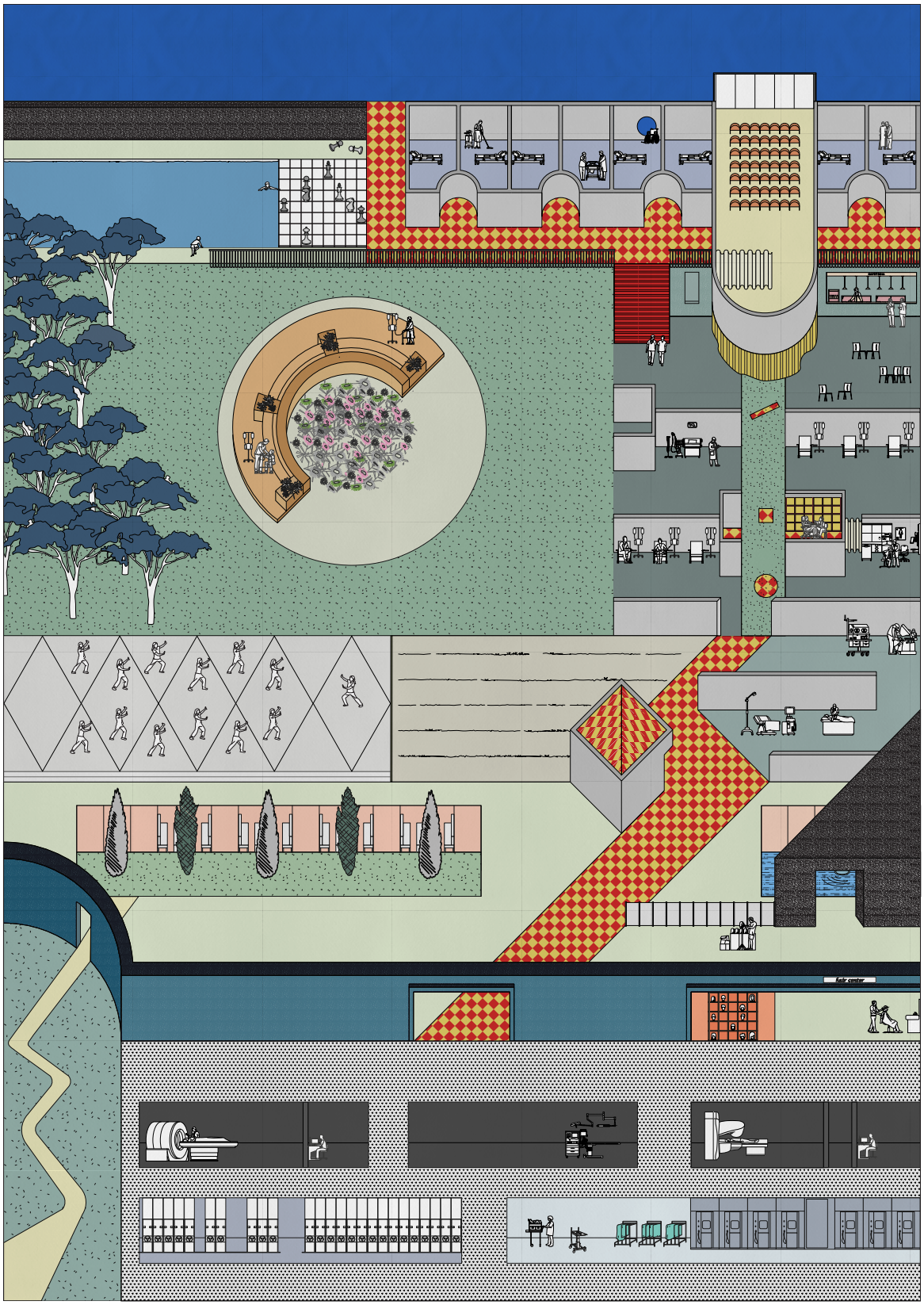

TU Delft

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COMPLEX PROJECTS
Bodies and Building Milan
AR3CP100

