

TRACKS OF TRANSFORMATION

Redefining one of Berlins most historic U-Bahn stations
to accommodate to current and future needs.

P5 REFLECTION PAPER

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ASPECT 1:

the relationship between research and design

The primary objective is to present a design proposal at P4 and P5 that addresses my research topic: "How can we design resilient and adaptable train stations in the current Berlin situation to foster future mobility?" Essentially, the research explores how to respectfully extend existing monumental infrastructure to meet both current and future demands.

During my graduation project, I learned that my design must be the conclusion of the research that precedes it, using the design process as a method for investigation and validation of ideas. In the first semester, a substantial amount of data was collected to inform the design. This research included topics such as train station typologies, the history of the area and existing station, relevant context, key stakeholders, and the current and future needs that the station must address. The findings from these investigations impacted the design in various ways and were consolidated into a design brief, which was presented during P2. This brief distilled the research into a clear direction, limitations, and a tool for me as a designer. It aimed to clarify the project's site, client, and program requirements.

As a designer, it is crucial to establish the constraints of the design field at the outset. This helps in making informed design decisions later on. However, the design brief functions only as a tool, and it is up to the designer to extract the necessary elements to shape the project. Thus, the design brief serves as a tool to support further idea generation.

After P2, I realized that I had focused too heavily on the context, history, and monumental value of the existing station. While this gave me a deep understanding of the complex infrastructural network, I noticed that I was less clear on aspects such as the program, which was essential for guiding the design process. As a result, I had to revisit the research several times to refine the program. Specifically, the scope of the program was difficult to estimate, and in hindsight, it was

somewhat optimistically calculated in the P2 design brief. Nevertheless, such iterations are sometimes part of the design process, which is nonlinear and often shifts between converging and diverging design steps, ultimately refining the project towards its final outcome.

Moreover, the research semester, structured by the studio Complex Projects, was organized around the topics of site, program, and client. These topics were investigated step-by-step to develop a realistic design brief for P2.

ASPECT 2:

the relationship between the graduation topic and studio topic

What is the relationship between my graduation topic and the studio topic (Bodies and Buildings)?

The connection between my graduation topic and the studio topic (Bodies and Buildings in Berlin) lies in the shared exploration of how social changes drive shifts in architecture. The studio seeks to understand how societal transformations shape the design of public buildings, with a focus on urban context (site), programmatic needs (program), and the ambitions of the client (client).

The studio provided nine public building typologies, categorized into flow, place, and space types. These categories enabled students to systematically investigate their own typology and identify intersections within or beyond their category. By conducting research in a uniform way, such as through models made at the same scale and in similar formats, students could compare reference projects with their own work. This allowed for a more informed and comparative approach to research, facilitating learning from each other's findings and design choices.

The typology I chose was the train station, which falls under the "Flow" category. Train stations are often seen as the gateways to cities, but on a more regional scale, they may require a different approach. The location on

which I based my graduation project is not a primary entrance to the city, but rather a complex infrastructural node, posing unique challenges and research questions due to its surrounding functions. Consequently, my project emphasizes flows, aligning with the theme of the train station typology, “flows.” Students were divided into groups of nine, with one representative from each typology. Each group was assigned a societal lens to apply to their graduation research, adding an additional thematic layer to narrow the design scope. In my case, the theme for our group was “Materials.” This theme explored the full material flow from start to finish, focusing on sustainability and environmental impact. Our ambition was to set a new benchmark for material use in society, being critical on all carbon-negative materials and researching on-site construction methodologies, creating a new precedent for both society and architecture.

To achieve this, we developed a material atlas. Using the material atlas as a starting point to consciously construct and materialize this collection of buildings within the city of Berlin, we took into account the available geographical resources surrounding Berlin, while also looking into each of the material life cycle phases: transport, manufacturing, construction & installation, use & management, and the recycling or reuse of materials.”The final result was a material matrix, which allowed materials to be evaluated using a point system. This system helped make more conscious material choices, influencing the design process and the final design proposal.

In addition, a material design framework was developed to provide further design direction. This framework involved describing the typology, identifying the key space, defining the main characteristic of this key space, and determining the material emphasis. For my design proposal, it was concluded that the key space is the station hall, whose primary function is to provide shelter. On a material level, the emphasis was placed on material strength, to span the large spaces characteristic of a station hall. The goal of

this theme, to influence the social aspect, was achieved by raising users’ awareness of material use. This is reflected in the design by reducing the amount of steel and opting for a wooden roof structure made from locally harvested wood. As a key infrastructural node with high foot traffic, the station is intended to not only fulfill its functional role but also act as a communication tool for raising awareness of material use among its users and the city at large.

ASPECT 3:

research method and approach chosen by the student in relation to the graduation studio

The research method in the Complex Projects studio is heavily influenced by the framework set by the studio. This framework, particularly in the first semester, involves researching three main aspects—site, program, and client—to help assemble the design brief for the P2 presentation.

Whereas design briefs are often provided, in the Complex Projects studio, we were tasked with developing them ourselves. This design brief then serves as the starting point for the design phase and is a fundamental document that consolidates all relevant data from the initial research, providing a guideline for the design process. In the second semester, it was our task to translate this design brief into a tangible concept, design, and materialization, resulting in an architectural proposal for the P4.

