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## **BUILDING HOSPITALS – HOSPITAL BUILDINGS**

### **Context**

In a culture, specifically a building culture, where every detail is regulated, defined by specialist planners and scientifically assessed, hospital buildings are the most scrutinized of all. Yet, in spite of all the good intentions, money and energy spent, more often than not, the result is not better buildings, but complex, labyrinthine islands in the city, their architectural form as inscrutable as the process that led to it. The innate inclination to technological and managerial solutions is exacerbated by the complexity of decision making in an institution where government, management, doctors, nurses and increasingly patients struggle for influence.

Yet this paradigm is changing: Health is not anymore just a risk to be covered, but – with ‘wellness’ - a commodity to be consumed. Individualism, alternative medicine and sustainability, but also high technology, specialization and privatization, are changing the context.

Against this background and on the occasion of an international conference initiated by the University Hospital of Groningen, the Berlage Institute, Postgraduate Laboratory for Architecture, was invited to look for new possibilities for hospital design. The studio had the additional agenda to explore trans-disciplinary ways of working and to determine what role the architect could play when confronted with the hospital as an institution. How could he communicate with an institutional client with a complex and fragmented decision process? What is the unique knowledge and approach an architect can bring to a team of planners, many of them highly specialized and knowledgeable? What are openings for innovation?

### **A look to history**

The timeline of hospital typologies shows how hospital buildings have always reflected the medical and institutional practices that evolved over time. In the push and pull between architectural clarity and institutional needs, two periods can be highlighted during which architects were able to produce buildings where concept, the medical practice of the times and architectural form were most aligned.

The first of these periods was the Enlightenment. Architecture at the time was a tool for bringing about the rational society that the contemporary thinkers advocated, founded on the principles of nature, science and equality. The idea of typology emerged. Typologies are primary architectural principles that give particular functions a particular organization and form. They are to architecture what Linné’s species are to biology. At a time when the medical profession was not yet established as an academic discipline, the first hospitals were conceived of as healing buildings. Clearly structured with access to fresh air and greenery, they exemplified the belief in the healing powers of rationality and nature.

The second peak of architectural involvement was modernity. Modern architecture had an instrumental role in building up the modern welfare state. A social agenda coincided with new methods of building and large amounts of new construction. The belief in technology and organization, social concerns and new building construction methods resulted in healing machines with modular layout and clear separation of functions.

Yet with the increasing size of hospitals, the complexity of planning and decision processes and of structures and technologies that needed to be accommodated, hospitals lost their clarity of form. They turned into complex conglomerates of parts, often a wild mix of buildings and infrastructures from different times where new

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organizational principles had to be found, ranging from internal streets as in shopping malls to abstract grids, to a bewildering array of way finding solutions and numbering methods.

The healing building stripped the patient of her privacy and individuality, the healing machine of her body. Now she got stripped also of her spatial frame of reference, of place.

## **Current situation**

At the moment, all great institutions of modernity are being questioned, first of all the modern welfare state. It was a successful instrument to deal with the difficulties of the social changes prompted by industrialization, and allowed for the change from a society that was organized in local networks, to one organized in large systems and institutions managed by the public hand, like social security, education or public health. Yet, as the instrument was created to deal with the effects of growth, it was also built on the expectation of growth, an attitude that increasingly turned into a liability. On the other hand, fixated on mass and standardized quality the welfare state did not anticipate the effects of individualization and consumer culture and the degree to which individuals are eager to consume specialized services.

A series of tendencies are part of this overall change. The scrutiny of the welfare state is accompanied by privatization. Individualization, lifestyle and wellness result in heterogeneous patient segments. The medico-technological complex still plays a large role with technology, information and virtuality. While in architecture the issue of urban context and representation is discussed again.

Hospitals are currently subjected to two divergent movements. On the one hand, the centralization and intensification of hospitals continues. On the other hand, privatization and individualism create a trend to specialization and fragmentation. Successful solutions seem to be a new combination of both trends or exemplary solutions for each.

## **What can Architecture contribute?**

The discipline of architecture is in a difficult position. While architects gained visibility in the process of architecture becoming a medium and architects worldwide (especially in the home countries of some of the students in the team) work on projects of unprecedented scale and with an unprecedented effect on the built environment, the discipline of architecture provides few certainties or shared values. The drive for individual expression of the architect in one segment and mindless mass-production in the other, make it often difficult to see it as a coherent and historically anchored discipline.

