

The Master Plan of the Shanghai International Medical Zone

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Every so often a project of unprecedented size and scope raises the bar in a broad generic category. In the realm of healthcare and wellness, the 11.5-square-kilometre Shanghai International Medical Zone (SIMZ) is an order of magnitude bigger than anything that has come before. An entire city based upon health and wellness, SIMZ represents China's bid to seize the lead in healthcare and medical manufacturing in Asia.

After two rounds of an international competition inviting entrants "to create something groundbreaking and of exceptional quality," Perkins Eastman Black won the commission to master-plan SIMZ. The competition documents asked for wellness; we spelled out what that meant by setting the following objectives for our master plan:

- Create a world-class, modern medical campus that will help make Shanghai a destination for care in China and indeed all Asia.
- Create international hospitals that will be prototypes and will serve as the focal point and catalyst for the development of a world-renowned healthcare district in Shanghai.
- Create a healthcare, medical education, research, academic exchange and manufacturing zone that will attract leading doctors, medical research scientists, medical technicians, clinical staff and medical-equipment companies.
- Attract large numbers of patients seeking high-quality care.
- Be a model guiding the growth of the healthcare system in Shanghai, China and Asia.
- Create a zone where complementary initiatives help Shanghai become the manufacturing hub for medical equipment in Asia.
- Embrace international standards of construction, including "universal design," to permit easy access by all populations and age groups.
- Create a campus where best practices in medicine, teaching and research naturally interact.
- Create sufficient diversity and scale of components where best practices in medicine, teaching and research interact. These synergies will foster a critical mass or virtuous circle attracting the best international talent.

The concept and key organizational structure is based upon landscape. Concentric circles of greenery radiate outward throughout the site, creating a "medical garden" evoking the life-giving forces of nature. For a community based on health and well-being, its structure, appropriately, is metaphor for the growth rings in the tree of life. A multi-layered composition of existing

canal networks, expanded waterways and lakes, road networks and the functional programs of seven specific zones is incorporated in an open, flexible matrix. The resulting master plan is a health complex that is truly green, with arcs of woodland, parks, orchards, gardens and other natural features that symbolically and functionally link the identity of SIMZ with nature. Whether viewed from the air, from a tall building on the campus or on the ground, the plan will offer impressive vistas.

Counter-balanced by a strong foundation of modern medical planning, the strong reference to nature in our concept will distinguish the Shanghai International Medical Zone and give it wide-spread appeal and a unique identity while attracting the best global talent.

The complex will comprise two 1,000-bed teaching hospitals, specialty hospitals and clinics, a medical school planned for 10,000 students, a major rehabilitation centre, a centre for



Figure 1 Shanghai International Medical Zone Concept



Figure 2 *Shanghai International Medical Zone Graphic*

medical research and development, and a large medical equipment manufacturing zone with associated research-and-development facilities. Housing for medical students and a neighbourhood for families will include town centres with children's daycare and early-education facilities.

During the planning and research stages for SIMZ, we realized that while there are specific and idealized precedents related to components of the program, there has never been such a site organization designed to encourage the potential synergy created by grouping the zones complementary elements on one campus.

We studied several large, world-class medical centres in North America and abroad, including the Mayo Clinic in Rochester, Minn., with 1,951 patients; the M. D. Anderson Medical Centre and Baylor Medical School in Houston with 6,041 patients; and, in Manhattan, the Upper East Side Medical Zone (Memorial Sloan-Kettering, New York Presbyterian Hospital, Cornell University Medical College, Hospital for Special Surgery, and Rockefeller University) with 2,721 patients.

However, most of these campuses are accommodated in relatively dense urban centres and have expanded over long periods of time within these constrained contexts. They have grown incrementally, either by expanding their own buildings or by acquiring others. Too often the result is uninspired planning and design. What

hospital visitor hasn't been confused by the spaghetti of multicoloured wayfinding paths snaking along the lobby floor?

Unlike virtually every other major medical complex in the world today, SIMZ has an unique opportunity to strategically use a greenfield environment. Instead of being located in a dense city where the physical environment is more a problem than a health benefit, the large natural backdrop of our medical garden will demonstrate how a health complex can be healthful and green.

