or larger social infrastructure, or perhaps delicately collected sea shells and coral reef arranged into imagined architectural dreamscapes. While many toys of ancient man have settled into piles of dust, collections of architectural toys still in existence are an exact extension of these items imagined above, a kit of parts that reflected the occupations, building materials, and technologies of

that time or even some kind of further abstraction of the formal compositions of manmade constructions. Whether architectural blocks, doll houses, or miniature play structures for kids, the architectural toy passed down to the imagination of the user served as an educational platform, an occupational precursor, and/or a creative pastime to loose oneself within.

## History of Play and the Toy in Architectural Practice

The history of play and the toy expanded significantly in the mid 20<sup>th</sup> century when America funneled much energy, time, and funding into the toy as an epic educational tool, becoming more ubiquitously utilized and acclaimed as an essential component for childhood development within schools and the household. (Ogata, 2013, p. 35) Perhaps the first generation to praise “creativity as an authentic value that could encourage a competitive edge” for the betterment of its postwar society, the bridge between play, abstraction, imagination, and ingenuity coalesced within the toy. (Ogata, 2013, p. 35) As much focus was given to the design of toys that would possess a creative pedagogical agenda to be discovered through the activation of its components, a heightened level of research and development was instilled within the emerging industry of toy production. Teaching skills and values, concrete and conceptual, freeing yet productive, the toy was a progressive way of fortifying the success of generations to come.

While it can be seen that the toy and educational principles of building block systems, like Friedrich Froebel’s Kindergarten Gifts, helped to shape many famous modernist architects of the 20<sup>th</sup> century, Frank Lloyd Wright and Le Corbusier to name a few, play also helped to uncover a multitude of untapped possibilities within the build environment, and the idea of the architectural toy and architecture as miniature has been a part of academic and professional approach to designing for centuries. From the education of the architect to the profession, architects have employed methods of miniaturizing representations of designed spaces in scaled drawings as well as in built models as a means of experimenting and playing around with an idea before realizing it at its full capacity. These models, while not exactly toys, in a sense are constructed with the same ambitions of the child building with Legos and wood blocks, with an imaginative intention to test out ideas in a space outside of reality, brings together Homo Faber (man the maker) with Homo Luden (man the player). As miniatures are often representations of something out of the ordinary, they are suspended within a “temporary sphere of activity,” becoming “distinct from ordinary life” yet presenting “order” as an “interlude” within space. (Huizinga, 1955, p. 4) Like the child or group of children focused on the construction of their utopian world, the architect brings serious intention along with their often unconscious and playful process of designing.

For some architects, the idea of play consciously permeates their practice, influencing both process and production. Charles and Ray Eames set up a standard for this in many ways as their practice aspired to consider play as a natural and serious evolution of their design work. From furniture to architecture to actual playthings, this mid-century power duo looked at play as a means of guiding their explorations to further material selections and construction methods as well as formal and functional decisions within various scaled projects. The Eames often looked to other disciplines outside of architecture and within emerging technologies of their time to infuse new energy into their work. They made masks and spinning tops, marble runs and solar contraptions, graphic mathematical games and the House of Cards. They played with film and forming plywood, tinkered with fractal forms and off-the-shelf mass

produced and affordable materials. They were dynamic, demonstrated a level of freedom within their process and projects, and conceived of their work as socially engaged and outside of the normal routine of traditional practice. They were in a constant state of play as a means of exploring specific ideas and intentions that had yet to be conceived of within the design field. (Zinguer, 2015, p. 145-157) For Charles and Ray Eames, the toy and play were their methods of employing innovation.

Ranked as a favorite childhood pastime of architects and architect hopefuls, the activity of building with blocks and various objects in one's free time is a cliché but very real and shared experience. Erecting imaginary structures and environments in a space constrained by defined building systems (or sets of rules), allowed for a level of exploration for each player that was challenging, constructive, and most of the time satisfying. Building up and breaking down our creations, we learned about and tested each toys material and structural limits, formal opportunities, functional possibilities, and imagined arbitrary scales of implementation and inhabitation into the world. We were redefining our built landscapes, urban, suburban, rural, subterranean, marine grade, and extraterrestrial.

