

Harit Nitin Naik
student no.- 5587727

P4 draft

Thesis Reflection

Studio: Complex projects
Topic: Bodies and Buildings, Berlin
Typology : Hospital

Title: **Center Regen,
A human regeneration hospital**



An exploration into the future of hospital architecture. The Center regen is a highly specialised hospital for regenerative medicine with the ability to perform all functions of regenerative treatments (from development to delivery) located at the Nordhafen Berlin.

Aspect 01

Relationship between graduation topic and studio topic

The definition of the building types have been constantly changing with the advancements in science, technology and trying to provide better urban experiences to the people. Earlier the buildings just focused on one particular function to cater, but now there is a constant need of making the buildings more urban, green, hybrid, energy efficient, circular and the list goes on. This has changed the way we see and perceive various buildings today.

Also the buildings have been growing in size and functions and its urban relations. Hospital is one such building types that have been changing constantly is one of the most important buildings for a functioning of a society.

With the Studio of Complex Projects and the theme of Bodies and Buildings, Berlin the preliminary focus lies on understanding one of the 9 complex building types and how they would change with the near future. It further develops in understanding its impact on the people and the urban fabric of Berlin. and understand this the studio incorporates cross studio themes further streamlining the research and the urban relation of the project in Berlin.

The hospital typology is a constantly changing space that is focused on treating bodies and this focused have changed these buildings into a machine, that are not humane, highly complicated and technical. With the transition from the generalised care to more personalised care and the from "repair and treat" model to a "regenerate and restore" paradigm, the concept of human regeneration is coined. Using the stem cells for the creating personalised treatments, which will slowly allow humans to regenerate. The studio's theme directly relates to how regeneration will affect the bodies and simultaneously the building. This

challenges the status quo of the hospitals in the society. The graduation topic aims to bring together the science of regeneration and the art of creating spaces to see and study how the future hospital will respond to the changing needs and respond to the urban context of the Nordhaven in Berlin.

The project at the later stage of design forms a strong connection by creating a hospital that not only responds to the changing science and technology but the same time creates healing environment for the people and forming a strong urban connection. This overall addresses the main theme of the studio of 'Bodies and Building.'

Aspect 02

Relationship between research and design

In conventional architectural practice, research often forms the foundational groundwork that design builds upon. However, for this project, research and design were approached as an integrated whole, influencing each other at even the smallest design details.

The research question driving this project was: *How does the architectural design of a hospital evolve to support the development and delivery of regenerative treatments while enhancing patient experience?* This question shaped the exploration of how human regeneration could influence caregiving processes.

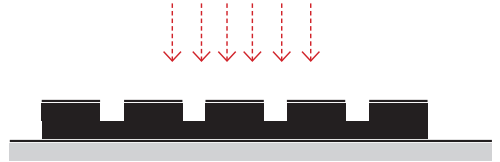
As healthcare transitions from a "repair and treat" model to a "regenerate and restore" paradigm, traditional hospital architecture must also adapt. The new generation of healthcare calls for a redefinition of hospital design, reflecting this shift. The project of designing a hospital for human regeneration, as the research question suggests, begins by bringing all aspects of regeneration into one location namely, research and

Existing

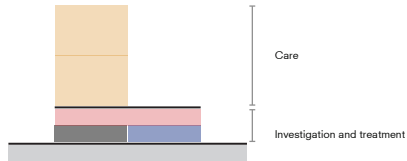


Mega building

Proposed



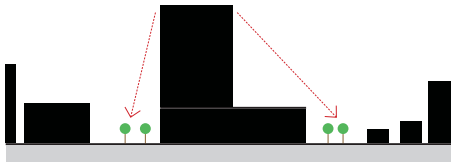
Village like - horizontal



level based segregation - Low collaboration



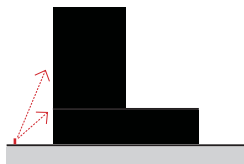
Same level - High collaboration



no relation to nature and context



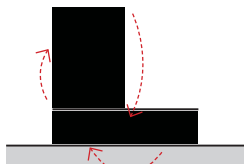
high relation to nature and context



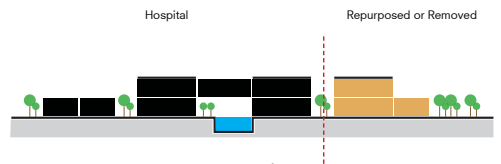
overwhelming and unhumane



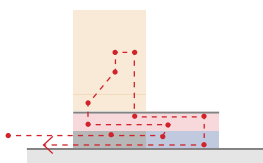
human scale



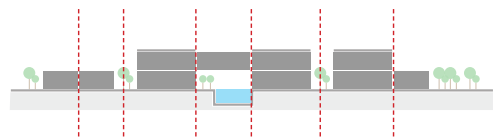
non flexible



flexible



centralised planning



decentralised - modules

education, production and innovation, a biorepository, diagnosis, and hospital care.

