

Flexible building design offers future-proofing

The architecture of a new cardiology building – as opposed to typical hospital architecture – is flexible and provides optimal space for future advances in medicine, a field where progress and development is far more rapid than that of architecture. The new building is an elastic, environmentally-friendly monolith that is prepared for future changes. Four floors remain unplanned with the intention of addressing future and unknown advances in medicine.

The new cardiology building, in Tel Aviv, which was inaugurated by the Israeli president Mr. Shimon Peres in November 2010, has been designed to place the patients and their needs, as well those of visitors and the medical and nursing staff, at the centre of this architectonic endeavour. The 54,000 m² building is 70 m high, comprising a total of 17 floors, including four basement floors (which are partially convertible into a wartime hospital to accommodate 700 hospital beds during emergencies and routinely serving as a parking lot) and 12 medical floors.

The design process began in 2006 with the presentation of a variety of concepts. The main concept for the 'Sammy Ofer Heart Building' was then decided upon – to connect the new and the old. In this instance, connecting the new cardiology building with the old historical Bauhaus hospital building. This resulted in the design of a main connecting atrium with dramatic iconic red bridges to bring the two buildings together.

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The Sammy Ofer Heart Building.

Most of the cardiology departments in the new building are now functioning – up to level +3, with the construction of levels +4, +5 and +6 nearing completion. Levels +7 up to +10 will be left empty for future programs. Today, the medical centre has 12 general operating theatres and seven ambulatory operating theatres. When the centre is finally

completed, it will be equipped with another 15 general operating theatres and ten ambulatory operating theatres, 25 operating theatres in all, including one of the most sophisticated hybrid operating theatres in the World, primarily designed for heart surgery involving cardiac catheterisation and vascular surgery.

The new cardiology building was designed by Arad Sharon AA. Dipl. and Sharon Gur Ze'ev, of Sharon Architects, in partnership with Ranni Ziss Architects. An avant-garde building, it is a strong monolithic cube clad with climactic glass and is situated parallel to the old historical Ichilov Building, designed in the



Arad Sharon

Arad Sharon AA Dipl is a graduate of the A.A. School of Architecture in London. He is the third generation of his family to manage Tel Aviv-based Sharon Architects, after his grandfather and company founder, the late Arie Sharon, and his father, the late Eldar Sharon.

international 'Bauhaus' style in the 1960s by Arie Sharon, founder of the Sharon Architectural office.

All the medical centre's cardiac departments have been concentrated into this transparent building, including the cardiac outpatient clinics, cardiac intensive care units and intermediate care, and cardiovascular surgery, together with one of the most advanced cardiac catheterisation departments, cardiac rehabilitation and non-invasive cardiac clinics. The glass-clad building provides a high level of visibility and optimally connects the patients to the outdoors. Patients also benefit from spacious two-bed and one-bed hospital rooms of a very high hotel standard. Special attention was paid to ensure that the catheterisation and emergency wards would be connected to the outdoors and exposed to natural light, which is conducive to the healing process. The colour white symbolises Tel Aviv, which is also known as the 'White City'. White is also

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associated with medical hygiene, and so this colour will be dominant in the new building's interior design. Vivid colours such as red, yellow and orange will also be incorporated into the white areas to create a sense of liveliness.

The colour red

The colour red has become an important iconic emblem in the architectural language of the building: from the urban scale of 'the heart chambers' in the facade, through the red bridges that float like blood vessels in the

main atrium space which forms the entrance to all the hospitalisation rooms, down to the red glass visitor lifts which offer colourful vertical movement in the space. All the walls in the interior of the main entrance floors have been clad in white glass – a design device which is both elegant and inviting.

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The Sammy Ofer Heart Building – construction challenges

The Sammy Ofer Heart Building is a large scale tower constructed within the fabric of an existing medical center, which needed to continue to function as normal during the construction period. The construction work was carried out around the clock due to very tight time constraints and the medical center's promise to the donors to adhere to the timetable. About 120 workers worked on the site during the day, including three active cranes on a limited area. About 30 workers worked at night.

Compliance with the most stringent standards of the Environment Committee was met at all phases of the construction, including recycling materials at the excavation phase and removal of waste from the site in a manner that would not significantly upset traffic on the streets bordering the medical center.

