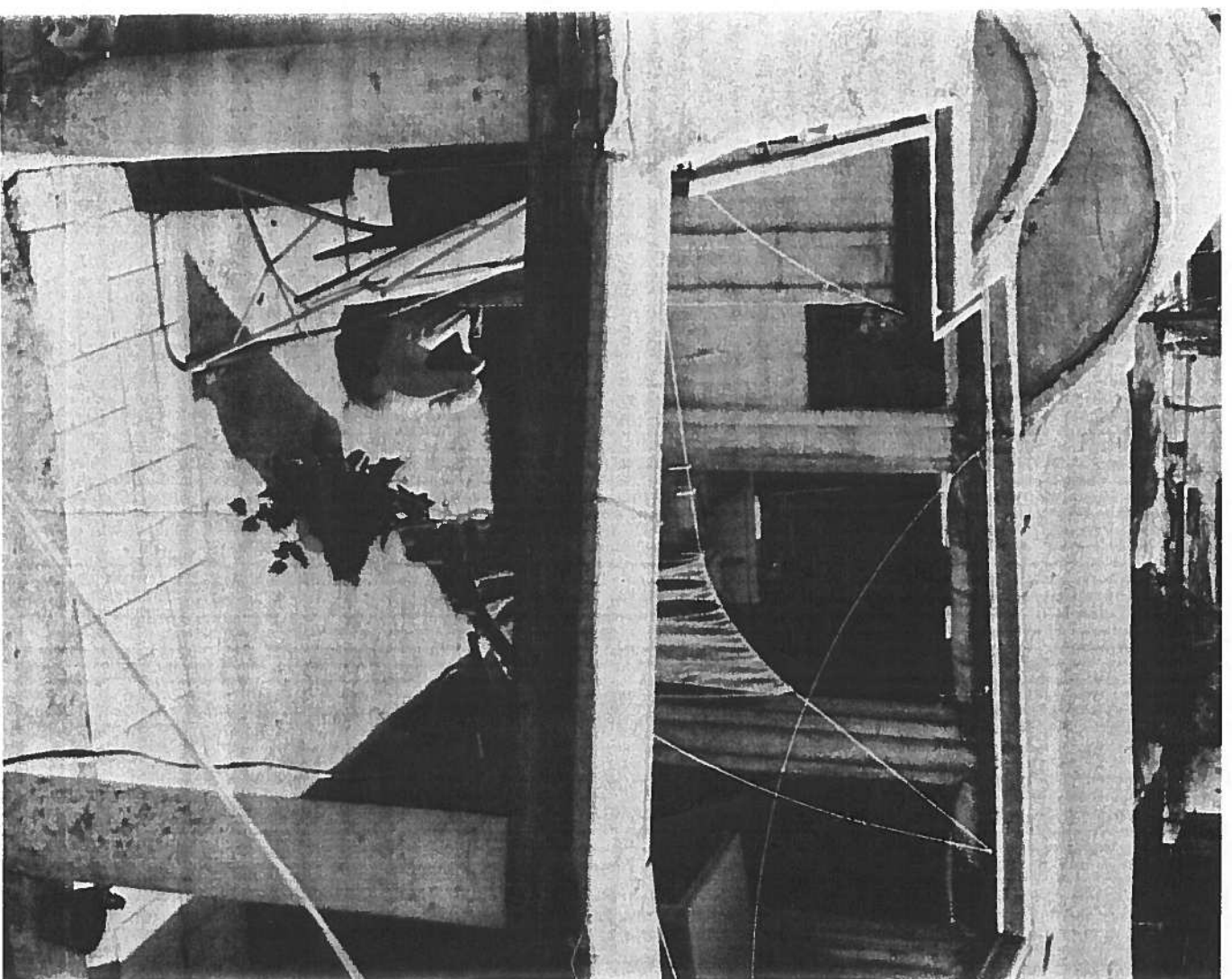


**Lessons from the Mexicali
Experimental Project**
Ana Laura Ruesjias

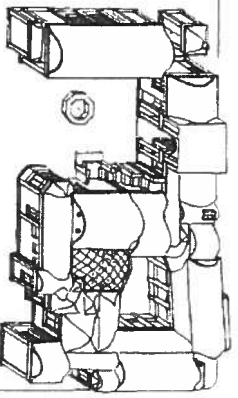
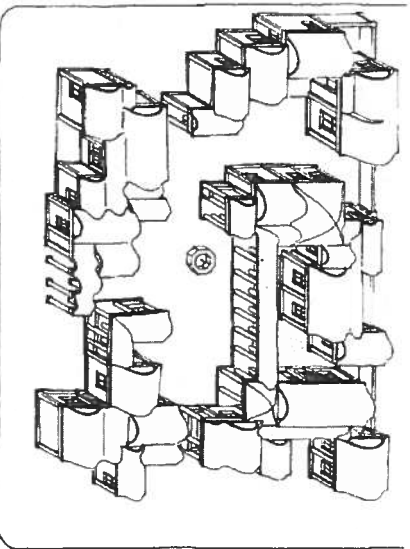


Lessons from the Mexicali Experimental Project

Laura Ruesjas

Historically, designers foreign to the reality of a location and a people have tried to solve problems of mass housing supply. Whether the process is centrally controlled by architects at the government level, or at the business and industrial level, the result is the production of repetitive formats that have no relation to people's specific needs.

The Mexicali Experimental Project designed and built by the architect Christopher Alexander in 1976 in Mexicali, Mexico, represents an effort to improve the standard housing production process by personalizing the design and empowering the final owners. Alexander's goal was to reveal the importance of human feelings and sense of place in the process of housing, by rethinking the housing production system. Alexander aimed to change the architect's role and the user's degree of involvement from the early stages of the project on. At the time, the project concept was innovative and expectations of creating a beautiful place were high, not just for the architecture but also for the quality of life.



The residents played an important role in the design of their environment. This, according to Alexander, guaranteed that the living situation would directly respond to their physical and spiritual needs. However, just a few years after the construction of the project, users had transformed the project beyond recognition. The houses and open spaces they designed during the participatory process now blended into the surrounding neighborhood. Users had modified the layout, altered the aesthetic aspect of the buildings, and used different construction methods than the ones proposed. These transformations suggested that the project's production process did not take into full consideration local cultural conditions strongly rooted in the Mexicali area. The role of the architect can also be legitimately questioned. Despite Alexander's attempt to act as facilitator in the participatory process, his approach became largely controlling, thus hindering user participation.

