PORTFOLIO ARCò - ARCHITECTURE & COOPERATION



ARCò is a cooperative founded in 2008 by a group of architects and engineers dedicated to the production of sustainable architecture and landscape design.

Its projects are based on the constant pursuing of social, economical and environmental sustainability. For this reason, ARCò explores the local traditional techniques, in order to guarantee that the construction phase can be run independently by the communities involved. Moreover, ARCò consolidates the environmental side of each project by using natural or recycled materials, renewable energy sources, and by applying passive bioclimatic architecture principles. This approach has brought ARCò into the world of international cooperation, where it can use its skills to face and solve the different issues of humanitarian emergency.

ARCò's works have been featured on many publications and architectural journals, and have received international awards such as the Young Talents Renzo Piano Foundation Award and the Holcim Award for Sustainable Construction. The members of ARCò are also involved in teaching activities in different institutions, such as University of Pavia, Polytechnic of Milan, Nuova Accademia di Belle Arti (NABA), European Institute of Design (IED) in Turin and the S.O.S. School of Sustainability in Bologna.

ALBERTO ALCALDE (BARCELONA 1980) ARCHITECT, graduated in 2007 in the Universitat Politécnica de Catalunya. From 2002 on, he has worked in several architectural offices in Barcelona and Delft (Netherlands), dealing with projects of housing, public buildings, urban planning and landscape. He joined ARCò in 2009. Since then, he has coordinated on the ground the construction of the three schools and the re-movable clinic on the Occupied Palestinian Territory.

ALESSIO BATTISTELLA (ESTE 1971) ARCHITECT PH.D, member of Competence Board of Sos-School of Sustainability, focuses his work on landscape integration and systems of renewable energy production. He has been researcher and lecturer at DICAR (Department of Civil Engineering and Architecture) at the University of Pavia, and at the ABC (Department of Architecture, Built environment and Construction engineering) of the Polytechnic of Milan. He worked as consultant at RSE (Research System Energy) and as member of the Scientific Committee - Master Paesaggistraodinari – at NABA (New Academy of Fine Arts of Milan) / Polytechnic of Milan.

CARMINE CHIARELLI (BARI 1979) ENGINEER AND ARCHITECT, obtained his PhD in 2010 in Civil Engineering – Architecture in Pavia, with a thesis titled "Language and matter in the contemporary landscape," exploring the relationship between metamorphosis of materials and architectural language's construction. From 2006 to 2010, he carried out educational activities for the courses of Architecture and Architectural Design of CdL IEA University of Pavia. Since 2007, he has collaborated with several offices of architecture and engineering in Milan, Pavia and Taranto. From 2010, he has worked at the research laboratory of De Carlo Fixtures Spa, exploring the suppression of thermal bridges in laying joints.

VALERIO MARAZZI (MILAN 1979) ARCHITECT, graduated in 2004 in Milan Polytechnic with a thesis titled "Structure built with recycled and recovered materials", researching alternative building techniques for sustainable architecture in developing countries. He focuses on the study of Feng Shui, permaculture and bioclimatic architecture, working and travelling around Europe, North of Africa and at Auroville Earth Institute in India. As a freelance designer, he collaborates with offices in Milan, Florence, Warsaw, and Porto Alegre.

DIEGO TORRIANI (MILAN 1980) ENGINEER PH.D. Obtained his PH.D in 2009 in Civil Engineering and Architecture in Pavia with a thesis titled "Potential Landscapes, reflections on the sustainability of the landscape; issue which he has explored in numerous publications. He works as teacher, assistant and tutor in academic courses, seminars, and research centers, among which the IEA CdL of Pavia, Faculty of Architecture in Milan, IED Turin and the Institute for Construction Technologies of the CNR. Since 2008, he has worked as designer for E Plus Studio at Pavia, where he became partner in 2010.

LUCA TRABATTONI (LODI 1978) ARCHITECT. PH.D. in 2010 in Civil Engineering and Architecture in Pavia, with a research on the issue of public spaces in residential projects and a thesis titled "The Uncertain Living". Since 2007, he has taught courses of architectural composition at CdL IEA in Pavia and in 2009 he became professor of Architectural Composition I. As a freelance designer, he has collaborated with several offices in Lodi, Milan and Pavia.

VASSILIS MPAMPATSIKOS ENGINEER PH.D.. He is a structural engineer, PhD in earthquake engineering, based in Milan (Italy). He was born in Pavia (Italy) in 1980. He is working as freelancer engineer and contract professor at the Polytechnic of Milan, where he teaches structural mechanics and design at the Architecture faculty. His main activity is focused on the design of new construction, retrofitting of existing buildings and seismic risk reduction, particularly concerning reinforced concrete structures and heritage masonry buildings.

PROJECTS



SCUOLA AL AKHLAAS



MOSUL, IRAQ



2020



CLIENT: UNESCO OFFICE FOR IRAQ DONORS: EUROPEAN UNION, JAPANESE GOVERNMENT



EDUCATION





LOCAL MATERIALS



WORK IN PROGRESS





The intervention aimed at the rehabilitation of the Al Ekhlaas school area is part of the "Voices of the children of Old Mosul" funded by the government of Japan and the European Union. For years, the latter has been a point of reference for the western part of the historic center of Mosul, before being seriously damaged by conflict and war.

The project consists of two functional blocks arranged around patios:

- the administrative block, organized on two floors with an accessible roof for educational activities;
- the educational block, organized on three floors.

The image of the school appears different according to the context, the users and their needs: the stone makes the entrance recognizable, while the coloured solar screens stimulate the cognitive aspects and distinguish the learning, play and freetime spaces.

The facades were designed taking into account sun exposure and internal environmental comfort: the sun screens on the southern and western facades ensure correct shading and protection from sunlight. The facades most exposed to sunlight have been designed as ventilated facades, which perform the function of solar shading by absorbing and reflecting solar energy and contributing to the reduction of thermal inputs and consequent energy savings.





EPIC – ECONOMIC PROMOTION OF INLE COMMUNITIES THRAOUGH CULTURAL AND NATURAL HERITAGE VALORIZATION



SAMKA, MYANMAR



2020



PARTNERS: ICEI- ISTITUTO COOPERAZIONE ECONOMICA INTERNAZIONALE, LEGAMBIENTE ONLUS, COMUNE DI MILANO, ASSOCIAZIONE ITALIANA TURISMO RESPONSABILE – AITR



SOCIAL





LOCAL MATERIALS - BAMBOO







The project aims at promoting sustainable tourism in Myanmar. It is an accommodation with an adjoining restaurant located in the Inle Lake area, one of the major tourist destinations in the country. This structure aims at enhance local techniques and materials, emphasizing their potential. In contrast to the large hotels that are increasingly popular in fragile landscape areas, our "Lodge" offers a sustainable approach, focused on the local development and able to integrate into the existing landscape.







URBAN LAB



DIVJAKE, ALBANIA



2019



CLIENT: VENTO DI TERRA NGO

DONORS: AICS (AGENZIA ITALIANA PER LA COOPERAZIONE ALLO SVILUPPO) ALBANIA



SOCIAL





LOCAL MATERIALS



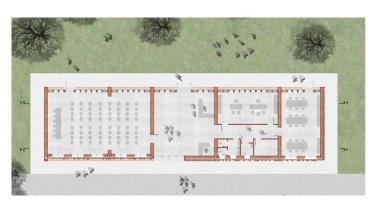




URBANLAB is conceived as a gateway to Divjake, a joint among the city, the protected area and the rural landscape, a new landmark for the local community.

The shape of the building is described by the asymmetrical alternation of the two pitches of the roof: the roofing evokes the direct relationship with the comfortable image of the domestic space and the archetype of the rural building, creating a strong iconic and symbolic content.

The construction materials were chosen on the basis of their proximity to the production areas (according to the principles of the Km0) and the respect for the local tradition innovating its architectural language. The building is mainly made by facing brick: it becomes the base unit of measure. The façade towards the countryside is an experimental façade, a reinterpretation of the torchis: inside a wooden structural grid, windows and panels (made of river reeds fastened to a wooden frame) alternate. The panels create the frame of the wall, then filled with a mixture of clay, sand and straw.











KINDERGARTEN



UM AL NASSER VILLAGE, GAZA STRIP



2016



PROMOTER: VENTO DI TERRA NGO

DONORS: AICS (AGENZIA ITALIANA PER LA COOPERAZIONE ALLO SVILUPPO), TAVOLA VALDESE, CEI (CONFERENZA EPISCOPALE ITALIANA)



EDUCATION



250.000 €



COMPRESSED EARTH BLOCKS AND NUBIAN VAULT

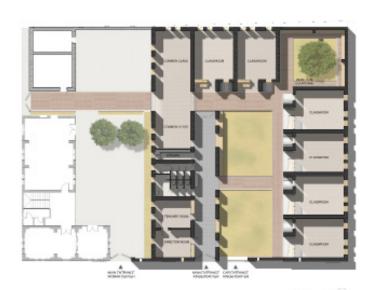


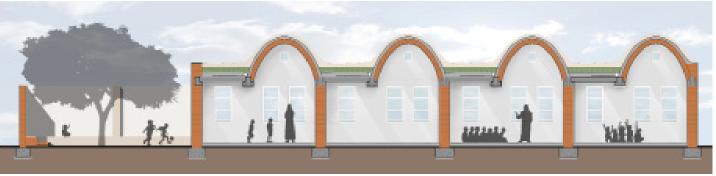




The new proposal for the reconstruction of the school (destroyed during 2014 conflict) maintains the use of local materials while using a different constructive technique. It was in fact decided to build with earth blocks. pressed with a special machine that enhances the mechanical properties by using part of the debris in the area. The project is characterized by the Nubian Vault, a technique originally from the Nile valley, then widely diffused in Africa, as a culturally evocative element. The Nubian Vault technique is an ancient method of timberless construction and represents an innovative solution for the Gaza Strip, where the difficulty in finding supplies requires the use of local materials and low tech and low cost solutions.









INCLUSIVE TOWNS



HEBRON DISTRICT, PALESTINE



2016



CLIENT: MPDL (MOVIMIENTO POR LA PAZ)

DONORS: EUROPEAN UNION, JUNTA ANDALUCIA



SOCIAL



100.000 €



RECYCLED AND/OR NATURAL MATERIALS





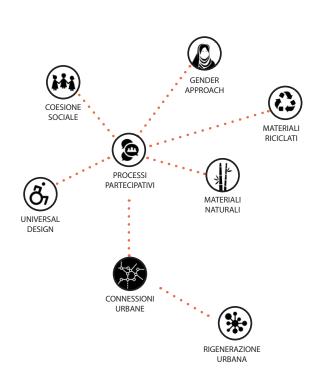


The theme is the urban regeneration, envisaged through some little interventions which, as a whole, constitute an incisive and repeatable system. The projects were realized in four rural communities in Hebron District (Beit Ummar, Der Samit, Ithna e Saer) and it is the result of a partecipatory process led through focus groups composed by PwD's, women and older people.

