



DESIGN AND BUILD WITH Ø KM (LOCAL AND RECYCLED MATERIALS)

BIØN II- Follow-up report

By Arcò Architettura e Cooperazione
Written and edited by Alessio Battistella
and Valerio Marazzi, 2021.

BIØN - Building Impact Zero Network

A network of partners active in low impact building techniques. Our aim is to share knowledge, practices and experiences, in order to contribute to the built environment and to our communities.

BIØN – Building Impact Zero Network is a group of partners, created in 2015, active in low environmental impact building techniques with positive social impact. Our aim is to share knowledge, practices and experiences, in order to contribute to the built environment and engage our communities.

Our objectives are:

- Improve the access to quality information about low impact building techniques through our platform, and through actively participating in our local communities. We will document our work and provide open access documents through our website and multinational network.
- Increase the skills for construction workers, NEET, migrants, refugees, students, professionals and other adults interested in the topics about low impact building techniques through workshops.
- Increase awareness about low impact techniques on an environmental-, economical-, social- and cultural level.
- Develop strategies to maximise participation and generate inclusive com-

munities, by the use of architecture as a tool. Improve the connection between formal and informal learning systems, developing or using existing accreditation systems.

- Improve standards of natural and recycled materials use in building, by integrating the building legislation of each country and discuss possibilities with stakeholders, councils and communities.

More info at: www.bi0n.eu

ERASMUS +

Erasmus+ is the European Union programme for education, training, youth and sport. It runs for seven years, from 2014 to 2020, with organisations invited to apply for funding each year to undertake creative and worthwhile activities. Erasmus+ aims to modernise education, training and youth work across Europe.

Written and edited by Alessio Battistella and Valerio Marazzi 2021. Photos by ARCò. Drawings and illustrations by ARCò. Graphic layout TIP



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DESIGN AND BUILD WITH Ø KM



The structure walls, made of local and recycled materials, are realized with different techniques and materials, from the earthbags, to the recycled bottles, to the reused old windows and beams of wood.

Passepartout is a network of social enterprises with an independent legal status, regulated by a formal contract under Italian law. This kind of "network contract", similar to some extent to the European Economic Interest Grouping (EEIG), aims at increasing the innovation capacity and competitiveness of the participating companies. Passepartout is formed by five social co-operatives based in Milan: FuoriLuoghi, La Cordata, Tuttinsieme, Progetto Integrazione, and Genera.

The Milano municipality gave to Passepartout the possibility to run casa chiaravalle with a project of hosting emergency situations with widespread hospitality.



Opposite page

1. Completed structure from 2017. The front facade with windows.

This page

1. Same view from 2021. The wood visibly greyer in tone.

1. SOCIAL LANDSCAPE AND PLACEMAKING

Re-visiting back in Casa Chiaravalle, it is clear that the site is very much in use and cared for.

Interview with Marco Lampugnani, president of the PASSEPARTOUT COOPERATIVA SOCIAL CONSORTIUM

What is doing PASSEPARTOUT today?

We manage and administer Casa Chiaravalle, the largest asset in Lombardy, confiscated from organized crime, for hospitality and inclusion projects in the metropolitan city of Milan. We offer integrated hospitality to people in need of any origin.

Our integrated hospitality is the result of a model based on the principles of hospitality and care, which provides those who need it with a place and the tools to rebuild their autonomy.

Our goal is to generate (or regenerate) coexistence and social interaction through the housing relationship on the territories and with the family, accompanying our guests with personalized itineraries.

Today the structure that we built 3

years ago has a name: LA PERGOLA. Have all the design requirements for the facility been met?

When we arrived at the place, the existing structure was taken down and the strong need required the reconstruction, making a larger and better one. The request was to redevelop and give back the site to the city and to the cooperative's projects. Compared to the expectation there were no shortcomings.

Is the structure, PERGOLA, still used today, and when?

As an outdoor place, the pergola was very useful for free association, for meetings with volunteers, with scout groups and for communication and training initiatives for group work and workshop activities. We used it for various inaugurations, a lot of parties, anniversary commemorations, glistening piano concert during the piano city week of Milano, and with an itinerant representation of the Piccolo Teatro of Milan. It is a good place to hold events of all kinds. In the context of the social tour, the president of the city council with most of the particular social realities of Milan, have used this as a place, together with Radio Popolare and Radio Libera. It is a place of aggregation and aggregative



1. Revisiting back in casa Chiaravalle, 2021

cultural production. Furthermore, it is used by those who live here. I do remember from the dinner with the families, to the activity with the Piccolo Teatro, with the volunteers, to the children who want to play. Unscheduled activities were carried out and very important during the year of the pandemic such as distance learning with special educators. The boys play with it a lot and being connected to the external environment, it has the right relationship with multiple addresses

How has the structure changed over time?

