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Image of a Commercial space in an incremental house. © Ramón Bermúdez, 2005.

***El Tunal Experimental: 40 Years Later* an Experimental Housing Project in Bogotá, Colombia, 1972**

BY RAMÓN BERMUDEZ, JOSÉ ROBERTO BERMUDEZ, DANIELA SANJINÉS

At the beginning of the 70s in Bogotá, Colombia, an experimental housing project tried to respond, with adaptable and intelligent solutions, to the challenges of an increasingly urbanized country. It utilized a Low-Rise, High-Density (LRHD) urban system that enhanced the flexibility and the incremental process of housing units cells. This paper aims first, to explain the historical background and the objectives of an experimental project in a Latin American context; then to expose its innovative architectural proposals and finally, to evaluate its evolution in its 5th decade of existence.

Historical Background

El Tunal Experimental stands, to this day, as an exceptional reference of a context-sensitive project that represents the overcoming of modern precepts regarding housing and urbanism in Latin America. Built in the 70s, it is an emblematic project that was the product of an exceptional time in Colombian history where state policies and architecture came together in search of optimal spatial design and construction techniques that responded to the country's social and demographic realities.

In a more global context, the effects of post-war large-scale housing construction were under scrutiny and the modern approach to urbanization processes were being questioned as the car friendly suburban, sprawling city was being highlighted by social scientists, not for its virtues but as a flawed model that needed to be revised. It was the time of Jane Jacobs, where multiplicity of functions as well as the importance of having “eyes on the street” in order to keep them alive and safe, were emerging as the new urban dogmas. As academics, architects, urban planners and social scientists condemned post-war large scale modern projects, the possibility of addressing social challenges and urban growth through architectural form catalyzed a short but intense period of experimentation.¹

Previously, Latin America had rapidly become the experimental ground for modern architecture as a result, not only of the influx of architects exiled from Europe, but also of active state sponsorship of modern projects and ideas.² As in the rest of the world, the 60s and the 70s came with a questioning of modern projects, especially social housing developments that were not meeting the demands of a growing housing deficit. Programs that subsidized and presented fully-equipped houses were the main source of social housing supply and, as it did not meet the demand, slums were growing exponentially. John F. C. Turner, amongst other academics and researchers, began to shed light on the virtues of incremental housing logic and the effectiveness of

how the poor were housing themselves.³ The idea of housing as a progressive action that was achieved through time became a new element to be considered in the experimental projects that were being built at the time.

During the second half of the 20th century, housing policies in Colombia, as in many Latin American countries, suffered a drastic change from state-sponsored projects to the implementation of a demand subsidy system leading to a more active role by private developers in the supply of the country's growing housing needs.

In Colombia, public institutions had been formed since the 20s to respond to the insalubrious living conditions of the working class and, by the 60s, these robust institutions were producing large-scale developments throughout the country, including some of the most emblematic state-built housing projects to date.⁴ At the time there were several public institutions that promoted housing projects for different social groups on a municipal, regional and national level. Between the 40s and the 70s these institutions were responsible for creating some of the best examples of group housing projects in the country. The quality of the projects was largely due to the fact that these public institutions collaborated with distinguished architecture offices of the time, responsible for what is known today as the “Golden Era” of Colombian architecture.⁵

However, by 1972, the implementation of new strategies to provide low interest housing credits marked a gradual decline in the responsibility of the state in the production of social housing, leaving more space for private developers. Nevertheless this process would coexist with the public housing institutions for two more decades.