The projects include urban requalification of public spaces and architectural interventions in public building, such as clinics, municipalities, schools and community centres. We used recycled and natural materials which are easily accessible in situ. Well integrated with their urban context, the projects represent alternative and high quality solutions.











U.M.A. UNITA MONITORAGGIO AMBIENTALE (ENVIRONMENTAL MONITORING UNIT)



ITALIAN PAVILION, VENICE BIENNALE 2016



2016



CLIENT: LEGAMBIENTE



EXHIBITION



90.000 € (expected)



TRANSPORTABLE MODULE



WORK IN PROGRESS



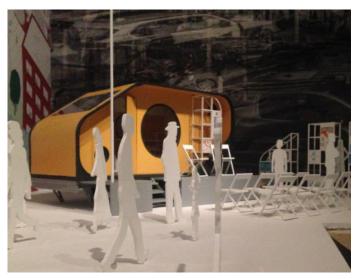


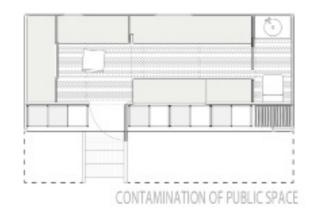
The device is set up as a mobile laboratory able to reveal, evaluate and communicate the environmental conditions of a specific site. The study of the technical and formal characteristics of a "zero" module as starting point and the requirements proposed by Legambiente have created three macro objectives: CO2 emissions reduction, contamination of public space, environmental communication.

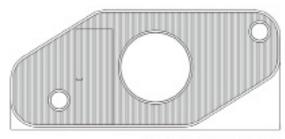
An extractable platform permits to create a real "stage" where the activities can be exhibited to the public, besides working as support of the antenna which evaluates air quality. A system of mobile panels lying on modular exhibitors permits to contaminate the stationary areas creating little outdoor conference halls.

In this way Legambiente may interact with public space and promote transparency and exchange of information. Furthermore it will be provided with an ergonomically-minded interior space which offers all the tools needed to the environmental survey.



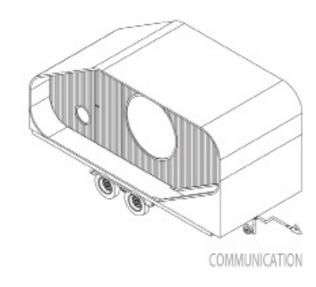






CO2 EMISSION REDUCTION





THE SPICE UNIT



MONARAGALA, SRI LANKA



2015



CLIENT: ICEI

DONORS: ITALIAN MINISTRY OF FOREIGN AFFAIRS – ITALIAN COOPERATION, LOMBARDY REGION, MUNICIPALITY OF MILAN, CARIPLO FOUNDATION



PRODUCTION



COMPRESSED EARTH BLOCKS



WORK IN PROGRESS



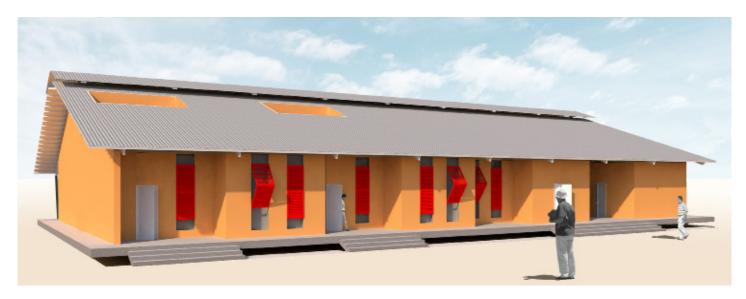


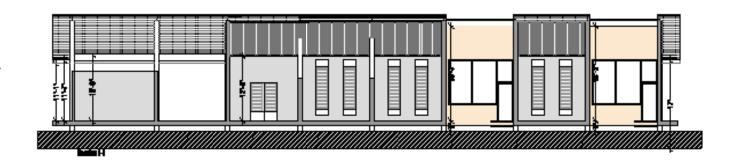


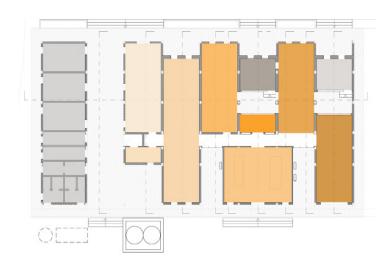
The spice unit is located in the village of Buttala in Monaragala district, in the south east of the island.

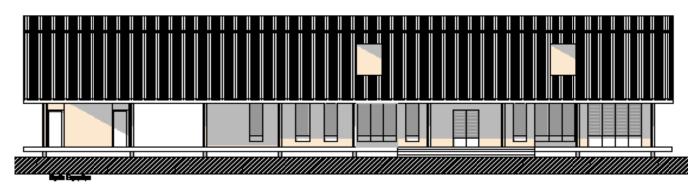
The building has been designed according to the production process of the spices, from drying to packaging. The result are two blocks: the smaller part is dedicated to the services and the larger part is the space for the production. The excessive rainfalls cause flooding and for this reason the factory has been elevated from the ground.

The perimetral and internal walls will be realized with compressed earth blocks. The surfaces of the inner walls will then be plastered in order to satisfy hygienical requirements. In front of the building, a water tower with two water tanks has been created, for services and production. A particular attention was dedicated to the natural ventilation, improved through the positioning of strategic openings in the upper part of the perimetral walls.









COFFE-BAR CALICANTUS



CASTELLO SFORZESCO, MILAN



2015



CLIENT: LUDESANA SRL UNIPERSONALE



CATERING



250.000 €



GALVANIZED STEEL AND GLASS

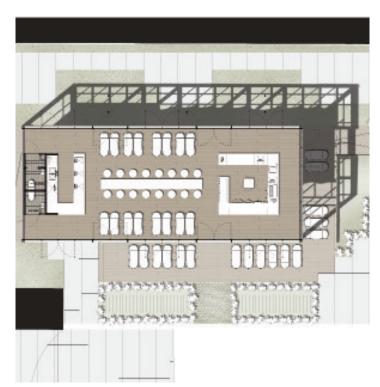




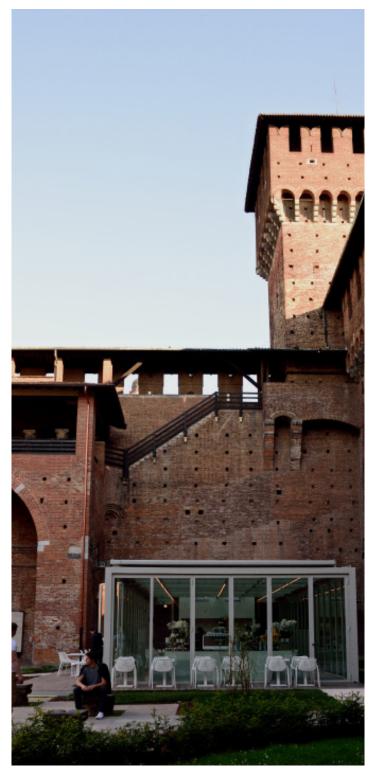


The new coffee bar in the court of the Sforza Castle in Milan fits in well with the architecture surrounding without competing with the historical pre-existence, but becomes a favorite point for its contemplation. The project begins after winning the municipal procurement contract.

The announcement presented clear and binding guidelines: use of noble materials, greatest possible transparency, absence of stable foundations and short realization time. The combined planning of ARCò and Ariano offices conceived a modular steel and glass building so that the standardization could facilitate the prefabrication in the workshop, and consequently minimize the building operation only in assembly the different elements.







THE SUSTAINABILITY HUB



CASCINA CUCCAGNA, MILAN



2015



CLIENT: KFIELD COMUNICAZIONE SRL

SPONSOR: LAVAZZA, NOVAMONT



EXHIBITION



90.000 €



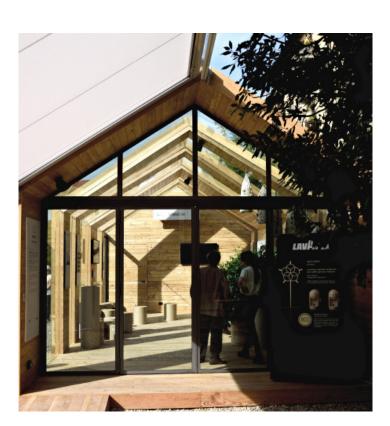
UNTREATED WOODEN CLADDING AND STRUCTURE

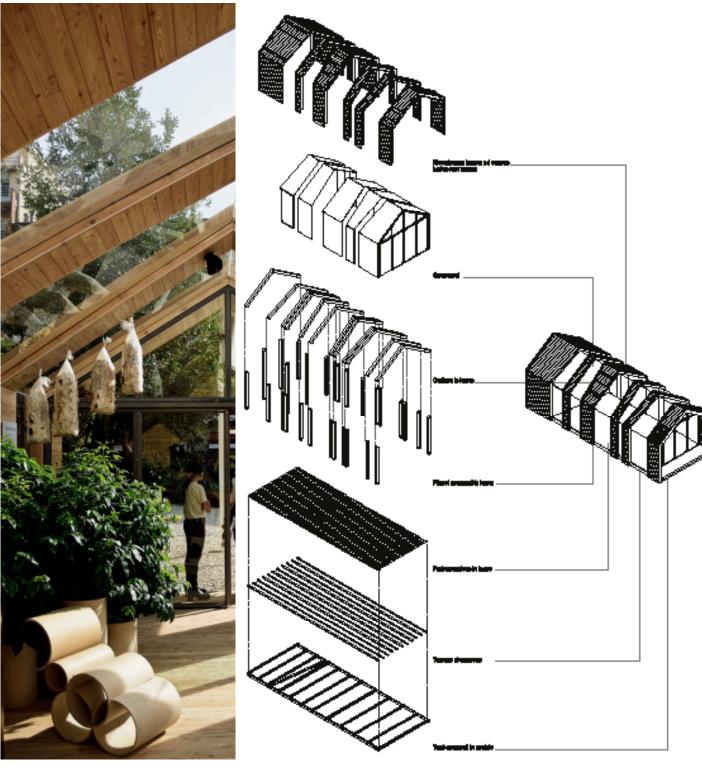






It is a structure entirely made of untreated wood designed to expose the cycle of compostable coffee pods produced by Novamont - Lavazza. The building is divided into two parts characterized by two different climates, the first greenhouse, which must contain the coffee plants, the second, colder, which must contain mushrooms produced by the coffee grounds. The set made of recycled cardboard is designed to host conferences on the theme of circular economy.





