Inclusive city: Vallcarca – Space extension idea for social and urban housing

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Abstract. The neighborhood of Vallcarca, Barcelona - Spain, is located near the valley formed by the three hills called El Putxet, Creueta del Coll and Muntanya Pelada adjacent to the back area of Park Guell. Vallcarca first urbanized at the XIX century as a place to spend summer for the nearby inhabitants of the city of Barcelona. Since the end of XX century, the area has been under the pressure of different urban plannings and economic speculations that have just erased a big portion of its original physiognomy, without being able to organize a new area of town. The empty land that located at the former center and across Vallcarca becoming part of research to produce an outcome for compatible housing within the area. The data gives a focus on the social and urban rehabilitation of the neighborhood that introducing a program of social housing with communal facilities using an approach of connection and topography that existed on the site as a catalyst to change this fragmented part of the city into inclusive neighborhood.

1. Introduction

Housing is a program capable of adapting to very diverse urban and social situations, and one which can help to regenerate the fractured fabric of the city. In one of the travelling studio that run by School of Architecture and Design at RMIT University Melbourne collaborate with ETSAB (Escola Tècnica Superior de Arquitectura de Barcelona), the authors exploring the studies about houses, the city of Vallcarca via the program of housing and studying formal dwellings from an attitude toward the city during the 2 weeks intensive workshop in Barcelona.

Vallcarca neighborhood that located in Spain is a very fragmented area of the City of Barcelona, one which shows discontinuity between urban patterns. A zone that defined essentially by the force of topography which determines the place of construction following the rules established by slopes and level changes. The result of the topographic characters of Vallcarca, recent demolitions of old buildings and little industrial buildings used by artisans and artist have left the waste grounds and distance between the buildings, generating a lack of intermediate scales to make a transition between the build zones and big empty spaces. [1]

Figure 1. Vallcarca neighborhood conditions. Photos by Adriá Goula.
The workshop is about housing and the city at the same time. Both should look to each other to define themselves and do it in correspondence. Housing will get the support of the existing social structure to be an active part of the city, while the area will be helped by the new insertion of living quarters to regenerate itself. Proposes to develop housing exercise in different urban situations, to be able to study the typology always linked to a certain sector of the city and society.

The goal of the article is to bring the focus on the urban social rehabilitation of the neighborhood that introducing a program of social housing with communal facilities using an approach of connection and topography that existed on the site as a catalyst to change this fragmented part of the city into inclusive neighborhood.

2. Method
The Vallcarca research study are divided into four stages, during a three-month period of work taking place in Melbourne (Australia) and Barcelona (Spain). Each of these study sections completed a different assessment that in the end generated a more precise understanding of the Vallcarca district.

The first stage of the research (later referred to as Nonlocal Vallcarca) took place in Melbourne during November of 2016. During this period, the researchers focused on different ways to learn about a site from a distance. They focused on using the digital tools available today to understand the elemental topographic and urban conditions of Vallcarca, as well as to familiarize themselves with the City of Barcelona and the place Vallcarca occupies in it. The result of this first stage is a large area model and a series of maps and collages that represent our understanding of the city from afar.

Later in December 2016, an on-site analysis of the conditions for the area (referred as Learning by Drawing) was conducted. This resulted in a series of drawings, photographs, and interviews of the local inhabitants that helped us understand the different layers that constitute Vallcarca today. The information gathered during the on-site analysis are then translated into an urban strategy (later referred to as Inclusive City) focused on the insertion of new social housing and a community center in the Vallcarca district.

Back in Melbourne during January 2017, the final section of the research (results) took place, during this time, the focus was on detailing the information generated during the Inclusive City section of the study. Final drawings and three-dimensional views are developed that, alongside the rest of the information gathered in the previous stages, resulted in a final portfolio.

2.1. Nonlocal Vallcarca
Understanding a foreign city from a distance represents an enormous challenge. The current world that we live in is an age where information is not scarce, and by combining with satellite imaging and digital modeling tools, the researchers can obtain a basic understanding of almost any place on earth even when their physical location is thousands of kilometers away from the research area. During Nonlocal Vallcarca, the authors translated topographic and cadastral maps of the study area into a large three-dimensional virtual model that allowed them to navigate the current conditions and urban fabric of Vallcarca. This three-dimensional virtual model was then reconfigured into some two-dimensional curves and vectors to construct a physical model using laser modelling machines.