## **The Architectural Toy**

Inspired by this collective memory of the toy and play, the discipline's celebration of miniatures, play and imagination, and the legacy of the toy as an educational tool, the Architectural Toy project began with an investigation of a specific architectural moment in history. A way of bridging what students were learning about in their introductory level history/theory courses into the design studio, this prompt became a way of incorporating the familiar, even if surface level, into a space that was new to them as the Introduction to Architectural Design. Architecture, as we know, is a reflection of the economical, social, political and ecological variables of its time. Walking through the built fabric within our cities, suburbs and beyond, we are surrounded by various histories frozen in time. These architectural styles or movements, lovingly embraces as an "isms," help us differentiate and comprehend what, how and why conceptual and physical decisions were determined in the design and construction of a structure. As each movement has very specific characteristics associated within it, we can analyze and learn from our built environments as we progress in our current and future design endeavors. These concepts seemed to be a very appropriate notion to reinforce at this moment in each students design education as they stepped up to the drafting table and got to work.

Researching and analyzing each movement, students began to articulate collected and synthesized information of precedent studies into a set of visuals. Producing a series of sketches, bullet points (cited) and printed images, which helped to comprehensively organize, examine, and explain their research, a well-edited and cited composition much like a visual research paper, was constructed. Challenging each student to abstract each investigation into a visual language, consideration was given to how graphic intentions, like line weights, line types, geometries, color, fills, and relationships between visual information, could help to articulate specific concepts. Building from this research composition, a series of diagrams were developed, which continued to visually synthesize and capture the main concepts of their movement. Digging into, again, the formal, material, functional, conceptual, social, political, economical, ecological, and technological connections that defined their "ism," a subsequent narrative was generated, highlighting fundamental and defining characteristics within each movement.

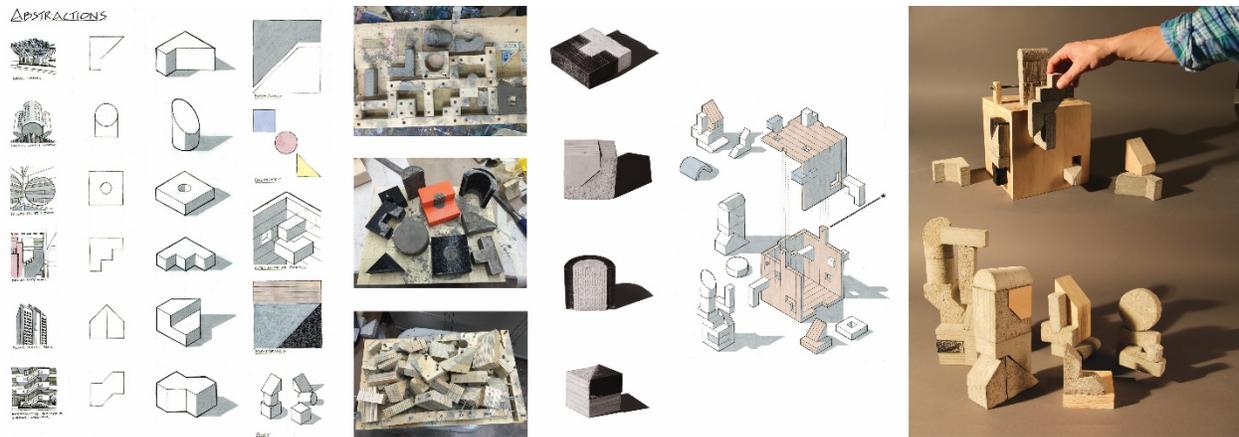
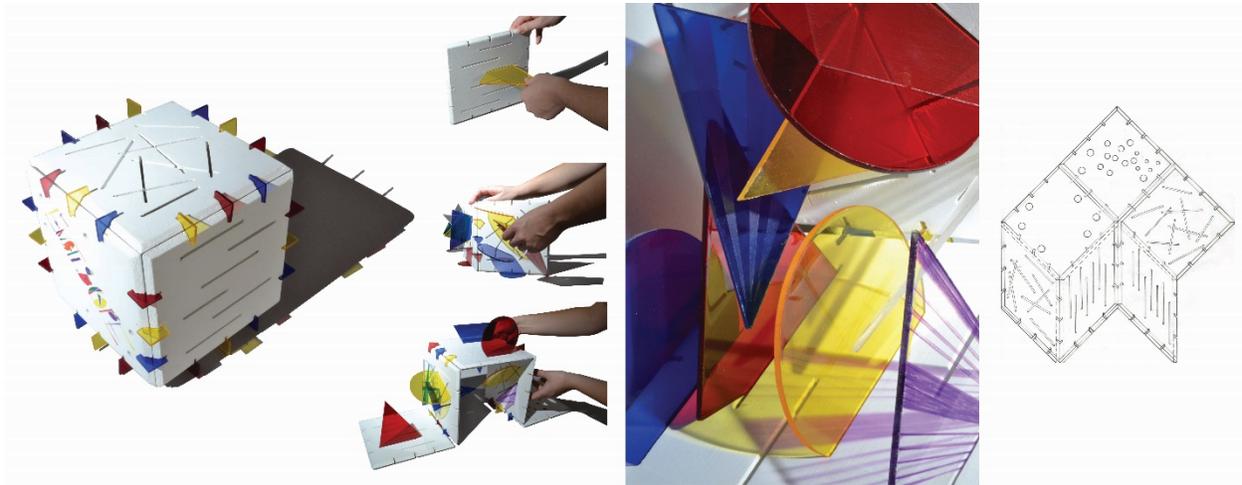