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RESEARCH AND DESIGN

Good Trip investigates how architectural pleasure in the urban hospital can foster joy and healing in cancer patients without compromising the efficient flow of medical treatment. Situated in the central area of Milan, this new drop-by cancer hospital seeks not to compete against, but to complement the two existing treatment-centric cancer hospitals and advocates for accessible healthcare facilities for an ageing population of Milan. The new center integrates treatment facilities with prehabilitation, rehabilitation, including hydrotherapy, to address patients' social and psychological health. Here, residents can sit, have a tea, get consulted, get treated, meet their physiotherapist, relax, and find companionship with people on the same journey. Moving back and forth from theory and design, the hospital rejects the traditional hermetic block hospital and proposes a cohesive composition of three human-scale non-autonomous buildings connected by the ground floor and a series of green courts that react to the extremely varied urban conditions of the immediate surroundings. The dense urban context becomes the enabling constraint for the project to explore a circulation path that differs from a conventional hospital corridor. In the new corridor, people can seek social interactions or retreat to their private niche, and refrain from overexposure or overstimulation associated with large medical complexes. As one always sees one garden after another, architectural pleasure formalizes as porous spaces of circulation rather than a destination.

RELATION OF GRADUATION PROJECT TOPIC AND ARCHITECTURE TRACK

The project addresses the question of generic-specific conflicts in hospital design. Specifically, the cancer hospital focuses on cancer patients' social and psychological well-being, as long-hour and recurring cancer treatment sessions contribute to aggravated anxiety, depression, and difficulties in maintaining social roles in patients. As patients must frequent hospitals for several days a week, and several weeks on end, the hospital becomes their second home. Yet, cancer hospitals' strict requirements and changing functional needs result in generic, alienating copy-paste spaces. In other words, hospitals are impersonal. Within the material lens group, the research reacts to this specific-generic dilemma by investigating timber and design for disassembly in response to the need for flexibility of changing hospital functions while challenging the lack of material tactility in the conventional sterile environment. In alignment with the studio theme "Bodies & Building", timber becomes the material that speaks on an architectural scale as well as the body scale.

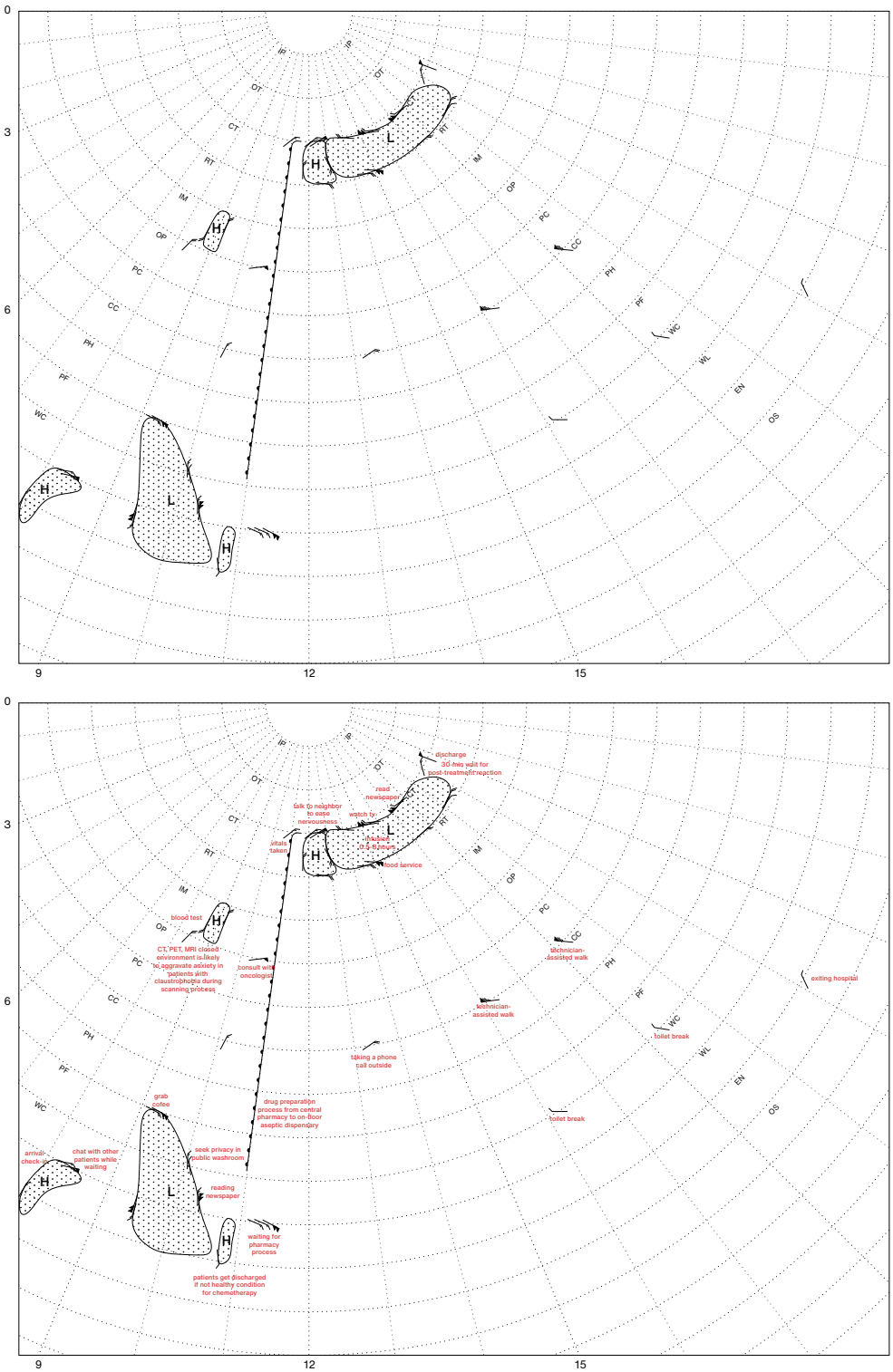
Simultaneously, the project re-examines the impact of comprehensive cancer facilities on the urban, architectural, and human scale. On an urban scale, site research of Milan involving population demographics, transportation nodes, healthcare network, green spaces, and healthcare policies substantiates the initial speculation of a local cancer hospital. This proposition hinges on Milan's super-aged society and its promotion of local health facilities such as the mini-ospedali in Moratti's healthcare reform, rendering medical services accessible within 15 minutes from one's home. On the architectural scale, the convergence of diverse programs catering to cancer patients under one roof enables diverse spatial conditions catering to moments of high anxiety or low stimulation in patients, allowing circulation and interstitial niches to become healing spaces alongside treatment bunkers. Upon entering, one is met with space, light, and unexpected views of gardens. Moving further inwards, one experiences the corridor that expands, shrinks, curves, and then loops back to where it started. On the human scale, wood as the main material addresses human-scale touch surfaces in response to peripheral neuropathy experienced by people undergoing chemotherapy or radiation therapy.