A second research exercise was conducted during the Nonlocal Vallcarca stage and consisted on the creation of a series of maps that linked not only different plots and locations within Vallcarca, but also the links between Vallcarca, the city, and its surrounding districts. The scope of these maps was broader and more on the poetic side. The paths and directions linking the different points of interest were inspired by readings, films and other historical documents and references [2].

This set of off-site exercises were essential in forming a solid knowledge base that maximized our on-site productivity, for we were familiar with the study area even before setting foot on its sloping streets.
Figure 2. Barcelona-Vallcarca map, walking path.
2.2. Learning by drawing

The on-site stage of the analysis took place in Vallcarca during December 2016 and consisted of an intensive five-day residence in the area. During this time, the authors walked in and around the limits of Vallcarca gathering a record of photographs and drawings of the existing buildings, streets and vacant plots as well as conducting interviews with the residents. While in Vallcarca the research team was guided by local architecture and urbanism firm called Volta. They are currently working on solving the same problems we previously identified and were of great help and assistance to the research.

After the first 24 hours on site the authors identified a group of public spaces, street sections and building details that were of utmost relevance to our study. To select these slots as relevant from the rest of the site we followed three different rules. Number one was the intense level of daily activity presented on them. Number two, the current - and historical- importance is shown by the way some of these locations were occupied and number three their privileged position inside Vallcarca’s urban fabric.

![Cartography of Vallcarca](image)

**Figure 3.** Barcelona-Vallcarca maps, The Growth of The City [3].
The following diagram depicts the names and locations of the selected sites in Vallcarca.

Figure 4. Vallcarca sites selection.

The selection of these spaces narrowed the study field and allowed the authors to be more specific in the kind and amount of information that was to be gathered from Vallcarca, which led to a suite of architectural drawings of these spaces that represent the conditions of the site and would allow the authors to design with these data in mind. Sections, sketches, collages, and diagrams resulted from this stage where focal points and activity was monitored to a better understand of the way people occupy different kinds of public spaces in Vallcarca. The way the research are conducted led the authors to reduce the site selection from five to only two slots that were deemed capable of hosting the large scale urban transformation the study suggested.
Figure 5. Volta Square Focal Points and activity diagram.

Figure 6. Collage of photos view of the Volta Square.
2.3. Inclusive City

After the research residence in Vallcarca, the authors moved to the ETSAB (Escola Tècnica Superior de Arquitectura de Barcelona) campus where the full set of information were collected, and the first schematic and volumetric ideas being formed. During this stage, guest critics such as Eva Prats (Prats & Flores, Barcelona) and Tom Holbrook (5th Studio, London) discussed and oriented the authors towards an inclusive schematic design that responded to the characteristics and conditions found on during the site analysis. They also helped in narrowing the first five proposed sites into two, El Bosque (Spanish for The Forest) and La Embajada (Spanish for The Embassy).
Once these two sites have selected the concept, and schematic design stages for each of this site being conducted. Different variations of volumes and layouts were discussed, developed under the premise of having the El Bosque site (currently vacant) to house a new building that interacted directly with the Volta Square site - allowing for the La Embajada Site to use the existing building (soon to become a local library) to act as an urban focus point and building a smaller scale housing complex around it.

The consensus reached during this stage can be stated in the following points:

- Programmatically, both sites would change its current land use to Mixed Use to generate a constant flow of activity throughout the day that would be impossible to accomplish in a single use project.
- The housing scheme would be divided (not equally) between the two sites where La Embajada would house a larger number of units to give the Community Centre located in the El Bosque site a special hierarchy.
- Different dwelling sizes and workshop areas for residents would be prioritized over commercial spaces offered to non-local bidders.
- Large urban plazas should be located on each one of the sites, and local government height restrictions will be applied to the new designs.