The whole front part had been

dismantled for safety reasons as there were reused windows with glass that did not reconcile with the presence of families with children. At that time we wanted to teach Italian for migrants with an enclosed space, but then it could not be used in winter because it was not heated. At first, the structure was requested to be openable as much as possible, visually and technically, but then, the needs changed by the new needs of the use of the place.

When we decided to open one of the façade, removing the windows wall, it could have been a negative point, because we lose a completely closed environment, but at the end, one side was very well delimited and formed, and the other was opening directly

on an bigger area, becoming a stage that has given new possible uses to the structure. The advantage is that it is a covered place but protected even if it rains. The opening has definitely changed its use.

How does the PERGOLA match in this context of Casa Chiaravalle?

Some structures have been removed in these three years of activities, but this type of intervention remained as it was conceived and used, linked

to the evolution of the structure. We have changed types of reception: from migrants to families, minors, and elderly. This architectural intervention and its realization without binding, allows all the necessary activities still today. The way that these walls were created, have a structural but also an aesthetic function, they are not linked to a specific time and to a specific function of Casa Chiaravalle, but the Pergola is wider, and it was fundamental. Due to the way it is made with earthbags, bottles, reused windows etc., the



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1. Community event, 2019

Opposite page

1. Concert, June 2019
2. Concert, June 2019
3. Event, 2019

continuous use is expected without modifications over the next 15 years.

How did the welcoming project change in Casa Chiaravalle?

A year after its opening, the project

for welcoming migrants has stopped. The type of reception has changed because with the Salvini decree it became impossible to welcome migrants with the whole integration project and the cultural part. The conditions of the Salvini decree did not marry Chiaravalle, because it would

have prevented the structure's natural activities.

After a year that experience was interrupted and in the same spaces other situations of fragility began to be welcomed. When we started, Passepartout directly managed the migrant service, but today, three of the member cooperatives manage parts of projects in Casa Chiaravalle. La Cordata is supporting the family with housing problems, Genea Onlus is taking care of the hospitality for elderly people with Alzheimer and Fuori Luoghi works with minors. It is a project with integrated and intergenerational hospitality. It is a place where very beautiful intergenerational interactions and dynamics are triggered.

Was the maintenance of the facility complicated?

On this structure the maintenance was not necessary, ordinary or extraordinary. The choice of materials and the construction method, so massive and solid, have consolidated over time.

Which is the impact on the community of this kind of structure?

The construction methodology and the final impact is always very appreciated and very much liked by those who come to Casa Chiaravalle. It is an unconventional building, and it goes well with the natural environment, and it matches with the ecological environmental aspect existing in the



two hectares of arboretum with fruit trees. Visually, and in terms of impact, it is very well structured and well designed, it is beautiful and pleasing, and the conception of how it was made creates curiosity. The PERGOLA tells everyone the self-construction methodology and approach.

Mario Brillanti_ manages projects in Casa Chiaravalle, Currently coordinates the hospitality of elderly people

In the last 2 years (2020/21) it was used a lot to face the theme of Covid and the social distancing, because it is a space that is outdoors and allows you to enjoy free activities, but to remain sheltered from the sun or the rain. We have used this space for activities related to daily life for the people who live here.

For example during Ramadan in 2020, it was used as a space for prayer. There were several Muslim families who, instead of praying inside the main structure, prayed outside in this PERGOLA because of the covid. During the prayers and religious chanting, there were Christian families who looked and observed in a beautiful and quiet situation of coexistence.

Giulio Di Rosa_ Vice president Fuori Luoghi and person in charge of Comunità Cento Passi

This page

- 1. October 2019
- 2. October 2019
- 3. October 2019



Opposite page

- 1. May 2019
- 2. 2019
- 3. 2019
- 4. Event, 2019

This is a multifunctional place for us. It is very open to any imaginations and needs. We, as a community of minors, use the PERGOLA in not structured activities, and it has a lot of potential, especially for didactic proposals. There are chairs and tables, it is protected, and it is perfect for recreational activities. When there was the activation and preparation of the farmhouse for the elderly, the students of the Milan Polytechnic transformed it into a carpentry shop, involving the other subjects who live in Casa Chiaravalle in a participatory manner. For our needs it has a lot of potential and is a container that needs to be filled with more and more content

