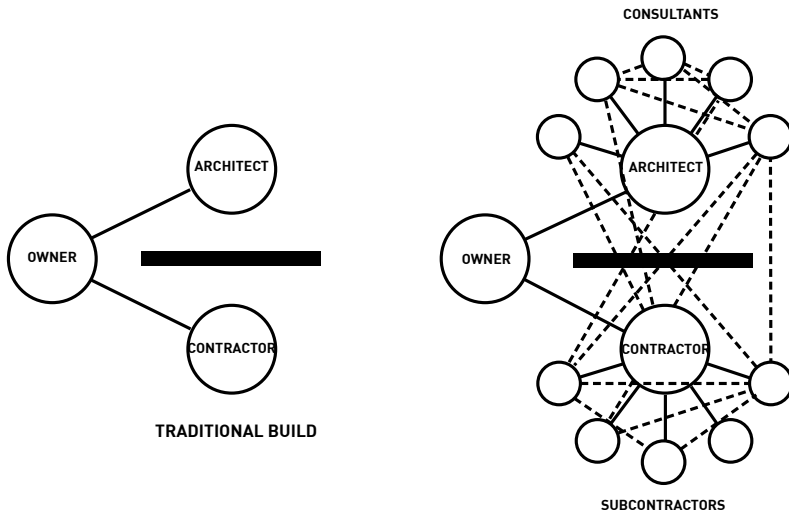
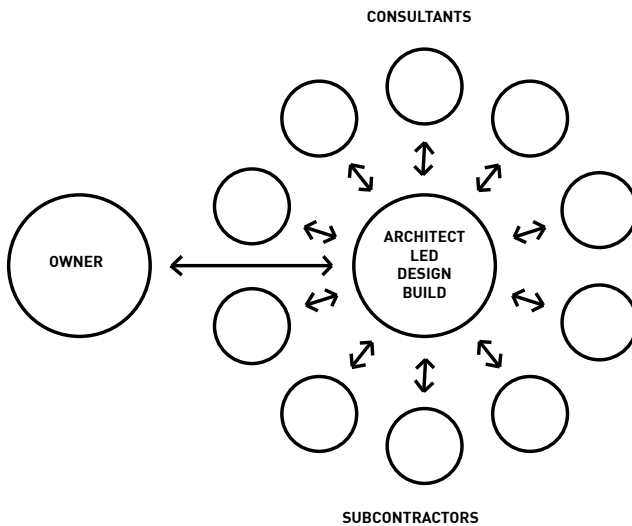


EMMA VERDIER / DONKA DIMITROVA / JORGE LUIS  
**DESIGN-BUILD**

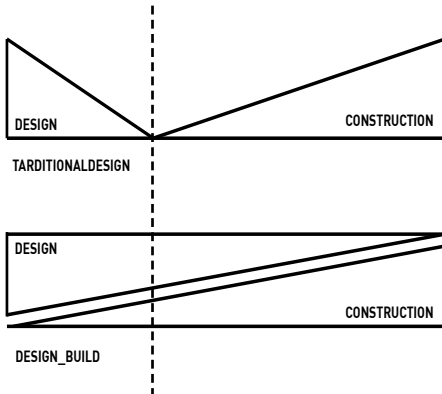


B1.Traditional Design Build / Perspecta (reworked by the students)



B2. Design build Diagramm /Perspecta

## DESIGN-BUILD DEFINITION



B3. Comparison of Traditional and Design-Build/ Perspectives

### DEFINITION

Design-build (abbreviated D-B) is a project delivery system used in the construction industry. It is a method to deliver a project in which the design and construction services are contracted by a single entity known as the design-builder.<sup>1</sup>

In the traditional approach for construction projects (B1), the client separately hires the contractor and architect and the two must cooperate. The architect usually starts their

job first and will design the building, eventually producing a set of drawings.<sup>2</sup>

Design-Build is a project delivery method that merges the designer and builder so that the two are part of the same organization that handles the entire process (B2). It changes the traditional sequence of work. There is then a single point of responsibility in order to reduce risks and overall costs. It is now commonly used in many countries and forms of contracts are widely available. Having one organization handle both aspects of the process means that "buildability" (B3) can be part of the design process from day one, and aesthetics can be a consideration in every late-phase on-site decision.<sup>3</sup> The result are aiming toward a cheaper and prettier building and better team relationship overall. Design-build plays an important role in pedagogy, both at universities and in independently organised events such as Archicamp or Bellastock, linked to the university of Paris-Belleville (B4).



