

ADAPTABLE BUNDESTAG COMPLEX



REFLECTION PAPER
COMPLEX PROJECTS
ING. J.C.L. LEROY GÖRES

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COMPLEX PROJECTS
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Student

ing. J.C.L. Leroy Göres
Master student Architecture TU Delft
Student number: 5670314

Chair

Prof. ir. C.H.C.F. Kees Kaan

CP coordinator

Hrvoje Smidihen

Lab coordinator

Hrvoje Smidihen

Group tutors

Ir. Henri van Bennekom
Maria Finagina

BT tutor

Architect Eng. George Karvelas

Delegate of the board of examiners

Paul de Ruiter

E-mail

infocpstudios@gmail.com

Instagram

<https://www.instagram.com/cp.complexprojects/>

Website

<https://www.tudelft.nl/bk/over-faculteit/afdelingen/architecture/organisatie/disciplines/complex-projects/>

Facebook

https://www.facebook.com/CP_Complex-Projects-422914291241447

RESEARCH DESCRIPTION (ABSTRACT)

01



Abstract

The Bundestag is the German federal parliament and with its 736 representatives it is the biggest freely elected parliament in the world! (Mayer, 2021). The size of the Bundestag fluctuates every election term because the German voting system works with overhang and levelling representatives (Federal Ministry of the Interior and Community, N.D.).

The range of possible mandates varies from 598 to over 1,000 members, highlighting the considerable variability and uncertainty in the system (Vehrkamp, 2021). With more than 7 employees per representative (Bundestag, 2022), the Bundestag can fluctuate with over 3.000 employees per election term.

This creates the obvious problem that it is very difficult for the Bundestag administration to know how many facilities are needed. In the Bundestag, there is a forced use of home office, wooden container offices, and temporarily built offices, to try to facilitate the Bundestag (Ismar, 2021). This is also a problem on the sustainable side because temporary facilities are not sustainable and energy inefficient.

These problems are also true for any proposed designs for a new parliament building for the Bundestag. So, to counter these problems, a new Bundestag parliament building should be able to adapt to the change of users per election term.

Some questions that arise when looking at the possible solution of adaptability are: how are architectural elements related to this and how can the program best be used? How can digitalization play a role and is it may be possible to have programmable and adaptable floorplans or room use? How will cyber security be accommodated for possible digital meetings? And how can all this adaptability help in sustainability?

The research and design question that follows out of these questions: *How to design the adaptable Bundestag parliament of the future to sustainable facilitate the fluctuating number of members?*

To answer the research question and come to a conclusion/final design, the research into the client will be done by gathering information through internet, interviews, and written questions. For the site the main research methods will be mapping information and site visits. And for the program the research will be done by case studies on other federal parliamentary lower house buildings. Because the Bundestag is idiosyncratic in its fluctuating size, the comparisons will be in square meter per employee.

The final goal is to design a new sustainable Bundestag parliament building that is adaptable in use and program, and not negatively affected by the fluctuating number of members of the Bundestag.

Keywords

- Adaptable building use
- Hybrid building use
- Sustainable program use
- Parliament building
- Bundestag

INDEX

02



Information	P. 02
01 ABSTRACT	P. 04
Research description	P. 05
02 INDEX	P. 06
Index	P. 07
03 PROJECT	P. 08
Project description	P. 09
04 RELATION GRADUATION	P. 10
Relation master track and master program	P. 11
05 RESEARCH INFLUENCE	P. 12
Research influences the design	P. 13
06 VALUE WAY OF WORKING	P. 16
Assessment of the value of the way of working	P. 17
07 CADEMIC VALUE	P. 18
Assessment of the academic and societal value	P. 19
08 RESULT TRANSFERABILITY	P. 20
Assessment of the value of the transferability of the results	P. 21
09 POLITICAL NEUTRALITY	P. 22
Political neutrality guarantee in the research	P. 23
10 OWN WORKING WAYS	P. 24
Own working ways and the final part of the graduation period	P. 25
11 BIBLIOGRAPHY	P. 26
Bibliographical References	P. 27
Figures	P. 27

PROJECT DESCRIPTION

03



Project description

The “Adaptable Bundestag Complex/ Campus” (in short: The ABC) or in German “Der anpassungsfähiger Bundestag Campus” is the new lower house parliament for the German Bundestag. The complex is located in the center of Berlin on the border of the Großer Tiergarten park and government district. This is the site of the current Skulpturenpark and is situated in front of the old Reichstag building.