During Modernity, architecture was a clearly defined medium. It had content (progress and universality), a broadcaster (the public hand and the supporting power structures of architects from CIAM, to universities and professional associations) and an audience (the public). Now the medium is formless and diverse, the professional group fragmented in particular interests and personal biographies, the audience unclear and ideology increasingly replaced by commercial interests or brand identities. Architects are like loyal employees of a public TV station, that happened to become deregulated, who still dream nostalgically of public TV and its clear ideological message.

## **From typology to performative typology.**

One approach to the current situation marooned between stylistic competition and the phantom pain of the lost public sphere might be to return to a core competence of architects, the typology. In a text in the magazine *Oppositions*, Anthony Vidler described three different recurrences of typology. We are postulating a fourth.

The first one was developed together with architecture's formation as an academic discipline during the Enlightenment. It was initially formulated by Abbé Laugier and proposed that the origin for architecture was to be found in the model of the primitive hut. This view found its culmination in the canon of typologies developed by Durand in his *Lessons at the Ecole*. The second understanding arose of architecture confronted with mass production. Most clearly stated by Le Corbusier, it proposed that architectural design should be founded in the production process itself and in such way correspond to the new spirit of the times. Aldo Rossi exemplified the third one. He and the New Rationalists contended that architecture is an autonomous language that has a

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collective memory of forms, which they saw embedded and exemplified in the built city. With this idea, widely discussed in the pages of *Oppositions* of the 70's, they stood in opposition to the Neo-realists, like Venturi and later Koolhaas, who preferred architecture to be contemporary rather than ideal.

We believe, that typologies in order to remain relevant and avoid being nostalgic and easily consumable flashbacks on better times should not be based on form alone, but include performance, even business models. The traditional concept of typology was questioned by technical progress in the coordination and connection of space, its production and maintenance. Artificial light and air conditioning rendered contact with the exterior obsolete. Elevators, escalators allowed for a stacking of discontinuous spaces. Information technology and media allowed for continuous workflows and experiences without spatial proximity, while Muzak, artificial nature, scenography and all that became known as 'experience' created a new type of continuity. Digital technologies – as they provide an alternative to spatial continuity, media – as they affect meaning and issues of the collective, and branding as it affects representation, have fundamentally changed the way we understand and use space and the way the production of space is affecting the city.

In the studio we looked at typology as architectural organizations, much like the body plans of animal species that evolve over time, adapt to new conditions and interbreed occasionally. Each typology brings with it history and built-in intelligence. We were interested to work with these typologies as with found pieces of DNA, a gene pool with inherent complexity and fitness. We called this understanding of typology 'performative typology'.

Performative typologies would evolve, interbreed and span a new spectrum of scales and dimensions, but always define and organize space. A provisional categorization could be Landscape – Architecture – Conglomerates – Networks – Information.

In rethinking hospitals, the aim was to reposition typology as a tool for the architect to participate in innovation and communication. Performative typologies as principles of organization and as metaphors for communication could be a platform to integrate planning and decision processes across different disciplines.

## **Process**

### *A confrontation of typologies*

The first assignment was to take an existing architectural typology, such as an airport, a greenhouse, a library or a shopping mall, and to turn it into a project for a hospital. The aim was to define, in a diagrammatic way, new potential organizations, new approaches to representation or new architectural forms, harnessing the cultural intelligence embedded in the chosen architectural typology.

What if a hospital could be organized like an airport, a large piece of infrastructure full of amenities surrounded by a choice of different specialized service providers - the airlines, in the case of the hospital potentially the technology partners? Technological obsolescence of the specialized services and the trend to increase amenities would be taken care of as well as the division into a hospital side (airside) and a side for the public (landside).

What if the hospital could be a network of small, agile stations embedded in the city, like the cybercafé EasyEverything? Sharing logistics, brand and digital infrastructure such a network could be a better combination of the individual and local services of house doctors and the knowledge sharing and efficiencies of a larger institution.

What if the hospital could be built as a large wellness center with a spectrum of public functions and services at its periphery such as the old Roman bath? Why do hospitals have to be segregated worlds in the city?

### *Analyzing the hospital interior*

The second assignment was based on scenarios, documented in storyboards, with the aim to look at processes and interior spaces. The students were hospitalized for 24 hours in the University Hospital in Groningen, some as 'patients', others as observers.