B4. Design Build and University : Bellastock/Bellastock.com

## HISTORY

### Origins

The Design-Build origins in the field of education, can be traced in the 19th century with John Ruskin who engaged his students in a community service project by building a road through the marshlands of Ferry Hinksey southwest of Oxford, England (1874).<sup>4</sup>



B5. Ruskin Road, photographed by Henry Taunt/ URL: <http://oxfordcockaigne.co.uk/ruskinroad/ruskinroad.htm>

About a decade later in the United States, the African American Architect Booker T. Washington prevailed upon the students of the Tuskegee University to build more than forty campus buildings in exchange for fees, in order to complete their studies (1882).<sup>4</sup>

### Bauhaus

In the 20th century, the strategy of design-build in education was elaborated in the 1920s with the foundation of Bauhaus. While Walter Gropius being a head of the school, *"the critical relationship between the designer and the medium was re-established: the materials of construction, the*

*processes of forming and fabrication, and the constraints these place on the design. In a sense, the Bauhaus was the first Design-Build program of the twentieth century"*.<sup>5</sup> The adoption of its principles abroad was not immediate.

### Design-Build in the Education

Exceptional cases were made by Gropius at the GSD at Harvard and Mies at the Armour Institute (IIT) in Chicago, together with Frank Lloyd Wright at Taliesin. Such visionary modes were important, because of their influence in the architectural education throughout USA and worldwide.

In a Conference of Association of Collegiate Schools of Architecture (ACSA) in 1959, Walter Gropius defined his approach with ten statements that concerned the architectural education. Especially interesting is Number 6: *"In succeeding years of training, the design and construction studio, supplemented by field experience during summer vacations, will coordinate further experience with the broadening of knowledge."* Gropius draws attention to the critical importance of the students' involvement in the processes of designing and building.<sup>6</sup>

In the late fifties, Buckminster Fuller professor at Yale in that time started the practice of a visiting professor, which was not introduced before that in the educational field. He visited leading universities and conducted hands-on full-scale construction pro-

## DESIGN-BUILD HISTORICAL BACKGROUND

jects of dome buildings with the participation of students. With their aid, he continuously researched and tested the variations of dome geometry and assembly. During the fifties in the American design education prevailed the principles of functionality, especially the role of structure as a form-determinant and a basis for aesthetic value.<sup>10</sup>



B6. Buckminster Fuller and his students/ URL: <http://www.bubblemania.fr/en/architecture-bulle-dome-geodesique-in-venteur-r-buckminster-fuller-1895-1983/>

In the beginning of the sixties at the University of Pennsylvania Robert Le Ricolais, who was an engineer-constructor, and his students created one of the most advanced structural experimentation labs for any design program at that time. In the workshop, they built physical models and tested theories of long span braced frames and pre-stressed trussed beams. These structures can be considered as early design-build and prototyping works in a sense.<sup>6</sup>

### Design-Build and the Community Service

In the sixties, the social responsibility

and the politics created a new schism in the architectural education; therefore, some universities introduced humanitarian ideas within the curriculum, recognizing the potential value of the built projects.

The most acclaimed of these programs was the Yale University Building Project. Charles Moore, then the head of the Yale School of Architecture, began the program in 1967 with a project to design and build a community center in New Zion, Kentucky. Moore saw the project as an opportunity for Yale students to engage and contribute to the society by building for the poor. Moreover, the design-build project would likely offer students their first hands-on construction experience and allow them to participate in the complete process of an actual building design. Nowadays the project still exists and is in a partnership with Neighborhood Housing, a non-profit agency in New Haven, and together with students, they create single-family houses for the poor people in New Haven.<sup>6</sup>

*The publisher wants to clarify that in his opinion a design build project in terms of education is rather defined by the process of sharing knowledge then by building architecture for the „poor“ as Moore declares. Above all it is a chance for young students to gain expertise.*

During the seventies, the economic recession had led to cutbacks in the universities funding that affected many design-build programs, that were just getting underway.

