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THE ROAD AHEAD: A.O.B. Development Master Plan

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Abstract

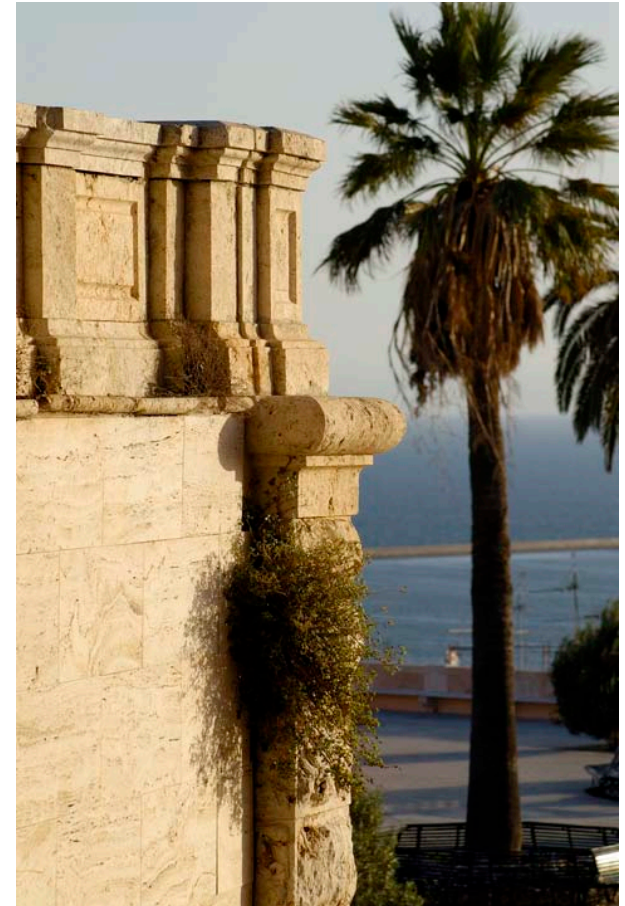


The A.O.B. Hospital has long felt the need to make an organizational and functional redesign in order to have a reference plane generally able to direct and contain all current and future interventions in a harmonious, rational and consistent context with the "mission" entrusted to the same hospital. The top management has therefore commissioned to a team of engineers the drawing of the new Master-Plan.

Abstract

The object of the task was to complete the following activities:

- ☐ Analysis of the status quo, both in matter of pattern distribution and in matter of functional scheme for the entire building, with respect to flows of services and utilities;
- ☐ Proposal for a new organizational model for the operational aspects of healthcare and distribution;
- ☐ Returning function diagrams for the rationalization and coherence of the distribution of the functional system with the hospital organizational model;
- ☐ Proposal of an application solution based on the company's organizational chart.



Abstract



The performance of the task led to the identification and implementation of the following documents:

- ☐ updated planimetric schemes of the actual state of the main building in relation to the current distribution and functional organization;
- ☐ detailed report on the hospital's operating model with an outline of the proposed criteria and programming identified elements, complete with distributive and functional diagrams;
- ☐ technical report of the project of reorganization pursuant to the model, complete with distributive and functional diagrams;
- ☐ Project of the new ED building.

Material and methods



The design was carried out in close collaboration with medical staff of the A.O.B..

During the execution of the task were conducted several meetings with all stakeholders, in order to collect information and data necessary for its completion and to identify and discuss the staff needs and major problems; in the course of further meetings, the Project Team has submitted the first proposals and working hypotheses to the staff, receiving the final recommendations later used in the project developing.

Material and methods

Among others, the following factors are those that have significantly contributed to influence the design of the proposal:

- ☐ the analysis and understanding of the existing structure;
- ☐ the role of the A.O.B. within the regional healthcare system;
- ☐ the data on health activities provided by the hospital during the years 2005 - 2010;
- ☐ the data on costs and revenues of individual Units of the Hospital in the years 2005-2010;
- ☐ the legislation on the structural, technological and organizational activities for the exercise of healthcare by public and private structures;
- ☐ the information regarding investments and renovations already planned, under construction and being planned.