For each station in the scenario relevant parameters were indicated that organize the spaces in flows. Examples of such parameters, not all of which needed to be binary, could have been public – clinical, naturally

ventilated – air-conditioned, naturally lit – artificially lit, part of a specialized clinic – not specialized, supervised – not supervised, sterile – not sterile, patient known – patient not known, walls transparent – walls opaque, long-term – ambulatory, flexible – permanent, etc.

The difference to a functionalist flow diagram is that scenarios include parameters that go beyond function. Issues like the daily life, ritual, narration, experience, personal and cultural idiosyncrasy should have a place.

What if waiting were turned into a time filled with quality in a space filled with program? What if the hospital would be in, rather than segregated from the city? What if patients had more choice in their accommodation?

The results of this assignment were presented at the conference *The Architecture of Hospitals* organized at the UMCG in Groningen where issues of hospital architecture were discussed over the course of three days with experts from around the world.

## **Seven ways to reconceptualize the hospital**

The final assignment was to define a project based on the first two exercises that addresses the criticism developed by the students and proposes alternatives. We worked with the site and the program of the Erasmus Medical Center in Rotterdam that will be rebuilt in phases until 2025. The aim was less to define an architectural solution for the EMC than to test the concepts developed in the context of a real project. This exercise resulted in seven projects.

### 1. Medical Kingdom

The Groningen workshop made clear how much time patients spend waiting. Waiting happens at the convenience of the hospital staff usually in unappealing, even dreadful spaces. A better control and communication system, be it electronic devices or message boards, would make the physical proximity of waiting and treatment unnecessary and would allow for consolidating the waiting areas into more spacious accommodations free to be reinvented. All the small efforts lavished on waiting areas could become more generous amenities – many TVs turn into one cinema, many potted plants into one garden, many well-thumbed children's books into one storytelling area. The typological exercise, on the other hand, focused on the theme park as a typology that has a positive attitude to technology and an ability to embed it in nature, that consists of recognizable, even iconic, rather than featureless parts, and that is organized efficiently by an underlying level of technology and infrastructure. Iconography and representation in a hospital could make orientation easier, could increase the understanding of the institution and allow for recognition. The particular site of the hospital opens up a unique opportunity to connect two parks adjacent to the site, and integrate the large waiting area or lobby as the link between the two. The shape of the new hospital is determined by a series of curvilinear, bent 'stripes' that connect the two parks; the main entrance is located at the intersection of the busiest traffic arteries. Added to the lobby are facilities that promote health so that the hospital is not anymore a place just for the ill. Above the lobby is a public park, below it the service level. The iconic building elements give the hospital an identity on the different levels, the lobby as well as the park.

### 2. Inside out

Hospitals strip patients of their privacy and separate them from their known environment. This project investigates whether essential components of an apartment, a 'home', can be made available in a very compressed manner. With a closet, a shelf, a table or a screen for privacy a patient can start to define a personal territory. The spatial layout of the apartment becomes a question of the ergonomics of the immediate surroundings of the hospital bed. Yet, while some people want solitude others want company. The project also offers choice in terms of the size of the rooms and the amount of social interaction desired.

### 3. Re-urbanize the hospital

The evolution of hospitals is marked by different concepts of (anti-)urbanity. Whereas the hospital was seen as a particularly urban artefact in the middle ages and early modern times, the enlightenment ideally projected it in a green, park-like setting outside the city. Since the hospital has to cater for the needs of the urban population, this ideal was hardly ever realized (except, naturally, in psychiatric clinics where patients usually spent many

years). The Groningen hospital demonstrates that an urban setting is no guarantee for integration: it is surrounded by physical barriers and opens itself only from the inside; the oversized entrance hall faces the connection to the highway, not the city. The main motives to re-urbanize the hospital are that it should not only functionally integrate in the city, but also physically connect to the urban tissue. The interrelation between the building and the city is seen as a very dynamic one, resulting in a flexible hospital that benefits from the capacity of the urban morphology to accommodate change. To facilitate this interaction, the hospital is seen as a combination of three components, only one of which is specific for the hospital: whereas the office block (outpatient department), the apartment building (patient wards) are seen as generic, the medical machine (representing the treatment areas) is very specific. Naturally, the very nature of the hospital demands that the three components are connected. The concept of re-urbanization is a generic strategy of urban integration and functional flexibility and allows the hospital to strategically affect, even manage, its immediate surroundings.

