



## The Construction of the Florestan Fernandes National School is a School

By ROOTS

In our first [article](#) from the series on ecological construction, we address construction techniques made with earth as a viable alternative to modern or conventional constructions, especially in areas far from urban densities, where access to land for the production of materials is vast and easy. Despite the strong prejudice combined with the lack of information, ecological constructions are advantageous, as they reduce energy consumption, atmospheric emissions, correctly manage resources, in addition to promoting healthier environments for the population.

In the continuation of our series, we will talk about the Escola Nacional Florestan Fernandes (ENFF), which has part of its buildings built using ecological techniques. ENFF is a political and popular training school, promoted and coordinated by the Landless Rural Workers Movement (MST), located in the state of São Paulo, Brazil, in the city of Guararema. Its inauguration took place in January 2005, after 5 years of construction, and involved more than a thousand volunteers who committed to building the school with their own hands and ideas. The construction process of the





school served as a means for collective study as there was also a process of training the cadres - and it is in continuous construction.

The school had been designed since 1996, due to the need to establish itself in a central city and to meet the growing demand for training among activists. Its theoretical and practical development process was carried out collectively. Its idealization went through several discussions, project sketches, budgets and many collective exchanges both with activists and with partners from universities and other professionals. The coordination of this process included the dedication of architect Lilian Lubochinski, who also presented construction with earth more broadly to the MST.



View of the library in the foreground and the cafeteria in the background. Photo: Cecília Santos, 2019.





She told ROOTS [1] that when she sought out the MST, in the late 90s, she was also looking for a connection with the land, as “it has a nature that we need to talk to, we need to listen to, and agrarian reform does therefore, it seeks to bring more people back to farming on the land, and this also means talking about architecture.” At the time, the Movement had little contact with professionals in architecture, engineering and related areas, and she contributed to other works in addition to ENFF. She also explained that the Movement's work with agroecology had everything to do with a proposal for ecological construction, since both deny the hegemony of monocultures, being, in the case of civil construction, the hegemony of the cement industry.

The use of land as a primary resource for construction is an old and traditional process, but little used today. For Francisco Barros, MST architect from the Greater São Paulo region, the agroecological techniques and methods to be used for construction in rural areas should be more independent of the use of cement and iron. This would contribute to popular construction being more autonomous from capital and merchandise. [2] If for agricultural monocultures a great impact is to socialize a diet with less meat, for construction monocultures a great impact would be to build with little or no cement. To achieve this, collective education and training work is needed so that preconceived concepts give way to new ideas and possibilities of know-how, which is what the MST sought with the construction of the ENFF.

The search for land use led the construction of the space to translate the identity of landless subjects and brought them closer to their relationship with the built environment and their sense of belonging to the land and place. Furthermore, the Movement had accumulated a small experience of building ten houses through a collective process, with earthen bricks produced in the Justino Draszewski Settlement, in Santa Catarina, with the help of an Austrian machine. [3]

### **ENFF constructive methodology**

The ENFF construction process was developed by groups of activists from various states, who alternated between work, training, knowledge and socialization. A spiral of exchanges that, in addition to promoting a tangible space, also promoted the development of knowledge and, therefore, human





knowledge, which characterizes the essence of the Movement's pedagogical practice.

To organize the contribution and training of the joint efforts, the Movement developed several moments of collective discussions to understand what these constructive and pedagogical processes would be like. The architectural project was being designed at the same time as several budgets were made, to understand the cost-benefit of building a school with earth instead of the usual modern materials.

Architect Eduardo Salmar, a specialist in construction with earth and who participated in the construction of ENFF, explained that techniques with earth can achieve material savings of 3 to 4 times compared to modern constructions made of ceramic brick, cement and concrete. However, prejudice is the main impediment to their use, as they are seen as constructions aimed at low-income and rural people. He said that the main benefits are the wide possibilities of use, the thermal balance between the interior and exterior of the buildings, the ease of handling and training of the workforce, in addition to aesthetics, promoting beautiful spaces and comfort. [4]

The use of joint efforts for construction also opened up the opportunity for those involved to take the knowledge and techniques acquired back to their own camps or settlements, so that they could improve their built spaces. In addition to the learning process, some activists arrived with accumulated knowledge, as many already had knowledge in carpentry, electrical, plumbing and masonry. Unfortunately, there is no empirical data on the continuity of these processes outside the time of school construction. In a conversation between ROOTS and various activists, we learned that settlements in Paraná and São Paulo, and a camp in Rio Grande do Norte, use ecological techniques on their lands. But we believe that many others also use it. The vast majority of the camps are still built using black canvas, which is the greatest symbol of the occupations of the Landless.