Paradoxically, 1972 also marks the end of the construction of *El Tunal Experimental* which was part of a series of projects that aimed to create a replicable housing model that could be implemented throughout the country and respond to the alarming growing housing deficit. Only two of these projects were constructed, Tunal and Kennedy,

both located in Bogotá, and were built in order to showcase the virtues of the proposed model.⁶

El Tunal Experimental survives to this day, as a small material manifesto of a time when the discipline of architecture was intrinsically involved not only in the design of social housing but in the conceptual approach to habitability and the prevalence of quality over quantity. This exceptional time of experimentation was in part due to a convergence of different factors that made this possible: on one hand, the public institution in charge of the development of this project had a technical office with significant decision-making power and was composed of well-prepared professionals.⁷ Amongst these highly qualified professionals was Emesé Ljjasz de Murcia (1936), a female architect of Hungarian descent who led the design team of *El Tunal Experimental* and is one of the country's most renowned housing experts to this day; this technical office, between the 40s and the 70s, collaborated with several of the main architectural offices of the time and was closely linked to the academic and theoretical architectural discourse; Bogotá was, between 1951 and 1974, the host of the Iberamerican Center for Housing and Planning (CINVA). This institution was funded by the Organization of American States (OEA) and the national government, and became a main production source of urban, architectural, technical and administrative research and proposals. Finally, the idea of making an experimental project was supported by several previous examples that made it possible to think of building pilot projects. One was the example of Moshe Safdie's Habitat 67, a housing complex developed for the International Expo in Montreal in 1967, which became a manifesto for new housing that received a lot of media attention and was at the center of architectural debate at the time. The other example was the case of *PREVI* (*Proyecto Experimental de Vivienda*), an experimental housing project competition developed in Lima in 1969 that had a huge impact on the way housing was perceived.

All these events created an environment where experimentation was possible and, doubtless, this had a remarkable effect in the construction of *El Tunal*.

The Tunal Experimental Project

Urban Grain: a Matter of Scale

To revisit the urban context of *El Tunal Experimental* reveals the crucial role of housing design in the modeling of cities, where the configuration of the empty spaces and the relationship between public and private realms are built. An aerial view shows different urban fabrics, a phenomenon that we will refer to as "urban granularity"⁸.

On the periphery of the picture (picture 04): a fine-grained urban system, the traditional layout of popular neighborhoods. Composed of small Individual plots organized along streets, corners and blocks, the buildings are responsible for defining the limit between public and private realms which encourages the setting-up of retail spaces for shops or workspaces in the ground floors.

Forming an L-shaped neighborhood embracing the Public Park of *El Tunal*, we can easily identify a coarse-grained

urban system defined by big plots occupied by isolated linear housing blocks organized as gated communities floating in private green spaces and parking lots. This urban system creates exclusively residential areas with streets emptied of any activity other than circulation (motorized and pedestrian). Commercial activity has been gathered in the mall, resulting in a strong division between residential and other urban uses.

The strip of the *El Tunal Experimental*, that was finally built to the west of Tunal Park, can be distinctively defined as another type of fine-grained system, contrasting with the surrounding gated communities. The orthogonal grid of 3.20 m², produces a wide range of small exterior publicly-used spaces contained by architecture, such as pedestrian paths, *patios* and tiny squares.

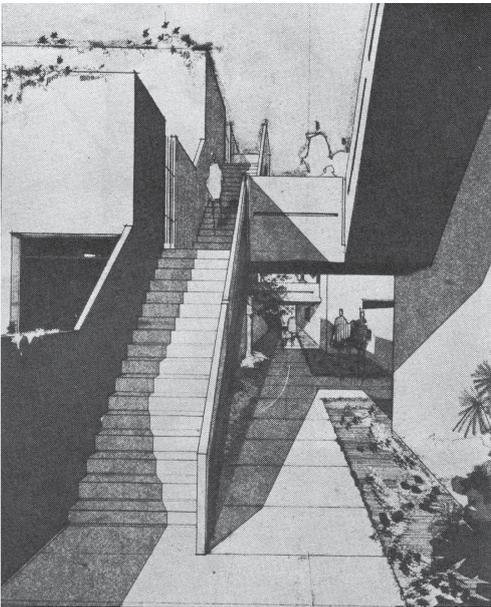
Influenced by academic and technical vindication in the post-war period, the *Tunal* project integrated some of the basic ideas that were stated both in Latin America and Europe at the time. Amongst them, it is important to highlight two of the essential concepts of the design:

- 1) The praise for Low-Rise High-Density housing as one of the main contributions of the *PREVI* competition was strongly defended in the Colombian context by a group of architects and particularly by Germán Samper, one of the participants of the competition. LRHD stood against the hegemony of the two main urban theories of the 20th century, Ebenezer Howard's Garden City and Le Corbusier's *Ville Radieuse* proposing a new way of thinking and building fragments of cities.⁹
- 2) The definition of a single spatial unit (a square of 3.20m by 3.20m) as a starting point for the design of the whole project, including apartment plans, housing blocks and exterior spaces, created a basic grid that ruled the general layout of *El Tunal Experimental*. This was a common design strategy coined by some of the architects belonging to Team X, such as Candillis, Josic and Woods.¹⁰ Although it is debatable to consider *El Tunal's* 120 dwellings per hectare as high density housing today, compared with the standard housing projects being built in Colombia at the time, it was considerably high. Some of the emblematic projects of the time such as La Fragua or Sidauto have close to 65 dwellings per hectare and even the *PREVI* competition, which was clearly aiming for low rise high density housing, in its guidelines asked for 1500 dwellings for a 36 hectare plot, reaching no more than 42 dwellings per hectare. Therefore, when analyzing the project in the historical and geographical context in which *El Tunal* was built, it was comparatively high density.¹¹

The 3.20m × 3.20m Grid: Unit, Cell and Block

The typical housing block of *Tunal Experimental*, containing 13 housing units each and showing a fragmented silhouette of 2, 3 and 4 story's high,¹² are tightly arranged together trying to achieve a high density and a compact neighborhood with closely-contained public spaces. Each block has 4 linear stairways running up the side of the building façades

01 Rooftop terrace. © Ramón Bermudez, 2005.



02 Original drawing of the project © ESCALA Magazine Archive, 1971.



03 Emesé Lijasz de Murcia, the chief architect of the Tunal Experimental's design team, in a visit to Tunal. © Ramón Bermudez, 2008.



04 Aerial view of the Tunal sector and urban granularity schemes. © Claudia Olalla, 2014.

in order to provide access to all the housing units. This circulation system replaces the usual collective spaces such as entryways, halls, corridors and interior staircases.

In this case, the typical components of a housing project – public, collective and private spaces – have been organized in such way that all the private groups are directly related to the street. Housing units comprise 5 or 6 units of interior space — depending on the type — and 1 or 2 units of exterior space, translated into a comfortable terrace connected to an external stairway like a transition between public and private realms. Each house has windows facing different directions due to the fragmented shape of the building. Additionally, the block has an interior courtyard that ensures natural lighting and ventilation for all inner spaces.

The Terrace is the New Entrance

The terraces are invariably linked to the street by the façade stairways and can be understood simultaneously as an extension of the street at different levels and as the extension of the house in the public realm. In fact, *El Tunal Experimental* inverts the common isolation that reigns in typical housing blocks, where the actual contact between public and private is done only once, at the main entrance of the building. The private exterior space of each dwelling becomes the articulating mechanism into which the stairways connect.

This is certainly an unusual proposal for a housing block. The architectural scheme of *El Tunal* clearly is based on a very direct relationship between the public and private, reiterating an essential equilibrium of Bogotá's popular morphology, that is the direct relation between public and private spheres. The housing block is physically linked to the street on its perimeter, through the façades, causing a series of interesting innovations: the block reveals to the public realm all the collective activity that usually lies inside. The inhabitants are not gathered around an interior space, so all the domestic energy is transported to the façades, that is the place where people enter, get around, socialize; Each stairway serves only one fragment of the block and never gathers all the inhabitants of the building in the same core. Two, three or a maximum of four housing units share a stairway, half public, half collective. In fact, people often use the stairways as a place for socializing with neighbors in other blocks, or just a place to stay and see the pedestrians pass through; the terrace as an entrance establishes the public-private transition in a very subtle way. The space of the stairway becomes sometimes an extension of the private realm, and some objects — mailboxes, chairs, plants, fences — or even materials such as the flooring, crawl from inside and colonize this semipublic field; being linked directly to the street, inhabitants can use part of the housing cell for other purposes than domestic uses if they want to. We can find workspaces; travel agencies, shops, hairdressers and beauty parlors sometimes even in the top floors.