**Figure 8.** El Bosque (The Forest) and La Embajada (The Embassy) Masterplan

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Figure 9. Sketches Produced during the Inclusive City stage

Figure 10. Model Studies and
3. Results

The observation of the area opens the option that the new housing program can be placed at existing structure, vacant lot, or combination of both. The total area of the new dwellings will be about 9,100 square meters that being distribute scattered in all scheme that being develop on this proposal, which specification will be listed as seen in table 1.

| No | Program                   | Size / Total Area Needed |
|----|---------------------------|--------------------------|
| 1  | Dwellings for 1 person    | 40m2 / 600m2             |
| 2  | Dwellings for 3 people    | 70m2 / 3,500m2           |
| 3  | Dwellings for 5 people    | 100m2 / 3000m2           |
| 4  | Workshop                  | 50m2 / 1000m2            |
| 5  | Bar Restaurant            | 200m2                    |
| 6  | Civic Centre;             |                          |
|    | Theatre & Concert Hall    | 300m2                    |
|    | Dance Class               | 300m2                    |
|    | Storage Area              | 70m2                     |
|    | Administration Area       | 25m2 / 100m2             |

In addition to the areas that will occupy housing programs and community center that given from the exercise that develops with different interest the qualities or resulting perimeter and how it qualifies the outdoor spaces adjacent to the building that are urban public or community.

3.1. The Embassy (La Embajada)

The Embassy site is located in a privileged position in the Vallcarca district, it occupies an elevated plot that overlooks the entire area, and its accessed through the Viaducte Vallcarca street, one of the main roads in the area that becomes a bridge connecting the top of the two hills that form the Vallcarca valley. The existing structure occupying the plot is an old house formerly used as the Danish Consulate and is now being renovated into a local library. Directly in front of the site to the north, a church currently serves the area, and to the south, the plot faces one of the largest vacant plots in Vallcarca.

Revolving around the idea of the way public spaces are spontaneously generated in street sections by the local community in Vallcarca, the core element of the proposal for this site is a street level plaza where pedestrians will be the highest priority. To achieve this, the flow of cars will be pushed into a tunnel transforming the existing street facing the plot into a large plaza for the new library. The boundary walls of the plot will be eliminated, and the broad gardens that used to be a private part of the plot will become public allowing visitors and local inhabitants of Vallcarca to enjoy one of the massive green spaces in the district that was previously inaccessible to the public.

Under the gardens -and as an extension of the library- a small community auditorium is proposed. Located underground, the only visible portion of the assembly hall will be the access volume, these in trying to maintain the hierarchy of the proposed library building as the central structure in the plot.

Occupying the vacant plot to the south of the site, a sizeable three-volume housing building is proposed, where dwellings facing the Vallcarca valley connect with the newly planned plaza by sharing their rooftops via pedestrian bridges and connecting staircases.
Figure 11. Axonometric drawing view of the Embassy Site Masterplan.

One of the main issues resulting from the on-site research showed that the district of Vallcarca is slowly being taken over by developers who have been during the last ten years demolished a large number of buildings for speculative purposes. Given the prominent location of Vallcarca in relationship to the city center, its land has increasingly become of interest for large construction companies looking to profit by tearing the area apart and are looking into rebuilding the district to their benefit. This has generated a defensive position from the local community when it comes to the acceptance of new developments. Having this in mind, the proposal is based on a zero-demolition agreement, where currently standing structures are to be always prioritized over new buildings.
Figure 12. The Embassy site floor plans.
Having developed a volumetric scheme for the site, the authors moved into the detailed development of a portion of the dwellings building. This in trying to come up with a new living model based on the findings of the on-site research. On this stage, the 40m2 living quarter was studied, and a proposed internal layout were generated.

The current inhabitants of Vallcarca were very clear in how they are in need of workspaces that are in direct relationship with their dwellings. In this way, the resident proposal for the Embassy site is one that accommodates private workshop areas on the lower level of the building facing a public secondary plaza. On top of each workshop living units share semi private elevated plazas with the other building tenants.
Figure 14. The Embassy site sections.