The studio’s method was highly structured, which provided me with an important anchor to stay focused on my main goals. Whenever I became too distracted by secondary matters or struggled to distinguish between primary and secondary objectives, I could rely on the requirements outlined in the design brief. This was particularly helpful as I tend to switch between ideas quickly and get sidetracked by non-essential elements. The design brief repeatedly steered me back on track, ensuring that the project followed a logical direction despite any adjustments made to

the design.

I find this approach, as presented by the studio, a good way to maintain structure in complex projects like this one, and it is a valuable skill that I have learned for my professional career. The ability to extract, manage, and process data from one's own research, and then use it to create a design, demonstrates that architecture and design have a scientific and objective foundation.

The focus on the group themes was useful in some areas, especially in narrowing the design field. However, it also led to a focus that came at the expense of other topics. For instance, allowing more dedicated space for research on flows might have been more appropriate for developing a more efficient design proposal. This additional theme often became a distraction from what might otherwise have been more central concerns. For example, our "material" group developed a "material hub" that had to be included in each of our projects. From the material group's perspective, this contributed to the narrative we wanted to convey. However, on an individual project level, the material hub sometimes felt like an unjustified addition to the existing program. I wrestled with incorporating this material hub into my design, and in the end, it functioned more as an extra feature—one that could easily have been omitted—rather than as an integral part of the station's concept. However, in the final product, it has a reasonable interpretation for it and fits well into one of the central themes, cultural, in the design.

Between P2 and P4, the process transitioned from academic research to the practical application of the design brief. This phase responded to the conceptual content and provided an answer to the research question through the design. The result is presented at P4, in the form of a narrative describing the concept and how it was translated into the design, supported by technical drawings at various scales, from contextual integration to detailed construction drawings.

The "material" theme is reflected in these

drawings and the concept through the choice of materials and where they are applied. For example, a wooden roof structure is combined with a steel column structure and prefabricated panels forming the station's base. The material hub, as described in the material group's principles, is integrated into the cultural program on the east side of the station, where it has an efficient logistical connection to the road network. At the same time, it showcases the value of recycled materials in a showroom located in the commercial ground floor of the passage, with space for material workshops in the culturally oriented atriums. In this way, the material group's concept is presented to station users, offering an opportunity for interaction with the topic.

ASPECT 4:

relationship between the graduation project and the wider, social, professional and scientific relevance

This graduation project showcases an academic approach to addressing a complex infrastructural node combined with a monumental building in a methodical way. The data generated through this process is valuable for academics, students, and professionals working on similar projects or those seeking a methodological approach to realize their own designs. Additionally, train stations play a viable role in modern society, and this project aims to demonstrate how they can lead the way in circularity and technological advancement.

The project deliberately engages with topics such as building with heritage, innovative applications of materials and technology, and educating the public on material use through initiatives like the material hub. Furthermore, it explores how to create an efficient flow in a heavily trafficked public building while maintaining a high-quality user experience.

At its core, a station typically consists of a platform and a station hall. However, the goal of this project is to offer a new perspective on what station integration can entail. The design reimagines the station not just as a transit space, but as a hub that also serves

recreational, commercial, and cultural functions. These sectors are interconnected in this project, creating a node where everything converges. This transforms the station from a mere transit node into an urban anchor, a place where people come not only for commuting but as an integral part of their daily lives.

ASPECT 5:

ethical issues and dilemmas you may have encountered during graduation

The first ethical issue I encountered during the process was the concept of gentrification. Cities need to develop, but what happens to an area when a new urban node, in the form of a station with additional functions, is introduced? The dilemma lay in the fact that the residents of the directly surrounding area were already quite content with the current situation. They were even concerned that the urban development project "Urbane Mitte" would bring too much change to the quiet and peaceful "Park Am Gleisdreieck," a cherished space in Berlin. However, a city experiencing population growth benefits from expanding or improving its existing infrastructure and densifying remaining buildable areas to accommodate more residents and maintain efficiency. For this reason, I decided to work in conjunction with the future urban development project and strengthen it by proposing a station with recreational, commercial, and cultural functions, thereby bringing added value to the neighborhood despite the loss of open park space.

In addition to the urban development issue, another dilemma arose with designing for a pre-existing monumental building. How does one respect a building with historical significance, and what alterations are acceptable? Through my research, I concluded that changes to the existing station should only be made at crucial locations where they enhance the efficiency of flows. Furthermore, any additions or interventions with the existing building needed to be reversible, so they could be modified or removed without causing damage to the

historic structure. This approach led to the decision in the final proposal to incorporate a new station with a lightweight roof structure, strategically placed where necessary. The roof stands independently or is attached in a way that avoids altering the structural integrity of the original building.

Lastly, there was the dilemma of the station's addition itself, which could not compete with the craftsmanship and aesthetic grandeur of the existing building, given the limitations of modern techniques and funding for projects of this scale. Therefore, I decided to reinterpret the form of the existing building in a contemporary way, creating a mirrored version that reflects a modern variant of the original structure. For example, the base of the new station mimics the contours of the original, but its rectilinear façade presents a modern contrast to the curved nature of the old station.

Finally, the roof is made from wood, a historically significant material, but applied in a modern form using triangular construction and techniques such as laminated timber beams, which reflect contemporary construction methods alongside their historically inspired counterparts.