Demolition of the old ER building called for the transfer of operational functions from the demolished building to alternative sites, so as not to upset the function and construction of the new building. It was necessary to remove construction waste from the demolished building by intensive truck traffic through a traffic-heavy city street. This process had to be carefully and meticulously coordinated with the Tel Aviv Municipality, the Police Department and the Traffic Department.

Entry to the construction site was problematic. The organizing area was particularly small and only set back about 15 m from the road, which is a main and important thoroughfare in the city. This required the traffic to be stopped several times a day and created bottlenecks throughout the area. The delivery of

building materials and goods to the site had to be carefully co-ordinated with the traffic department.

In the course of construction, the client decided to add two floors to the building which called for a change to the urban building plan during the construction of the project plus a change to the plans in-process.

Construction of a 55,000 m² building within the delicate fabric of the medical center where patients are hospitalised called for pre-planning the many connections to the medical buildings adjacent to the new building, using electro-mechanical infrastructure located in nearby buildings, including hot water and diesel oil for generators. It also required providing infrastructure systems to the new building, such as cooling towers and creating an optimal connection with the medical center's main water reservoir.

The new cardiology building was designed to serve as backup for the main energy center of the medical center and includes six cooling

towers, a 2,500 m³ water reservoir, generators, backup to the computer server's room of the medical center.

The descending ramp to the three parking/emergency hospital levels under the new cardiology building was built about a year and a half before the construction of the basements. This created problems and was a major challenge in the linking process. During the construction of the basements, the client decided to add another basement floor. This was after the piles had already been driven into the ground, and this meant having to drive new interior piles into the ground.

The building was built according to green building standards with 2,000 m² of photovoltaic cells installed on the roof, a special cistern for collection of air conditioner water, use of a fixed shutters inserted and sandwiched between the low energy glass of the curtain walls with special micro switches for optimally controlling the penetration of natural light into the spaces of the medical rooms.

Throughout the construction process, materials dug out from the site during the excavation and shoring-up phase were recycled and reused.

The building was designed in a forward-thinking manner to create a versatile and elastic structure with the nucleus located at its centre.

All the hospital rooms were located along the building envelope in each of the 12 functional floors to provide the patients with a view and optimal connection with the outdoors through the curtain walls.

An ecological fish pond was planned at the entrance plaza to the building.





The atrium includes commercial areas, and inviting waiting areas too.



emotional experiences of both patients and staff. The 'Sammy Ofer Heart Building' is also the only medical building in the country without a fence! It is directly accessible to the public from the main street.

The main idea behind the design was to resuscitate the Bauhaus building by planning a public atrium that connects the new cardiology building with the historical Ichilov building. The creation of a contextual and physical connection between the buildings allows for an expansion of the floor area of the cardiology building (3,000 m²) with an additional 1,200 m², which is the floor area of the existing Ichilov building.

Resembling blood vessels, red bridges will float in the atrium space, leading visitors to galleries that will be placed one in front of the other, generating figurative tension in the two buildings which are located one in opposition to the other. The Ichilov building will also undergo renovation work. The atrium that provides the connection will include commercial areas, landscape healing gardens and spacious and inviting waiting areas. Artistic elements will be incorporated in the area too, including music and water elements, in keeping with studies that show that music raises endorphin and cortisol levels, thereby reducing anxiety and helping patients cope with pain. Healing gardens and herb gardens for the benefit of the public will surround the building on all sides and will also be included in the interior spaces.

The Tel Aviv Sourasky Medical Center is

characterised by uncompromising urban strength. The cardiology building fits well into the Gothic texture of styles characteristic of different periods in the development of the campus – from the modernistic, international Bauhaus style designed by Architect Arie Sharon, to the Brutalism style of the Sourasky 'mega-form' buildings with their bare

concrete-clad exteriors and precast brise-soleils characterising the architecture of Eldar Sharon, and finally the glass and aluminum buildings incorporating strong and vivid colours characteristic of the architectonic style of Arad Sharon who has been running the Sharon Architects firm for the past 17 years.



The concept of connecting the old and the new resulted in the design of a connecting atrium with dramatic red bridges.

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