This paper will briefly discuss the changes made to the project, emphasizing the mismatch between the architect's approach and the true cultural needs of the users, which resulted in an absence of the relationship between "people and place", or, from a theoretical perspective, between "housing and cultural environment". It touches upon the role of the architect as well as the users in this experimental approach to housing production. It is important to note the description of Alexander's project presented here is the result of an analysis of the changes that occurred in the 20 years following its completion. Today the Mexicali project continues a natural process of modification and evolution. This proves what was observed earlier, that, even when applying user-oriented participatory approaches, designers need to pay particular attention to what users expect of their homes and to the local cultural environment where the project takes place.

The Mexicali Project Proposal

The history of the project goes back to 1975, when the government of Baja California, Mexico, in an attempt to address the local housing shortage, requested that Alexander apply his long-term housing research to Mexicali. The project included the construction of 30 dwellings starting with five that would replicate organically over time. While the traditional practice of architecture assumes that architects create buildings, towns, and neighborhoods as a product of their imagination, Alexander's theory claims that architects actually produce different versions of the existing physical structure that surrounds us, the dominant structure. Thus, architects don't bring order into an otherwise chaotic situation through design; the order arises through an existing system of rules.¹

The activities, forces, and events common to a specific place fundamentally govern this system of rules. The events are then dissected into manageable parts, and assembled in a hierarchy or diagram, which becomes more and more complex. Each event with a corresponding form in space is what Alexander defines as a "pattern".² It is important to highlight that the "Pattern Language" aimed at generating a particular quality in the environment, a human quality only found in cities spontaneously created of the past, places where no professional intervention had taken place. These were characterized by places with familiar streets, various spatial configurations, overlapping activities, rich architectural forms, all these created to a human scale. The Pattern Language for design, developed by Alexander, Kaoru Ishikawa, and others, combined with an attempt to redefine the production process by restructuring the control system, was to be used as the basis of the Mexicali experimental participatory project.