Fig. 1 Brutalism Toy Exploration designed by Chris Cambio

With each developing investigations and series of visual notes and diagrams, students were asked to design and build a toy which, inspired by their research, possesses the capacity to teach the “player” fundamental architectural languages and principles defined within their given style in history. Beginning with two “quick and dirty” design proposals that embodied each selected “ism,” students needed to consider the toys ability to captivate its users, willing them to explore it time and time again, adult or child. Alongside the principles of play defined by Johan Huizinga (play is free, voluntary, and “superfluous”; temporary + outside of our “ordinary” arena of “real life”; within its own time and space (location and duration); framed within a stage in which it is played (board, field, television); and creates order defined within its rules and thus limitations), students reflected on their experiences with toys and play. (Huizinga, 1955, p. 7-13) What kept them energized and inspired to continually engage with their toys? What challenges were thrilling, intriguing, dynamic, and attractive? And lastly, how could they use the formal, material, and functional properties that referenced their architectural movement as a means of inspiring a dynamic and playful interaction with their toy?

With a narrative, ideas driving the toy designs became accessible as guiding principles to help situate and elevate one’s overall design decisions and direction. Small-scale studies explored material properties, specific construction methodologies, as well as abstracted forms and conceptual ideologies. Rules and limitations (functional and material) with an overall purpose or aspirational goals were outlined. Through a series of traditional architectural drawing (diagrams, plans, elevations, sections, and axonometrics) and models (study models, formal and volumetric as well as material explorations), each student continued refining their toy design. Using analogue and digital tools, a workflow was defined that helps them to organize, assess, and construct each student’s vision 2-dimensionally as well as 3-dimensionally. Having access to various tools and materials within the architecture studio and woodshop, and MakerBot 3D printers, each toy employed a hybrid approach to designing and constructing the components as well as the containment of the toy, each devised to fit within a 1 cubic foot volume at full scale.



*Fig. 2 Expressionism Toy Exploration designed by Sami Prouty*

Building with wood, concrete, plaster, vinyl, plexi, PLA filament, dowels, magnets, and Velcro, students crafted components to stack, rotate, and plug into. They poured liquids into volumes and made fluid forms. They etched into plexi, burned into wood, sanded and smoothed out faces, and painted on details. They 3D printed simple and complex volumes, carefully considering the relationship with the alternative materials in use and perhaps manifested themselves as a contemporary and/or technological intervention. Brutalism explored the process of pre-cast concrete construction, using both elements of form building and generated forms within their toy. Exploring the containment as a platform to build off of, all components (concrete, wood, and PLA) became interactive. Constructivism found inspiration in Russian propaganda art and architecture, developing a 3-dimensional language in which to build new forms of revolution. Communicating the rules of the toy with miniaturized examples nested within, the container acted as a 3D puzzle that could be broken down and reconfigured in a variety of ways. Deconstructivism interpreted form as language, constructing and deconstructing blocks into new sentence formations, linear and curvilinear, opened and closed. Given the name "Derrida's Doo-Dads," abstracted forms and a variety of materials (plaster, wood, and PLA), generated an idea of nouns, verbs, conjunctions, and punctuation. Expressionism celebrated individualism, exploring light, texture, form, and color as a means of constructing endless and unpredictable spatial configurations. Playing with geometry and surfacing details, 2-dimensional transparent objects interacted and overlapped became 3-dimensional volumes within the process of building. Designing specific and unique fragments exploring the purpose of a marble run, Functionalism was very direct in its intentions, a simplified square shell that housed a multitude of shoots, slides, and voids that could be stacked in a number of ways to accept and execute its function housed within. Postmodernism referenced popular culture and Pop Art in an ironic and ambiguous series of brightly colored inflatable blocks. Looking at the works of Bofill, Moore, and Graves, the toy explores irony, symbolism, and an element of obscurity seen in the architecture and art of its time.

