Educational EcoCommunity ESCUELA DEL SOL Design and Services HA11_VRFKH

[Project title] [Office ID]

General project data

Project group 2
Landscape, urban design and infrastructure

Competition region	Latin America
City	Mar del Plata
Country	Argentina
Status of planning	Under construction
Formal permission	Approved
Contruction start	Aug '10
Client	Civil Association Mahatma Gandhi - Homeowners association
Intervention	New construction
Project background	Private commission
Latitude	37,5541
Longitude	57,4547
m ASL	103
Competition	no
Last modified	Mar 28, 2011

Main author and contact details

Name	Ms Graciela Ester Kosoblik, f, 1953
Profession	Architect
Position	
Organization	Luz de Acuario Bioconstruccion
Address	Avenida de los deportes 254
Zip | City	7600 | Mar del Plata
State | Country	Buenos Aires | Argentina
Tel | Fax	+542234811027 | +542234811027
Email	grako26@gmail.com
Website	https://sites.google.com/site/proyectoescueladelsol/

" Luz de Acuario" group

Further author(s)

Further authors: **1. Arq Ricardo daniel Ordoñez,** Architect, 1970, m, Luz de Acuario Bioconstruccion, Avenida de los deportes 254, 7600, Mar del Plata, Buenos Aires, Argentina, +54223156226657, ricardo_arqui@yahoo.com.ar; **2. Mr Pablo Lavezzari,** Architect, 1967, m, Luz de Acuario Bioconstruccion, Av de los deportes 254, 7600, Mar del Plata, Buenos Aires, Argentina, +54223155937201, Padrianlav@yahoo.com.ar; **3. Mr Daniel Fittipaldi,** Builder, 1959, m, Luz de Acuario Bioconstruccion, Av de los deportes 254, 7600, Mar del Plata, Buenos Aires, Argentina, +54223154215451, dfittipaldi@hotmail.com; **4. Mr Martin Sosa,** Builder, 1976, m, Luz de Acuario Bioconstruccion, Avenida de los deportes 254, 7600, Ma, Buenos Aires, Argentina, +542234827352, malververas@hotmail.com; **5. Mr Mauricio Martino,** Builder, 1969, m, Luz de Acuario Bioconstruccion, Avenida de los deportes 254, 7, Mar del Plata, Buenos Aires, Argentina, +54223155037098, mauriciodmartino@yahoo.com.ar; **6. Mr Marcos Stebelski,** --Other--, 1974, m, Luz de Acuario Bioconstruccion, Av de los deportes 254, 7600, Mar del Plata, Buenos Aires, Argentina, +54223155049010, marcosstebelski@hotmail.com; **7. Mr Arturo Sanchez Tomaselli,** Student, 1991, m, Luz de Acuario Bioconstruccion, Av de los deportes 254, 7600, Mar del Plata, Buenos Aires, Argentina, +542234811027, artur_mdq8@hotmail.com; **8. Mr Luciano Perez,**

Project details

GFA	sq m
GV	cu m
Contruction costs	37000 USD
Site area	21600 sq m
Footprint area	sq m
Floor Area Ratio	m
Site Occupancy Ratio	m

Further relevant key figures
school grounds 7000 m2 Private area: 18 plots = 7,200 m2 common areas of 7,000 m2 Maximum population estimated = 350 people.

Used materials
Buildings: Bioconstruction Earth, wood. Potable water system: PVC. Water treatment system. polyethylene.Recycled PET bottles. Quarry stone, Sand. Phytodepuration plants as phragmites, rushes, reed maces. species. recycled plastic drums. lake: polyethylene,Fiberglass mesh 8 mm and 4.2 mm iron bars Cement, sand, stone powder.