One of the first attempts to restore hands-on building experience in studio education was led by Steve Badanes who in collaboration with John Ringel and Jim Adamson founded the design-build practice Jersey Devil. The credo of Jersey Devil was primarily shaped by the tendency that the conventional practice usually positions the architect as a designer outside the actual process of building. This has resulted to their unique approach of living on the site of their projects through completion of construction.<sup>6</sup>

In 1988, Steve Badanes began his involvement with design-build education at the University of Washington in Seattle, with a studio project called Stairwell to Nowhere. It was designed and constructed by 12 students and is a simple wood-frame folly for Gould Park, a flight of steps with no function other than serving as a sitting place. The innovative feature introduced by Badanes was that instead the winning scheme to be selected by jury or voting, he insisted that all decisions through construction have to be made by group consensus. With regard to the benefits of direct contact with construction, he wrote: *"Design-build projects allow students to move past schematic design. Issues that never come up in the classroom arise on the job site. Structure, detailing, design issues, and construction strategy are all debated in the hands-on atmosphere of three-dimensional reality."*<sup>6</sup>

In 1992 with group of 12 students, Samuel Mockbee established the Rural Studio at Auburn University. Mockbee had multiple objectives, he believed in the social responsibility of the architecture to improve poor conditions and defines that as *"moral sense of service to the community"*. Recycling and response to the materials are another very important characteristic that appears in the work of Rural Studio.<sup>6</sup>



B7. Samuel Mockbee and Rural Studio: Yancey Chapel / URL: <http://ruralstudio.org/projects/yancey-tire-chapel>

Since the nineties, the interest in design-build education has grown and developing of theoretical and pedagogical background is undergoing. The themes of alterity, community service, and experimentation that define the history of the design-build concept remain and provide a sketch of the activity overall.

## CURRENT DEVELOPMENT

Currently, the Design-Build has started to have implications worldwide

## DESIGN-BUILD DEVELOPMENT, ALTERNATIVES, INNOVATION, SUSTAINABILITY

and gain more popularity. Educational projects based on the concept however, mostly appear at locations in distant countries with significantly different social and domestic issues than those in the immediate and well-protected environment of the faculties in this country, but strive to create a dialog and collaboration with the locals. The most employed typologies are public buildings in socially disadvantaged neighborhoods or informal settlements: schools, kindergartens, hospital accommodation, training centers or community houses. Main sponsors are often NGOs or initiatives, where local people are involved in the overall concept phase and implementation as well as in the maintenance and future exploitation of the projects using participatory methods, which brings an additional value to the design-build method. The projects in the most cases refer to local traditions and traditional techniques; take the community needs and the existing on the site resources into account and use local construction methods and materials. Interestingly, although in most cases those projects were created completely independently from one another, the results are very similar in terms of their architectural expression and the approach.

In addition to all the very real conditions, the demand of a high degree of reliability and seriousness from everyone involved creates strong feeling of engagement among the

students and all the participants.<sup>7</sup>

### ALTERNATIVES

*"The academy is not paradise. But learning is a place where paradise can be created. The classroom [studio], with all its limitations, remains a location of possibility. In that field of possibility, we have the opportunity to labor for freedom, to demand of ourselves and our comrades, an openness of mind and heart that allows us to face reality even as we collectively imagine ways to move beyond boundaries, to transgress. This is education as the practice of freedom."*<sup>8</sup>

Taking into consideration the previous stance, it is inspiring and energizing to pursue educational agendas that move beyond the constraints of the traditional architectural studio. In education, design-build is a pedagogical alternative to the theoretical, desk-based, and media-driven (drawings, models, digital models) design process commonly featured in design schools.<sup>7</sup> In the academia, the method has been extensively implemented, however still unrecognized among certain design-oriented programs. It would be interesting to compare it with the traditional agenda of architectural education and to assess what are the prosperities and disadvantages of the method.

The buildings design and construction for community can never happen in vacuum; it is immensely influen-



ced by social, economic, environmental, etc. factors. In that sense academia, drawing the students' attention to social rejection, hardship, poverty can later develop sensitivity among them to problems that the humankind cannot ignore and contribute to raising awareness for the social dimension of architecture.

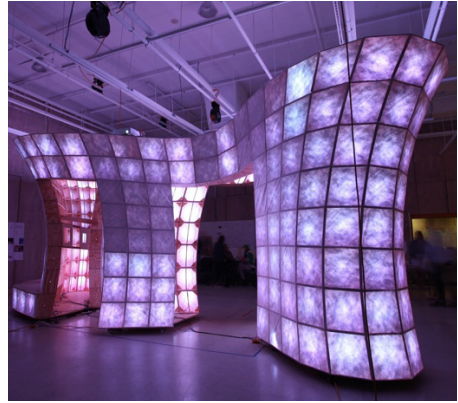
## INNOVATIONS

In the field of innovations, design-build is potent in terms of construction methods, fabrication technologies and experimentation with different building materials. The design-build strategy has achieved significant upgrade in the construction methods it employs, in some cases with the aid of modern technology and digital fabrication.



B8. Prototypes for hay bale loft construction intended for Mongolian school design. R. Whitehead studio, Spring 2015.