A preliminary research assignment in the studio involved identifying and conceptualizing a “key space” for the project. This evolved into designing a module that could encompass all the stages of regeneration in one space. This approach not only changes the process of treatment and the spaces involved but also challenges the traditional hospital architecture and planning of creating mega-buildings with centralized organization. A new hospital typology emerges supporting the process of human regeneration defined as a decentralized entity with modules as the main elements, creating units that can function independently. This idea of decentralized modules also helps in developing a hospital in stages and some parts of the hospital could also be repurposed based on the future needs and still the remaining part of the hospital would function as it was earlier. These modules create a kit of parts for the development of regenerative hospitals across the globe. Even though the modules remain the same for every regenerative hospital created in the future, but still they would be completely different in terms of the number of the modules used and how they are placed in the urban context. This helps in creating a unique space everytime this modular regenerative hospital would be built.

Since the project focuses on regeneration, it also prioritizes creating a space that is more patient-centric. The horizontal layout of the hospital helps create a space that is not only human-centric and collaborative but also brings in natural light and nature major elements that positively impact patients undergoing stressful surgeries and contribute to psychological regeneration.

The project also examines the hospital’s relationship with its urban context, aligning with the group research theme of mobility. Connectivity to Berlin’s S-Bahn ring is a critical aspect, positioning the hospital as an accessible, open space for the public.

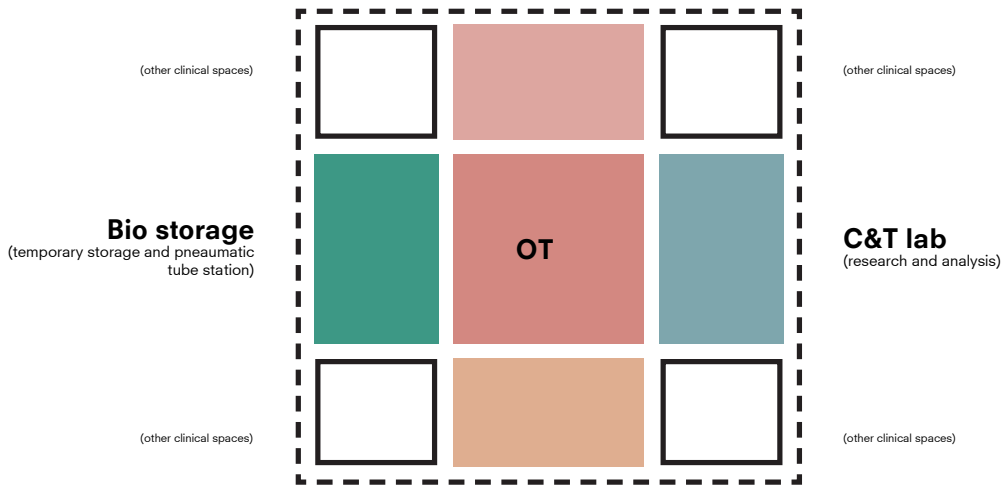
The horizontal layout and proximity to the water at Nordhafen enhance the hospital’s integration into the local setting, creating a pleasant environment for patients, staff, and passersby.

This approach reimagines the hospital as a public space that educates visitors about advancements in regenerative medicine and showcases typically hidden elements of healthcare architecture. Deviating from the traditional notion of a hospital that are completely closed off. For instance, the biorepository a central feature of the design serves as both a functional component and a display space, bridging science and public engagement.

The seamless integration of research and design throughout the project leads to the creation of dynamic, patient-friendly spaces. Small architectural gestures redefine how we perceive this critical building typology.

