Sustainable St Vito Church

[Project title]

HA11_WHSWF

[Office ID]

General project data

Project group 1
Building and civil engineering works

Competition region	Europe
City	Cava dei Tirreni (SA)
Country	Italy
Status of planning	Tendering
Formal permission	Application in preparation
Contruction start	Dec '11
Client	Arcidiocesi di Amalfi - Cava de' Tirreni)
Intervention	Reconstruction/rehabilitation
Project background	Private investment
Latitude	40°42'0"N
Longitude	14°43'0"E
m ASL	200
Competition	no
Last modified	Mar 23, 2011

Main author and contact details

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Position	Group leader
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Architect Gianfranco Massari

Further author(s)

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Distribution of prize money
Main Author: 75%, Further author 1: 20%, Further author 2: 5%

Project details

GFA	7000 sq m
GV	14000 cu m
Contruction costs	8,500,000.00 USD
Site area	1000 sq m
Footprint area	1000 sq m
Building height	20 m
Building depth	m

Further relevant key figures
Church area 4000 sq m; parking area 3000 sq m;

Used materials
Structures: Self Compacting Concrete (SCC); Steel consolidation beam; Aluminium window frames and high efficiency photovoltaic glasses; Roman travertine marbles; LED illuminating engineering; Steel photovoltaic parasols.

Project description

The wonderful construction in reinforced concrete planned by Studio Nervi, characterizes St. Vito church.
The present plan wants to exalt the structure and to light up it in rightful respect and continuity with the past.
The helicoidal of the preexisting bell tower aims at welcoming the faithful entering the church in an ideal embrace toward the world. In the present plan the helicoidal was exalted and prolonged preserving the same bending; if the preexisting bell tower had a height of 12 meters, the new one reaches the 18.
Removing the covering floor, ribbings have been preserved and enveloped into a cylindrical volume surmounted by a frustum of cone that converges in the superior crown. The cylindrical volume is made of aluminium and photovoltaic glass. Point of junction between such structure and its gallery is a ribbed vault, covered with photovoltaic panels. The gallery is made up of a covering arch, tilted of 45 degrees and exposed to north, throught to converge natural light into the church.
The nave gallery, about 4 meters wide, is (SCC), oriented east/west, and fragmented by a series of vertical and horizontal slits, decorated with artistic glass. The apses gallery is opposite the altar, its width becomes larger up to around 6 meters, to create a church courtyard of around 100 sq m. The inside of the church is characterized by a careful evaluation of volumes and by a scrupulous study of the light entrance.
By day the church is lighted up both by the glass windows of the cylindrical structure than by the gallery-nave coverage, as well as by the reinforced concrete wall slits. By night, always living of proper power, the church will use the light produced by the photovoltaic plant. To use the basement at best, a cut in the ground has been projected to be run as a crossing boulevard, to connect the great public space to the hypogeum places of the church. Such connection becomes unifying element among old and new, a sign of continuity among the surface garden, the underground space and the new parking / market area.
Part of the present "street market", would find an optimal setting in the front courtyard church area that would in such way become a poly-functional place: outdoor car park and\or market, in addition to 80 private basement garages. Being the tents or the parasols characterizing street market elements, I projected a technological parasol, which gives the site a dynamic and unusual "sign" of movement and efficiency.
As well as giving shade they are also covered with photovoltaic panels. Inside the garden area, where people can talk, entertain or play, there is a "gazebo" where people can socialize. The gazebo is also covered with photovoltaic panels and surmounted by a mini-Aeolian shovel.
Considering the energetic efficiency goals, the energy produced by the high efficiency panels, by the photovoltaic glass and by the mini-Aeolian shovel, the installed power will be of 638,78 kWp, and the ability of the annual production of energy will be of 0,8 GWh / year.

Measuring up to the target issues for sustainable construction

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Innovation and transferability - Progress

[Self assessment]
★★★★★

The topic park / market is solved by including the "technological umbrellas" which are also powered by photovoltaic panels. The umbrella, characterizing markets element, can be used both for covered parking area as well for exhibition. In how many parts of the city are there parking lots together with market areas? The umbrella, as designed, fits in any context, as an intervention of integrated and sustainable architecture. Integrated, as the umbrella belongs to street markets, sustainable because its cover is made of photovoltaic cells. Energy independence not only allows the parking lot to be covered but also to have LED lighting, such fencing, the view of the parked cars to the town.