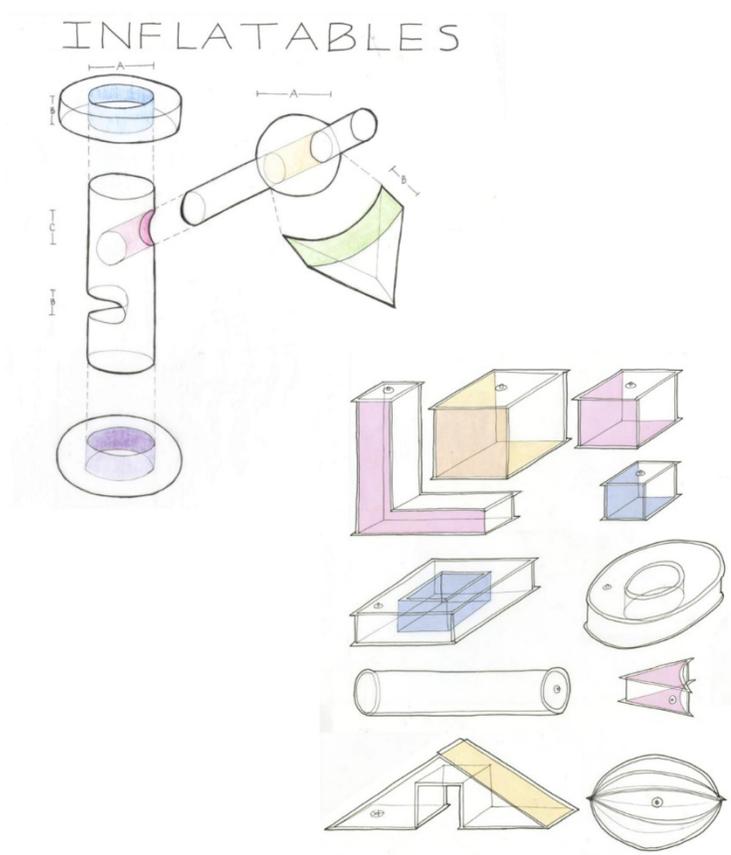


Fig. 3 Postmodernism Toy Exploration designed by Sarah Austin

Building with our hands teaches us about opportunities and limits in real time, making visible formal prospects with a clarity and perspective like an untapped consciousness that cannot be accessed on paper or a screen. There is a memory gain through this tactile approach and a depth of tangible knowledge building and discovery that can bring a sense of mastery and accomplishment even to the smallest child. In pursuit of uncovering all possible parameters afforded by the toy, our “creative imagination” kicks in in this moment with a thirst to define something inventive beyond the scope of what is given. (Osborn, 1993, p. 34) Building these connections of conscious and tangible knowledge generation is paramount not only to the foundation of beginning education, as Locke and Froebel explored with their block systems, but it is paramount to the foundation of any beginning design student. Playing with materials, construction methodologies, and spatial opportunities at a 1-1 scale, the physical building stage of the project allowed for students to continue exploring their movement, transitioning from 2D to 3D. In this stage of building, they began to discover new possibilities within their research and designs that welcomed richer abstractions of their original findings and proposals. This project affords this educational opportunity not only to the architecture students designing and building each toy project, but also provided an educational opportunity to the users of the toys, introducing within it an architectural history and design/build lesson.

In The Craftsman, Richard Sennett states, "...we become particularly interested in the things we can change" as a foreground of our material consciousness or within the impending transformation of things. (Sennet, 2008, p. 120) For the students, their focus on transforming their research and knowledge of specific historical movements in architecture were made manifest within thoughtfully designed and crafted toys consisting of components, containment, and the particular engagement that was celebrated within each or the instructions. For the user, their enjoyment came from the manipulation of these objects and processes, focused on their creative right and ability to transform the toy into their own utopian landscapes, acknowledging the rules, breaking the rules, and making new rules. Learning from the limits of each set of components, employing a set of skills, and seeing out conceptualized articulations of implied principles distinct within each "ism," the toys became expressions of architecture and in the process unearthed their relevance within contemporary practice.