POLISH PAVILION



POLISH PAVILION, MILAN EXPO 2015



2015



CLIENT: FUTURA DESIGN STUDIO



EXHIBITION



5.000.000 €



WOODEN BOX



IMPLEMENTED. CONCEPT DESIGN: PIOTR MUSIALOWKY





The Pavilion has a simple, rectangular form whose external look is outlined by wooden boxes. The openwork structure refers to the ecological and simple form of apple boxes.

One of the attractions of the Pavilion is its magical garden, a Polish orchard, full of apple trees. The hidden garden becomes a place to relax and it is clearly associated with the Polish agriculture. Apples are one of Poland's top agricultural exports. Visitors come to the garden through its center follow a narrow, winding path interspersed at irregular intervals by apple trees. The reflection of trees in the mirrors creates the illusion of a vast and infinite space, thus emphasizing the magical atmosphere of the space. Another part of the exhibition is devoted to the regions, promoting them and the use of rural land. The path leads the visitor to a cinema, in which a set of videos promoting the economy and culture of Poland. ARCò developed the definitive design as technical local partner in Italy.







PRIMARY SCHOOL



AL JABAL, AREA C, WEST BANK



2015



PROMOTER: VENTO DI TERRA NGO

DONORS: UN OCHA (UNITED NATION OFFICE FOR THE COORDINATION OF HUMANITARIAN AFFAIRS) - ERF ROGRAMME



EDUCATION



142.000 €



STONE BOX GABIONS





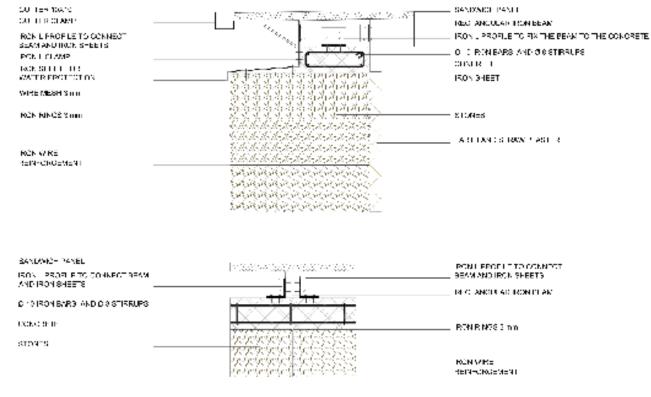




The school in Al Jabal is the extreme synthesis of the re-use of local material. The idea to adopt the technique of gabions, generally used for retaining walls in landscape preservation areas, was born since the very first visits to the site. In fact, in this area there is an abundance of the local stone in its typical yellow ochre color. The first meetings with the local community also highlighted the added values of security and stability that this technique aroused in people. Speed of construction and aesthetic impact played as well a decisive role in the final design choices.









ORPHANAGE ELISA ANDREOLI



ORURO, BOLIVIA



2014



CLIENT: LA GOTITA NGO DONORS: LA GOTITA NGO



ORPHENAGE



90.000 €



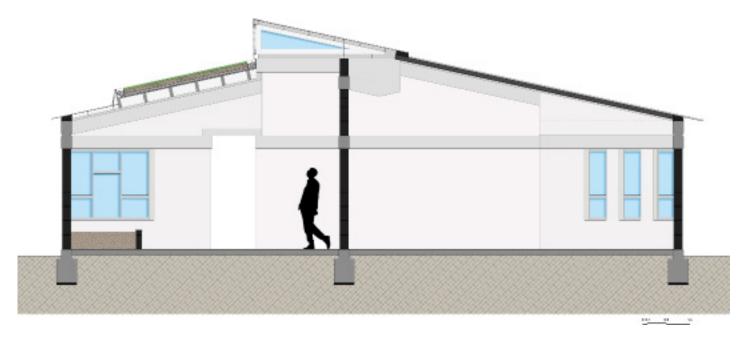
GREEN ROOF, GREENHOUSES







The pre-existent conditions of the big structure of the orphanage were critical, as the metal sheet roof covering it was totally inadequate at assuring thermal and acoustic insulation. Moreover, because of insufficient windows dimension, the amount of natural light entering the rooms was not suitable to the daily activities. This project creates a comfortable environment into the entire building through a whole rehabilitation of the roof. The new green roof will ensure the right level of thermal insulation. The skylights will provide the proper amount of light and will contribute to the heating of the rooms, thanks to the greenhouse effect on the corridors. This represents only the first phase of the design, that will comprehend also the installation of an heating system and the rehabilitation of the external spaces.

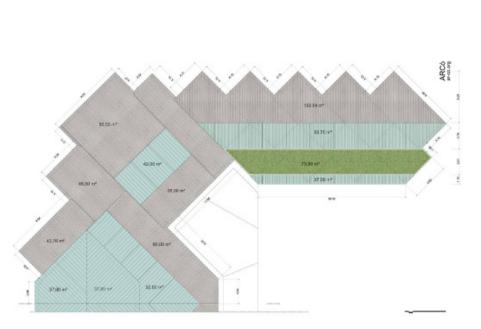


Existing roof









New roof with green and transparent band

KITCHEN



UM AL NASSER VILLAGE, GAZA STRIP



2014 _ DEMOLISHED DURING THE WAR OF 2014



PROMOTER: VENTO DI TERRA NGO

DONORS: ITALIAN COOPERATION, CEI (CONFERENZA

EPISCOPALE ITALIANA)



CATERING



60.000 €



EARTHBAGS







This project provided a new kitchen for the kindergarten of Um Al Nasser. The same construction technique was used for both the walls, made with earthbags, and the vaults, in steel with metallic external finishing and wooden internal. The project was completed in June 2014, right before the start of the clashes within the Gaza Strip, and was demolished by the Israeli military forces in July 2014, before having the opportunity to be exploited to its full potential.







PRIMARY SCHOOL



RAMADIN, QALKILYA GOVERNORATE, WEST BANK



2014



PROMOTER: VENTO DI TERRA NGO

DONOR: UNDP (UNITED NATIONS DEVELOPMENT

PROGRAMME)



EDUCATION



85.000 €



PISE', MUD AND STRAW BRICKS

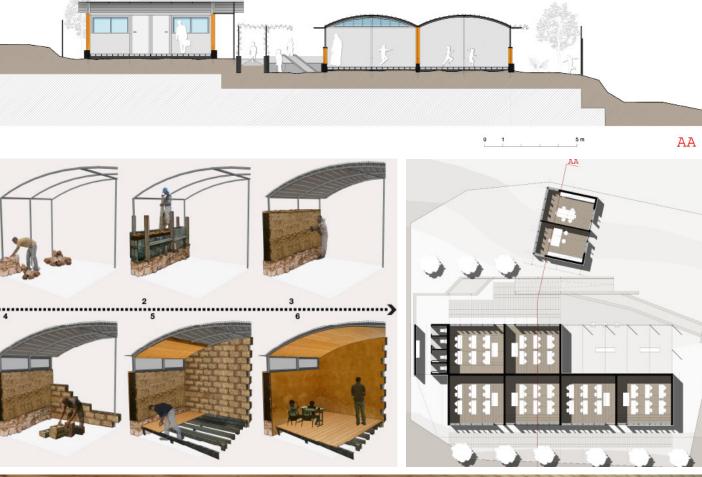






The rehabilitation of Ramadin primary school succeeded in giving a quality space for lessons to the community without going against the military laws that restrict new constructions in the area. The existing tents have been transformed in a proper school with simple steps: reinforcing the metal tubular structure; providing a solid basement; constructing insulating walls and roof; providing finishing. The work has been conducted in strong accordance with the local community and with a self-construction logic. Our strategy has been developed with the idea of maintaining the existing structures of the tents, that was simply adapted to the new spaces. Playing with the shadows of the strong desert sun, the new volumes draw indoor and outdoor spaces and paths.







LOCAL MARKET



HERMEL, LEBANON



2013



CLIENT: PROVINCE OF TURIN + FPMCI + PDA



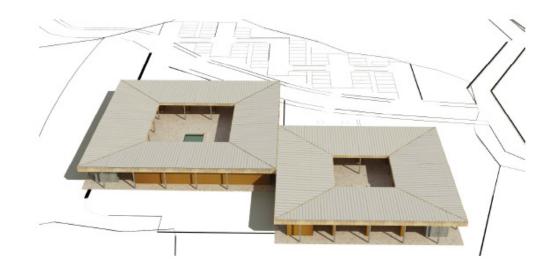
PRUDUCTIVE

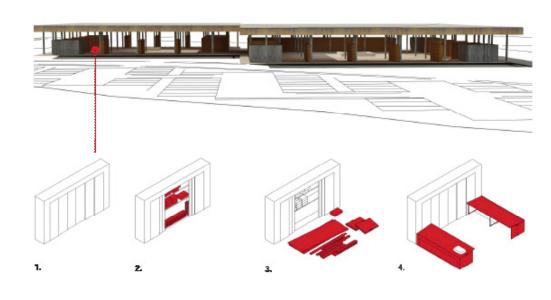


MODULAR GREEN ARCHITECTURE



PROJECT



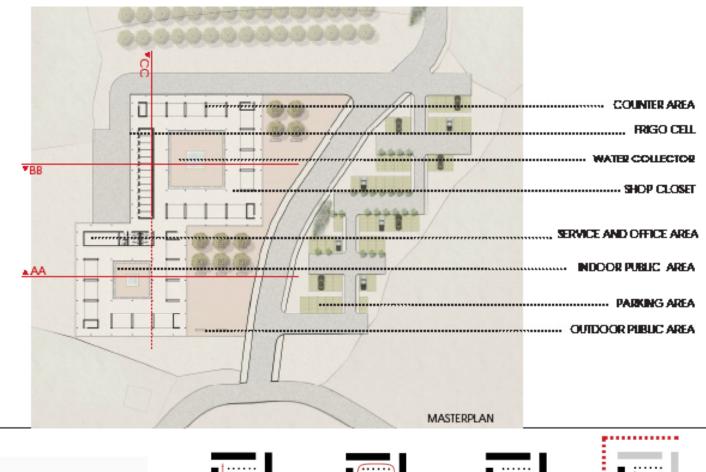


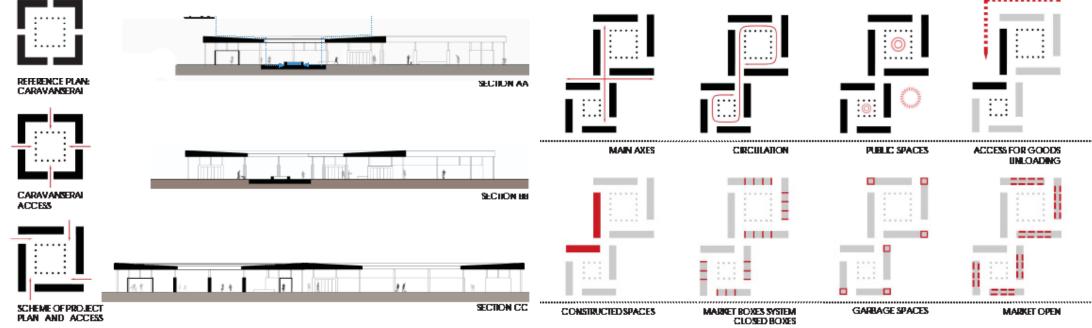
The project, funded by the European Union in the frame of the Development Program for the organization of the industrial and handicraft sector in Hermel, started from the idea of a modular solution, able to adapt itself to more functional needs.