Ethical standards and social equity - People

[Self assessment]
★★★★★

St. Vito Church was built in 1974: the necessity of restructuring arised because of various water leaks, poor lighting aero-surfaces and by great difference between the horizontal surfaces and their internal heights, resulting in considerable "thermal bridges". Volume increasing the creation of a new perimeter wall to the north and the new cover, have solved the architectural deficiencies found.

Environmental quality and resource efficiency - Planet

[Self assessment]
★★★★★

Global fulcrum designing of the intervention is the use of renewable energy sources. The windows of high efficiency photovoltaic panels, in addition to fulfilling the design choices, completely reset the operating costs of the parish. Furthermore, they allow to get a profit by selling the exceeding stored energy.

Economic performance and compatibility - Prosperity

[Self assessment]
★★★★★

The project can be achieved by Project Leasing, an instrumental financing exclusively granted according to the project's ability to pay operating costs and debt service by cash flows generated by the project itself; in other words, a structured financing transaction. The funding is based on a clearly identified object and separated from the companies that are engaged in the operation, is able to repay individually capitals and interests.

Contextual and aesthetic impact - Proficiency

[Self assessment]
★★★★★

The area where the project is going to be carried out is a typical urban periphery, in close contact with the city centre. The project, with its specific architectural choices aims at becoming a symbol of the whole area. The different use of the building, will be both religious as well as a recreational attraction for the whole community. The entire building will have a huge futuristic architectural vision. For the parish, for the district of St. Vito , for the Curia and the whole town, this project will represent a significant example of Energy Efficiency and Sustainability.