Project description

This ecological urban project was donated by the designer to Asociacion Civil Mahatma Gandhi ,which promotes free public education based on ecological values and education,for its Educational Eco-Community Escuela del Sol.The general plan can be described as a central circular area, a communal landscaped area and 18 20x20 parcels of land located around them, a 3.5m wide graveled inner road and the services system located parallel to it.In the central area will be located the school buildings, the lake, the vegetable garden, the multi-purpose room (Central Dome)The electrical services, the general engine room, the tool house and the parking lot will be located in the semi-buried services building. On its green roof will be located the "Paza de la Energia", the students and visitors accommodation building, the astronomical observatory, 8 circular vegetable gardens and fruit trees area, 3 bamboo geodesic dome greenhouses, 2 dry toilets, composters, wormeries and a seed bank.The project, the 360m2 kindergarden and the prototype of a 50m2 house have been legally approved. The project has been designed under the principles of permaculture and bio-construction.www.escuelasol.blogspot.com A NEW WAY OF LIFE AND EDUCATION IN HARMONY WITH THE ENVIRONMENT Sanitation Project description:Potable water is for drinking,personal hygiene and irrigation of the vegetable garden, the medicinal and aromatic herbs and green vegetables greenhouses.Gray water will be used for construction and cleaning living spaces,washing cars or sidewalks and drip irrigation of orchards and adjacent gardens and it will feed toilets.The primary sewages will collect the effluents from toilets and kitchen sinks and send them to 2 septic tanks and then to the inspection chamber.The blackwater along with the grey water and the rain water are connected to the PHYTODEPURATION CHANNEL The channel is lined with a 300 microns double polyethylene layer on sand or flattened earth bedding,it will have high hillocks that will slow down the water circulation, letting the depurating plants and bacteria colonies do their job.The plants used are phragmites, phalaris, rushes, reed maces, papyrus plants.Within the channel we designed a combination of PET bottles filled and a rock layer.Over the stones is placed a layer of earth where the depuration plants are going to be panted. The channel is going to be closed completely and it will remain underground to keep away from the entrance the gas ventilation and eventual foul smells. The vents will be placed at the ends of the residential system. Besides receiving the effluents from the natural sanitation system, the lake,with lake flora and fauna, acts as a climate moderator.. Since it is located on higher land, it allows direct channel irrigation to the vegetable garden.The porject saves 40% water. Because of its innovating and experimental characteristics the building work are being done by the designer and a group of collaborators grouped under the name LUZ DE ACUARIO BIOCONSTRUCTIONS. The works,including the fresh water piping and power supply, began on July 28th 2010.The phytodepuration channel construction began on October 2010 and the lake construction started on December 2010.House number 1 is being finished and its residential depuration system has been connected to the communal system.The Educational Eco-Community is open to the public. There are being prepared some educational programs about the system used in the project. After the all the services system are finished, the works on the street and the general forestation will begin. The most important thing: The harmony and commitment among the young collaborators that are part of the cooperative work team. https://sites.google.com/site/proyectoescueladelsol/

Measuring up to the target issues for sustainable construction

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Innovation and transferability - Progress

[Self assessment]
★★★★

The Eco-Community promotes bioconstruction and water sanitation system teaching and experimentation. It incentivizes the development of ingenious and simple techniques and solutions that can be adapted and copied for its use at any kind of constructions and urbanizations.
It reuses, recycle and adapts the existing resources to the necessities.

Ethical standards and social equity - People

[Self assessment]
★★★★★

The ecological urban and sanitation project, both communal and residential follow the global spirit of the Educational Eco-Community Escuela del Solbased on values and ecology. It shows a sustainable way of life.
The construction is being done by the designer herself and her colaborators the work team Luz de Acuario Bioconstrucción which is a worker cooperative under formation.
This project has a high social and ethical-ecological commitment.

Environmental quality and resource efficiency - Planet

[Self assessment]
★★★★★

This project saves energy thanks to the efficient design of the earth constructions. It uses passive solar energy. The non-contaminating water system has a long lifespan and it demands low maintainance. It improves the natural ecosystem by housing local flora and fauna at the artificial lake.It tests and watches the behavior of the phytodepuration plants and the quality of the water obtained. The underground power supply system does not have an impact on the landscape.
Public lighting will be done with 4" PVC pipes, recycle bottles and low consumption lamps.

Economic performance and compatibility - Prosperity

[Self assessment]
★★★★★

The buildings designed with bioconstruction principles are cheaper than the traditional ones. The are done by local manpower and the users can participate on the construction.
The vegetable garden products will be consumed locally and the surplus will be sold as other local products (sweets, handcrafts, flowers and herbs)
The water treatment system is perfect for small rurl urbanizations and ecotowns, since it has a low initial cost , it demands low maintainance and it uses the resources wisely. Many people can participate on its construction since it is done by worker cooperatives. Its cost is 50% lower than any other system available.
The unification of all the services- power supply, potable water, and grey water sewage- in only one channel lowered the cost and simplified the works.

Contextual and aesthetic impact - Proficiency

[Self assessment]
★★★★

The esthetic aim of this project is to achieve a harmonious integration between the natural landscape, the cultivated areas, the school buildings, the houses and people doing their activities.The innovating design of the buildings,gardens, fountains,lakes with waterfalls, sculptures, public lighting and communal areas. Streets and bridges.
The project is based on values on which the beauty and harmony of the natural shapes build a frame to develop a sustainable ecosystem.