Material and methods



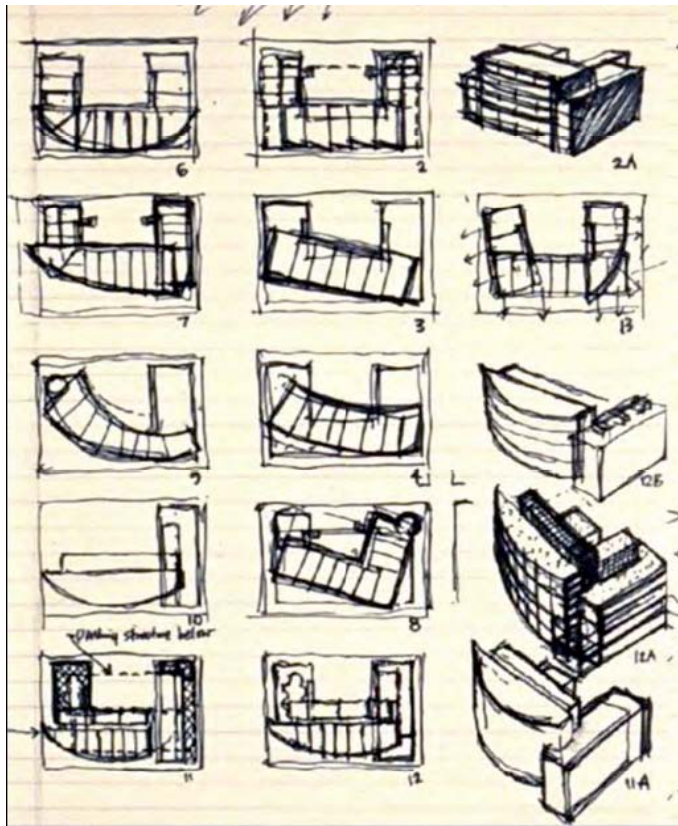
The working group, composed of professionals with specialization in different areas, have worked in an integrated and balanced way, thus creating a synergy between the different skills, which allowed to draw up a proposal that takes into account all the variables of a process highly complex as the reorganization of a regional referential hospital.

Material and methods

The final process is passed through an intermediate moment, consisting in the preparation of an Operational Theoretical Model (OTM), which was for the Project Team and the AOB Management an important moment of reflection and discussion, both strategic and operational, helping to create a common understanding on how to develop the hospital.



Material and methods



The definition of the actual re-engineering project assumes the additional task of making the model applicable in the context of the initiatives already in place and in relation to feasibility criteria compatible with the need of realizing the process initiated in stages, allowing the continuity of health activities with minimal disruption.

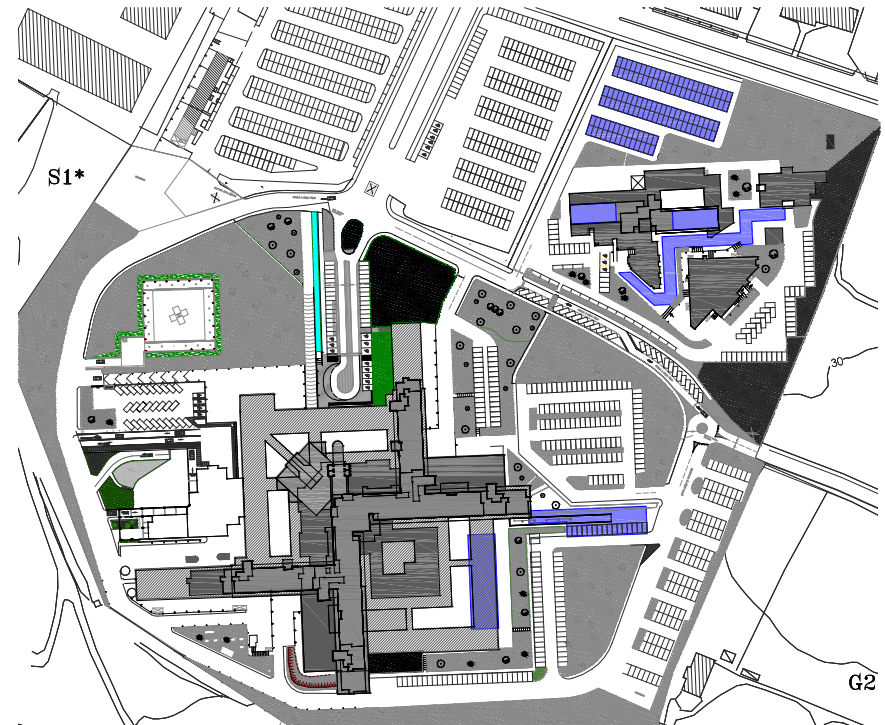
A Brief History of the A.O.B.