In some cases, it is used for reevaluating existing building techniques and ways of design according to new environmental or social conditions.<sup>B16</sup> As the design-build strategy is being distant to the needs of specific client, it provides the opportunity for thinking in a larger scale and advancing solutions. Some schools practice the de-



B9. Fabricating Potentials Studio.S.Doyle studio, Spring 2016.

sign-build method as a prototyping endeavor for the future implementation of already developed models. In those cases usually design-build is freed from the scope of site and client the studios are able to conduct research and focus more rigorously upon material and structural innovation and developing technologies.<sup>8</sup>

## SUSTAINABILITY ASPECTS

Sustainability is a feature that appears in almost all design-build projects. It is rendered in terms of the buildings energy performance during the life cycle, the implemented materials during construction, as well as the possible deconstruction and further reuse. In a major extent, those projects rely on the appropriation of the "found materials" on site, which also helps for their faster and more efficient execution. Moreover, inasmuch the energy efficiency is related to the improvement of the built conditions



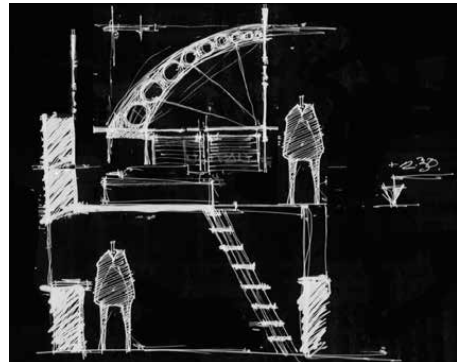
## DESIGN-BUILD REFERENCE TO CUBA - POTENTIALS

and social empowerment, the many design-build projects strive to keep the operating costs low by taking profit for example from natural ventilation and adequate solar gains. Additionally the design-build usually are responsive to the health effects of materials deployed in the construction.<sup>8</sup>

### REFERENCE TO CUBA

#### POTENTIALS

As a unique and complex interdisciplinary practice, design-build is capable not only to bring the interests of the academic institutions and students into common purpose, but also to foster community engagement and local interest into action. While the Cuban society undergoes economic, political, societal transformation and opening, design-build appears as an appropriate strategy for mutual exchange, of values and knowledge between the Cubans, the educational sector and outer partners, whereas keeping in mind the „learned lessons”<sup>9</sup>. In their TEDx Talk Re-generación<sup>9</sup>, Claudia Castillo and Orlando Inclán refer to those lessons, learned by necessity and call out for the mutual appreciation of the Cuban “accidental sustainability”, and the continuation of the spirit of re-inventing, re-cycling and adaptation, present during difficult moments in the history of the Cuban society. They



**ARCHITECTURAL SPACE RECYCLING - BARBACOA**

B10. Planning Magazine. Barbacoas. August/September 2017.

Barbacoas are improvised and sometimes unsafe mezzanine spaces that are used to expand limited interior floor space in the old city as a way to address housing shortages. La Habana Re-Generación is taking some inspiration from this informal system, seeking to incorporate similar creative reuses of architectural spaces in their projects. The image at top shows its concept of supporting the continued use of barbacoas to “recycle architecture” in a way that is structurally safe and sound.<sup>10</sup>

emphasize on those spatial and social phenomena that make the community so powerful and resistant and are indicative how to achieve the maximum profit from the available resources.<sup>10</sup>

The invocation of persistence of this “creative sustainability”<sup>10</sup> utterly corresponds to the agenda of the overall concept of design-build. In a sense, the notion of the practice is not unknown in Cuba, however not in the general term. In the residential sector, it was employed rather similar concept as a collective form of self-help housing (Microbrigadas).<sup>11</sup>

Moreover, the preserved construction techniques and craftsmanship makes it very tangible to consider the execu-

tion of design-build project in Cuba.

As the artist Yoandy Rizo puts it, the Cuban mark on any designed entity in the country would be inevitable: *„What I design is made in Havana, for Havana, with materials from Havana, made by people in Havana. I cannot copy anything I see in a magazine because I do not have those materials. But I can do something that has its own cultural value.“*

## DISADVANTAGES

The challenges of design-build concept in the field of education have been thoroughly documented. Vincent Canizaro exposes an overview of the issues that emerge within the design-build studio (classes): collegial opposition, student resistance, limited equipment and facilities, and the quality of resulting work.<sup>8</sup>

Anyhow one of the main setbacks that can be determined, if we fantasize about design-build project in Cuba is the limited background in those types of projects within the educational institutions. Challenging is also, in cases of international collaboration the cultural and conceptual differences that could appear. Furtherly, as the educational sector is being entirely financed by the government, in cases of funding lack, the sponsorship of such academic endeavors become more complicated.