Alexander argued that to allow a "reasonable and careful adaptation to specific details of everyday life"³, the housing production system must be decentralized. He modified the traditional roles of architect and user by dividing the process into the following seven principles:

¹ Grabow, Stephen (1983) Christopher Alexander: The Search for a New Paradigm in Architecture. Boston: Oriol Press, p. 46

² *Ibid.*, p.37

³ Alexander, Christopher et al. (1985), Production of Houses, New York: Oxford University Press, p. 36

1. Attempt to revert the traditional roles of architect and builder by merging them into one.
2. A building called the "builders' yard", a supply center for materials, equipment, and information about the building process, enables a decentralized construction system.
3. Concerned with the planning of common areas, Alexander proposed a cluster layout to encourage social cohesion among individuals and their community unlike traditional "grid" arrangements.⁴
4. To guarantee that each house reflect the specific requirements of its occupants, Alexander used his Pattern Language to design individual houses, involving residents in a participatory process.
5. A step-by-step building system can circumvent the rigidity of standardized, ready-made building components.
6. Propose a cost control system of, allowing for more freedom in the design.
7. Focus on the human rhythm and the relationships people form to their houses.

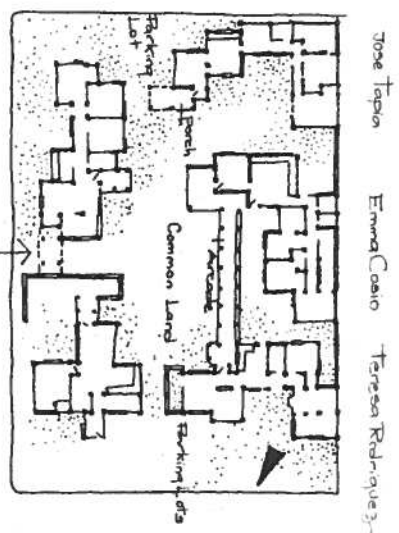
The seven principles described above are at the core of the Mexicali participatory design approach.

The City of Mexicali and its Cultural Context

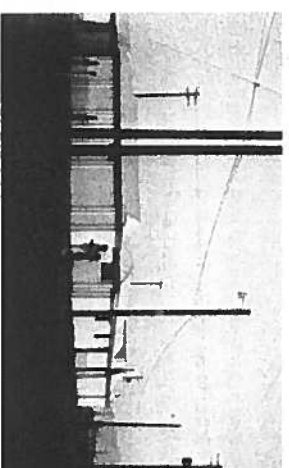
Before describing visiting the Mexicali project, 20 years later, it is important to clarify the cultural context of the city and the occupants, as culture clearly had an important impact on the transformation of the Mexicali project.

Mexicali, in the state of Baja California, is located in the Northwest corner of Mexico at the border with the United States of America. The project was located at the outskirts of the town,

⁴ Alexander, Christopher, et. al.: *The Production of Houses*, Oxford University Press, New York 1985, p. 123



Layout of the Use of the Cluster
Sketch, Ana Laura Reyes, 1995



Builder's Yard
In: Alexander, Christopher
et al. (1995),
The Production of Houses

in an area known as Colonia Orizaba.⁵ By 1976, the year in which the project was started, the city center and its outskirts were undergoing a strong migratory process. The U.S.A. and Mexico had an agreement that attracted people from southern Mexico and China to border areas, then mixing with the locals. Local social and cultural characteristics were affected by the three cultures. The cultural exchange resulted in a heterogeneous lifestyle defined as *border culture*.⁶

This particular border culture was reflected in the surrounding building structures, including aspects such as housing shape, room location, and spatial use, all of which led to a common understanding of the concept of home. *Home* is used here to designate the personal ties between people and their *houses*. Thus, the difference between the terms *house* and *home* lies in the functional nature of the former in contrast to the meaningful nature of the latter.⁷

In this heterogeneous cultural environment, five families responded to a government invitation to design and build their own houses. They were as follows: Mr. Julio Rodríguez, married with four children (ages 10, 8, 6, and 4); Mrs. Lilia Duran de Guzman, a nurse and her husband, with no children; Ms. Emma Cosío, a court stenographer with 10 children (ages 17, 15, 13, 10, 9, 8, 5, 4, 3, and an 8-month-old baby); Mr. Tapia, a clerk with three children (ages 3, 2, and 2); Mrs. Macarías Reyes, a married nurse with two children (ages 2 and 1).

Each family agreed to participate not only in the design and construction of their house but also to take on a governmental loan. Each house had a different price, and each family explained their individual needs before participating in the project, leading to proportional cost adjustments for use of the common cluster, parking, and open areas.