The project diversifies the surface of contact with the public space, and therefore it promotes an increased functional diversity.

40 Years Later: Incremental Absorption

Housing as a Product vs Housing as a Process

The terrace/entrance space becomes the incremental unit in a natural way. By this way, terraces turn into incremental plots (of no more than 10 or 20 m²) that add a flexible component to each dwelling. The incremental process occurs through time, either by an individual or collective undertaking, so today it is possible to find next to each other an original house unit or different types of enlarged ones depending on each family's economic circumstances and history.¹³

The incremental process is a logic that comes from informal housing that has shaped the Latin-American city in the last century, and has become a phenomenon prompting smart solutions. This logic is embedded in the core of *El Tunal Experimental*, from the drawing board as an attempt to understand and engage with urban reality. The dichotomy exposed by Turner in "Housing as a Verb" (1972)¹⁴, between housing as a product and housing as a process, places *El Tunal Experimental* at a halfway point. In fact, the housing units were delivered fully equipped. In this sense, every unit is a product that can be sold and bought independently. However, every housing unit is provided with an exterior space, the terrace/entrance, which announces an incremental possibility, accepting evolution inside domestic space in concordance with each family and its singular life cycle or economic fluctuations.

The volumetric consequence of this progressive process does not affect the original aspect of the whole, because random developments maintain the sense of fragmentation in every new addition. Therefore, the project has an acceptance of progress and anticipates expansions to its silhouette as part of the main structure. Finally, the broken elevation is conserved due to social control and agreements between neighbors or as a simple result of sharing the same structure, making every improvement part of the invisible logic of incremental housing.

Growing Together: Local Organization

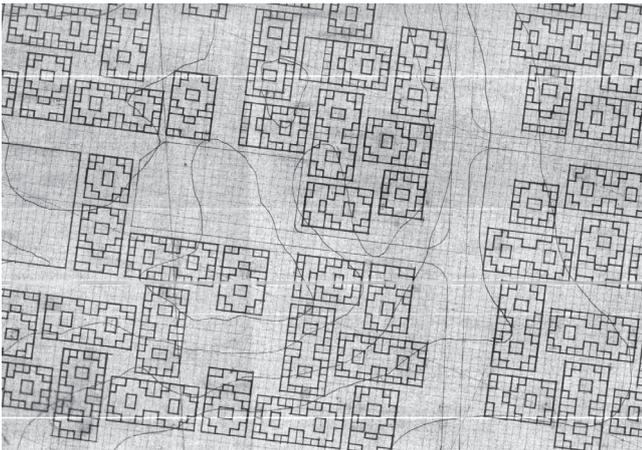
The decision to build a concrete slab can be made by common agreement between neighbors looking for a mutual benefit. The neighbor downstairs can just make his light roofing for his incremental unit, but if he agrees with his upstairs neighbor to build a concrete slab together he opens the possibility for the latter to increase his unit beyond the limits of his own incremental unit. After all, it depends on good relations between direct neighbors to reach an understanding on the incremental process, and that's not always the case¹⁵.

The project has the quality to absorb every added element, because every new construction wears the chromatic palette from the original project, such as mustard yellow, terracotta or grass green. This tendency reveals a communitarian organization that advocates and promotes conservation parameters to maintain the original spirit of the project. In fact, this coordinated action shows how *El Tunal Experimental* assimilates incremental progress in every single unit and maintains homogeneity despite local law or technical guidance.