In the positivist, Cuban manner to see pros when confronted

with challenge the artist Yoandy Rizo says: *„We don't have any support, but that gives us more freedom, because there are no expectations.“*

## FEASIBILITY

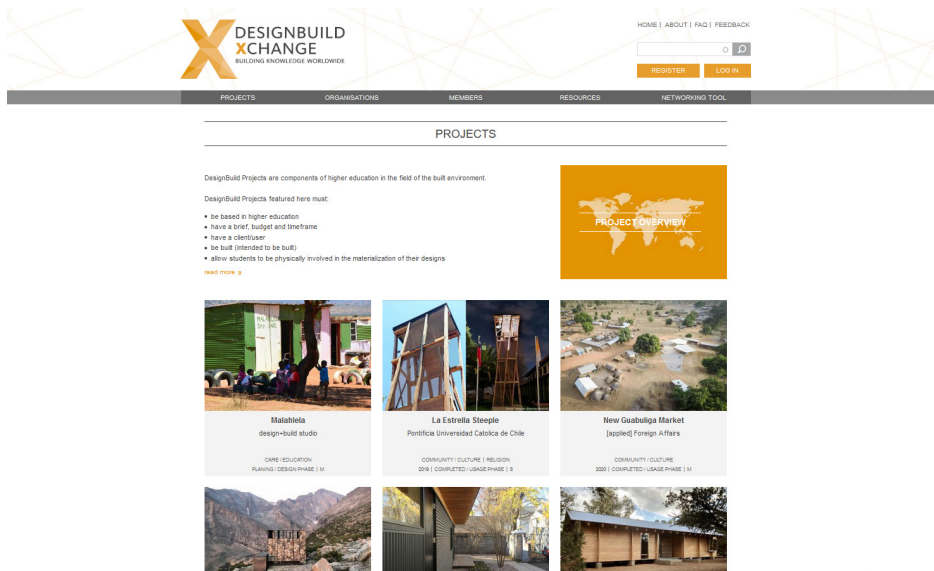
International design-built workshop projects with involvement of two or more schools are common nowadays. We would suggest that Cuban context is completely possible and pertinent for hosting a design-build project; however, a collaborative experience with outer institutions and organizations would make the process clearer in terms of its structuring. In schools with more modest capacity (in terms of size, funding, etc.), the implementation of design-built concept is rather achievable if done in partnership with school. Important to note is the better effectiveness when conducting of priory research. The relation of the concept with research activity accounts for important step in reaching the final, traced product.

In terms of the project outcome it can be completed or uncompleted (design - built project in progress, continued by next generation of students) object. On a typological level, it can truly vary: temporary or permanent installation used by community, small scale building that is used by specific group, urban furniture elements, structure that may be implemented in different settings, construction experiments, etc.<sup>16</sup>

#### ADAPTATIONS

The design-build as a methodology has more to offer than just another way of getting something done. The realness of design-build program gives an opportunity to the people involved in the process to think in a more responsive way to the specific site and local conditions focusing on the climate and local culture primarily. The climate studies and the environmental performance of the building for natural ventilation, natural lighting and cooling are not only diagrammatic, but real. Designing in a real place challenges the students to respect and consider local architectural character, heritage and ways of life. Moreover, the experience of design-build program shows that the sources for design inspiration could be born from understanding culture and place.

Another truly important feature is the teamwork. Design-build is a group project that benefits from diversity. It exposes people to working in teams, allowing them to grow in self-confidence in terms of working in collaborative environment and teaches how to be cooperative and good decision makers.



B11. Screenshot : Overview of the DesignBuildXChange platform /TU Berlin



B12. Main sponsors /TU Berlin

# DESIGN-BUILD

## EXAMPLE : DESIGN-BUILDXCHANGE



### THE PLATFORM

Its goal is to connect professional in education with practice, scientific research and social engagements. This open access platform provides tools for collaboration and promotes research and knowledge transfer related to DesignBuild activities.<sup>13</sup>

### MISSION

The first goal is to engage in interdisciplinary collaborations between architects, engineers, sociologists and other disciplines such as experts and craftsmen (B12). The focus is on innovation and experimentation, enabled by this hybrid way of engaging with education. In the end, this building process is to produce sustainable and economically efficient structures.

In parallel, the different actors have to confront issues of cultural acceptance and appropriateness.