RESEARCH METHOD AND PERSONAL APPROACH TO STUDIO

The ultimate goal of this graduation project within the Architecture track is to design a single building through research-by-design. As part of Complex Projects Studio, the research method involves research on the client, program, and site. These findings were previously outlined in the design brief for further reference. Meanwhile, my research-by-design approach from P3 is structured into user study, concept, and design.

User study

The initial approach to investigating the hospital as the fourth place started with studying how a patient experiences spaces within a cancer hospital to gain an overall comprehension of spatial experience beyond medical briefs. Without surprises, the project encountered certain difficulties in interviewing patients, since cancer is a sensitive topic, and privacy should be maintained. Alternatively, the research approach studying a day in cancer patients through online media and literature. The findings on spatial movement and the impact of space on users within a treatment day of chemotherapy and radiotherapy patients were translated to a wind map, analogizing the mental and physical condition of a patient to the pressure changes. (Fig. 1) Moments of high anxiety and low stimulation associated with each program were then extracted into the diagram. (Fig. 2)



LOCATION

IP	Inpatient Bed	CC	Circulation Corridor & Stairs
OT	Operating Theatre	PH	Pharmacy
CT	Chemotherapy Bay	PF	Public Facilities (café, restaurants)
RT	Radiotherapy Department	WC	Public Toilet
IM	Imaging & Diagnostics	WL	Waiting Lounge
OP	Outpatient Consult & Exam rooms	EN	Entrance & Reception
PC	Patient Change & Preparation Room	OS	Outside