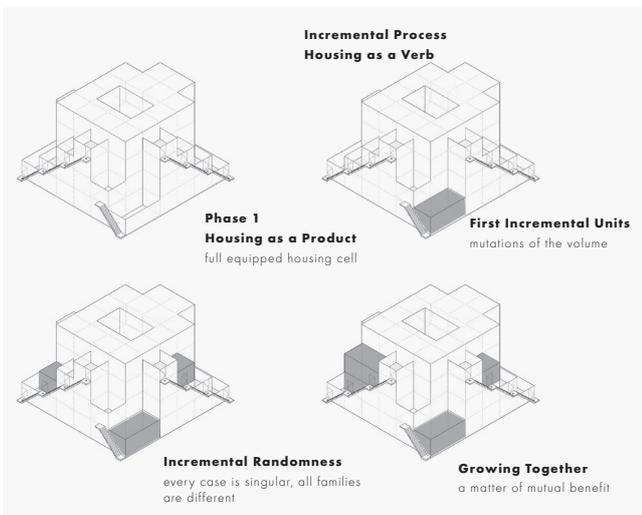
05 Images and typical footprint plan of gated communities on the vicinity. © Ramón Bermudez, 2008.



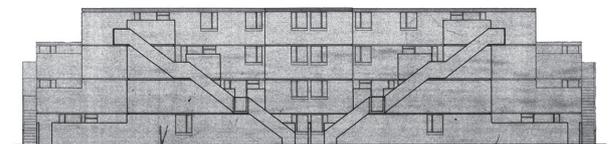
06 Topographical drawing: the urban grid of 3,20m x 3,20m as the point of departure of the modeling system. © Prof. Luis Fernando Figue, personal archive.



07 Stairway on façade: people hanging out on the improvised "balcony". © Ramón Bermudez, 2008.



08 Incremental processes and growing together: evolution of housing units. © Claudia Olalla, 2014.



09 Façade drawing of the project. © Prof. Luis Fernando Figue, personal archive, 1971-72. Façade of the built project. © Ramón Bermudez, 2005.

The whole image of the block survives accepting particular changes in every cell and adapting itself to a constant process of transformation. Paint is an easy way to cover up different incremental stages. Sometimes, the task of painting the whole block is made by common agreement. In other cases, the painting occurs in isolation when an owner decides to paint his “portion”. The extensions have come to overlap each other and informal agreements have been needed between neighbors, but 40 years later we are able to recognize the project as a unified whole despite it having changed a lot. It is admirable how it is being adjusted to the inhabitants’ needs and has related to urban conditions.

Mixed Uses, Density and *El Barrio*

Following the pattern of a popular or unplanned district, *El Tunal Experimental* involves naturally the mixture of uses at all levels. Besides residential activity, there have emerged commercial spaces that contribute to revitalize the public space, even at second and third floor levels. Those commercial offices or variety stores transform communal areas into places to socialize, offering communal goods and services as well.

A commercial or productive space inside low-income housing is a main aspect of Colombian domesticity. Housing must be capable of providing additional income or endeavor to facilitate productive labor. Therefore, the terrace/entrance becomes an extra space that can host many activities and in this way stimulates urban life and contributes to create social fabric that means successful urban dynamics. *El Tunal Experimental* is able to assume the growing complexity inside the contemporary city according to a cultural network that settles through time.¹⁶

Conclusions

El Tunal Experimental went for a different approach to housing, looking for an audacious solution at a time when architects at the service of public institutions were thinking beyond the immediate future and developing architectural proposals “through time” for their projects. Those architects, like Emesé Ljjasz de Murcia, went beyond their responsibility and designed from their perspective a housing model capable of changing to respond in a natural way to the urban context and give way to experimentation in how architecture enhances community life. *El Tunal Experimental* could be considered one of the finest housing projects generated by a public institution, which not only offered a flexible housing action plan for the increasing urban masses, but also pursued an architectural model capable of understanding owners’ economic and construction dynamics.