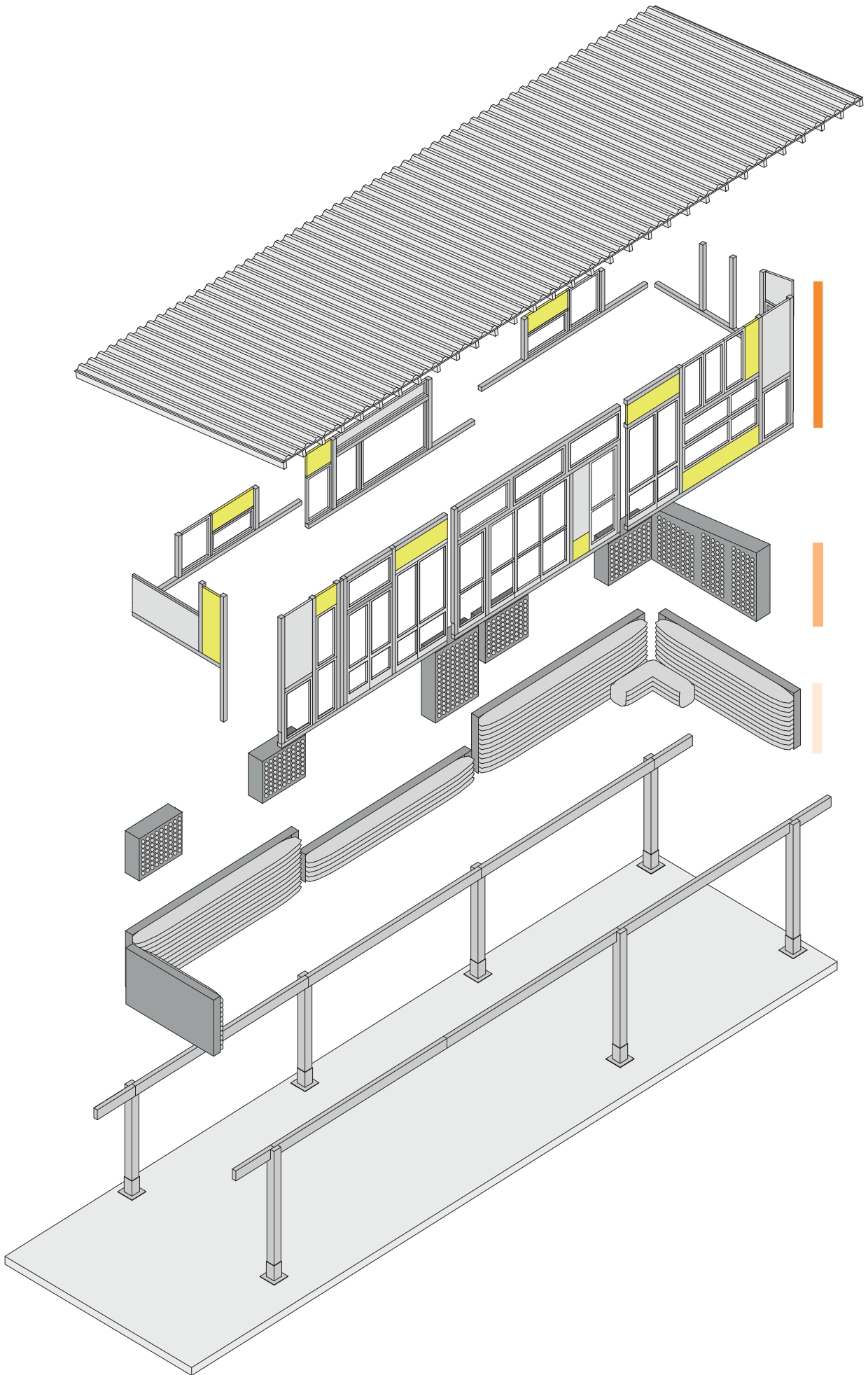
**Anna Ghezzi_Coordinates RST:
temporary social housing services**

Families in housing emergency in Milan municipality.

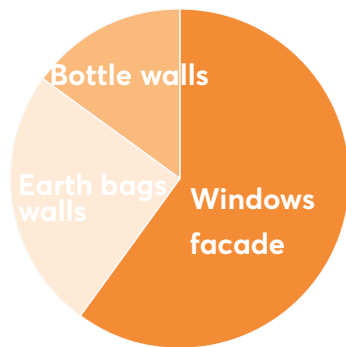
Since I arrived, the use of the PERGOLA, during the covid time, has been very linked to the moments of meeting, sharing and celebrations, with sharing food and different cultures. We had a lot of thematic workshops, recreational play, painting for children, and many more different guided workshops and they are all happening in this Pergola.