Project visualization

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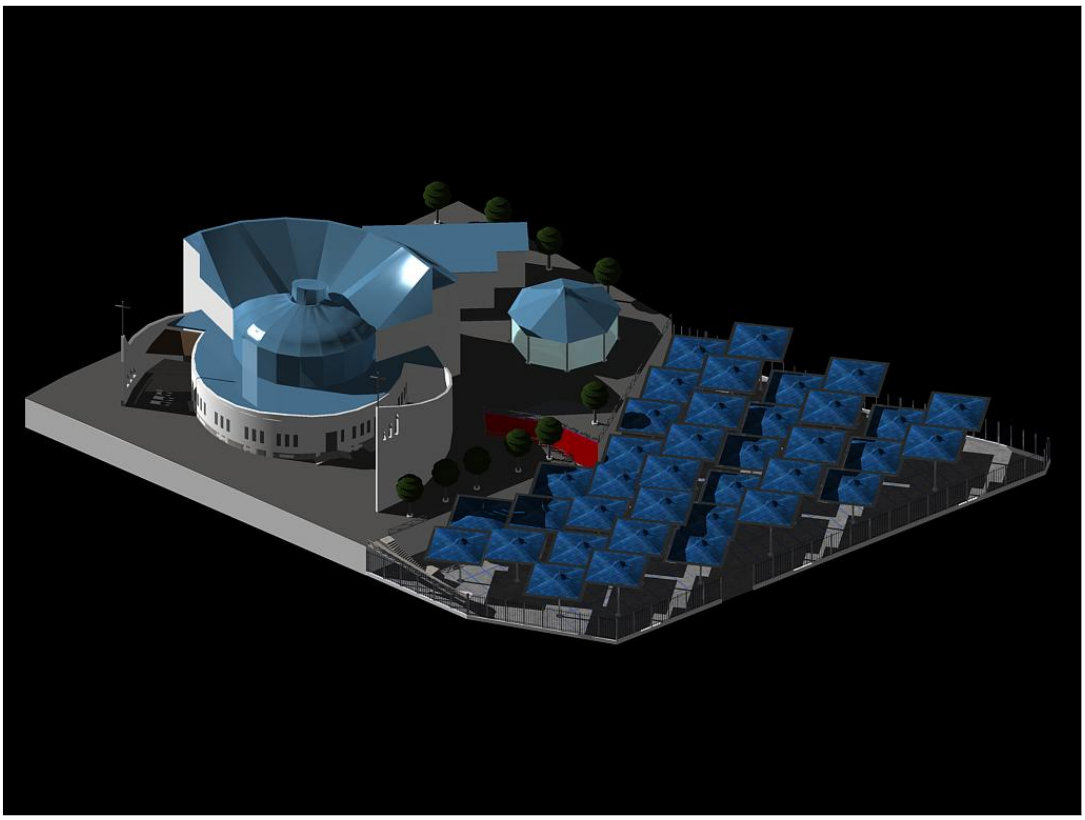
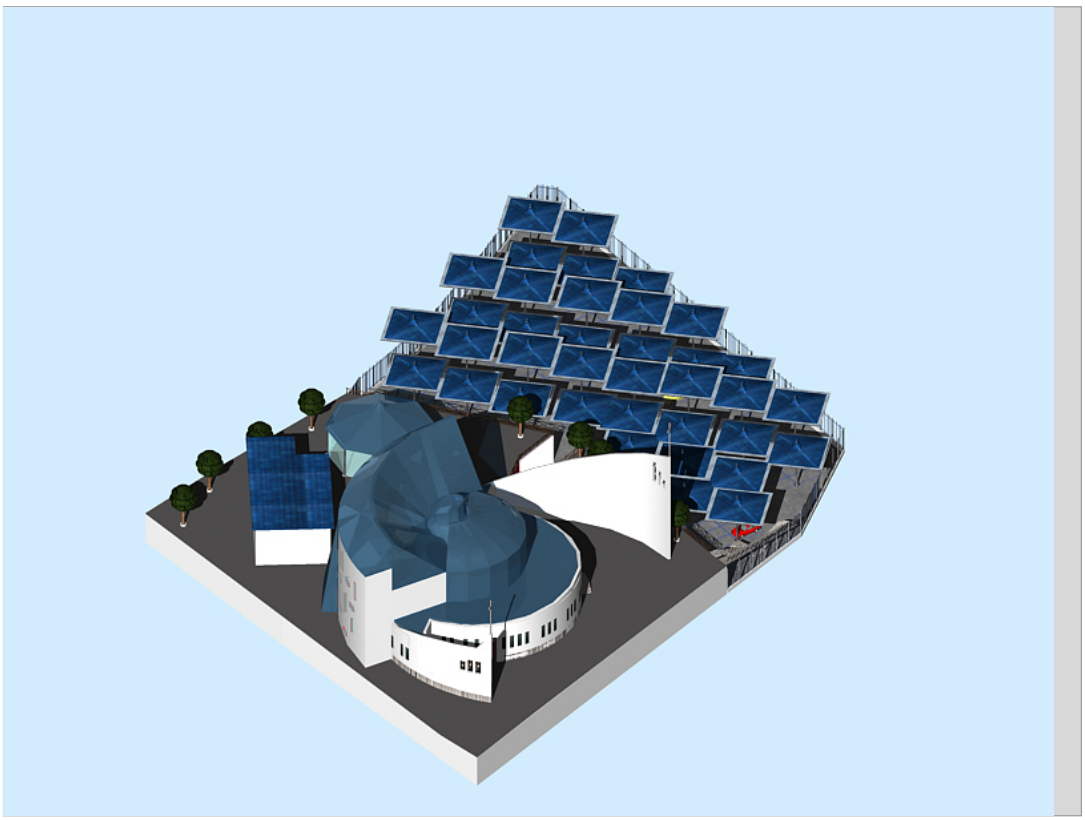