The property sits on farmland in the Nanhui District of Shanghai, two km south of Shanghai's outer loop road. Normal rush-hour driving time to the city centre is about 30 minutes. The site is 19 km southwest of Pudong International Airport and 36 km northwest of the new Luchao port. Nanhui District planning guidelines mandate planning concepts that reflect "man in harmonious co-existence with nature." The guidelines call for an increase in wooded area, green corridors created by landscaped edges for roads and waterways, and green boundaries around major developments. Our master plan respects these criteria.

As called for in the program, four major canals traversing the site will be preserved. The historic Su's Mansion will be 'restored'. Our detailed program recreates this legacy as a faculty club for the international centre. All other existing structures are to be demolished.



Figure 3 *Shanghai International Medical Zone Master Plan*

As the growth of the medical zone expands from this starting point in the northwest quadrant, we envision that the key organizing structure will be rings of green radiating outward through the site. Other landscape features will symbolically and functionally link the centre to nature. Like growth rings in a tree trunk, the green circular pattern will become the defining structure of ongoing growth.

The circle has been a recurring theme in urban development history in Chinese and other cultures. But these circular patterns typically define the hard, manmade parts of the environment. For SIMZ in its exurban, natural setting, we propose that radiating circles define the soft green elements.

The pattern of radiating circles is not just sym-

bologically important, it is also functional. The swaths of green form boundaries between the districts, giving each of them a stronger presence as well as ready access to nature for patients, visitors, staff and residents. The green areas will differ one from another, lending an individual sense of place to various parts of the development and offering a range of choices for people to enjoy.

Strategically placed woodlands and parks will serve as windbreaks, helping to create better microclimates within the site. The green zones will help maintain good air quality, absorbing carbon dioxide, giving off oxygen and filtering air pollution. These large areas of open space will also provide built-in flexibility to absorb increases in growth and density without compromising the zone's functional or design concept.

Since the radiating circles are mainly flexible landscape elements, they create a practical development framework. They can be continuous or, when necessary, discontinuous. In the concept plan, they are interrupted by the existing large-scale grid of regional roads and canals, allowing the canals to maintain their layout without the need for costly new infrastructure changes.

In some places, new local roads follow the arcs of green space, reinforcing the overall plan pattern while adding a desirable local plan feature, such as the gently curving roads of the rehabilitation neighborhoods.

Circles have radials. In our concept plan, radials define axes between key areas of the medical garden: between the two main hospitals, for example, and between the central hospital and the medical school campus. Other radials define the axis of important views or highlight prominent buildings.

The curves and radials open up opportunities to create dramatic building designs. Some buildings, including the international hospital at the

hub of the plan, are curved or faceted to follow the curvature of the pattern; others are rectangular buildings positioned along, or at the end of, main axes.

The circular pattern of our concept creates opportunities at the smaller scale of the medical garden. In some of the long curving green spaces of our concept plan, we have created parks with large-scale undulating land formations. Aside from adding visual interest, these topographical variations further appeal to our client. The Chinese not only like circles and other organic forms, their mythology likens rolling vistas to dragon's humps. (Unlike Westerners, Chinese perceive dragons as friendly beings.) For example, the dragon is a favored creature in the Chinese culture, symbolic of good fortune and long healthy life. Most representations of the dragon are at a small scale. In some of the long curving green spaces of our concept plan, we have created parks with large scale undulating land formation, symbolic of the body of the dragon that lives underground.

Dragons come in different colors. Turquoise, for example, is associated with the east and the rising sun. To add further enjoyment to our landscape, we could cover the undulating "bodies" of the dragon with planting in different colors, representing different dragons. We could even use a combination of plantings that flower at different times of the year, changing the dragons' colors. The dragon of the medical garden would offer enjoyment for patients, residents and staff alike, in a way that integrates a healthful symbol with the garden's abundant green areas.

This emphasis on nature is counterbalanced by a strong foundation of modern medical planning. We see this technical dimension being carried over into the building fabric in a way that respects the natural environment.

SIMZ will not only be a delightful green environment, it should incorporate building and



Figure 4 *Shanghai International Medical Zone Site Plan*

construction technology, such as green roofs, that contribute to a healthier environment for those, near or far away, that would be affected by the large building program. With such a large volume of new development, the medical garden can take advantage of large-scale methods of water and energy conservation and efficient use of resources.

Most people who work at SIMZ will come from other parts of Shanghai. A growing number

will drive, but many will use mass transit. The circulation plan will accommodate both major modes efficiently and will also have a pleasant and convenient system for pedestrians and bicyclists. The highway network plan is simple and efficient. A major boulevard forms a circulation spine throughout the site from north to south and connects to the three major east-west arterials and to the on-site collector streets that provide access to all major buildings. The boulevard and the collectors will carry most of the traffic.