The project takes inspiration from the memory of a caravanserai, the main historical reference for Arabic markets. It interprets the reference in a contemporary way, considering the particular needs of Hermel. The result is a shady open air public space, organized to host the wholesale activity.

The main principles displayed in this project are:

- -functionality, flexibility and modularity;
- -water collection, energy self sufficiency.





HANDICRAFTS AREA



HERMEL, LEBANON



2013



CLIENT: PROVINCE OF TURIN + FPMCI + PDA



PRUDUCTIVE





MODULAR GREEN ARCHITECTURE



PROJECT



SHOWROOM & FACTORES

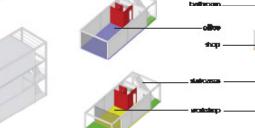
Mars feelery Car Scrappage Familias feelery Verrisher auto shop Antomobile bodyworks Automobile mecenics shoo Machinical shop for bloycles and auto



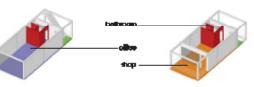
Aluminium Inchary Johnston Facility Veribler feelery



PUNCTIONAL LAYOUT



SHOWEDOM & SHOPS







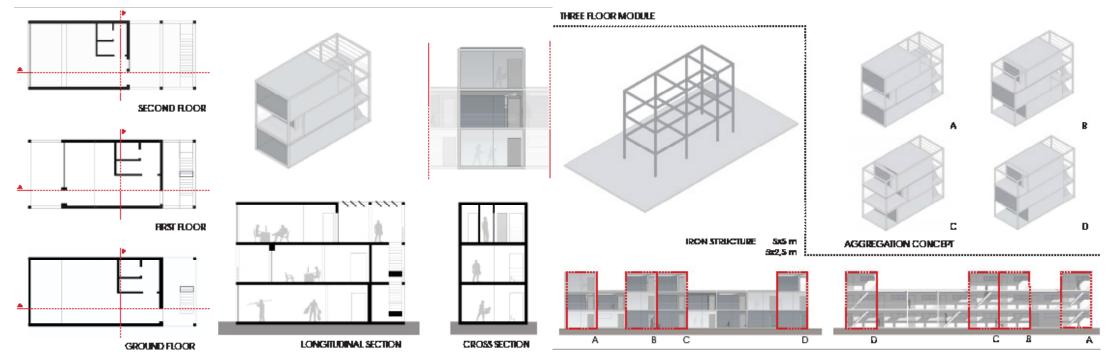
The project, funded by the European Union in the frame of the Development Program for the organization of the industrial and handicraft sector in Hermel, applies the idea of a modular solution, in view of future functional developments.

This approach is enriched by sustainable principles based on three main focuses:

- cheap, modular and standard structure;
- flexible interior spaces;
- insulation, cross ventilation and energy self sufficiency.

In this way one structure can generate many different buildings, that every user can eventually personalize. The modules aggregation produces a general master plan with private, collective and public spaces, services for the workers and parking places for customers.





PRIMARY SCHOOL NEW CLASSES AND PLAYGROUND



DKAIKA, AREA C, WEST BANK



2013



PROMOTER: VENTO DI TERRA NGO

DONORS: UNDP (UNITED NATIONS DEVELOPMENT PROGRAMME) - CRDP PROGRAMME



EDUCATION



30.000 €



RECYCLED OF EXISTING MATERIALS, RIVER REEDS







The project has involved the rehabilitation of one of the school's classroom that has been made accessible from the outside through the creation of a movable wall. By exploiting the natural ventilation, it was possible to improve the thermal comfort inside the classroom. The construction of a system of shields in river reeds has helped to avoid the overheating of the walls. The project also includes a large playground, partially underground in order to create seating areas.









RE-MOVABLE CLINIC



AREA C, WEST BANK



2013



PROMOTER: VENTO DI TERRA NGO

DONORS: UNDP (UNITED NATIONS DEVELOPMENT PROGRAM), ITALIAN MINISTRY OF FOREIGN AFFAIRS – ITALIAN COOPERATION, BELGIAN DEVELOPMENT COOPERATION



HEALTH



30.000 €



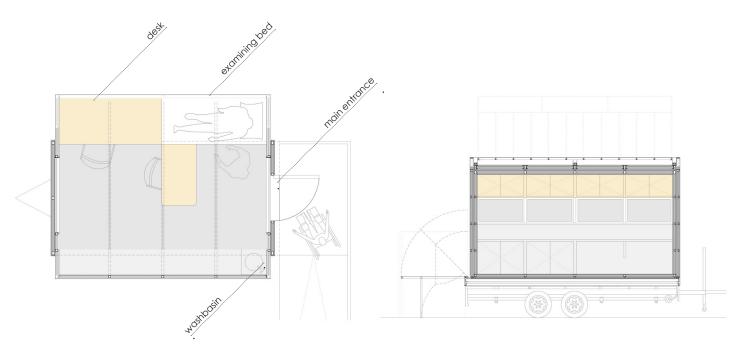
PREFABRICATED - 3 HOURS ASSEMBLY



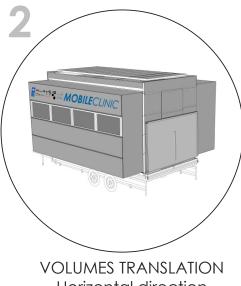




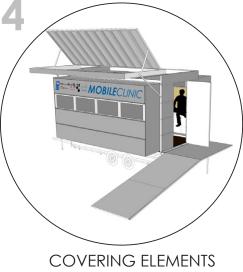
The RE-MOVABLE CLINIC is the prototype of a movable system that will provide basic healthcare to people living in Area C of the West Bank. The objective is to create a space for medical activities that can fit the Israeliimposed restrictions in Area C. The clinic can be easily transported by a normal van and can be assembled on site in less than 3 hours by unskilled people. The clinic is easily built and doesn't need high-tech solutions. All the materials and technical details have been conceived on low-tech principles, a decision derived from the necessity of constructing the whole unit locally, with materials, skills, and technologies available on the Occupied Palestinian Territories.











Horizontal direction

Photovoltaic cells

PRIMARY SCHOOL NEW CLASSES AND PLAYGROUND



ABU HINDI BEDOUIN CAMP, WEST BANK



2013



PROMOTER: VENTO DI TERRA NGO, JERUSALEM BEDOUIN **COOPERATIVE COMMITTEE**



DONORS: UNICEF-UNITED NATION CHILDREN'S FUND, UN OCHA - HRF (HUMANITARIAN RESPONSE FUND OF THE UNITED NATIONS OFFICE FOR COORDINATION OF **HUMANITARIAN AFFAIRS)**



EDUCATION



57.000 €



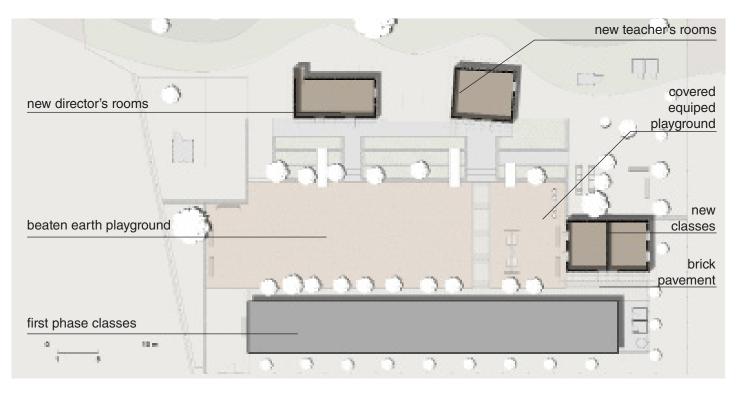
PISE' AND BAMBOO PANELS







This is a rehabilitation project for three buildings and the playground of the Abu Hindi's school. The main elements added to the buildings are simply a Pisé wall, constructed inside the existing metal sheet, and a bamboo layer outside, so to create a ventilated camera that protects from overheating. The space between the buildings was calibrated in order to reduce to the minimum the amount of dust and sand swiping the playground. The materials used for this spaces were rammed earth, mud bricks and dry stone. The existing difference in ground levels became an occasion to create game facilities for the children.









PRIMARY SCHOOL NEW CLASSES



AL KHAN AL AHMAR BEDOUIN CAMP, WEST BANK



2012



PROMOTER: VENTO DI TERRA NGO, JERUSALEM BEDOUIN COOPERATIVE COMMITTEE

DONORS: UN OCHA (UNITED NATION OFFICE FOR THE COORDINATION OF HUMANITARIAN AFFAIRS)



EDUCATION



35.000 €



STRAW-BALE WALLS



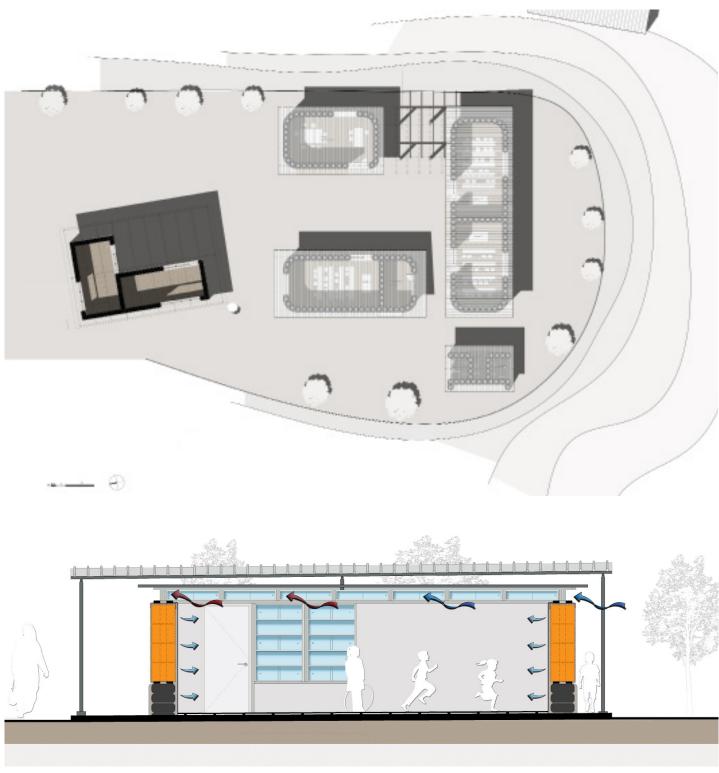






The needs of the community were to add two classes to the existing school of Al Kahn Al Ahmar, that had already a demolition order issued by the Israeli army authorities. The chosen technique was the straw-bale wall, put on the existing concrete base. These thick and heavy structure lays on a sandbags base as protection from humidity and is contained into a wooden structure. A double ventilated roof controls the overheating, creates an outside open space and hides the building from the street.