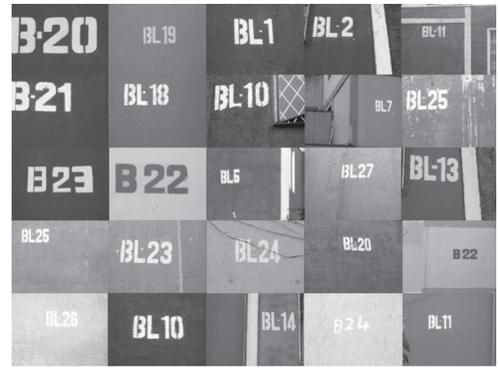
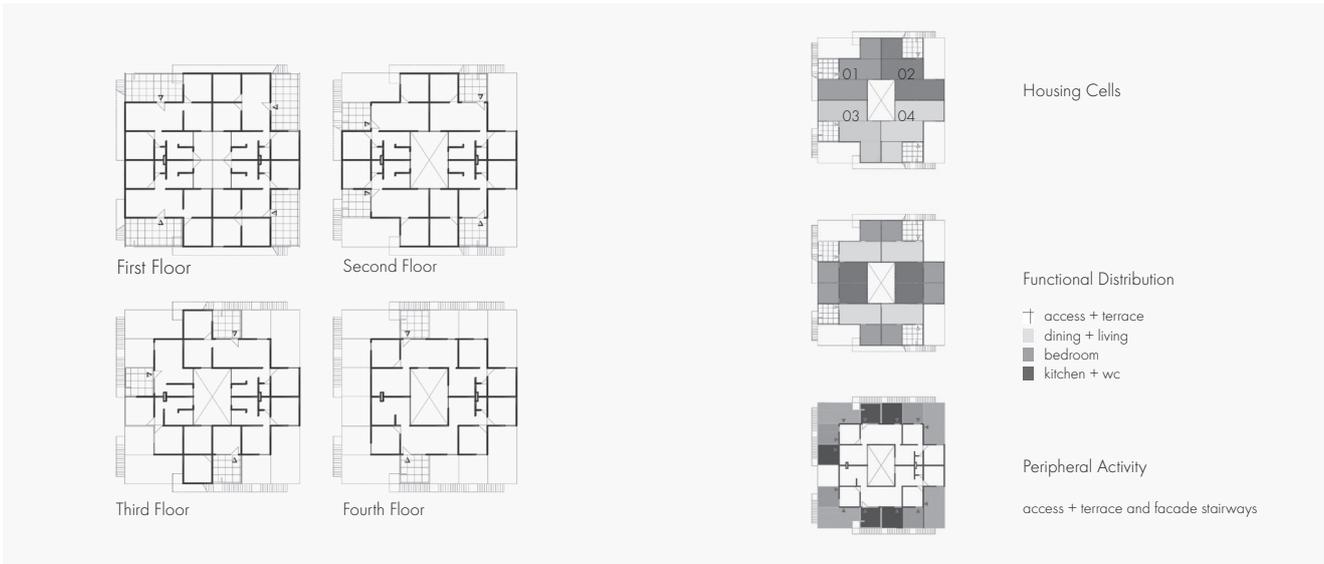
The block’s design — endowed with a fragmented silhouette — successfully combines public and private areas and generates a transition space in the façade stairway for collective purposes in a constant relationship to the street. *El Tunal* was an attempt to respond to unsolved matters around housing in a period when professionals were discussing how these projects were responding to a national context, and how they assimilated local lifestyles and social realities. It created a close relationship between the housing unit and the street and tested the academic postulate of

LRHD, in a deliberate attempt to improve collective inhabitation and tying together the individual and urban milieu.