The dwellings are oriented to have the living and dining area facing south and overlooking the Vallcarca valley. A small balcony in front allows for an exterior private space and acts as an extension of the social field. Facing north, the bedroom and bathroom complete the unit layout. To save as much of the existing vegetation, trees that coincide with the elevated plazas are freed and allow a different perspective of them where users are in direct contact with their canopies.

Behind the ground floor workshops, large working patios are proposed where different activities such as wood and metal working (common in the area) activities can take place. In this way, the proposed building is thought to be not just a living development, but a structure that combines recreational, cultural and work programs.
Figure 15. Proposed 40m2 Dwelling floor plans

Figure 16. Proposed 40m2 Dwelling sections.
3.2. El Bosque (The Forest)

In this scheme, El Bosque proposed a program that occupying a vacant lot like an extension of Volta Square that will occupy most of the program for the community. The reason why this area chosen are because the location that close to the main road (Avinguda de Vallcarca), and the activities that happens surrounding the site especially in Volta Square (see Figure 5 for activity details). That lead the potential of the site to make a community housing as one of the objectives of the program is to have a dwelling that invite to build a community.

Figure 17. Site Plan area of El Bosque.
Occupying a vacant spot does not necessarily mean to build up everything without the original essence of the site. Given the name El Bosque (The Forest) the authors want to use the topography of the location as much as possible, as the existing trees in the middle of the site will be left and all the program will be ‘caging’ the forest.

The Civic Center that located directly from the extension of Volta square can be accessed from both secondary roads. Inside the Civic Center there are theater program that can also be used as concert hall on the ground floor. Located on the first floor is the dance class room that can also be accessed from the stair beside the civic building, as there is a different level because of the site, an outdoor amphitheater also available behind the dance class (the big open stairs that leading users to the theater from Carrer de La Mare de Deu Del Coll street). The ramp that leads users to the rooftop of the Civic Building act as a starter if people want to make a walk surrounding the new community housing as the purpose of the plan is to make the user can enter in-out the site (see Figure 20).

The Mixed-use building is located at the main road for its main program to attract not only the local but also pedestrians to visit the bar, restaurant, and workshops that located in ground floor of the community housing. Going up one floor in Mixed-use building are the administration office which in charge of the community housing and maintaining the use of the civic building and finally leaving the rest of the build area within site are housing program for single to family dwellings.

Figure 18. The El Bosque site floor plans.

Figure 19. The El Bosque site plan section.
Figure 20. Axonometric of the El Bosque Site.
Figure 21. Floor Plans, Sections and Axonometric of the detailed Mixed-Use Building.
4. Conclusions
In this situation, the collective housing can help to give stability and to restore the confidence that seems to have lost in many layers of current society. Trust in neighbors and a belief in shared infrastructure generates a community in which one can feel accompanied and supported at any time; it is the author’s belief that architecture has tactics for promoting this kind of exchange and these tactics explored through the studio. Needs of care for the inclusive character of social housing, with its ability to incorporate sectors of the society at risk of exclusion, not only economically but also culturally. The Collective housing can function as a first social circle within the larger structure of society and the city. That is why the multidisciplinary formation of the architect is essential to understand the social impact within the housing design.

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References
[1] RMIT Architecture 2016 *RMIT Master of Architecture Studio Posters Semester 2 2016* 20
[2] Roca, Estanislau, Aquilué, Inés and Gomes, Renata 2015 *Walking the city: Barcelona as an urban experience* (Publicacions i edicions de la Universitat de Barcelona) (Barcelona: Publicacions i Edicions de la Universitat de Barcelona)
[3] MUHBA Museu D’Historia De Barcelona 2016 *Carta Historica De Barcelona*, 2016
[4] Solà-Morales i Rubió, M 2008 *Diez lecciones sobre Barcelona: Los episodios urbanísticos que han hecho la ciudad moderna = Ten lessons on Barcelona: Urbanistic episodes that have made the modern city* (2a edición, ed.) (Barcelona: Col·legi d’Arquitectes de Catalunya)
[5] Busquets, J and Harvard University Graduate School of Design, sponsoring body 2014 *Barcelona: The urban evolution of a compact city* San Francisco, CA.: Applied Research Design Publishing
[6] Hughes, R 2001 *Barcelona* (London: The Harvill Press)