KINDERGARTEN



UM AL NASSER VILLAGE, GAZA STRIP



2011 - DEMOLISHED DURING THE WAR OF 2014



PROMOTER: VENTO DI TERRA NGO

DONORS: ITALIAN MINISTRY OF FOREIGN AFFAIRS – ITALIAN COOPERATION, CEI (CONFERENZA EPISCOPALE ITALIANA), MUNICIPALITY OF MILAN, MUNICIPALITY OF SESTO SAN GIOVANNI, LUSH ITALIA



EDUCATION



180.000 €

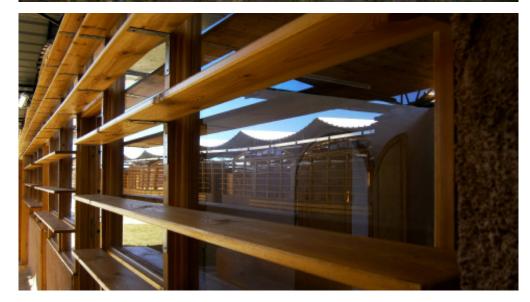


EARTHBAGS

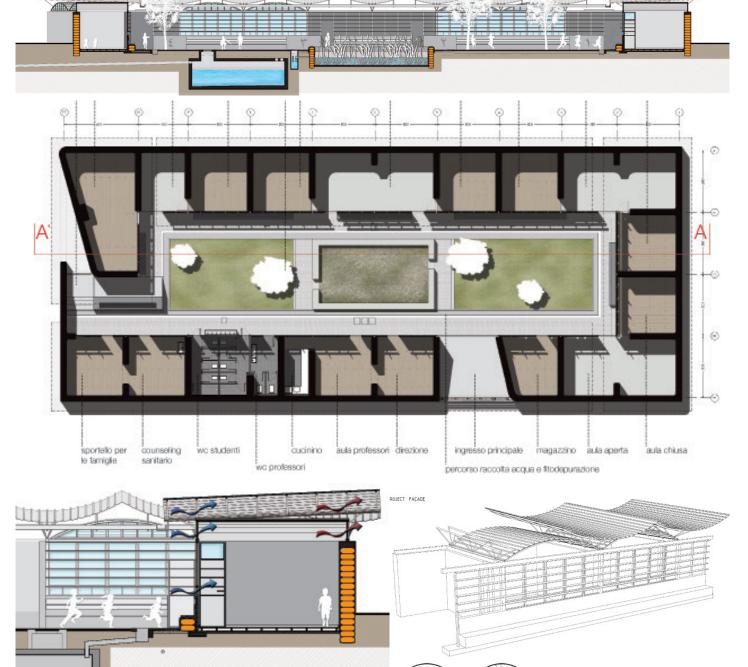








For this project, the children's center "Terra dei Bambini" teamed up with MCA Mario Cucinella Architects. Here a combination of three construction techniques has been used. First, earth bags, made with the involvement of the local community; then, a ventilated metallic covering system, sloped to ensure the recovery of rain water and the integration of solar panels. Finally, a system of wooden sun-shading brise soleil that allows to maintain the façade on the inner courtyard completely open and the external one totally closed with an earthen wall.





LIBRARY



AL AZARJE, WADI ABU HINDI BEDOUIN CAMP, WEST BANK.



2011



PROMOTER: VENTO DI TERRA NGO, JERUSALEM BEDOUIN COOPERATIVE COMMITTEE



EDUCATION



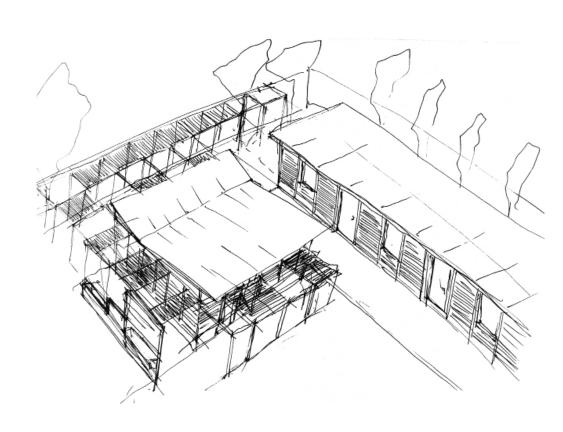


PISE' AND BAMBOO PANELS

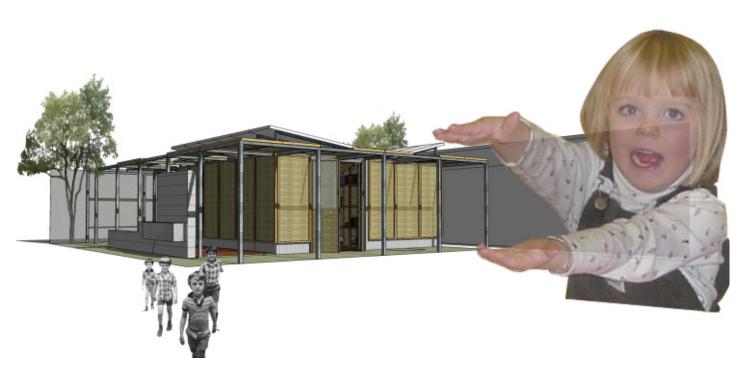


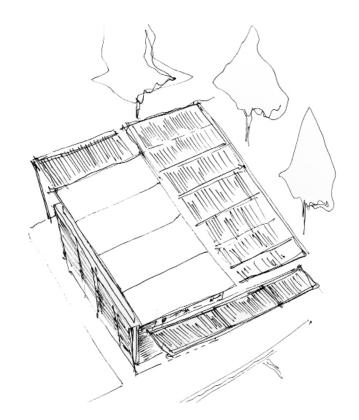
DESIGN

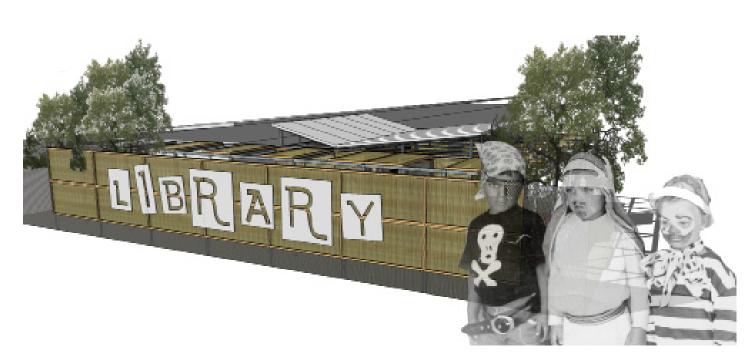




The project constitutes the second phase of the school in the desert project, from which it adopts the technical choices and constructive techniques. The new library is proposed as a new volume of squared plan articulated in two areas: from one side the main reading room, defined by library-walls and completely opened to the outdoor space so to become a place for people to gather and pass-trough. From the other side, the areas for facilities, more closed and protected. This articulation is expressed as well in the roof, solved in two opposed slopes, which recreate the natural ventilation mechanism from the school in the desert. The indoor spaces of the library are linked to the outdoor ones by the modular pergola made of bamboo panels.







PRIMARY SCHOOL



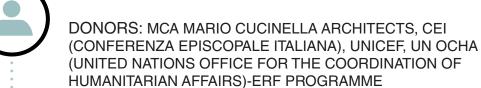
ABU HINDI BEDOUIN CAMP, WEST BANK.



2010



PROMOTER: VENTO DI TERRA NGO, JERUSALEM BEDOUIN COOPERATIVE COMMITTEE





EDUCATION



45.000 €



PISE' AND BAMBOO PANELS







The project faces particular restrictions imposed by the Israeli military authority, which state the maintenance of the existing situation and the impossibility of volumetric reshaping for the existing school building. The project focuses on two main themes: natural ventilation and thermal insulation. Natural ventilation was created by raising and tilting the roof, thus realizing an efficient air circulation system. The existing metal sheet roof was substituted with sandwich panels, to improve the whole building thermal insulation. The thermal insulation of the external walls was realized by adapting the pisé technique to local needs. The final result in the school is a wall 34 cm thick, including lime plastering, bamboo panels as quarterdecks, soil and straw layer, existing external metal sheet, air cavity and a final external shading bamboo panel.



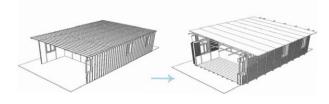






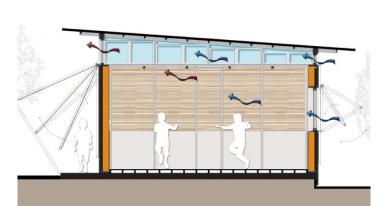












PRIMARY SCHOOL



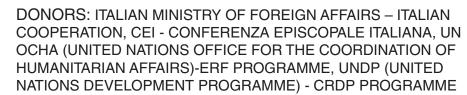
AL KHAN AL AHMAR BEDOUIN CAMP, WEST BANK.