A.O.B hospital was inaugurated in March 1982 with the opening of the Divisions of Gastroenterology and Cardiology (transferred from the old St. John of God Hospital), the Intensive Care Unit, and with the partial activation of the Emergency Surgery Unit, for a total of 104 beds. With regard to the diagnostic Units, those of Radiology and Nuclear Medicine, activated in the spring of 1981, were added in April 1982 those of Haematology and Pharmacy. In mid 1983, the number of beds activated corresponded to 502 (plus 40 in the Neonatal Unit).

A Brief History of the A.O.B.

Actions taken to A.O.B. during 1988 allowed it to achieve two important goals related to the ability of the healthcare of the Sardinia Region: activation of the Cardiac Surgery Unit, with the simultaneous launch of the Hemodynamics Unit, and the beginning of the organ transplant era. Over the years A.O.B. has gradually increased quantity and quality of its activities and, in 1993, by Decree of the President of the Council of Ministers, the A.O.B. Hospital has been recognized as major National Hospital and High Specialty Healthcare Hub.



Sardinia Hospital Healthcare System evolution: the A.O.B. "mission"



The proposal made is characterized by the strong emphasis given to the role of high specialization and its reference operating mode assigned to A.O.B. from the Sardinia Healthcare Plan 2008-2010, which is the most detailed and comprehensive instrument to understand the evolution of the healthcare system in the region.

Sardinia Hospital Healthcare System evolution: the A.O.B. "mission"

One of the main objectives of the Sardinia Healthcare Plan 2008-2010 is the process of rationalization of the hospital network that will lead to some rebalancing in the healthcare area; it still occurs a phenomenon that could be defined as the tendency to "urbanization" which focuses improperly in the major hospitals the diseases with even minor efforts of science and technology.



Sardinia Hospital Healthcare System evolution: the A.O.B. "mission"

The Healthcare Plan proposes instead to pursue a rational redistribution in the territory of that type of admission, in order to capture the dual goal of freeing the excessive and unnecessary crowding in the major hospitals - whose energies should be primarily reserved for high-level science and technology diseases - and to enable minor hospitals to fully utilize their resources to adequately meet the needs of the wide range of disease forms which, by their nature, require standardized protocols and a reduced use of sophisticated technology and instrumentation.



A.O.B. current state



The A.O.B. Hospital today is a single building block with 559 beds. The first two floors consist of a rectangular basement in which the Imaging Department, Emergency Department and all Laboratories are located. In the 11 cross-plan floors there are Unit wards. The 70,000 square meter building area contains 15 operating theatres and 4 ICU with 37 beds. There are also three other buildings in the campus, where there are clinics for outpatients, a blood drawing lab and a congress room. At the time of its design, the availability was of 830 bed in total. The O.R. are located at the 1st, 3rd, 5th and 6th floor.

The Administrative Offices and others Healthcare and General Services are located in the basement, the floor plate and in the foreground.



A.O.B. current state

The current organizational structure has a departmental character, divided into activities based on diseases and organ systems. The current Unit location on the building is shown below:

- ☐ 11th - 6th floor ward Units
- ☐ 5th floor O.R.
- ☐ 4th – 1st floor ward Units
- ☐ 1st floor ward Units, O.R., Management
- ☐ 0°- (-)1 floor Imaging, laboratories, Emergency, Management, services

In 2005 the A.O.B. average was of 572 beds (including 30 of the nest), with which they were well made a total of 31,292 hospitalizations for 178,350 days of hospitalization, with an occupancy rate of 85.36% and an average stay of 4.7 days, showing that the A.O.B. has a good overall productivity.