The intentions of the building seem to have worked well. It is giving a sense of identity to the site, and could be seen to function to strengthen the organic approach found on site. It sparks an interest and has supported the business, but unfortunately not fast enough to have kept the original founders of the social enterprise.





Type of materials

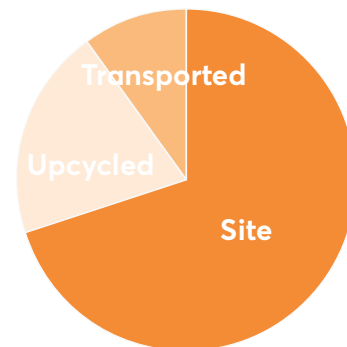


WINDOWS FACADE 60%
Recycled boards, recycled timber, recycled windows, polycarbonate, bolt screws.

BOTTLE WALLS 15%
Plastic tube, recycled timber, bottles, mortar mixture, metal net.

EARTH BAGS WALLS 25%
Soil, plastic tube, polypropilene bags, warbed wire, mortar mixture.

Where the materials came from?

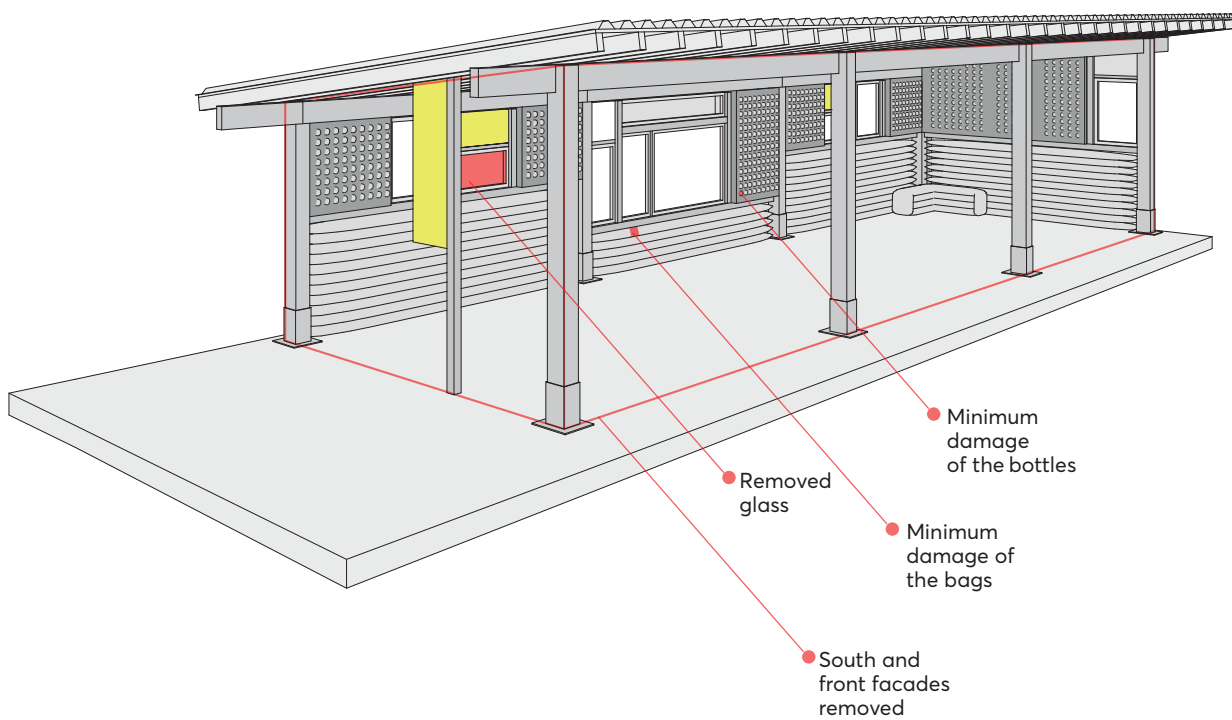
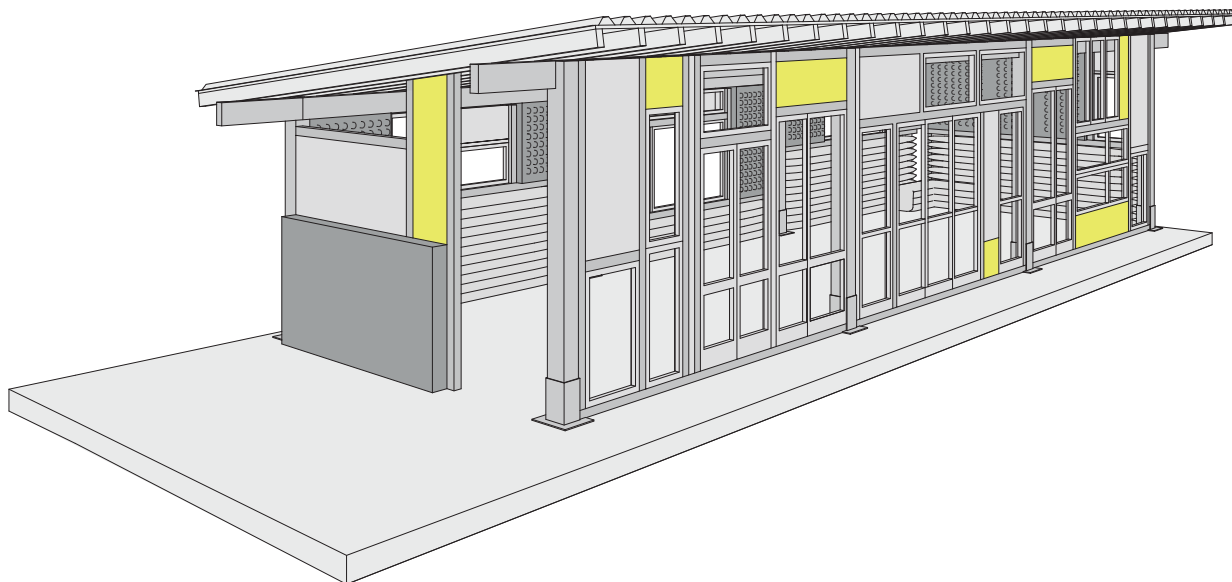