Diagnostics

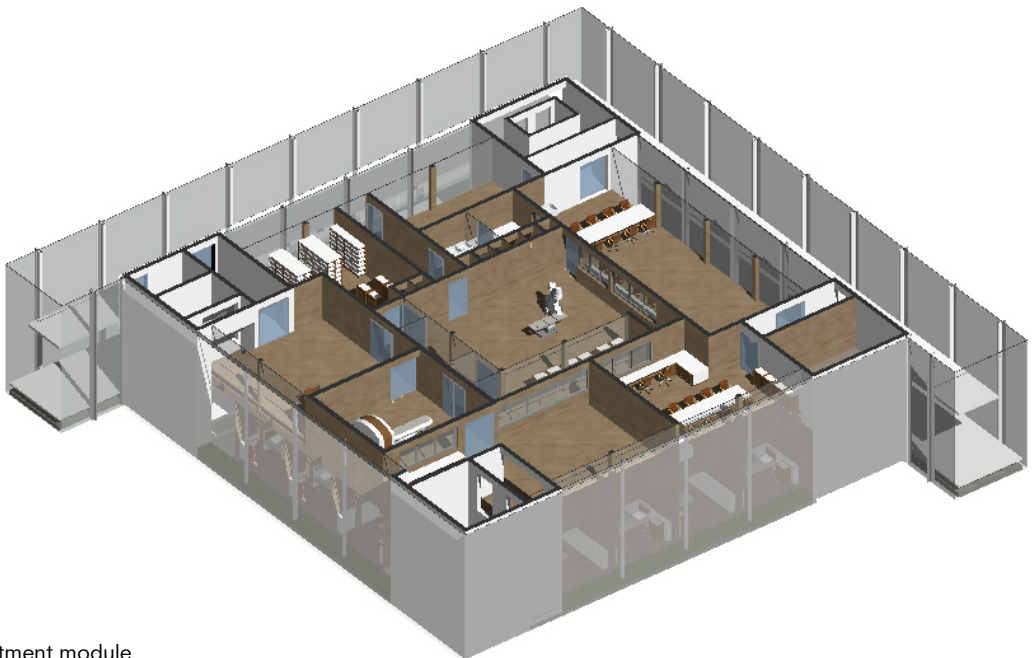
(real time diagnostics, control room and imaging station)



Bio production

(bio printing station and therapy production)

The Treatment module - Schematic



The Treatment module

Aspect 03

Relationship between the Research method and the approach chosen the student in relation to the graduation studio

The design of such complex and mega projects requires intense research not only about the architecture but also the scientific process involved in providing the optimum care and regeneration. The Complex project studio employs a methodical framework for developing such projects. This works by defining a clear problem statement, creating an elaborative study about the topic, building typology research, finding suitable case studies, Urban analysis, client study, and study of key spaces.

I tried to adopt the methodology of the studio as closely as possible, which provided focused study of various aspects of developing this project. Also as the last group of Bodies and Buildings, Berlin the task as the group was to create a book of 9 building types including the hospital typology. This study includes benchmarking different and major healthcare projects from not only existing buildings but also the projects completed by previous students in the same studio from last 2 years.

Further with the design part of the project the major focus for the project was a deep study of building massing. Creating multiple options of massing that resulted in a game of modules, where some rules were set with each module about their location and connection to another module. This helped the project to explore various scenarios and the one that best fit the project and the site was selected for further development. A visit to the site during the later stage of the project also played a major role in defining the proper placement of the modules. As a result models became a major part of the decision making in the architectural design. Further with the development of the designs in detail also required a deep study of how today's hospitals operate, which was also seen and studied by visits to Charité hospital

in Berlin and the Renier de Graaf hospital in Delft. Further individual study of the process of regeneration, how it relates to the existing and historical hospital typology, what could be adopted and what has to be changed based on the needs of regeneration. This study resulted in the current outcome of the project. Finally a study of various materials and construction types led to designing at much smaller and intricate levels of developing required details that would help in creating a dynamic and pleasant environment of the hospital. In conclusion, the approach taken in the graduating studio of complex projects is comprehensive and pragmatic, nevertheless it is heavily based on production and learning by doing.

Aspect 04

Relationship between the graduation topic and the wider social, professional, and scientific relevance

The graduation project holds a significant academic and social value due to its exploration into rising healthcare techniques, interaction between architecture and people and the evolving urban landscape. Hospitals play a vital role in the society, directly impacting the people's lives and well-being.

The project holds significant relevance in the current context, drawing inspiration from near-future predictions of medical transformations and technology that will revolutionize healthcare. The envisioned transformation from generalized to personalized care, facilitated by regenerative care and the highly specialized surgical setting, forms the crux of the project. Beyond that, the scope and implementation of the project extend beyond mere architectural design. It advocates for healthcare institutions to create spaces for dialogue, sharing medical knowledge, and fostering informed individuals. With the project's proposal of going horizontal, developing the modules and creating a village-like setup was developed to create a space that will cure people but at the same time develop a relation with the nature and act as a source of information about the upcoming scientific advancements in regenerative medicine. The horizontal form brings all the actors of the hospital including the patients, visitors, medical staff, researchers, innovators, Bio engineers all the same level creating a collaborative environment.