The way this project stands today, it is a lively testimony of how a project has assimilated favorable changes where a grid of 3.2m × 3.2m defines an increasing logic without losing its initial image, as occurred with the *PREVI*’s housing projects, for instance. From the beginning, *El Tunal Experimental* proposed a metabolism sensitive to variation, not only in terms of architectural issues but also related to social complexity as an essential part of the project. ■

Notes

- 1 Symposium The Göhner Case. On the crisis of large-scale housing production in the 1970s. <http://www.ursprung.arch.ethz.ch/events/derfallgoehner-crisis-of-large-scale-housing-production/information>
- 2 Mauro Guillén, *Modernism without Modernity: The Rise of Modernist Architecture in Mexico, Brazil, and Argentina, 1890–1940*, Madrid, The Wharton School. Instituto de Empresa, 2004.
- 3 Patrick Wakely, Elizabeth Riley, “The Case for Incremental Housing”, *Cities Alliance Policy Research and Working Papers Series*, No. 1, June 2011.
- 4 “Processes of modernization and the development of public housing policies, plans and projects are two intertwined phenomena in Latin American life. Since the 1920s legal and institutional bases for the development of housing programs was established. Towards the 1950s, in most of the region, these institutions and programs were established and pursuing projects. By the 1970s the most important public housing examples had been built. In the last two decades state action in this field has gradually diminished obeying microeconomic policies and specially the privatisation of state activities.” Rodrigo Carrascal, Alberto Saldarriaga, *Vivienda Social en Colombia*, Colombia, Bochica, 2006. Translated by the author.
- 5 Term coined by Eduardo Samper in the book *Arquitectura Moderna en Colombia: Época de Oro*, Bogotá, Diego Samper Ediciones, 2000. As a matter of fact, during the 1940s and 1950s several architecture studios, through joint ventures with state institutions in the development of social housing projects, would become the main representatives of Colombian modern architecture (Rogelio Salmona, Germán Samper, Fernando Martínez Sanabria, Obregón y Valenzuela, Guillermo Bermúdez, Jorge Arango, Cuellar Serrano Gómez.)
- 6 “El análisis dimensional de los espacios requeridos por las diversas funciones en el aspecto urbano y arquitectónico, complementado con el estudio de materiales y sistemas constructivos existentes, con miras a una industrialización progresiva, permitió adoptar un módulo básico como punto de partida para la configuración del sistema de diseño. [...] El conjunto arquitectónico concibe la vivienda como una suma de elementos modulares”. In “Tunal Experimental, Description of the Project Before being Built”, *ESCALA Colombian Architecture Magazine*, No.17, 1971, p. 43–53.
- 7 S. Pradilla, R. Bermudez, Interview with Emesé Ljjasz de Murcia (Audio), February 2008.
- 8 The term granularity refers to the chemical process of photographic film and its particular way of classifying: “Coarse-grained systems consist of fewer, larger components than fine-grained systems; a coarse-grained description of a system regards large subcomponents while a fine-grained description regards smaller components of which the larger ones are composed.” In <http://en.wikipedia.org/wiki/Granularity>.
- 9 “There was Jane Jacobs and her wonderfully perceptive analysis of the crucial advantages of the dense low-rise neighborhoods of Boston’s North End. There was a pioneering work done on the British New Towns by Sir Leslie Martin and the Greater London Council (GLC), which studied the actual correlation between building heights and densities, and how it varies, depending on the context at the building site itself, at the neighborhood level, and the city scale. And there were Alison and Peter Smithson and others teaching and articulating the issues of housing at the Architectural Association in London. All this came under the rubric of low-rise, high-density housing (LRHD), and all this went into *PREVI*.” In Charles Correa, “LRHD: Low-Rise, High-Density”, in Fernando Garcia-Huidobro, Fernando Torres Torriti, Nicolas Tugas, *¡El Tiempo Construyel*, Barcelona, Editorial Gustavo Gili, 2008, p. 150.
- 10 Tom Avermaete, “Stem and Web: A Different Way of Analyzing,



11 *El Tunal Experimental* today: inner public space, evolution of typography and façade colors © Tom MacDonald, 2014.