Acting as a stimulus for further historical probing within the design process, which gave each student a chance to investigate each moment in history in greater depth than previously studied, each exploration was both grounded within architectural precedence and cultural contexts. As the beginning architectural design studio, this project re-emphasized one's understanding of architecture as a reflection of the visible and invisible variables seen and experienced within allocated landscapes and timeframes. A chance to build upon historical and visual literacies, each architectural style becomes an indicator differentiating and helping one understand formal, material, and experiential conditions defined. Acknowledging the importance of looking back to move forwards, each student's understanding of their movement's unique and shared characteristics facilitated an analysis and comprehension of each built environment, instigating conversations around the advancement of current and future designed spaces and structures.

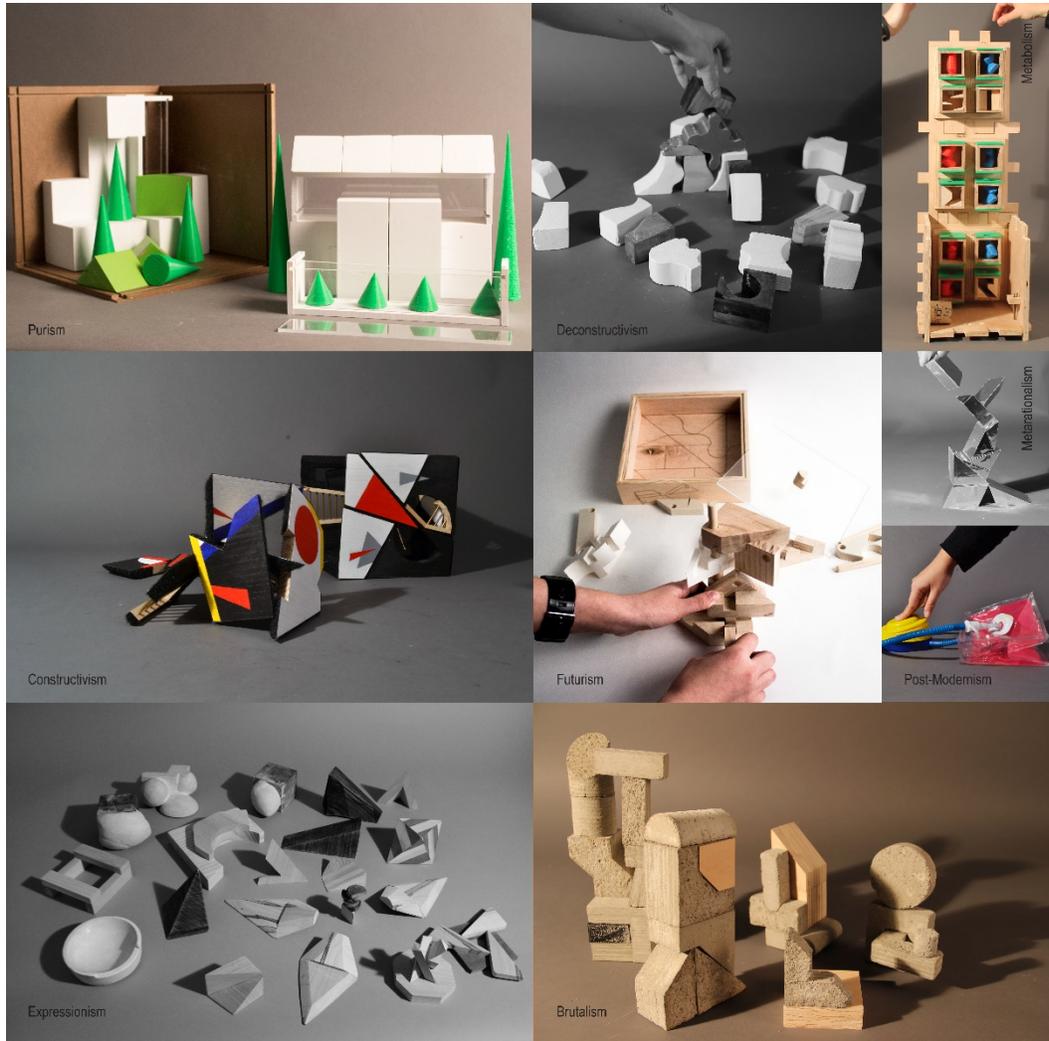


Fig. 4 Various Toy Exploration designed by Idara Akai, Erin Lichter, Christian Apicella, Sai Leng, Ziyi Li, Brennon Coakley, Sarah Austin, Joe Hayes, and Chris Cambio

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