In the space that now houses the school, there was already an infrastructure built, which was used to accommodate and train the collectives who joined the workforce. As part of the architectural project, the construction of an administrative building, cafeteria, teaching spaces, 4 accommodations for 50 people each and spaces for culture and leisure for future students, totaling more than 9 thousand square meters, was considered.





## The MST Construction Brigades

The militants who came from different states were grouped into base groups, called Brigades, and remained in the building for between 45 and 60 days. The first group to arrive came from Mato Grosso do Sul, with 24 people, in March 2000. [3] The Brigades received a booklet entitled “How to build with earth”, to teach the techniques that would be used and went through various learning-by-doing training. The booklet presented the fundamental steps of the techniques and several examples of constructions. These formations promoted “collective participation in a construction, reflecting a community organized around its greatest objectives”, according to Salmar.



Photo of the booklet cover. Source: Provided by Eduardo Salmar for RAÍZES.

“Coexistence at the construction site would be the continuity of the organization and coexistence in the settlements of origin of each militant [...] since the school [...] was another task of the organization, which established a direct link between physical construction and construction of human beings” [page 33]. Thus, the construction of the school would already be a school, where the activists would learn how to build. The brigades were organized to work during the day at the construction site and at night they participated in political and ideological training. [3]

Rosana Fernandes, current coordinator of ENFF, recalled that the work of activists who already had knowledge of construction techniques was





fundamental, as it speeded up the learning process and the formation of a Permanent Brigade. She also recalled that each state, at the inauguration of the ENFF, contributed a time tree native to its region and this increased the biodiversity of the area. [5] This Permanent Brigade took advantage of workers with more experience and experience, speeding up the work. They received broader training for specific construction activities, and also “to instigate thinking, proposing, planning, analyzing one’s own practice” [page. 37]. In addition to activities at the school, volunteer work extended to the surrounding area and the activists contributed to the manufacture of benches for the church and organized a vegetable garden at the neighborhood school. [3]

In addition to the organization of the militants, there was also the organization of technical personnel who were not part of the Movement, who were divided according to their specialty: masonry, hydraulics, ecological techniques, electrical, carpentry, purchasing, infrastructure, among others, which distributed tasks and followed the daily work.

### **The ENFF constructive process**

The decision on the constructions that would be carried out was based on the feasibility of using the buildings already existing on the land, which were used as residences for the brigades involved. Therefore, it was decided to start with a cafeteria, which would have a kitchen, food trough, two common spaces, bathrooms and a bathroom for those with special needs.

The school was built using mixed earth and concrete techniques, with two main ecological techniques: compressed earth block (BTC) and rammed earth. Lilian Lubochinski recalled that the use of land to build the refectory slab, for example, –that at the time the idea was to build slabs in vaults with brick and earth– would be much more expensive than pre-cast concrete. So, they chose to use concrete for slabs and beams, and cement for the floors and foundations, the latter together with natural stones.

It was calculated that each Brigade produced 70 thousand earth and cement bricks (proportion of 6% cement per brick), during the 60-day period of stay at the school. 320,000 bricks were used for the accommodation, 80,000 of which were used in each building; and for the entire construction process, an approximate number of 1.7 million bricks were manufactured.



View of the ENFF cafeteria from the Library. Photo: Cecília Santos, 2024.



Lower area of the refectory: rammed earth and BTC columns. Photo: Cecília Santos, 2024.

The cafeteria has different environments with open and covered spaces, prioritizing natural lighting and ventilation, with large windows and





openings, as well as a skylight at the top and a winter garden at the bottom. It is practically a monolithic block of rammed earth.

The housing typology followed a standardized verticalization of 2 floors, ground floor and first floor, with a foundation in stone and cement, structural walls in BTC and two monolithic walls in rammed earth at the ends, covered with a wooden roof and French tiles. They currently have solar panels to alleviate electricity consumption.



One of the 4 ENFF accommodations. Photo: Cecília Santos, 2024.



Detail of the walls of the accommodation and their stone bases. Photo: Cecília Santos, 2024.





Since opening in 2005, the school has spent 10 years without carrying out maintenance on its buildings. From 2015 onwards, they began some spatial improvements and built new buildings, but still without looking at possible improvements in ecological structures.