Overview



Overview

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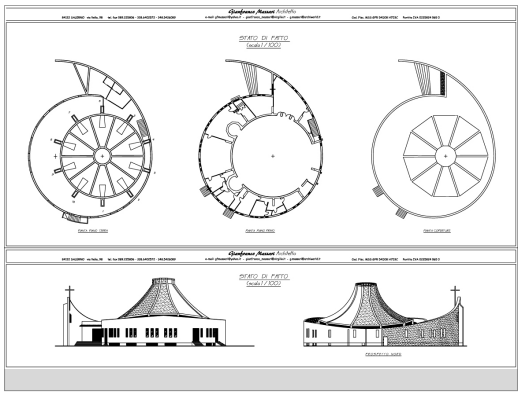
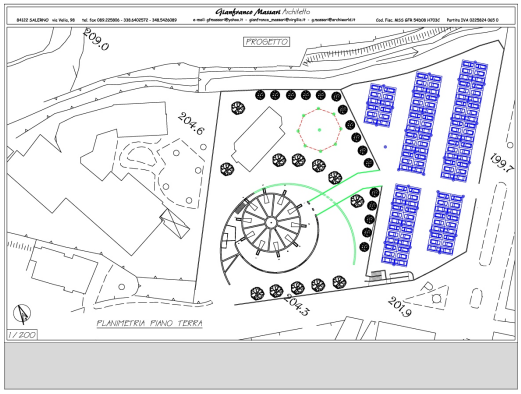
Aerial present situation

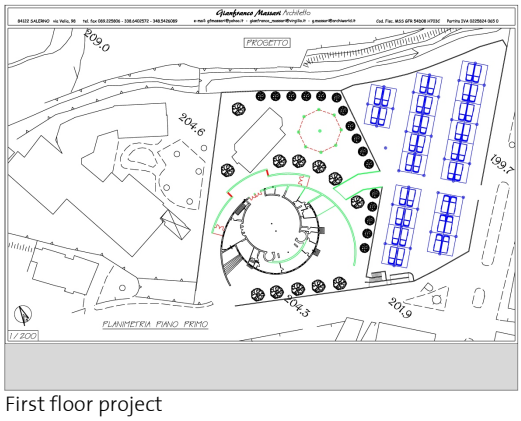


Present situation

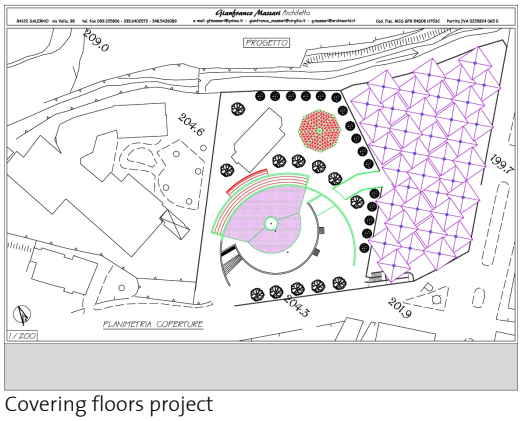
Aerial project



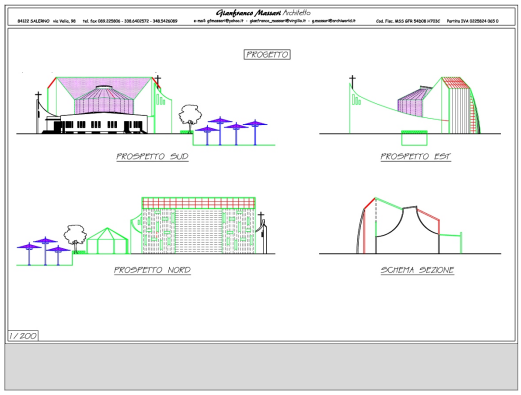
Ground floor project



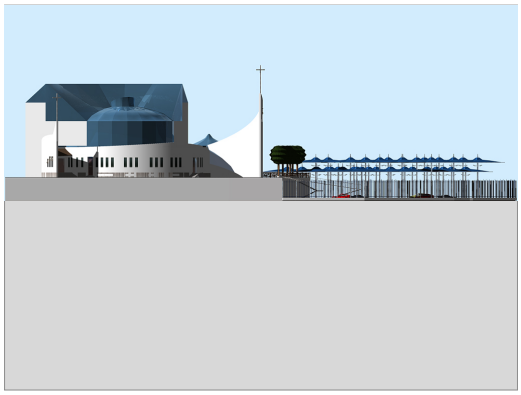
First floor project



Covering floors project



Project: Prospectuses



Project: Profiles