⁵ To see the project site on Google Earth use the address: Rep. Dominicana 2391, Conjunto Urbano, Orizaba, Mexicali, Mexico.

⁶ The term culture, refers to a set of social forces that shape every aspect of life. These are expressed by the shared understanding of social structures' values such as: institutions, family, social networks and relations within a specific group.

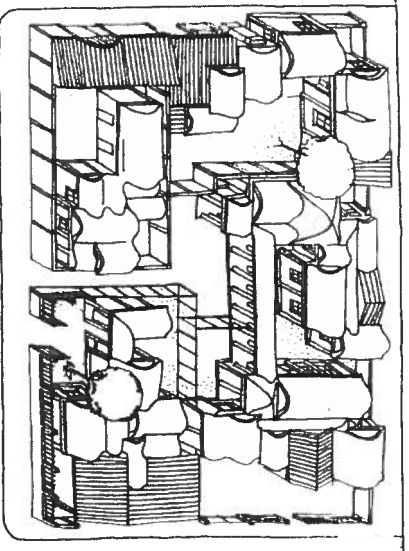
⁷ Juhani Pallasmaa explains that "home is not merely and object or a building, but a diffuse and complex condition, which integrates memories images, desires and feelings: the past and the present". In: Benjamin, David N. et. al. (1995) *The Home: Words, Interpretations, Meanings, and Environments*, Aldershot: Avebury

Architect-User Interaction During the Participatory Process

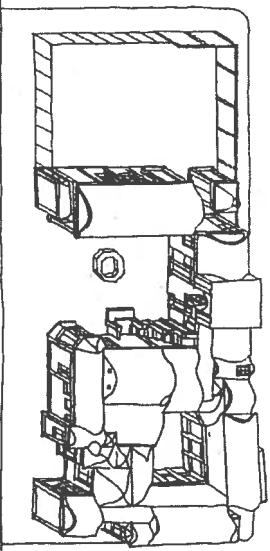
Alexander's ultimate goal was to re-establish the environmental quality lost in conventional housing construction by allowing families to directly intervene in the making of their environment, in this way bridging the gap that has traditionally existed between architect and user.

The participatory process's main tool was the Pattern Language book. A series of patterns were pre-selected and presented to families for discussions. Users were asked to describe the house they expected and, if possible, even draw the spaces they envisioned. During this process, not only was the architect involved, but several students also helped him with the process. Alexander and his team had already developed the construction system, which used a replicable, low-cost construction system.

During the participatory planning process of the 150-square-meter common land, residents were able to choose a location within the cluster that suited them best. For example, the Cosío family wanted to be as close as possible to the center of the cluster while Lilia Durán's husband, a barber, wanted his house at the edge of the street in order to possibly open a barber shop. The Tapia family wanted their home to be situated away from the center of activity.

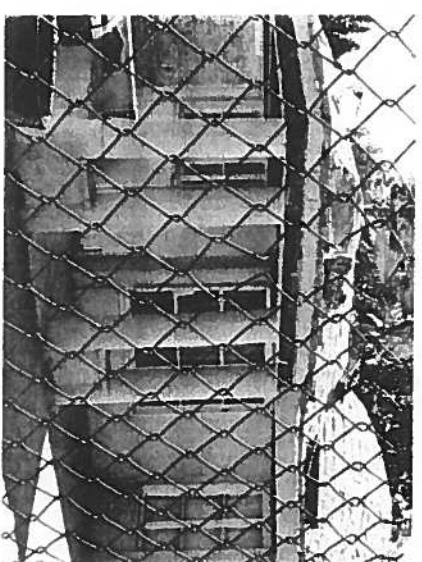


As mentioned, the house design followed a series of pre-selected patterns proposed by the architect. However, because Alexander was not permanently on the project site, two students were assigned to each house. During Alexander's absences, the students took on the role of architect, presenting the Pattern Language work system to families and discussing the selected open-space and housing patterns. The final form and distribution of the houses was then the result of the patterns proposed to the families. The builder's yard was designed and built by the architectural team, with no input from families.