Taking advantage of the changes, the Casa de Artes Frida Kahlo was also built in 2015, by ENFF brigade members with the contribution of a collective of students from the University of São Paulo (USP). The work was inspired by the Blue House by Mexican artist Frida Kahlo, and Francisco Barros followed this process. He recalled that, at the time, the project proposals were debated and approved collectively, with the participation of the school's Political-Pedagogical Coordination and by the builders themselves, in a training process that was also a “school site”. In other words, there was no architect or engineer responsible for the work, which is why they called it a Work of Art, as it was carried out through “creative free labor”, inspired by the concept of an emancipatory construction site created by Sérgio Ferro, an architect who has been a long-time friend of the MST. , which approaches architecture as a non-subordinate service, in which everyone involved has knowledge, avoiding alienated work and promoting know-how, which distances itself from the exploitation of workers and the added value of capitalist construction.



Frida Kahlo House of Arts in BTC, bamboo and dry straw. Photo: Cecília Santos, 2024.





Frida Kahlo House of Arts, inside photo. Photo: Cecília Santos, 2024.

In this House, the bricks were not visible as in the accommodation and were covered with a natural earthy finish and paint. A bamboo and dry straw roof were also built, inspired by the constructions of the original people of Brazil.

## Conclusion

We take ENFF as a reference for a living architecture that excites, fair, economically viable and ecologically responsible, in addition to countering the idea that rural construction is worthless, ugly and impoverished. We also understand that collective school-site processes are very valuable and beneficial for social, professional and human development, and that they can and should be replicated by the various movements and organizations that seek to promote the integration of people with nature through land use.

Even after almost 20 years without receiving focused maintenance on the built structures, the pathologies found can be recovered without complexity and high costs, and can be carried out again in the form of joint efforts, with militants with accumulated experience.

At the time we wrote this article, in June 2024, Brazil experiences one of the biggest catastrophes in its history, with floods in Rio Grande do Sul that have already reached 80% of the state's cities, affecting more than 2.3



million people [6]. Still with no forecast of calm weather for the next few days, entire cities have been and are being completely devastated by floods, which in some areas have reached more than 5 meters in height. Situations like this reinforce the urgent need to practice urban development and community life in a more balanced way with the environment and the population, in which the protection and conservation of human and environmental life prevails over the profit and exploitation of people and of natural resources in favor of the wealth of a few.

While Brazil needs to rebuild entire cities, we understand that ecological construction should be considered so that this development can happen without worsening climate conditions even further, as the demand for civil construction products will be intense and the cement industry is hegemonic and highly polluting.

## References

[1] Online conversation with Lilian Lubochinski on May 20, 2024. She is an architect and urban planner who graduated from the Technion in Israel in 1975. As a thinker and researcher of social transformations associated with the contemporary field of Commons, which focuses on the common good, Lilian A. Lubochinski authored several regenerative systems, incorporating systemic actions that led to topological, or situational, transformations, thereby expanding relational and subjective possibilities. This is where the ENFF campus project is headed. She is currently a Certified Cohousing Facilitator for the Elderly, and since 2014 she has dedicated herself to mentoring, consulting, lecturing, and facilitating groups that want to start a community.

[2] Conversation with Francisco Barros, MST architect from the Greater São Paulo region, in various face-to-face meetings between May and June 2024. He is an MST activist and holds a PhD in Architecture and Urbanism from the Postgraduate Programme of the Institute of Architecture and Urbanism at USP - São Carlos (2017). He is currently a post-doctoral student at São Judas Tadeu University, a researcher at the Laboratory of Constructive Cultures / Experimental Construction Site at FAU USP and at the Laudenor de Souza Technical Institute for Teaching, Research and Extension in Agroecology.

[3] ENFF Study Notebooks: Volume 7 “ENFF: A school under construction (1996–2020)”. 1st Edition. Publication made by the Rosa Luxemburg Foundation, 2020.

[4] Online conversation with Eduardo Salmar on May 6, 2024. He is an architect trained in the early 80s and studied bioarchitecture in Spain in the 2000s. Designs and builds using rammed earth as the main technology. He taught for 34 years in architecture schools and currently participate from entities such as Proterra do Brasil and CRATerre from Unesco, as a representative of architecture of land. Currently designs and builds with the company ARQterra Projetos e Construções Bioclimáticas.





[5] Conversation with Rosana Fernandes during a visit to ENFF on May 30, 2024. She is general coordinator of ENFF and national director of the MST, pedagogue, specialist in Rural Education, master in Territorial Development of Latin America and the Caribbean, and doctoral student in education.

[6]

<https://www.brasildefato.com.br/2024/05/17/tragedia-climatica-no-rio-grande-do-sul-j-a-atinge-2-3-milhoes-de-pessoas>