### TOOLS

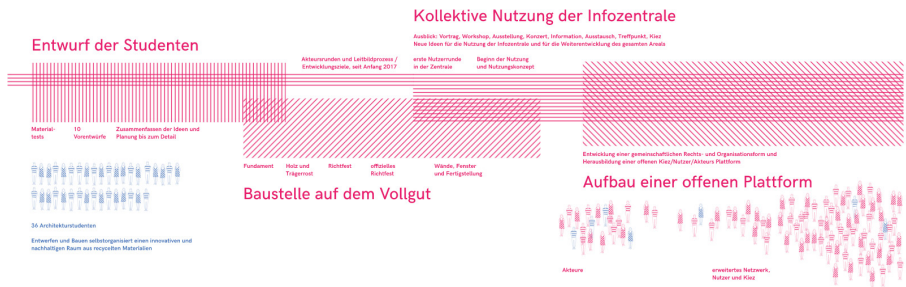
The DesignBuild Projects featured on the platform have to fit certain characteristics : they have to be based in higher education, have a brief, a budget and a time frame. They also have to have a client/user, with the intention to be built. This open access platform allows students to be physically involved in the materialization of their designs. The point is also to be of architectural, social, cultural, scientific, technical or artistic relevance.<sup>13</sup> The related project information can be shared online as both a process and its product from iconography (B13) and construction plans, but also documentations and research results. There is also a networking tool : one can seek clients or NGOs with project requests, with local experts to support project implementation.



B13. Example of a project : Infozentrale auf dem Vollgut /TU Berlin



B14. Infographie / Students



B15. Timeframe / Infozentrale



B16. Team meetings / Infozentrale



# DESIGN-BUILD

## EXAMPLE : INFOZENTRALE AUF DEM VOLLGUT



B17. Infozentrale auf dem Vollgut / L. Klassen

### PROCESS

The information center on the Vollgut was planned by 36 architecture students as a DesignBuild project of the Natural Building Lab and is currently realised on the VOLLGUT site in Berlin Neukölln. In cooperation with the RE4 project and the TEK and GtE departments, a circular building made of waste materials has been created that attempts to provide solutions for many future questions of resource-positive building in urban spaces.<sup>14</sup>

### CONSTRUCTION

The roof structure is formed from a pre-stressed grid of layered and interlocking re-used timber beams : made of waste wood, it represents the cycle of endless use. The walls consist of a wall system made of upcycled

cardboard boxes, filled with shredded paper insulation and pasted with excess advertising posters : they are intended to last at least one year as upcycling.

### ACTORS

The main ones are: RE4 ([www.re4.eu](http://www.re4.eu)) research project and the TEK and GtE departments of TU Berlin. The students were enrolled in the studio of Natural Building Lab, also linked with TU Berlin. This Information Pavillion should provide a place for actors from different groups to encounter with each other and the neighbourhood. The Infozentrale is used by all of the diverse actors active on the VOLLGUT site in Berlin Neukölln. A common platform is to be created for the various actors, places and projects on





B18. Infozentrale auf dem Vollgut / L. Klassen

the site and in the surrounding neighbourhoods - the KINDL KIEZ association.<sup>15</sup>

## CRITIQUE

This project has an interesting time frame: it is evolutive and enables a collective project. In the first step of this DesignBuild project, the actors involved have come together and defined common goals and values in an open mission statement process. These form the basis for a future association statute for all participants. The association and the statutes are designed as an open process, the implementation of which continues to adapt to current developments and needs within the framework of the shared values and goals.

## INNOVATIONS

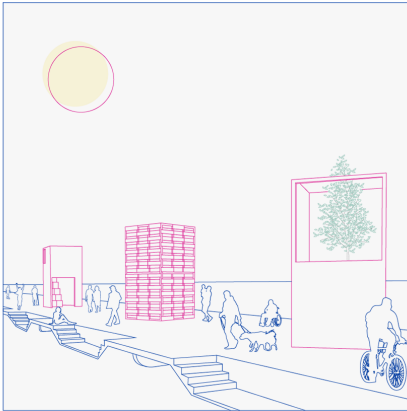
It is a circular building made from waste materials that was realized. Therefore, it tries to offer an answer to questions relating to resource-positive construction in an urban context and embodies a new method of architectural production for a post-consumer society.

## CONCLUSION

This academic and local initiative was realised by students, the experimental process also explains the smaller scale project as a result, there is then the problem of limited equipment and facilities. In this joint initiative, community engagement in the long term was fostered. This designbuild project can be considered a success as a resource-positive construction with a sustainable design in the end.