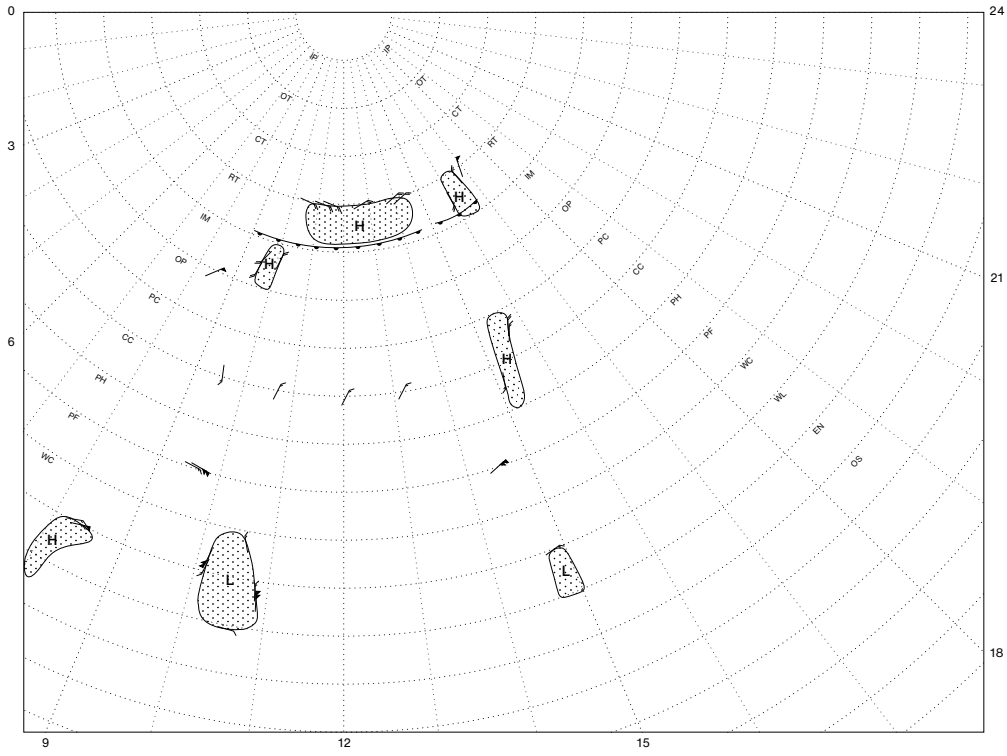
ACTIVITY TYPE

- Retreating/Resting
- Waiting
- Getting treatment
- Consulting
- Consuming
- Socializing

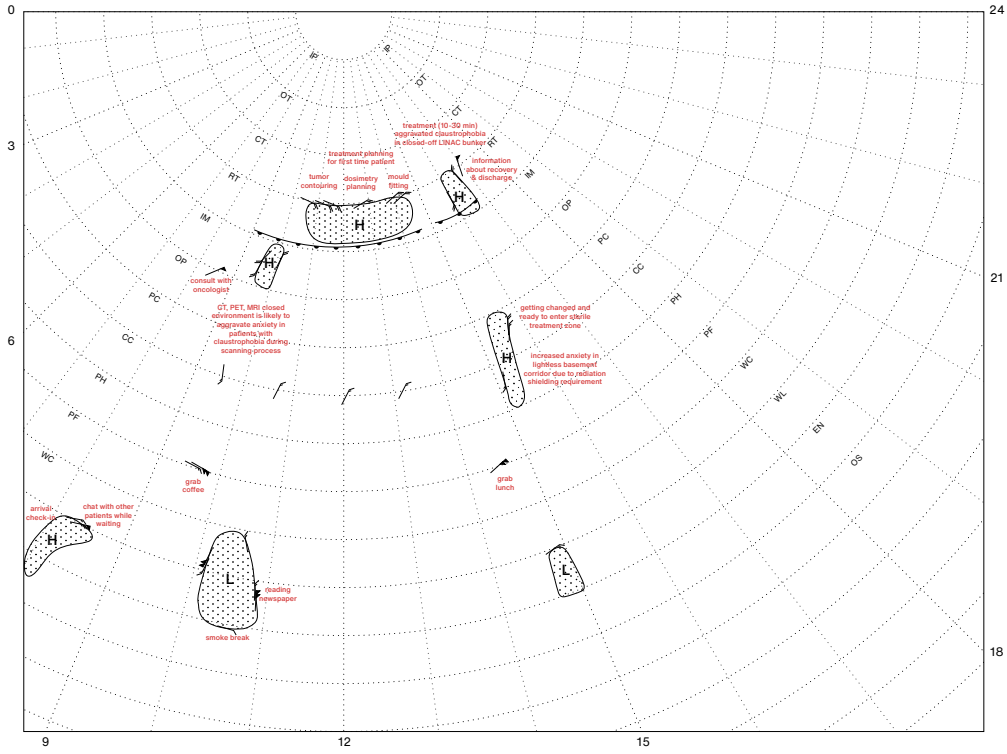
FRONT (STAFF BACKGROUND ACTIVITIES)

PRESSURE

- H — High stress
- L — Low stimultation



◀ Fig. 1a A typical 24-hour day of a patient undergoing chemotherapy at the hospital