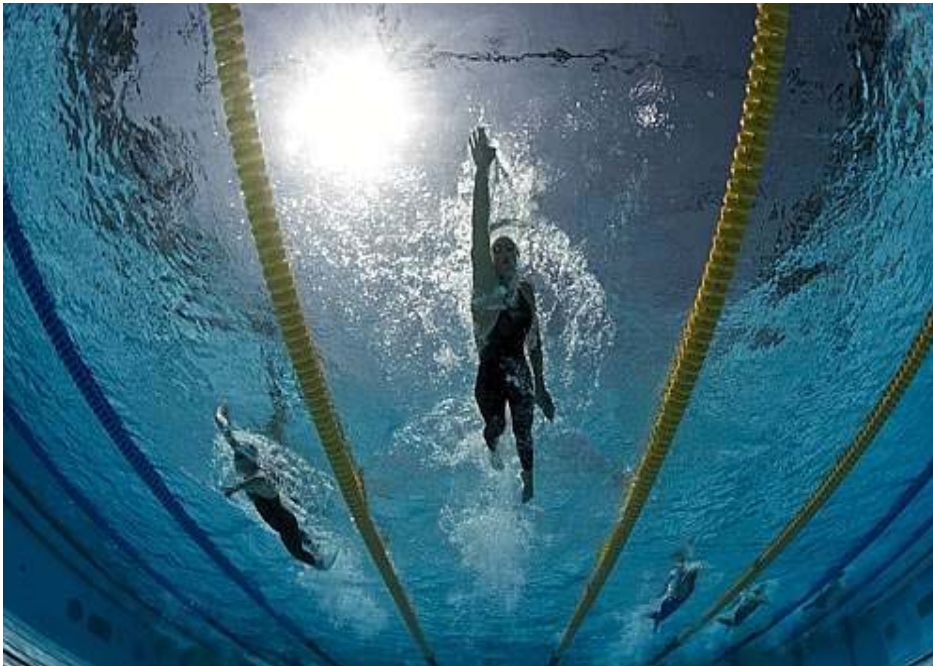
The re-engineering project



The Project Team elaborating the re-engineering proposal has taken into account mainly the following criteria:

□ The A.O.B. highly specialized hospital mission, with the aim to restrict access to the high scientific and technological pathologies, while referring to the smaller hospitals and to those devolved, the wide range of disease forms which, by their nature, require undertaking routine or standardized interventions and a reduced use of technology and sophisticated instrumentation;

The re-engineering project



- ☐ The efficiency, effectiveness and economy management criteria that will guide the work of all operating Units and Services, aimed at optimum utilization of financial and structural resources and personnel;
- ☐ The national and regional legislation on structural, technological and organizational requirements for the exercise of healthcare activities;
- ☐ Investments and renovations already planned and/or under construction, with all the restrictions and changes to the structure introduced by them.

The re-engineering project



For the purpose of the present study we report only the findings pertaining to the ED.

The ED is re-engineered in order to ensure uniform levels of care and to provide definitive treatment of all emergencies, including through the contiguity of the performance of operating rooms for Cardiac, Brain, Vascular and Chest Surgery, Burns Unit and Intensive Care Unit.

The re-engineering project

In particular:

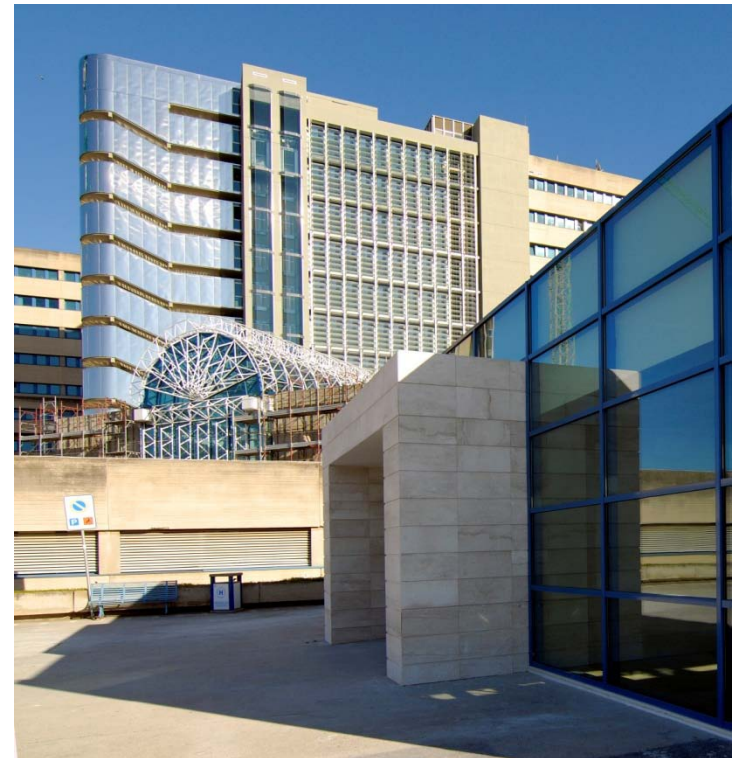
- ☐ Trauma Centre is activated by two shock rooms, Imaging rooms with 128 slices TC and 3 Tesla MRI;
- ☐ Emergency: is enhanced and becomes more central than the specialties and services directly connected with the management;
- ☐ Intensive Care Units: 14 new beds of ICU dedicated to post-surgical Cardiac surgery (in addition to 12 already active), Brain surgery and Transplant Units are activated;
- ☐ Burns Unit is included in the ED.