2009



PROMOTER: VENTO DI TERRA NGO, JERUSALEM BEDOUIN COOPERATIVE COMMITTEE





EDUCATION



80.000 €



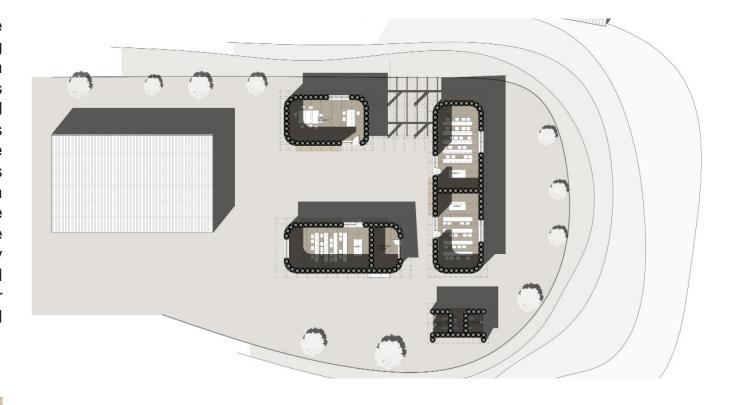
EARTHSHIP



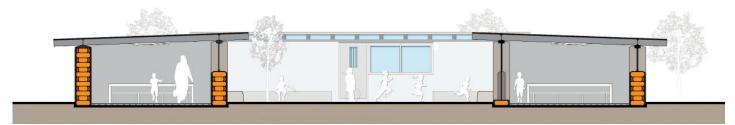




The starting constraints for this project were quite complex: absolute prohibition of using cement and foundations, due to the prohibition for the Palestinians of non-temporary artefacts in the area C of the West Bank; velocity and simplicity in the construction; minimum costs and local non-skilled manpower. From these constraints came up a project that brings together the rapid and simple construction with a high-level of comfort conditions. The walls made of tires filled with earth and the roof made with sandwich panels supported by wooden beams, were built in just two weeks. All the works have been carried out by manpower from the local community, under the technical direction of ARCò.











WORKSHOPS



NECESSARY ARCHITECTURE



PARCO AGRICOLO SUD, MILAN



2019



CASCINET



PRATICAL



RECYCLED MATERIALS AND EARTH





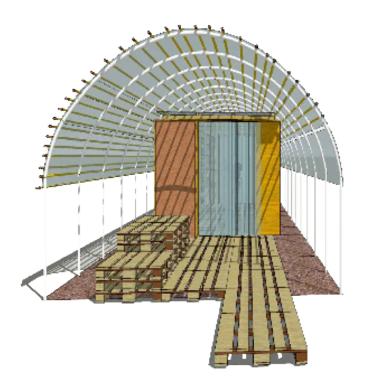
A 6-hectare area between the Vigentino, Corvetto and Chiaravalle CasciNet and La Vitalba districts is becoming an agricultural park open to citizens.

Placed in an area of 3,500 square meters imagined for kids-friendly social gathering, the Urban Agro-Forestry Nursery is a multifunctional structure aimed at supporting the agricultural activities and environmental regeneration through the self-production of vegetable seedlings and the reproduction of forest plants .

The structure built is corolled by a multitude of activities aimed at the neighborhood.









#6 DESIGN AND BUILD WITH ØKM



CASA CHIARAVALLE, MILAN



2018



EUROPEAN TENDER BIØN -BUILDING IMPACT ZERO NETWORK



PRACTICAL/THEORETICAL



LOCAL AND RECYCLED MATERIALS EARTHBAGS, EARTHSHIPS, WOODEN FRAMES



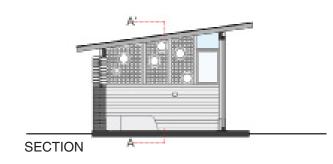


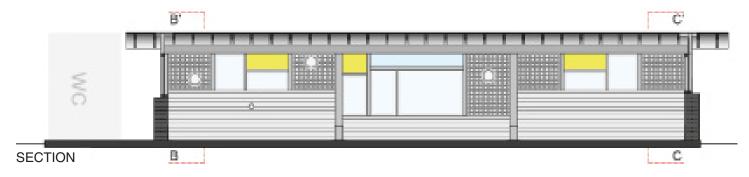
Design and Build with Økm (Local and Recycled Materials) in a real context, prototyping 1:1 object for the development of new activities of the local community. The aim is to create a physical and theoretical space for a discussion on the local sustainability exploring the potencial of alternative and low cost building techniques.

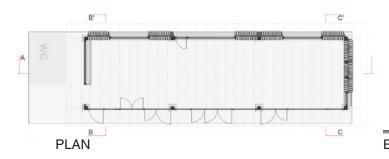
Why local and recycled materials? Mainly for the necessity of a responsible use of natural and unconventional resources, valorizing and respecting local architectural tradition and culture and looking for appropriate techniques with little processing or transporting and low environmental and economic costs.

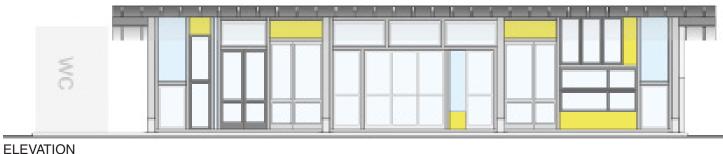












GREB AND STRAW IN PALESTINE



AL KHAN AL AHMAR BEDOUIN CAMP, WEST BANK.



2015



CRDP



PRACTICAL/THEORETICAL



GREB

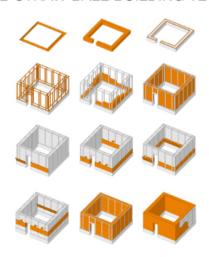
The Workshop took place in the Bedouin village of Al Khan Al Ahmar - East Jerusalem, within the program of "The Community Resilience and Development programme for Area C and East Jerusalem" funded by the Swedish, Austrian and Norwegian governments. Students from the Bedouin community participated to the lectures and then contributed to the construction of a wall made with straw using the technique of greb. This technique involves the use of panels of wood and liquid plaster mainly based on lime, in order to obtain a perfectly coplanar surface, more resistant to weathering.







THE GREB STRAW BALE BUILDING TECHNIQUE



تقنية البناء باستخدام بالات القش

INSTRUCTION BOOKLE - LOW ENVIRONMENTAL - IMPACT REHABILITATION - ARCò - Società Cooperativa









WAKEMAKE



ROME



2015



TOR VERGATA UNIVERSITY WAKEMAKE ASSOCIATION



PRACTICAL



RECYCLED WOOD

A workshop for students of engineering-architecture which took place in the outside areas of the Tor Vergata University (Rome). It consisted of self-building of outdoor furniture, recycling unused materials from the construction site of the unfinished Calatrava's Sports City project, abandoned for 5 years. ARCò coordinated and supervised the work of the 24 student participants who were selected through a call for Students Cultural Activities. The aim of the workshop was to transform a space untapped by the students in a liveable and shareable one. The promotion of a certain way of doing architecture, sustainable and participatory, was pursued by self-constructing the objects with recycled materials.











ORDINE ARCHITETTI TRAPANI



TRAPANI



2015



ORDINE DEGLI ARCHITETTI



PRACTICAL/THEORETICAL



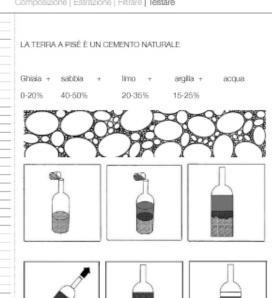
PISE' + STRAW BALES WALLS

A series of lectures at the Architects Register of Trapani, dealing with the issues of construction with pisè and straw, involving theoretical knowledge and demonstrative practical workshop with the creation of portions of masonry.



Composizione | Estrazione | Filtrare | Testare

LA TERRA | STEP 1.4



PLASTICITÀ: Capacità a deformarsi senza rompersi. соминилить: capacità a densificarsi sotto compressione. coesione: presenza di argilla di buona qualità che lega gli elementi tra di loro.

GRANLLOMETRIA: presenza ottimale di tutti gli elementi di dimensione diverse che si organizzano tra di loro senza lasciare vuoti.

TEST DI SEDIMENTAZIONE - GRANLLOMETRIA

- 1. Riempire 1/3 del contenitore col terreno
- 2. Segnare con un pennarello il limite superiore del terreno
- 3. Aggiungere un po' d'acqua
- Mescolare e lasciare depositare 10.
- 5. La sabbia che si deposita sul fondo del biochiere rappresenta la proporzione presente nel terreno.
- 6. Attendere un'ora e la proporzione rimenente è



IL MURO | STEP 2.5

Basamento | Struttura | Intonaco

Paggiunta l'altezza desiderata con le balle di paglia, coprire con un doppio cordolo in legno come qualo appoggialo sullo zoccolo e riempito di argilla espansa. Eventualmente anche di ghiala o paglia.

Piprendere le corde ed unir le trandole leggermente.

Ogni 3 metri il muro si dovrebbe abbassare di circa 10/15 cm grazie ai tiranti ben tesi.

Dopo 6 settimane dall'appoggio del tetto di possono essere assestamenti del 95-98%.

A questo punto il muro si è stabilizzato atla sua massima compressione.

Una muratura in paglia portante può reggere fino a 25 volte Il peso di un tetto di pietra.





IL MURO | STEP 2.6

L'intonacatura si attacca meglio sulla parte di taglio rispetto quella di piego della balla, e avviene in quattro fasi successive:

 intonaco con molta paglia e poca argilla e sabbia por riempire il buchi più grandi in mode da aver in impasto alleggerito che in abuni punti può raggiungere anche il 10 cm e ivellare così il muro e gli interspazi tra le balle di paglia.

 Intonaco con paglia argilla sabbia in giuste proporzioni per creare uno strato omogeneo su tutta la superficie del muro, cominciando dal basso e procedendo verso fatto.

Questo strato può raggiungere i 5 cm ma non superatti in una sola mano, altrimenti rischia di non restare attaccato alla balla di paglia.

 intonaco di illinitura con la tecnica desiderata: con paglia sminuzzata, tadelaid, calce ecc. di pochi mm.

- eventuale colore ulteriore.

Basamento| Struttura | Intonaco



ARCOTIPO 3



TURIN



2013



IED - MASTER IN ARCHITETTURA SOSTENIBILE



PRACTICAL/THEORETICAL



PLASTIC BOTTLE WALL

The workshop take place for the third year in the IED (European Institute of Design), as part of the Professional Master course in Sustainable Architecture, which ARCò coordinated together with Arch. Riccardo Balbo. The one month workshop consisted first of a theoretical part, dealing with the Urban Design of the Waterfront of Jounieh, Lebanon. Then, of a practical part during which a prototype was built in self-construction by the students to test the constructive techniques previously elaborated. The prototype, named ARCOTIPO 3, was realized in the Miraorti Area in Turin, using recycled plastic bottles and pallets to create outdoor furniture and structures to provide shade to the urban farmers.