Project visualization

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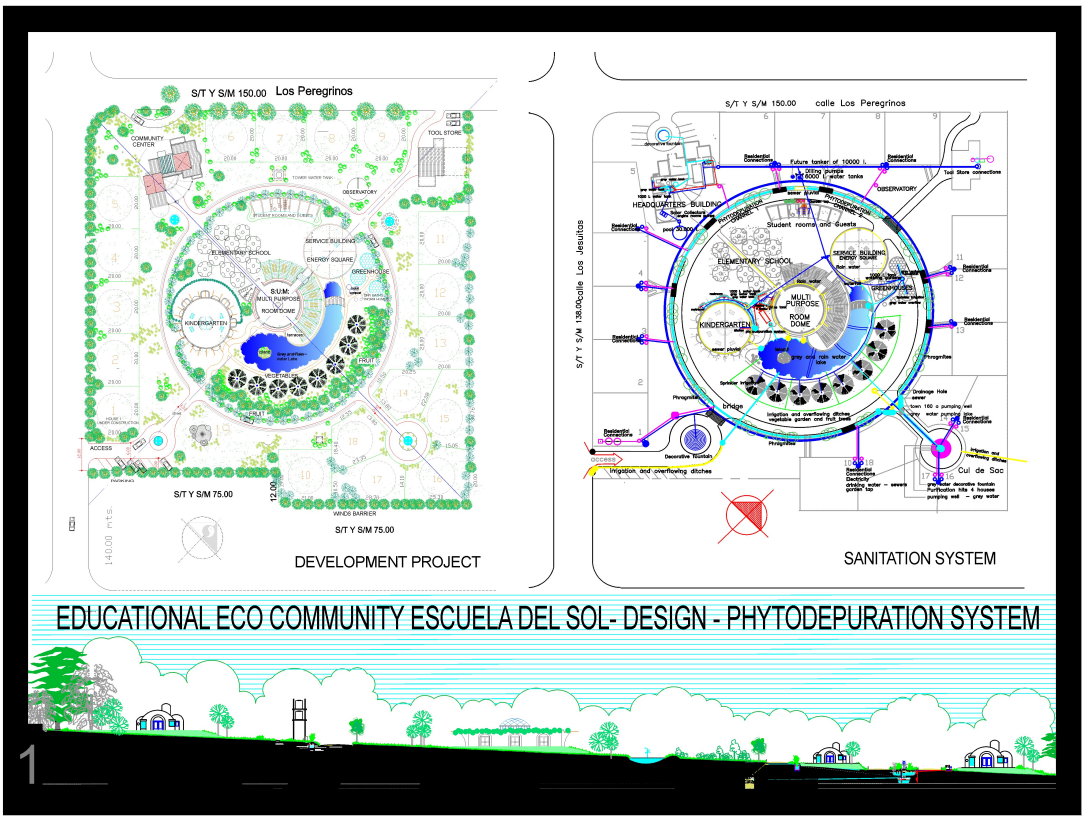

Project's design

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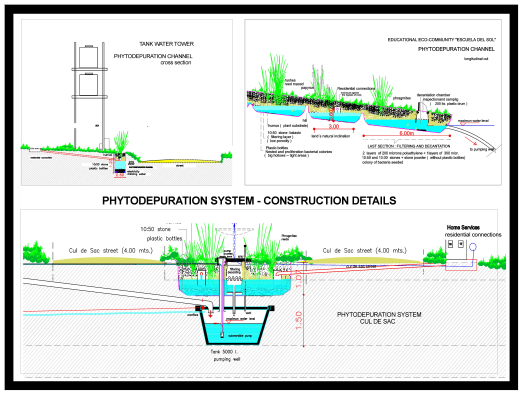
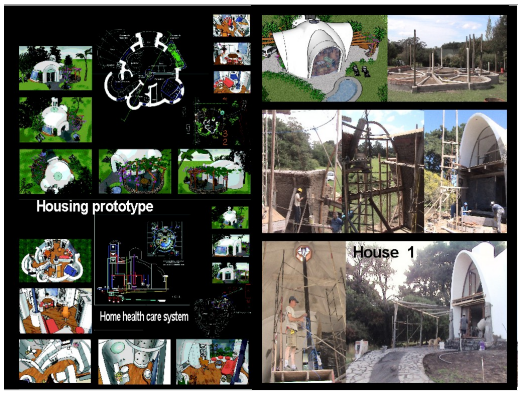


Constructive Details



Prototype - House 1

Home woks

Power Supply

Potable Water System

Cul de Sac - Pumping Well

Phytodepuration Channel

Grey and rain water Lake

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Further author(s) continued

Student, 1991, m, Luz de Acuario Bioconstruccion, Av de los deportes 254, 7600, Mar del Plata, Buenos Aires, Argentina, +542234811027, lucho_mdq_lr@hotmail.com

Distribution of prize money
Main Author: 52%, Further author 1: 6%, Further author 2: 6%, Further author 3: 6%, Further author 4: 6%, Further author 5: 6%, Further author 6: 6%, Further author 7: 6%, Further author 8: 6%