The re-engineering project

The re-engineering plan will be realized in two phases, defined in such a way as to cause minimal disturbance to normal healthcare activities.

The first phase will involve the construction of the new ED building to allow the availability of the 5th floor (present O.R. location) to start the renovation works of the existing building.



Architectural characteristics



The re-engineering project realization, focused to the organizational and logistical best practices fitted to the A.O.B. structure and to its goals, started from the recognition and evaluation of the present state and characterization of the building elements.

First of all, it is really important the A.O.B. location referred to contest, compared to it is, for the clear and strong architectural edge, a high representative element.

The morphological contest and the building size, standing out on the hill background that contains its profile and overhangs its outline, make up a high perceptive reference that contributes to the hospital recognition and image.

Architectural characteristics

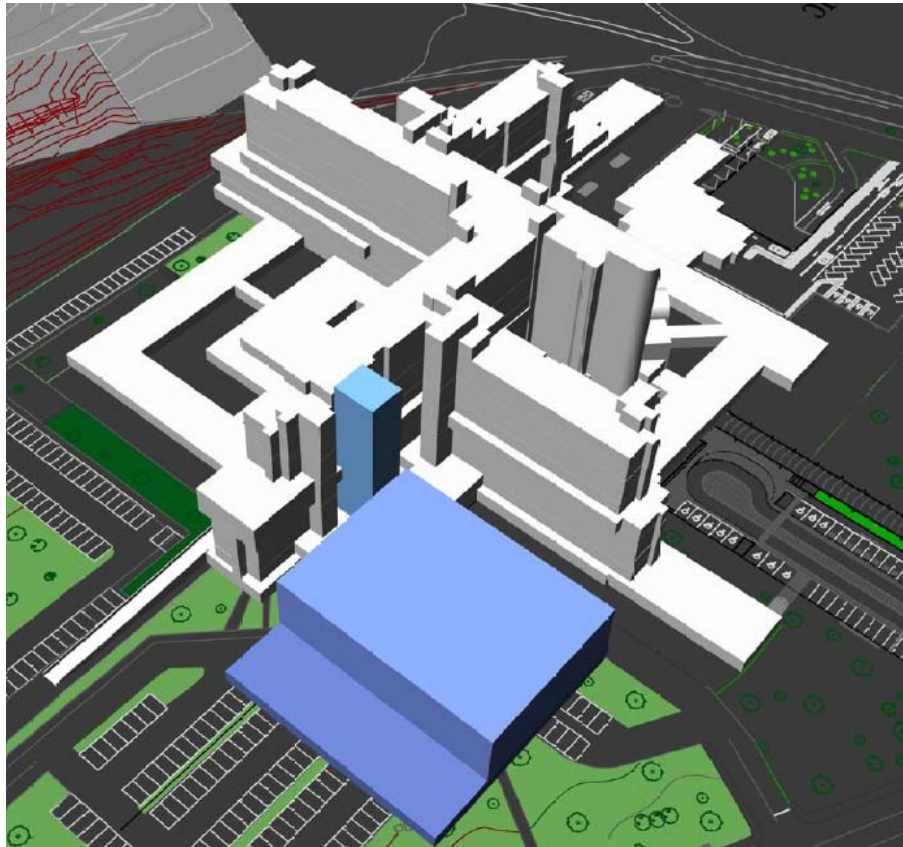


For the hospital recognition and image meet also other architectural elements joined to formal choices of the period when the hospital was designed, performed and re-proposed in an effective way.