# DESIGN-BUILD

## EXAMPLE: TRES ESENCIAS



Cienfuegos, Cuba  
180 555 inh  
Area: 19m<sup>2</sup>



Summer: 33°C  
Winter: 18°C

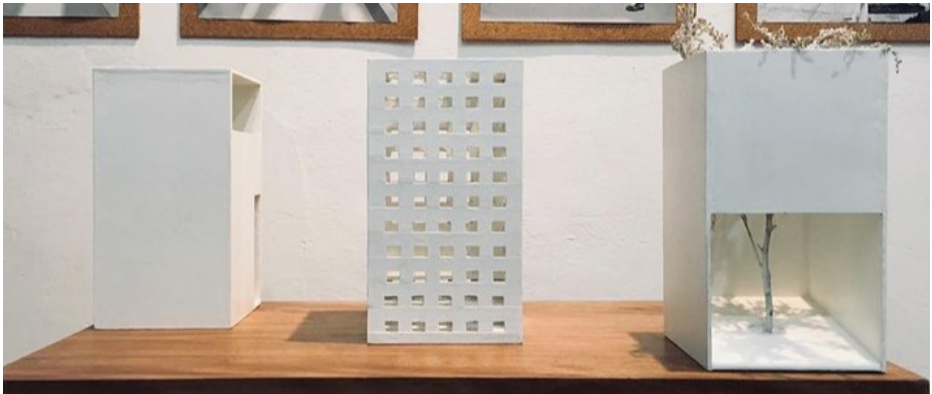


2019



Academics: No

B19. Illustration of "Tres esencias" / Jorge Luis Suárez



B20. 3D Model of "Tres esencias" / Albor Arquitectos



B21. Docks "Tres esencias" / Albor Arquitectos



B22. "Tres esencias" / Albor Arquitectos

## ABOUT

"Tres Esencias" is an intervention in the public space made by Albor Arquitectos for the collective project „Mar Adentro“, an exhibition curated by "Wilfredo Lam" Contemporary Art Center for the XIII Biennial of Havana according to the theme "La construcción de lo posible". „Mar Adentro“ is participating in the official projects of the Biennial that, for the first time, expands outside Havana City, located in the city of Cienfuegos in the celebrations for its bicentennial [B22].

The proposal of the curatorial team required as a first step to

define an intervention's area. The waterfront of the historic center was selected as a result of an academic exercise made by Albor Architects.<sup>16</sup>

## CONTEXT

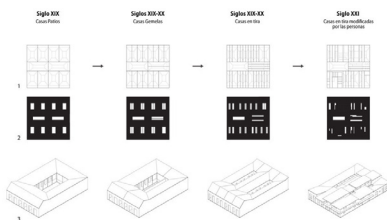
The historic center of Cienfuegos is the administrative, commercial, cultural center and main tourist destination. The interventions in this public spaces have an influence, like nowhere else, in the urban dynamics of the city. Paradoxically, the potential relationship with the sea has been not much exploited, despite the historical importance that is the founding reason of the city.<sup>8</sup>

# DESIGN-BUILD

## EXAMPLE: TRES ESENCIAS

On the waterfront, the original port of Cienfuegos, neoclassical warehouses, old railway tracks, the Customs building, a shipyard and vestiges of docks (B21) create a unique and inclusive atmosphere, although they have forgotten since the port was dismantled, but that are beginning to be rehabilitated. Close to this place is located the densely populated area of the historic center, with buildings that were mostly built between the XIX century and the first decades of the XX.<sup>16</sup>

The economic down brought by the dismantling of the port and the economic crisis and the phenomenon of self-construction, have meant the destruction of much of the traditional architecture of the area, despite interventions by the owners to adapt them to the challenges of contemporary life. These modifications are expressed mainly in the invasion of courtyards, the division of spaces and interior heights with walls and mezzanines and reduction of the openings. This constructive actions fragment the housing lots, and eliminate the traditional spatial relationships, their environmental comfort and spatial quality (B23).<sup>8</sup>



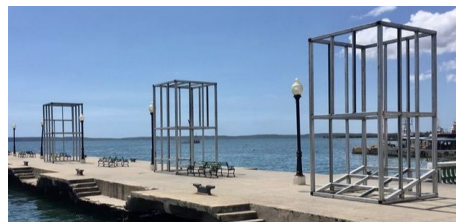
B23. Representation of the traditional block in Cienfuegos' evolution / Albor Arquitectos