The modules developed for the hospital opens up a new matrix for research on how the hospitals could be thought of as the decentralized entity and how it could affect the healthcare sector.

The project also considers the ambitions of the proposed clients, The Charite hospital

and the Bayer pharma who aims to develop Berlin as the city with the world's first 'Cell hospital'. This relation also brings the project to a more to near reality of development of the regenerative medicine and the relevance of the project in today's time.

By addressing the intersection of technology, healthcare, and design, it aims to contribute not only to the architectural profession but also to the larger scientific and social frameworks shaping the future of healthcare environments.

Aspect 05

Discuss the ethical issues and dilemmas you may have encountered in (i) doing the research, (ii, if applicable) elaborating the design and (iii) potential applications of the results in practice.

The project is based on a very specialized field of medicine known as regenerative medicine, which works on the tiniest elements of the body, the stem cells. For this field of medicine to grow, scientists and researchers need access to enough stem cells to find cures for currently incurable diseases. Stem cells can be extracted at any stage of life, but the ones that involve extraction from unborn babies, specifically the fetus, are subject to strict regulations in many countries.

Apart from this, if access to stem cell extraction and storage is made available to a larger section of people, the advancement of this medicine will be unstoppable, and every individual could be treated with very specific and personalized treatments developed from their own cells. At the same time, it is also a slightly futuristic approach to human care.

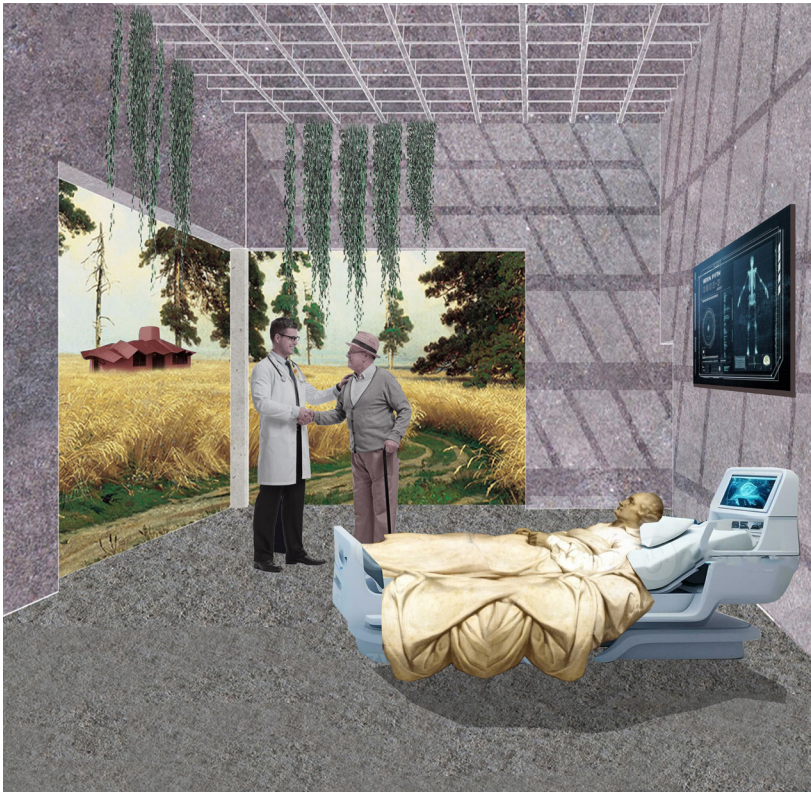
However, the project moves away from creating something dystopian and instead adopts a more realistic approach to designing a hospital that is highly specialized for human regeneration.

The original idea was to design a project that could expand within the same space by stacking modules. However, it became evident that after multiple expansions, the hospital, initially planned to be open to nature and human-scaled, would devolve into the same unhuman mega-buildings seen today. Consequently, the focus shifted to creating modules that are not stackable but are compact, independent, and functionally optimized, utilizing the available space to its fullest potential.

As a hypothetical project, major conclusions were drawn based on information derived from current hospital studies, with some decisions influenced by research into the future of healthcare. The project does not claim to provide the only solution for human regeneration but seeks to present a new approach to future hospitals focused on human regeneration. As a result, it is viewed as a foundation for further exploration into the architecture of future hospitals and their viability.



The Bio repository - A public display



Patient room - Engulfed in nature