SITE 70%
Recycled timber, plastic tubes and the soil.

TRANSPORTED 10%
Mortar mixture, the polycarbonate, the bolt and screws and the metal net, warbed wire.

LOCALLY 20%
Bottles, windows and polypropilene bags.

Issues with the construction after 3 years in use



2. PERGOLA ARCHITECTURE AND TECHNICAL EVALUATION

Currently Pergola functions as a multi-use space, meeting the needs of the communities for which it was designed. Precisely for this reason is well accepted by the community and clearly cared for. The facility has undergone some changes since four years ago, some voluntary for safety reasons, others as a result of use. It has to be noted, however, that there was no need for particular maintenance, precisely because of the construction techniques chosen.

Strenghts over time

The main change was the removal of the south and east glass, as the original intended use of the facility as an indoor classroom changed, and the glass was no longer safe for families and children. In this way Pergola became an open space but porched and began to host various events.

The earthbags

The earthbag walls have worked as intended. There was only minimal damage to the polypropylene bags, mainly caused by transportation during the construction phase and the rubbing of the used material as chairs and desks. The decision not to plaster the wall did not compromise the use of the structure in any way.

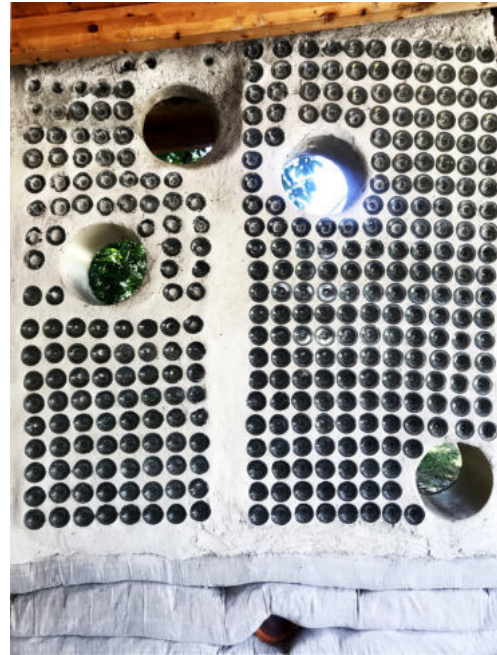
The bottle walls

The bottle walls have worked as intended, there was only minimal damage that has not affected the function of the structure.