Informal Transformation of the Builder's Yard and the Cluster by the Dwellers, Sketch, Ana Laura Ruesjias 1995

*Subdivided Common Land
Photo: Ana Laura Ruesjias 1995*



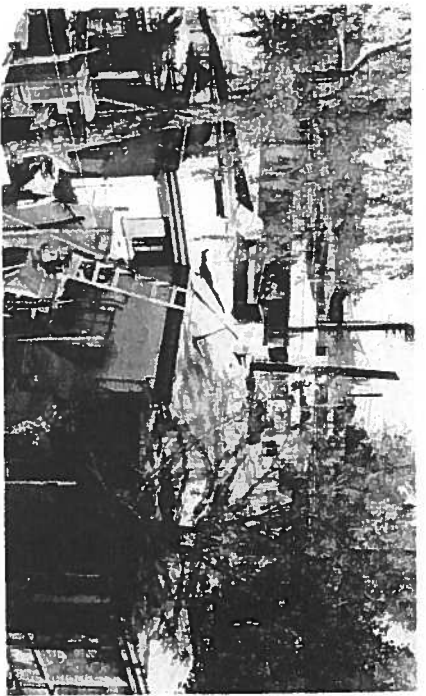
User-House Interaction

As families interacted with their houses, they also took full possession of them, modifying the living spaces to such an extent that the project began to meld into its surroundings. An aerial view today provides a glimpse of the builder's yard but it is not possible to identify the houses as they were originally planned.⁸ What happened? The Mexicali Experimental Project had called for direct user involvement. The architect changed his role to become a facilitator rather than a sole decider of the project. Construction conditions were set so that the project could replicate organically over time. Users participated and had the freedom of choice that should have created a bond with their living environment. Why then would the project require further modifications to fulfill the families' needs?

One could argue that transformations to an architectural project are not necessarily a negative outcome. These transformations could mean that users took possession and created a link between their needs and their homes. And indeed, such conclusions would agree with Alexander's view. During an interview for a research project, when asked whether or not changes made to the project enhanced the surrounding environment Alexander answered, "[...] the issue is whether the (modifications) have a living character or not. The way I would evaluate it is simply to say: does it have a living character? Does the building have more of a living character than before?" During the interview, Alexander expressed his concerns about the transformations to the project since, according to him, they did not truly improve its living character.

In the case of the Mexicali project, changes made by the users were positive in that they fulfilled cultural needs, but they also added additional expenses (emotionally, physically and financially) that were not originally planned. It is important to note that, in many cases, low-

⁸ A study carried by Alon Goldemberg, a student at Tel Aviv University, as requirement of the "Social, Environmental and Political Issues in Urban Planning" course, fall semester 2010-11, PPT presentation, shows current Google images of the latest changes to the project. No further analysis was made in this study.



*The Mexicali
Experimental
Project completely
blends in with the
neighborhood.
Photo: Ana Laura
Ruesjäs, 1995*

income families do not have the opportunity to own a home. Thus, when the opportunity does arise, it is the architect's responsibility to allocate appropriate financial means to avoid increasing the final costs.

Extensive on-site research and interviews with the families showed that the project had undergone the normal process of aging. Yet many of the transformations undertaken by residents appeared to go beyond a normal growth process. For instance, the common areas of the cluster arrangement had been subdivided into individual lots, house exteriors had been hidden by new structures, some residents had added new rooms, and others had transformed or demolished existing ones. In other houses, the interior space had been adapted to activities that were different from those originally planned. Occupants had re-painted the houses, added fences, and incorporated window security devices.

The builder's yard had been abandoned. The construction process, building materials, and technology used in the conversions now followed local building practices. Although no absolute conclusions can be drawn, these modifications are indicative of a conflict between Alexander's process and the residents' cultural needs.

The most significant modification to the project was the subdivision of the common area, which, as explained before, was originally planned as a center of social cohesion. The advantages of the process used in Mexicali were evident in the first year after completion. According to interviews, families remembered it as a place to gather and talk, thus creating a strong sense of community. However, three years later, they questioned the validity of the Common Area pattern. Problems between neighbors began when one family's child became a source of violence and fear. At the same time, families felt a loss of both privacy and control when local vagrants began using the common areas to sleep overnight. The originally planned garden was quickly abandoned and the physical environment deteriorated. As a result, the Reyes family built a three-meter-high fence around their house, incorporating part of the parking area but not their share of the common area. Soon afterwards, the remaining families did likewise.