### OBJECTIVE

The proposition of "Tres Esencias" is to relink people with those fundamental elements of traditional local architecture that have been culturally forgotten. The ensemble synthesizes the spatial experience; that the courtyard, the permeable windows that filter the light and the interior height and the viewpoint are able to rekindle a relationship between this particular urban space and its inhabitants.<sup>16</sup> Three prisms, painted white, with the idea of giving all the prominence to the perception of spatial geometry, open to the visitor with the aim of being recognizable, seeking a reconnection with the experiences lived in traditional spaces, or creating starting points for new experiences that they can incorporate into their daily reality.<sup>16</sup>

### BUILDING

The assembly lasted approximately 30 days, a metallic structure of metunas purlins (10x5 cm) was used (B24). The closing panels are made of cement board, a plycem technology. Wood was also used in elements of the interior.<sup>17</sup>



B24. Structure of "Tres esencias" / Albor Arquitectos

## EXAMPLE: TRES ESENCIAS

### BUDGET AND INVESTOR

The investment was assumed by the provincial department of culture, the architects do not know the exact amount because it was a government process, so they had no participation in that step.<sup>17</sup>

### POTENTIALITIES

“Tres Esencias” is an enhancer of public spaces that generates new uses and activities; it contributes to social development and re-qualifies the waterfront and makes stronger connections with the bay and the historic center of the city. It then reflects the unique and exclusive atmosphere of the port and the traditional spaces of the housing. Its design and composition influences directly in the perceptions and experiences of users, as well as the ability to vary its uses and activities, where the architectural scale, the materials used and the reinsercion of the fundamental elements of traditional local architecture are emphasized.

### DISADVANTAGES

The use of metal structure in the bay and the direct exposure to the sun, without protection elements.

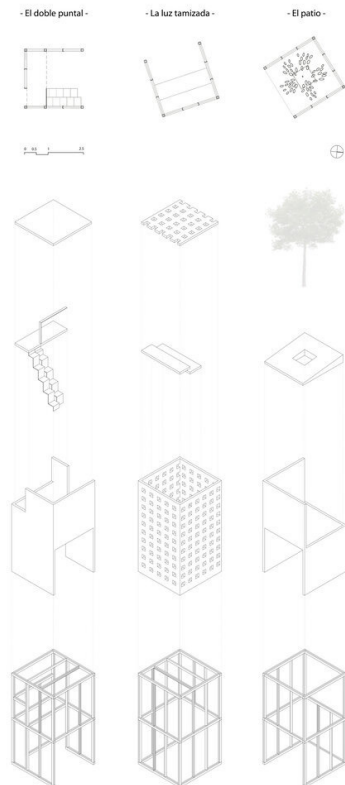
### FEASIBILITY

It is a legal project, developed in the allotted time frame. It was possible to achieve the goals of the project because there were adequate personnel for the design and execution of the project, with the correct knowledge,

methods and techniques. They also had the capital and materials necessary to use in the process and development of the project. It has been endorsed by the users who visit it.

### ADAPTATIONS

The project has not undergone any modifications or adaptations, because of its shape and the elements that compose it. It is however possible that it admits them or that it can be reproduced in other urban spaces.





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- B2. Diagramm DesignBuild via Perspecta 47, Money, the Yale architecture Journal , Edited by James Andrachuk, Christos C. Bolos, Avi Forman and Marcus A. Hooks
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- B4. Bellastock Collective : <https://www.bellastock.com/a-propos/>
- B5. Ruskin Road, photographed by Henry Taunt/ URL: <http://oxfordcockaigne.co.uk/ruskinroad/ruskinroad.html>
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- B8. Prototypes for hay bale loft construction intended for Mongolian school design. R. Whitehead studio, Spring 2015.
- B9. Fabricating Potentials Studio.S.Doyle studio, Spring 2016.
- B10. Planning Magazine. Barbacoas. August/September 2017.
- B11. Screenshot : Overview of the DesignBuildXChange platform / <http://edbkn.service.tu-berlin.de/designbuild-projects>
- B12. Screenshot : Overview of the DesignBuildXChange platform / <http://edbkn.service.tu-berlin.de/designbuild-projects>
- B13. Screenshot : Example of a project, Infozentrale auf dem Vollgut via / <http://edbkn.service.tu-berlin.de/designbuild-projects>
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- B15. Timeframe by Leon Klassen. <https://www.nbl.berlin/projects/infozentrale-auf-dem-vollgut/>
- B16. Team meetings : via <https://www.nbl.berlin/projects/infozentrale-auf-dem-vollgut/>
- B17. Outdoor view of the Infozentrale. <https://www.nbl.berlin/projects/infozentrale-auf-dem-vollgut/>
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