The secondary use windows

All the windows and frames came from the waste of the house renovations in Milan. The glass of one of the older and thinner glasses got broken during the use, while the main facade of windows has been removed to solve the new need of the structure to create a direct and open relation with the outside space. The removed windows started their journey to the third secondary used material site.





Opposite page

1. The lateral facade still in place, 2021

This page

1. Earth bag broken during transport, 2021
2. Bottle wall remained intact, 2021
3. Window frame and earthbag remained intact, 2021



This page

1. Windows, wooden frame and mason board, October, 2019.

Opposite page

1. The same wall (from the outside) showing the window with the removed glass, 2021.







Opposite page

1. Detail of one of the windows, 2021
2. A broken bottle in the wall, 2021

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1. Connection between the bottle wall and a window with glass removed, 2021



This page

1. View of the interior of the Pergola from the main entrance, 2021
2. View of the interior of the Pergola from the lateral facade still in place, 2021

Opposite page

1. The participants of the Necessary Architecture Workshop, 2019
2. Aerial view of the building of the Necessary Architecture Workshop, 2019

A new project with that windows: Agroecology Circular Economy for a New South Milan

Focused on secondary use material and low-tech mixed with earth, the Necessary Architecture Workshop took place in September 2019 in the frame of an agroforestry project in an agricultural park in the South of Milan.

The aim of the workshop was the realisation of a different constructions in relation to the needs of the urban nursery run by the association Cascinet.



The project is developed at the camps that CasciNet had in custody by the Municipality of Milan in the Vettabbia park, south of Milan.

The ambitious goal was the will to implement agroforestry cultivation systems as an agroecological practice of excellence.

This principle is the aspect that unites all the partners of the project - Società Agricola Impresa Sociale CasciNet, Nocetum, Italia Nostra and Deafal ONG - from which follows a transversal action for integrated design aimed at defining a systemic model adapted to the local territorial context to enhance the environmental and economic aspects of the reference area.

Specifically, the project included:

-The participatory planting of an agroforestry system by citizens;

-to base the supply chain on an innovative model such as that of the CSA (Agricultural Support Community) that adds environmental and social resilience;

-the nursery activity, so called Vivaio Sociale, as an important asset that fits together with the beekeeping activity in the perspective of a circular economy;

-and a professionalizing training offer, curated by Deafal ONG and Italia Nostra.



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1. The cob erath bals
2. The preparation of the pisè wall
3. The mixture for the cob wall

Opposite page

1. The recycled windows
2. The site
3. The finished cob wall

Our goal, as a partner of this project, with a view to the circular economy, was the reuse part of the materials used in Casa Chiaravalle to build the needed infrastructure for our partners, to better manage the urban reforestation project, that was the object of their research.

We created the seedbed house and the shelters for the tools to easily use the structure even in the winter months and manage the fields with agricultural activity.

We used the windows that had been removed from Casa Chiaravalle and secondary use wood with raw earth walls. We used different techniques with locally taken earth: pisè and Cob.

Everything has been covered by a green garden structure.





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1. The inside of the seedbed house, east view
2. The inside of the seedbed house, west view
3. The outside of the rammed wall and recycled windows

3. EDUCATIONAL AND NETWORKING APPROACH

A fundamental goal of the workshop was to transmit the knowledge and the skills through a process of capacity building of techniques and principles of building to the workers. For this reason, it is useful to know the participants' feedbacks not only at the end of the workshop, but also after a certain period of time to understand what the impact of the construction activities actually was. The opinion of the participants is also especially useful for the organisation of the following experiences in order to understand what could be improved in the future set up.

"The Bion workshop was an exciting and unique experience. Not only I had the chance to work side by side with skilled professionals who taught me interesting building techniques, but the workshop was also integrated with a series of seminars that helped me understand and discover other techniques I wasn't familiar with. Moreover, I met many different people, in my team and among the guests of the centre we helped building, who made this learning experience enriching, enthusiastic and heart-warming from the human perspective as well."

"The experience of the workshop was extremely positive. First of all it was interesting to learn about new different techniques, but what

I appreciated the most was the self-building approach, which presents different problems and complexities than the design phase. Coming from a purely theoretical background this was my first experience in construction. In addition to gaining new knowledge from a technical point, I also enjoyed the dynamics that were created with the group and the community."

"As well as the active participation in the decision-making process, what I valued the most is that we have built something that is actually used by the community and is valued and cared for."

- Participants in workshop 2018



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1. The earthbags bench and furniture, 2021

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