*Houses have been
modified to respond
to local cultural
practices.*

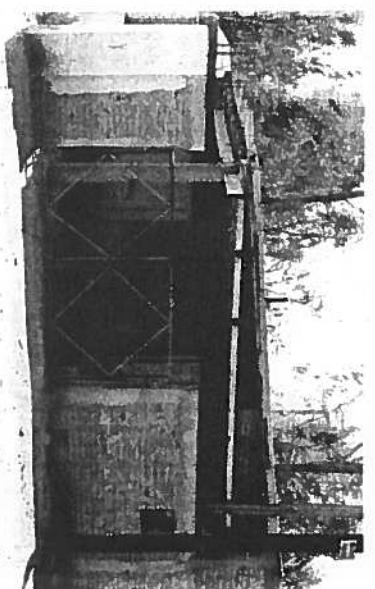
*Photo: Ana Laura
Ruesjäs, 1995*

According to Alexander, all patterns are interdependent, and "each pattern is connected to a particular larger pattern which comes above in the language and to a certain smaller pattern which comes below in the language."⁹ This means that the dismemberment of the common area pattern implied modifications to the house patterns as well, affecting the interior organization of the houses. For example, families relocated the entrances of houses initially facing the common area so as to face the street. This situation, which occurred in the dwellings of the Tapia, Reyes, and Rodriguez families, also involved modifications to the kitchens, dining rooms, and living rooms.

Another pattern, called "Wings of Lights", attempted to maximize direct illumination and ventilation by shaping each house like a thin, long building block, and grouping them according to function. With the construction of the three-meter-high brick wall however, the pattern was rendered invalid, producing a great deterioration of environmental quality (reduction of interior light, lack of ventilation, sunless gardens). Transformations also went beyond the interiors, with users altering house façades by adding decorative elements, false arches, timber roof materials, and bright colors.

An Attempt To Illuminate the "Why"

The architect's involvement in the participatory process was positive. He had direct contact with the families and allowed them to express their needs. However, families lacked knowledge of architectural language and visualization methods, and were not able to fully and accurately express their needs. Therefore, they often counted on the students assigned by Alexander to make certain decisions. Mrs. Duran mentioned during an interview, "They (the students) would ask us where we wanted the living room or the kitchen. [...] I couldn't imagine anything, so you know what I said? I said to the students, you know better so we give you the chance to do it as you wish. [...] In the end, the whole house was designed by them."



⁹ Fromm, Dorit (1984), *Mexicali Revisited*, Master Thesis, School of Architecture, University of California, Berkeley 1984, p. 54

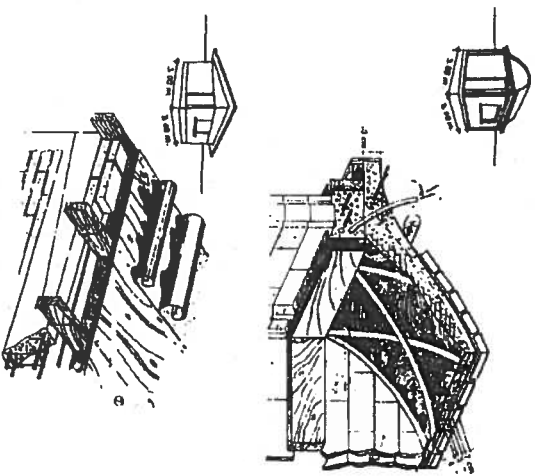


Fig. 31. Traditional roof structure (Vrujevs, 1978)

Roof structure in the Mexicali project and traditionally executed in neighboring houses
In: Yrujevs, 1978

is usually enclosed, with no direct connection to other areas. It is warm and very colorful.¹⁰ In contrast, the kitchens selected for the project had an open-plan layout more pertinent to northern cultures.

Another change undertaken by residents that reflected the local culture was the transformation of the houses' exteriors. The physical appearance of each house in the Mexicali project, although different from each other, conflicted with the residents' image of a traditional house. At first glance, the project resembled a group of Mediterranean dwellings, not only because of the blue and white colors chosen for the exterior painting, but also because of the inward-looking form with domed roofs. Families complained, saying that passing neighbors would ask them if the project was a futuristic hospital or, even worse, a bread oven.¹¹ In response, the families added false arches, used local construction techniques to add rooftops, painted façades, added ornamentation, and created grids to resemble neighboring houses.