Understanding and Conceiving the City in the Work of Cándido-Josic-Woods”, in *Papers from the Conference “Team 10 - Between Modernity and the Everyday”* organised by the Faculty of Architecture TU Delft, *Chair of Architecture and Housing*, June 5–6, 2003 (http://www.team10online.org/research/studies_and_papers.html).

- 11 “Hacia 1959 se construye el barrio La Fragua y a partir de ese momento inicio una investigación que me lleva a formular un nuevo patrón urbano, denominado vivienda baja de alta densidad (...)” SAMPER, Marcela Ángel; O’BYRNE, María Cecilia, *Casa + Casa + Casa = ¿Ciudad?* Germán Samper: Una Investigación En Vivienda, Bogotá, Ediciones Uniandes, 2012, p. 50. (http://viviendagermansamper.uniandes.edu.co/pdf/libro_GSamper.pdf)
- 12 “...todo el conjunto se proyecta en base de una malla ortogonal común a la vivienda y a los espacios libres y que permite tener un sistema muy racional y económico de vías y redes.” In “Tunal Experimental, Description of the Project Before being Built”, *op. cit.*
- 13 “...impuesta por los requerimientos de la familia y las cuales implican al mismo tiempo flexibilidad de uso para dejar abierta la posibilidad de crecimiento horizontal o vertical de acuerdo con el desarrollo progresivo de la misma vivienda.” In *idem*.
- 14 “Conventional minimum standards for housing were accused of worsening rather than improving material housing conditions — dramatically so in economies of scarcity. It was hypothesized that this counterproductive behavior is a consequence of the conceptual error of understanding housing as a noun and of identifying values and objects instead of understanding housing as action and seeing values in the roles that procedures and products play in people’s lives.” In John Turner, “Housing as a Verb”, in John Turner, Robert Fichter, *Freedom to Build, Dweller Control of the Housing Process*, New York, Collier Macmillan, 1972, p. 173.
- 15 In an interview with Ofelia, one of the current inhabitants of *El Tunal* and resident since 1975, we understood that this issue of growing is

not just a business transaction of mutual benefit. She has built a nice robust concrete slab for her unit’s roof were you could build on top without concerns but she doesn’t want to hear her neighbors, and so she didn’t let them build on top of her house.

- 16 “La tienda de Barrio sigue siendo [...] la alternativa comercial más próxima a la cultura popular, es la que se identifica con la cotidianidad del poblador y con la vida de la cuadra, por cercanía espacial y por la relación cultural que ofrece. Allí se encuentran los productos alimenticios más cerca de la casa y desde tempranas horas (6:00 am. en adelante), también es el sitio más próximo en donde se podrá comprar al menudeo (desde una pastilla de chocolate), también ofrece la posibilidad de otorgar crédito al vecino, ‘fiar’, incluso se puede obtener dinero prestado sin intereses adicionales, para solucionar el transporte del día; allí se dejan razones, se guardan llaves, se pegan anuncios, se presta el teléfono o se dan orientaciones al desorientado forastero. La pequeña tienda, aunque poco surtida es lo personal, el foco de atracción cultural del barrio, lo contrario a lo impersonal, aunque bien surtido, que ofrece el supermercado.” In Hernando Carvajalino, Fábio Avendaño, *Espacialidad de la Periferia, Constitución Especial de la Vivienda Popular Espontánea*, Bogotá, Ministerio de Cultura, 2000, p. 98.

Ramón Bermudez, José Roberto Bermudez, Daniela Sanjinés
 Ramón Bermudez (b. 1983), José Roberto Bermudez (b. 1984) and Daniela Sanjinés (b. 1981) are architects who graduated from the University of Los Andes, Colombia. They have developed separate practices in different spheres of architecture and urbanism, but, since graduating they have shared a critical approach to certain issues of the Colombian context that have led them together to develop architectural projects, landscape and community-managed urban projects and research and critical writings. They founded *colectivo btá* in 2006 as an open platform for research and context-caring design.