Figure 5 *Shanghai International Medical Zone South Elevation*

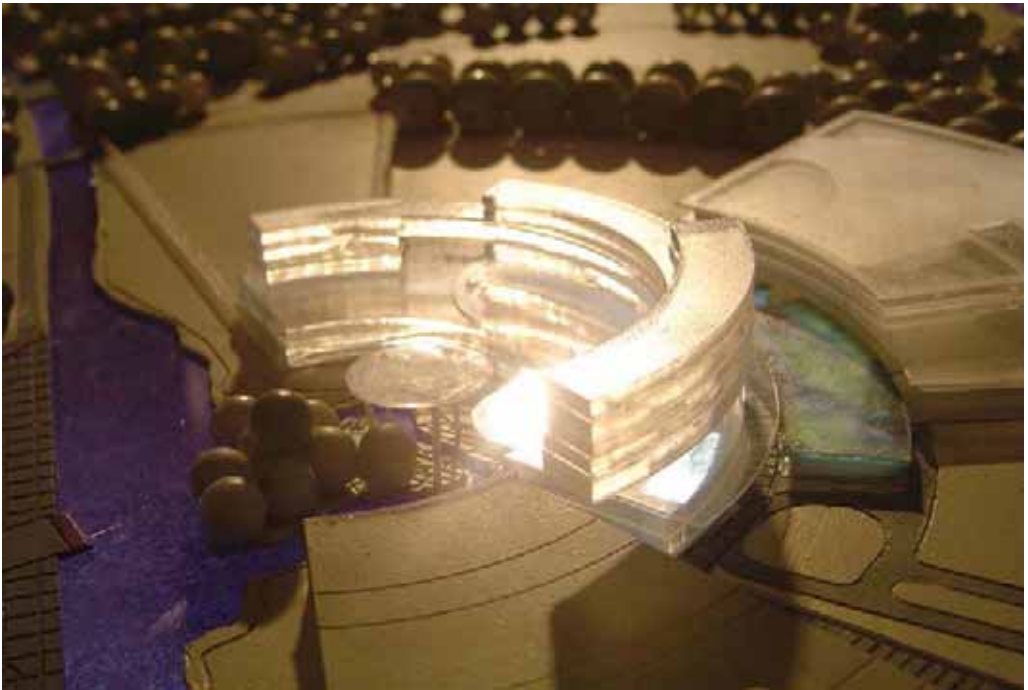


Figure 6 *Shanghai International Medical Zone Model*

A fine grid of local streets supplements the major network to provide access to smaller buildings, including the residential neighbourhoods. The local streets will also accommodate service traffic. They will be smaller in scale and pedestrian-oriented. The curving streets will slow traffic naturally without the need to resort to intrusive traffic-calming measures such as speed bumps.

In addition to regular automobile traffic, a parallel network of dedicated, one-way collectors

provides fast and efficient ambulance access to the international hospitals. Helipads provide access to the hospital complexes for emergency helicopters.

Yet another circulation system, the pedestrian and shuttle, will play an important part in on-site circulation. The shuttle will consist of a series of buses connecting to the R3 stations and to major buildings on the site. These vehicles can provide door-to-door service for persons arriving near the site via the regional R3 system

and for those traveling between various buildings, such as between the hotel and the hospital, or between the medical school and the hospital.

Then there is the pedestrian and bicycle circulation system. Attractive pedestrian paths are laid out so that most internal trips can be made on foot. The paths connect the major buildings to each other along water features and promenades on the site. Some of these paths may have specially designated bike lanes. Parking will be provided in garages for the hospitals and exhibition centre. On the rest of the site, in areas such as residential neighborhoods and in manufacturing facilities, parking will be at-grade in well-landscaped parking lots.

SIMZ, adjacent to one of the fastest-growing cities in the world, symbolizes how China is facing up to the unfamiliar challenges of modernization. For instance, since antiquity, China's elders were always cared for as part of the extended family. But with many of the younger generation living abroad, seniors are beginning to live independently.

Traditional Chinese medicine links natural ingredients and processes with well-being and recovery from illnesses. In today's stressful world, the benefits of a relaxed green environment have become even more important. SIMZ will point the way to combine this holistic approach with state-of-the-art medical and business practices.