Regarding the patterns, it is a conflicting idea to present a set of pre-selected living patterns without first understanding the patterns particular to the Mexicali culture and a family's specific way of life. Once patterns were presented to the families, they had little to no choice but to accept what was proposed – even if the pattern was not cohesive with their culture or lifestyle. In the case of the communal area, not enough attention was given in the early state of the cluster design to the specific way the “border culture” occupied a plot of land. In Mexicali, plot lines are well defined and indicate a family's wealth and status. Although the residents agreed on a shared area, it was a pattern proposed by the designer rather than one originated by the residents. Mrs. Tapia confirmed this assumption when she asserted, “At the time we thought that a shared area was good; with all the families together. This was a pattern that existed for the design, and we had to adjust to it.”

Inside the houses, transformations of the kitchens show the conflict of the selected open layout pattern and the Mexican way of living. In Mexico, the kitchen is the most important part of the house and

Final Notes

The architect's intention to find a more human solution to housing production by reorganizing the production process control system and redefining the role of those involved is praiseworthy. However, transformations to the houses and surrounding spaces, along with user perception of the process, show that while the experiment had unquestionable value, the set goals were alien to and unrealistic in the Mexicali cultural environment.

For instance, it was not possible to incorporate the architect-builder principle into all housing projects, as it would mean the permanent presence of an architect. This would significantly increase the costs of a project. A substantiating factor of this is that, when designing their adaptations, project residents did not seek expert help, but only advice from local masons. In Mexicali, and in Latin America in general, it is a common practice to add rooms one-by-one over the years, as the need arrives and funds are available.

The builder's yard ceased to function when financing ended. However, this did not prevent residents from building. Instead, they turned to local shops to purchase standardized building materials and hired qualified local labor. The failure of the house cluster land planning principle has already been discussed and needs no further elaboration. As for the individual house principle, participation in the design of individual houses proved to be highly controlled, restricting families' design input. In addition, the types of patterns selected for the project were not adequately adapted to local cultural conditions.

The system of operations principle resulted in an effective alternative to standardized housing. However, the reaplication of this process would be difficult without continuous expert assistance. The cost control principle allowed the budget for each house to be fixed on an individual basis. When dealing with large numbers of houses, the application of this principle could become time-consuming and expensive.

The human rhythm principle did have a positive effect on residents and enabled them to readjust their homes organically. However, more attention should have been paid to the local incremental building process, which promotes self-management and self-help and is a valid approach to the idea of participation as central and crucial to producing responsible cultural environments. In other words, an improvement to the Mexicali approach would have been to limit the architect's participation to providing general guidance on design and construction technique (lighting, structural, mechanical, etc.), and then let users build at their own pace and apply their local knowledge, thus reflecting their own cultural needs.

The analysis of the Mexicali project's transformations alone does not give conclusive solutions that can be applied to future participatory projects. The analysis does attempt to shed some light on the problems encountered by Alexander's team and the users' reactions during the process.

Since the Mexicali experience, practitioners in the field of housing have continued searching for alternatives to create more human housing environments. In this research, Alexander's effort

¹⁰ Ruesjas, Ana Laura (1999) *In the meaning of Home: The Courtyard House in Argentina* (1810-1910). Master Thesis, School of Architecture, Berkeley: University of California, Berkeley.

¹¹ Fromm, Dorit (1984) *Mexicali Revisited*, Master Thesis, School of Architecture, University of California, Berkeley, p. 47.

to give an alternative solution , has proven to be a stepping-stone that brings many valuable lessons that need to be further researched to help improve housing production. For instance, Alexander's belief that quality of places can only be obtained by indirect generation, not creation, was correct. However, the modifications post-constructions to the Mexicali project showed that the spontaneous generation of the environmental quality came from the users' intervention not the architect rational process. Whether the changes were of architectural beauty is a topic of research, here is argued that users attempted to give back a quality to their homes and surroundings based on their cultural understanding. In this regard, the Mexicali project shows that practitioners need to study and understand the locals, their ways of life and built environment to be able to propose culturally responsive housing projects.

The participatory processes applied at Mexicali proved misleading, leaving room for improvements on how to better involve users, for what aspects of the design and construction and in what fashion. In this regard, the overwhelming role of the architect as seeing in the Mexicali project needs to be re-evaluated to wider involvement of users by allowing them to express their real needs and transfer their local know-how. Since the construction of the Mexicali experimental project, many of these issues have been and are continuously researched, this should be enriched by the analysis of current housing projects' transformations in different locations that to show a great deal to be learned from their evolution.

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