▲ Fig. 2b A typical 24-hour day of a patient undergoing radiation therapy at the hospital

Fig. 2 Extraction of information and analysis

Concept

The user study drives the initial concept of widening the 2.4-meter standard corridor and adding niches for socialization or reclusion. As the massing study progressed, however, it gradually became clear that architectural pleasure arises from subtraction rather than addition. By cutting out a series of courts and voids for views and light as a response to the dense urban constraints, then using oblique treatment spaces to shape the corridor, the building rises as three pavilion-like blocks on a green carpet. While the void between the building blocks becomes the gardens, the void between the oblique functions within becomes the new corridor. The building is much less about form than about the negative spaces that are carved out. Recalling Tchumi's notion of "pleasure in architecture", pleasure arises from the interplay between space, event, and movement, sometimes contradictory, but never static. Here, the new corridor protrudes, curves, contracts, and expands, allowing unexpected views towards the exterior. Leftover space before, the corridor now becomes the protagonist of the cancer hospital.

Design

While ensuring a human-scale environment, the hospital still needs to function as a space of efficient flow. The division of three interdependent building blocks allows the different programs to be divided according to risk factor, from high risk to low risk: administration and research, care, and cure. These three main divisions are connected by a public plinth and half-climate bridges, ensuring their connection while allowing different climatic zones. Five exterior gardens become the anchoring spaces of the cancer hospital: birch garden, water garden, courtyard garden, bamboo sunken garden, and four-season flower garden. Upon entering the hospital, one takes the slight ramp through the birch garden, allowing for a slow transition into a clinical space. Then, the water garden facing the reception also serves the large chemotherapy infusion hall, sided with a bamboo garden rising from the lower level. Here, the infusion rooms could be combined to form a large hall, looking up to a reflective ceiling that reflects the movement of water and bamboo. Third, the sunken bamboo gardens are directly associated with radiotherapy, positioned directly as one exits or enters the bunker for those who might experience claustrophobia in confined spaces. Fourth, the four-season flower garden on the first floor spilled out from the outpatient clinic, serving as an extension of its interior lounge, furnished with a double chair for companions. Last, the central courtyard garden connects the entire complex, wrapped with wooden lamellas that clad the interior verandas but are not enclosed, appearing like it were carved out of the wooden box.

THE ACADEMIC, SOCIETAL, SCIENTIFIC RELEVANCE, AND FUTURE IMPLICATION

The primary challenge to reflect upon throughout this research-by-design remains how to design a massive urban hospital for joy and healing without compromising efficient flow. The intention of the hospital is to serve the aging population of Milan and create and more human-scale, non-institutional environment for residents. Not unlike Milan, cities are becoming denser, and population is ageing, and designing a hospital squeezed in a tight urban plot is the unavoidable scenario. Implications for future hospital design lie in the accessibility of the 15-minute city and how design can respond to this dense urban canvas with spatial generosity and urban consideration. Moreover, the purpose of this study is to re-evaluate the design of circulation and treatment spaces within the context of a cancer hospital. The research acknowledges the stringent design brief of current cancer treatment facilities and challenges the conventional standardization of the generic sterile environment. While cancer is amongst the leading causes of death in Italy and other superaged societies, spaces designed for cancer care remain generic and alienating. In retrospect, the project underlines the need to design a cancer hospital as a specific sub-type offering comprehensive care, including non-medical supportand speculates on the cancer hospital as a social infrastructure beyond a mere medical facility.

ETHICAL ISSUES AND TRANSFERABILITY

The project pushes circulation design to a rather extreme scenario as an antithesis to the conventional monotonous hospital corridor. At times, the corridor takes references from IKEA loop; other times, the rooms become a series of enfilades. The project proposes to look at the building not as beautiful forms or advanced machines, which is critical in healthcare, but rather in the department of medical sciences, rather than architecture, as a reaction to social and urban conditions. The cancer hospital addresses the entangled urban contexts and accessibility needs for a superaged population, while dwelling on the specificities of cancer patients who experience the sterile environment as frequently as their second home. Cancer hospital assumes its role as the fourth place in the patient's daily routine, merging their domestic and public sphere in this world of the ill, whose threshold blurs as it becomes the converging space of all worlds.

To this end, I shall reintroduce the opening question that drove this research from the very beginning, "Do all hospitals have to be hermetically sealed?".

No, not for the pleasurable atmosphere of a humanized hospital.