#### 4. A hospital for the free market

If healthcare were going to be transformed from a public amenity into a free market dominated by commercial interests, competition would focus on those aspects customers can fully comprehend. Medical treatment being as sophisticated as it usually is, it is hardly likely that competition will concentrate on the core business of the hospital. Instead, healthcare providers will promote the quality of stay, in other words: their hotel functions. One of the basic assumptions of the free market concept is the presentation of health insurance companies as the main players. They make separate contracts with all functional components of the traditional hospital. Ultimately, this may lead to the virtual disappearance of the traditional hospital organization, which might be replaced by health consultants who may define the best solutions for individual patients. In this project, the new market driven healthcare system is represented by a cluster of hotels, ranging from top-level five star luxury hotels to more basic amenities. These hotels are used for hospital patients as well as for normal guests. They tower above several layers of medical facilities. Though the concept includes several luxury hotels, it derives part of its rationale from the belief that the free market may help to reduce costs - which, naturally, implies that the health market is strictly regulated. The main motive behind this concept, however, is the expectation that the market will fundamentally improve the quality of healthcare, and - being a market - will be able to satisfy the needs of the people. Deconstructing existing management structures and their bureaucracies, the market will return the hospital to the people - the essence of what in this book has been identified as the fifth revolution.

#### 5. The green hospital

Modern hospitals are heir to a tradition that originated in the late eighteenth century. What distinguishes a hospital as modern is the way it is determined by scientific and philosophical ideas and ideals of its function, and, obviously, its roots in the enlightenment. Doctors were almost absent in the first modern hospital concepts. Their healing qualities were seen as inherent in the specific environment they offered their patients - in other words: in their hospital architecture. This concept revitalizes this very basic idea. Its cyclic nature is epitomized by the medical sciences that dominated hospital architecture from the late nineteenth century until the 1980s. By then it became clear that the high hopes invested in them in the middle of the twentieth century were being frustrated: the nuclear catastrophe in Chernobyl demonstrated that modern society caused more problems than medicine could cope with, the quick spread of AIDS marked medicine's limitation, and by now the end of antibiotics (caused by hereditary immunity by providing them too easily) may become a real problem. Nobody knows what might happen if a more dangerous form of SARS will appear, but many experts fear that the consequences could be even worse than the havoc caused by the Spanish flu that resulted in millions of casualties in the years 1918 - 1919. Naturally, progress in medicine never stopped, and even today revolutionary innovations are not rare - gene-technology, for instance - but it has become clear that what is gained on one end is lost on the other. This awareness stimulated the rediscovery of the healing potential of the environment, and especially of nature. Attributing positive effects to nature is not new, but what was a matter of common sense and, in the age of the enlightenment, philosophy, is now scientifically underpinned by hard data collected, mainly, by environmental psychologists working in the field of Evidence Based Design. Their findings justify a shift in attention from medicine to the environment. The concept of the green hospital is the first systematic exploration of the best ways to introduce as much greenery in the hospital as possible.

#### 6. Skyscraper

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People who are in need of treatment in a hospital abhor the amount of time they lose when trafficking from the entrance to the department where the medical staff awaits them, or when they have to visit several departments. What sets this concept apart from earlier attempts to create high-rise hospitals is that it is completely determined by the need to reduce time loss by travelling. The tower consists of four vertical tubes that are connected by corridors. The ensuing transparent skyscraper is made even more translucent by introducing open floors, which sometimes serve as gardens. They help to overcome what has always been considered the major disadvantage of high-rise buildings: their inherent inflexibility. This skyscraper concept aspires to solve this problem internally, within the tower. Since the tower's footprint is relatively small, a considerable part of the terrain is left open for different uses, the exploitation of which may help to cover the costs for this monumental landmark, which would be by far the highest structure in the Netherlands.

## 7. Wellness

Why separate health promotion from the medical crisis management? This, obviously, is what happened when the hospital developed into a medical institution. In ancient Rome, on the other hand, the baths of Caracalla functioned as a leisure facility for the entire city; apparently, no distinction was being made between what was medically necessary and physically pleasant, between health therapy and bodily gratification. The concept of the Spa continued this combination of leisure and health, which has always been centred on baths and pools. Concentrating exclusively on medical crisis management, the hospital has eliminated every feature that could be seen as pleasurable. As 'Kingdom', the movie by Lars van Trier demonstrates, hospitals are easily associated with horror. The transformation of hospitals into wellness centres could help to get rid of the terrible stigma that hovers over them, and change them in temples dedicated to the cultivation of healthy minds and bodies.

### Colofon

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