The other campus existing buildings refer to the main building with a logic that derive from the main building shape itself, determining the parking area and the entrance pattern.

The one-piece block design is an element of multidisciplinary relationship that consist in one basement for general services.

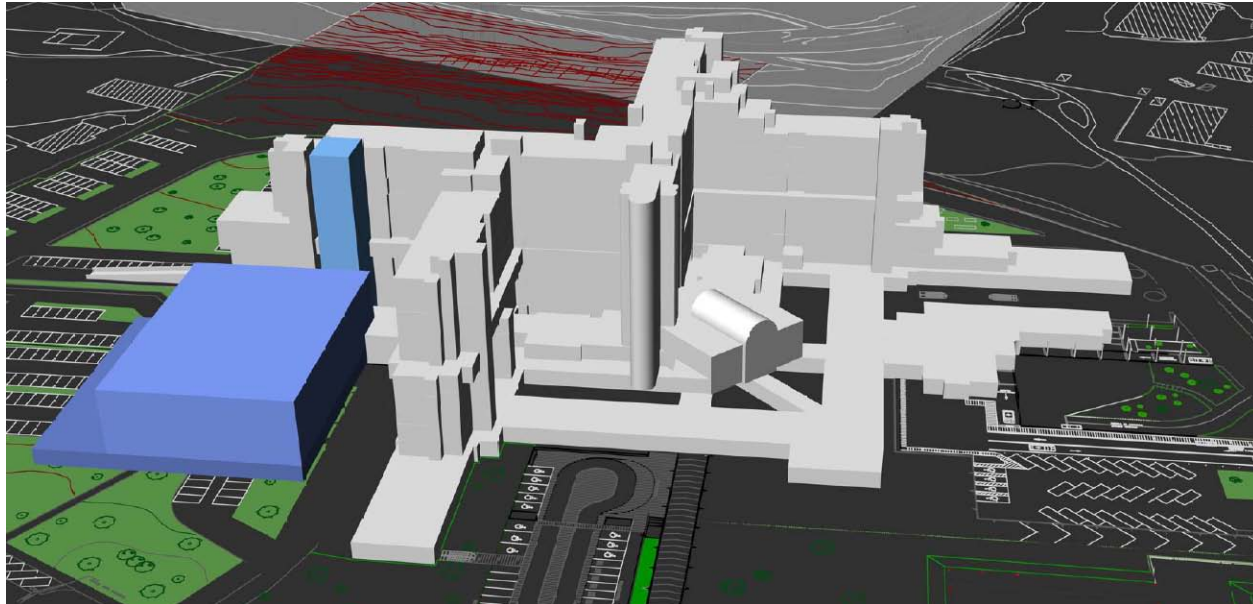
Architectural characteristics



Evaluated the impossibility of increase floor area, the vertical easy connection must be joined with the need of use in the best way the available resources. That means to expel those homogeneous activities, adequately independent, that can find somewhere a better location. In this way is possible to free areas useful to the strategic activities development program.

The Master Plan forecasts the new constructions are connected with the main building axis, leaving identifiable the original fitting with an aggregation logic that do not contrast with the actual space definition.