PAESAGGI STRAORDINARI



LOCATE DI TRIULZI (MI)



2013



MASTER PAESAGGI STRAORDINARI + NABA - NUO-VA ACCADEMIA DELLE ARTI MILANO AND POLI-TECNICO DI MILANO



PRACTICAL/THEORETICAL



RECYCLED WOOD

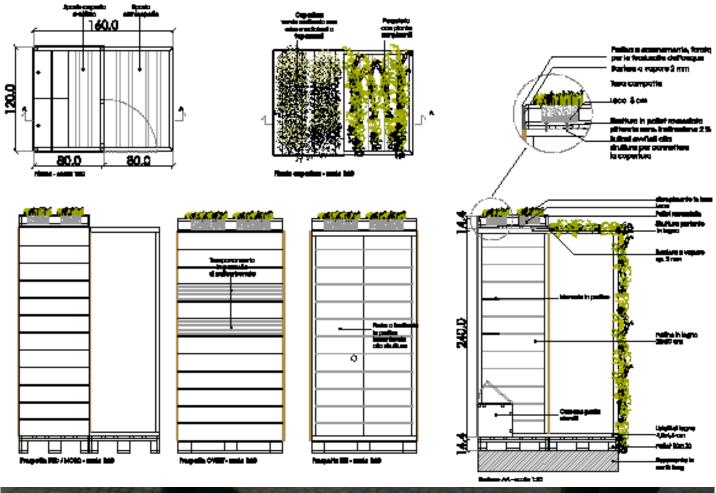
The week-long workshop concerned the design of a potting shed for the public allotments of the city of Locate di Triulzi. The design criteria were the sustainability of the materials, the process and the flexibility of use. After the design, the participants built a prototype of the selected project that was placed in the orchards.













ARCOTIPO 2



TURIN



2012



IED - MASTER IN SUSTAINABLE ARCHITECTURE



PRACTICAL/THEORETICAL

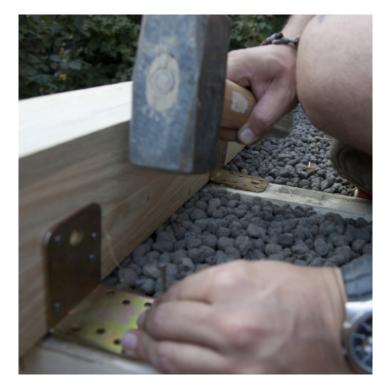


PLASTIC BOTTLE WALL + STRAW BALES WALLS

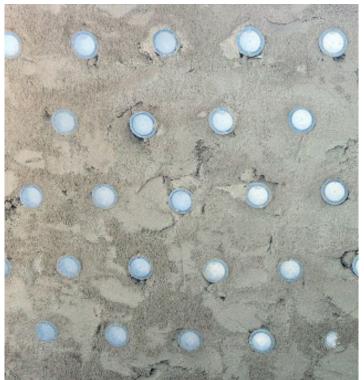
The workshop was developed in the frame of the "Master in sustainable architecture" that saw for the second time ARCò as co-coordinator together with Architect Riccardo Balbo. The prototype, named ARCOTIPO was realized on Michelotti park, in auto-construction by the master students with the support of local professionals. It consisted of small constructions realized in straw with the Nebraska technique and walls of recycled plastic bottles and clay.













ARCOTIPO 1



TURIN



2011



IED - MASTER IN SUSTAINABLE ARCHITECTURE



PRACTICAL/THEORETICAL



EARTHSHIP + EARTHBAGS

The workshop was developed in the frame of the "Master in sustainable architecture" in which ARCò was co-coordinator together with Architect Riccardo Balbo. The workshop took place during a month and consisted firstly of a theoretical part, during which the students developed the project for a school in the Gaza Strip, following the indications of the functional program and the specific locations suggested by the local authorities. Finally, a practical part started, with the realization of a prototype in which to test the constructive techniques previously envisioned: recycled tyres filled with soil, earth-bags, green roof. The prototype, an earthship named ARCOTIPO was realized in Michelotti park in Turin, with self-construction technique by the master students with the support of local professionals.











MODULO



ROME



2012



INARCH - ISTITUTO NAZIONALE DI ARCHITETTURA



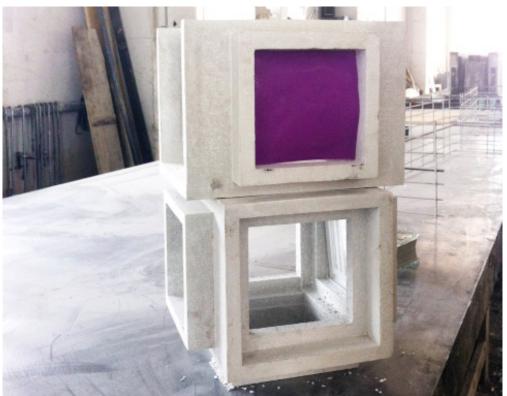
PRACTICAL/THEORETICAL



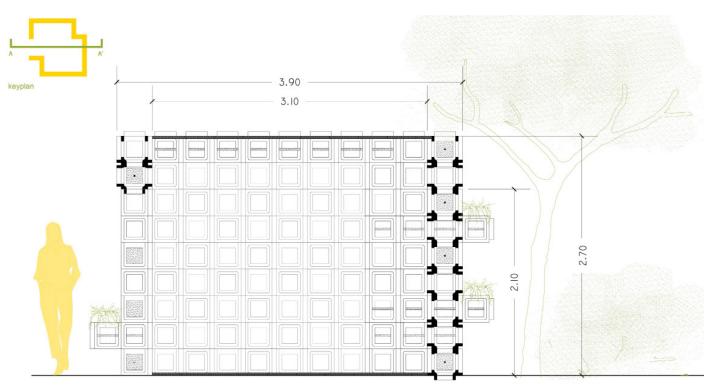
CONCRETE

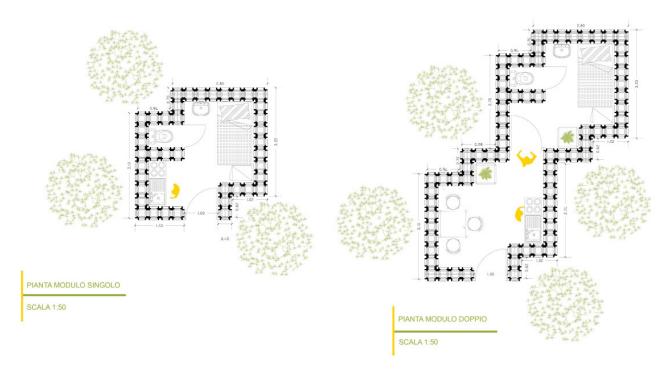
The workshop, inside the Master "PROGETTISTA ESPERTO IN TECNOLOGIE EMERGENTI", involved the design of a housing module and the creation of a prototype in collaboration with ITALCEMENTI. Students were encouraged to experiment with standardized solutions for construction in emergency or post-emergency contexts. Characteristics required for the module: ease and speed of construction and transport.











ECOWEEK



JERUSALEM



2012



ECOWEEK



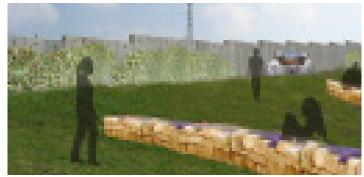
THEORETICAL

The workshop started with the description of several examples of sustainable auto-construction architectures and public spaces. Sustainable building techniques, innovative uses of low cost and recycled materials, specific needs, participation proceedings, education of inhabitants in self-construction techniques as the target topics. Participants were involved in the analysis and creation of a proposal for a self-construction project for a park in the village of Al Walajeh, in the outskirts of Jerusalem. The exercise focused on the particular situation of the village of Al Walajeh, and the consequences of the Israeli-Palestinian conflict on its public space, on the possibility to build a collective place for the local community and integrate it with the existing and newly-planned surroundings.

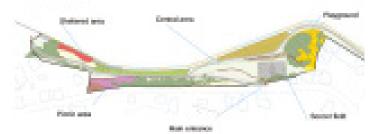








Master plan





The state of the s



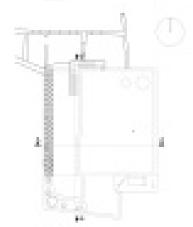




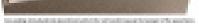








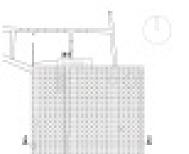


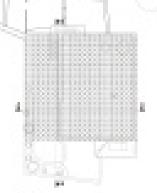




SCHOOLSESS SECTIONS OF THE PARTY























NAME AND ADDRESS OF THE PARTY OF

ECOWEEK



MILAN



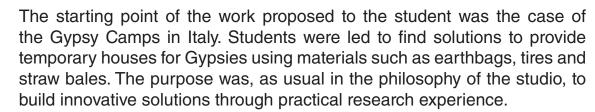
2011



ECOWEEK



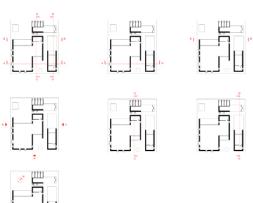
THEORETICAL





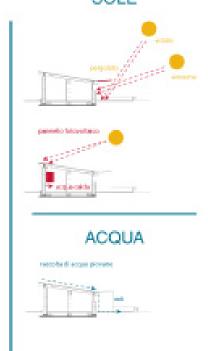








project's technique: earthbags SOLE



ARIA





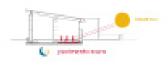
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DETTAGLIO 2_SCALA 1:10





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mount or inventor temporary life trains



COMPETITIONS



ENHANCEMENT OF THE BOURBON TANK IN THE CITY OF FORMIA



FORMIA (LT)



2014



MUNICIPALITY OF FORMIA



PUBLIC EQUIPMENT





MIXED



COMPETITION



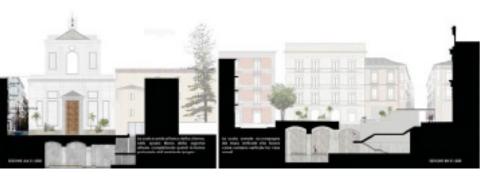


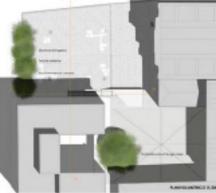
The project intended to realize a complexity of actions with the simple, familiar gesture of building a wall. This plays as a cut in the horizontal space of the square, and in the vertical space of the perceived public void. The goal was to design a high standard architectural artefact that could contribute to the environmental quality of the public space by working on different levels and at the same time as a virtual connection. In order to do so. two parallel lines of thought were developed: one lying on the surface and dealing with the relation between the public space and the built environment, and the other one working underneath, in the underground space of the void cistern











RECOVERY OF THE SPACE OF BUSSA OVERBRIDGE



MILAN



2014



MUNICIPALITY OF MILAN



PUBLIC EQUIPMENT





MIXED

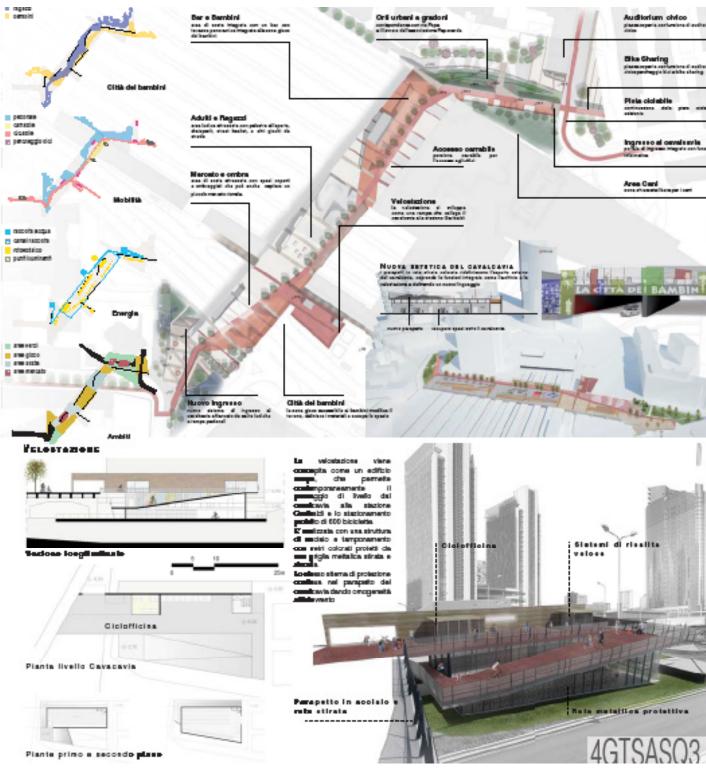


COMPETITION



The design of the rehabilitation of the spaces of Bussa overpass stems from a reflection on the ways of use of the city and on the possibility of using the weak users, in this case children, as the real engine of reactivation of public space. The design followed three basic guidelines: defining some key points as the sequence of nodes, situations, centres of gravity breaking the linearity of the overpass; providing for the establishment of a macro-area, which develops in a linear completely accessible to children by defining a landscape playful throughout the intervention; reflecting on energy and economic compensation of the new spaces created.





THE NEW CIVIC CENTER IN "ISOLA" DISTRICT IN MILAN



MILAN



2014



MUNICIPALITY OF MILAN



PUBLIC EQUIPMENT





WOOD AND STRAW



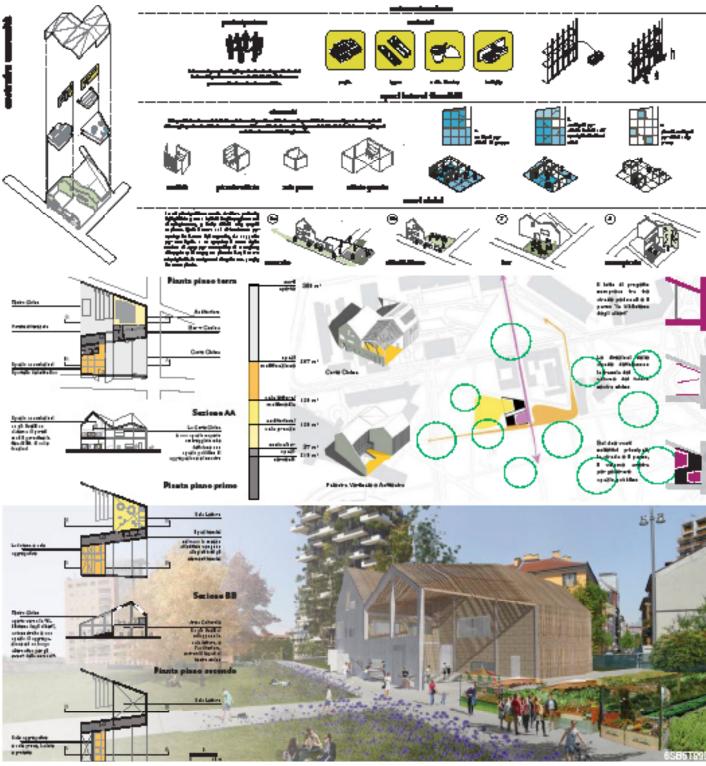
COMPETITION





The wall is the founding act of architecture: it defines and embraces spaces, protects and isolates them, defines the belonging of a place to a community. The project for the Civic Center in the Isola neighbourhood originates from a reflection on the value of the construction of a wall may have for the inhabitants. In line with the participatory process that has lead to the definition of the functional program, this project intended to erect the building following the principles of assisted self-construction.





EXPO 2015 ARCHITECTONIC FACILITIES AND RELATED



MILAN



2012



EXPO 2015 S.P.A.



PUBLIC EQUIPEMENT





STRAW BALES WALLS



COMPETITION/PARTICIPANT







This projects integrates sustainability in the whole architectural process, since the first steps of design. The use of engineering solutions is limited to the control of comfort level and the bioclimatic architecture techniques. The modular balloon-frame structure of wood and straw can be easily dismantled after the event to reuse the materials, or re-assembled in other places to host new functions. POSSIBLE REUSE Team: ARCò, E-plus Studio, Made associati, Metamorphosys, U-Boot.

A SCHOOL FOR CAVEZZO



CAVEZZO (MO)



2012



FONDAZIONE RENZO PIANO



EDUCATION



-



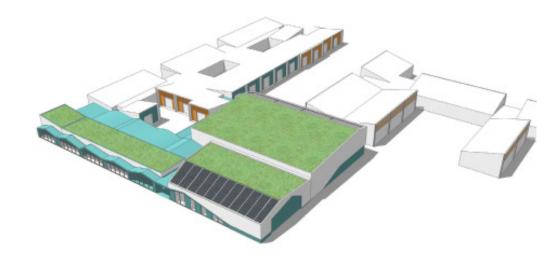
BALLOON FRAME STRAW BALES WALL



RESTRICT COMPETITION/PARTICIPANT







The Spring 2012 earthquake strongly signed the local community, so the project started with an investigation about citizens' perception of the place as it was. The collection of memories informed the strategy for the design of the outside spaces: a small courtyard was created between the existing and the new buildings, as core of distribution and functions. The new building was designed with a compact shape to leave space for outdoor activities. The used natural structures consisted of wooden structures and straw bale prefab walls. Environmental strategies as solar greenhouses outside the workshops were used to reduce the energy usage. The green roof, together with the straw-bales walls, strongly cuts the energy losses in wintertime, while natural ventilation refreshes the building during summertime, when PV panels harvest energy.

ORIENTAMENTO

raccolta delle acque piovane

captazione ragai sola

PARLARE COL COSTRUITO



Una scuola per cavezzo

orti didattici

PUBBLICATIONS & AWARDS











CASABELLA n.854

Milano, 2015

Arnoldo Mondadori Editore S.p.A.,

2015

Be-Ma Editrice,

Milano, 2016





CASABELLA









2015 KLASS SCHULE feb.
ifa Gallery Berlin,
Berlin 2015



2013 BOUNDARIES n.10
International architectural magazine,
Rome, 2013



2014 GREEN n.31 ott
Domus China,
Beijing, 2014



SUMMA+ n.130 Donn S.A., Buenos Aires, 2013

2013

2013

2013



2014 OTT AGONO n.268 mar Compositori Comunicazione s.r.l. Milano, 2014



ARCHITETTURA E CITTÀ n.08 Di Baio Editore, Milano, 2013



2014 • EKOLOGIC n.37 mar France métropolitaine Paris, 2014



GREEN n.04 lug Domus China, Beijing, 2013





BOUNDARIES n. 08

International architectural magazine, Rome, 2013



BOUNDARIES

2013

LE QUATTRO STAGIONI

catalogo dells 13 mostra internazionale di architettura, Mondadori Electa spa, Milano, 2013



2013

ZEPPELIN n.111 feb

Q-Group Proiect and Zeppelin Association, Bucharest, 2013



2013

TEORIE E

SPERIMENTALISMO PROGETTUALE PER LA RICERCA IN TECNOLOGIA DELL'ARCHITETTURA QC, Firenze, 2013



2012

IOARCH n. 46 gen/feb

Editore Font Srl, Milano, 2012



2013

GIOVANI ARCHITETTI ITALIANI

video documentario edito da GiArch and IN/ARCH, 2013



2012

ddB speciale cersaie

DDW srl, Milano, 2012



2012

PROGETTARE a.6, n.3

Tecniche nuove S.p.A., Milano, 2012



2013

NEEDS,

architecture in developing counties. edito da Spataro S., Lettera Ventidue, Siracusa, 2013



2012

IL GIORNALE DELL'ARCHITETTURA

n. 106





A10 n. 57 sett/ott A10 publisher, Amsterdam, 2012



2012

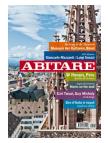
PALESTINIANS,

A photographic journey through stories of lifes and cooperation. Edito da Tibollo A., pubblicato da Consulate General of Italy, office of development cooperation,



2012

ABITARE n.519 feb RCS Mediagroup, Milan, 2012



2012

UNDER 40
Premio "rasseon

Jerusalem, 2012.

Premio "rassegna lombarda di architettura Under 40" II Sole 24 ORE S.p.A., Milano, 2012



2012

CASABELLA n. 809 Arnoldo Mondadori Editore S.p.A., Milan, 2012



2012

GOLD MEDAL FOR ITALIAN ARCHITECTURE

Edited by La Triennale di Milano, Editrice Compositori, Milano, 2012.



2012

OFARCH n.120 Design Diffusion World, Milan, 2012



2012

GIARCH - PROGETTI DI GIOVANI ARCHITETTI ITALIANI

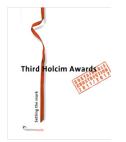
Edito da Bucci A. Marsaglia V., Vol. III, Utet Scienze Tecniche, Turin 2012



2012

SUSTAINABLE CONSTRUCTION 2011/2012

terzo premio holcim,Edito da Schwarz E., Fineprint AG, Stallikon, 2012.



2012



ITALIARCHITETTURA premio fondazione Renzo Piano Edited by Prestinenza Puglisi L. Piano R., Utet Scienze Tecniche, Torino 2011.











2016

RI.U.SO. 05 Rigenerazione Urbana Sostenibile, promoted by CNAPPC Third Award to the project "Inclusive Towns" in Hebron district (Palestine)



2012

Global Holcim Awards finalists at the Global Holcim Awards for sustainable construction to the sustainable refurbishment project of a primary school near Al Azarije, Palestine



2015

Architect Sans Frontiere International Award 2015, 'Learning South of North' Honorable Mention



2012

Medaglia d'Oro alla Architettura Italiana IV edizione Honorable Mention in the section "Architecture and Emergency"



2011

HOLCIM AWARDS

Silver medal in the "Africa and Middle East" section of Regional Holcim Awards



2011

EME3 CITY AWARDS

Honorable Mention to the project "Schools in the desert. Bioclimatic architecture for education in the bedouin communities in Palestine



2011

PREMIO FONDAZIONE RENZO PIANO

Second award to the project "the school in the desert"



2011

SELINUNTE SPECIAL AWARD

for the contribution to the improvement of the habitat



Contacts

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