The new ED



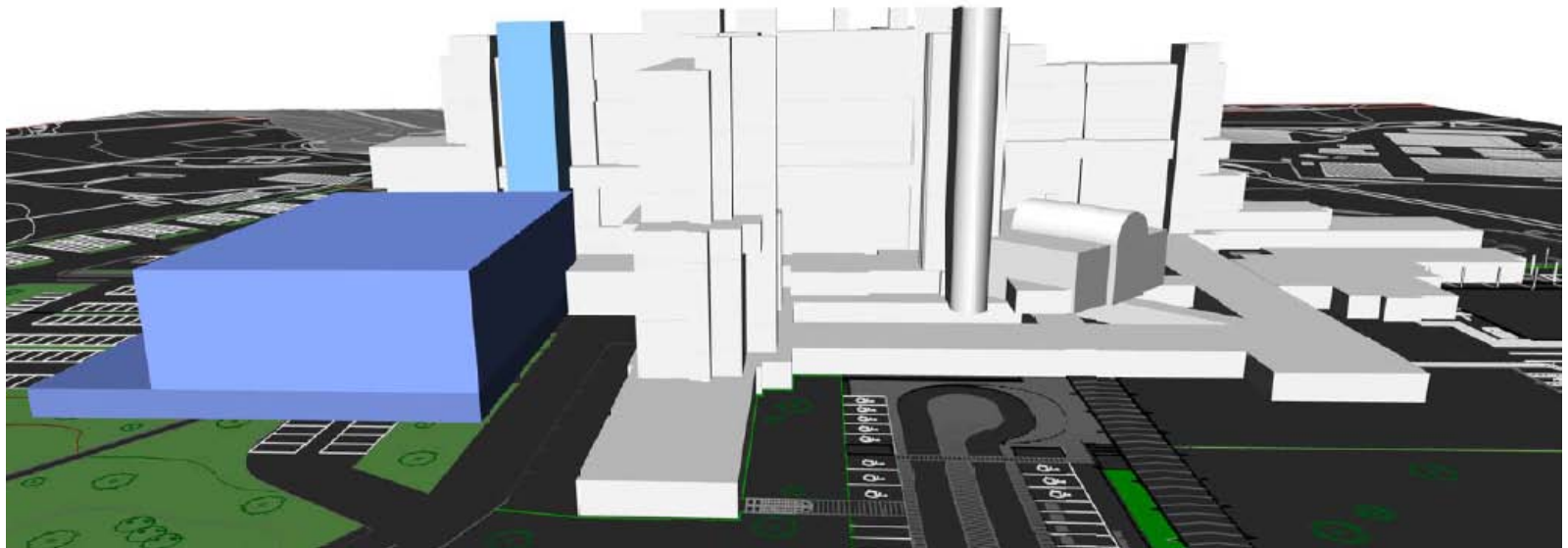
The new ED design follows the definition of the overall re-engineering program that has defined a global description of works addressed to a rationalization of the whole hospital.

The new O.R. and ED building is the first phase of the wide rationalization program already started because it is the most important construction and it will be able to spark those organizational and managerial dynamics expected.

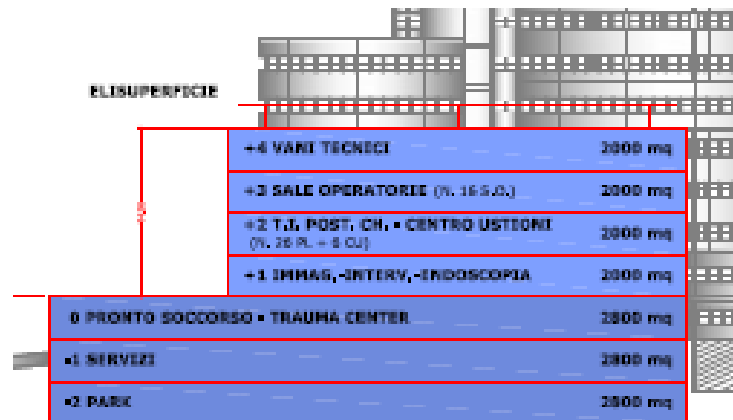
The new ED

The new 38 x 53 m rectangular building consists of 6 floors with on top the plant floor and the helicopter deck.

The 1st, 2nd and 3rd floor are separated from the main building, while the underground and the ground floors are attached to it.



The new ED



The new building is connected with the main building with four elevators that join directly the ward Units with the O.R..

The surfaces are the following:

- ☐ Underground (-2) – parking area 2,800 sqm
- ☐ Underground (-1) – services area 2,800 sqm
- ☐ Ground (0) – Imaging Department 2,800 sqm
- ☐ 1st Floor – ED and Trauma Center 2,800 sqm
- ☐ 2nd Floor – ICU and Burns Unit 2,000 sqm
- ☐ 3rd Floor – O.R. 2,000 sqm
- ☐ Plant Floor
- ☐ Helicopter deck

The new ED



The ICU beds are located beside the perimeter and the side in a "L" configuration to be directly visible and verifiable from the nurse station. The beds (16 for Cardio surgery, 10 for Brain surgery and Transplant Unit) are all located in single room with filter.

The operating theatre consist of 16 operating rooms.

The project is designed to achieve a LEED Gold rating.

The project total cost is 50 million euros.

Conclusions

In conclusion, due to a long term Master Plan, A.O.B. administration decided to expand existing building instead of renovating or replacing it.