Figure 01: Location of the Adaptable Bundestag Complex, situated in front of the old Reichstag Building.

The Adaptable Bundestag Complex is meant to be a building for the Bundestag that can adapt to the different and fluctuating user sizes of the Bundestag, and combine all the needed program into one new, sustainable, and exemplary building.

For this design the main leading research question is: *How to design the adaptable Bundestag parliament of the future to sustainable facilitate the fluctuating number of members?*

As seen in the research question the focus is on adaptability, but also on sustainability and of course the function of a (Bundestag) Parliament itself. So, the new parliament building is not only adaptable (like an adaptable office building), but also sustainable and representative of a national parliament.

This representative national parliament reflects the country of Germany through symbolism, like 16 buildings symbolizing the 16 states of Germany, Form follows trees, symbolizing the future of living, working, building, and ruling together with nature, and being located in front of the old Reichstag building that is turned into a political museum to symbolize, respect, and acknowledge the past of Germany.

The sustainable part of the research question is reflected in the design by multiple implementations, like a geothermal powerplant in the basement of the building, Concentrated Solar Power in the roof and tower, and an overall double façade strategy. The Adaptable Bundestag Complex is self-sufficient in Energy and even contributes energy as a producer to other buildings in the Government district.



Figure 02: Parabolic shaped roofs with mirrors for the Concentrated Solar Power system.

The Adaptable part of the research is reflected in the design through reduction of program size by making use of home office. This is made possible in the design through its own server and cyber security facility and offices and meeting rooms that are designed with home office in mind. Another way that adaptability is reflected in the design is by allowing certain spaces of the complex to be used by other users than the Bundestag itself when these spaces are not needed. This is done by having a large office tower that is flexible in use and can therefore be used by the Bundestag and other users. Finally, adaptability is reflected in the design by the plenary hall being able to be split up into multiple meeting rooms to make more use of the existing space.

RELATION GRADUATION PROJECT, MASTER TRACK, AND MASTER PROGRAM

04



Relation Graduation Master Track

The concept of the “one of Berlin” type of building, along with the environmental aspects in my graduation project, fit closely with the focus on energy efficiency and sustainability of the Energy group of the Bodies & Buildings Berlin Complex Projects graduation studio.

My project, which involves the design of a new parliament building, is relevant to the educational objectives of the master track in Architecture.

Relation Graduation Master Program

Additionally, it also fits within the broader framework of the MSc Architecture, Urbanism, and Building Sciences (AUBS) program, which focusses on innovative and sustainable design solutions in urban contexts.

My project engages with contemporary architectural challenges and contributes to the ongoing sustainable building practices in Berlin.

Figure 03: *The Reichstag with the German flag photographed through trees. representing architecture, democracy, and sustainability.*



HOW DID YOUR RESEARCH INFLUENCE YOUR DESIGN?

05



Design influenced by the Research

There were multiple parts in my research that had an influence on my design. The main four research topics that had influence on my design are: Form follows Trees, Geothermal Energy, Symbolism/public scrutiny, or perception, and finally Adaptability.

Interestingly these four topics are related to the program and main research question (Adaptability), to the client (Symbolism/public scrutiny or perception), to the site (Form follows Trees), and to the group lens (Geothermal Energy). So, the program, client, site, and group lens (structure of the Complex Projects graduation studio) all had an influence on my design.

My adaptability research was focused on the use of the building and the program. This had a large impact on the design, because the program was reduced by 41,3%. Also, the form of the building was influenced by adaptability, by splitting the specific program from the general and adaptable program. This resulted in multiple buildings and one large office tower.

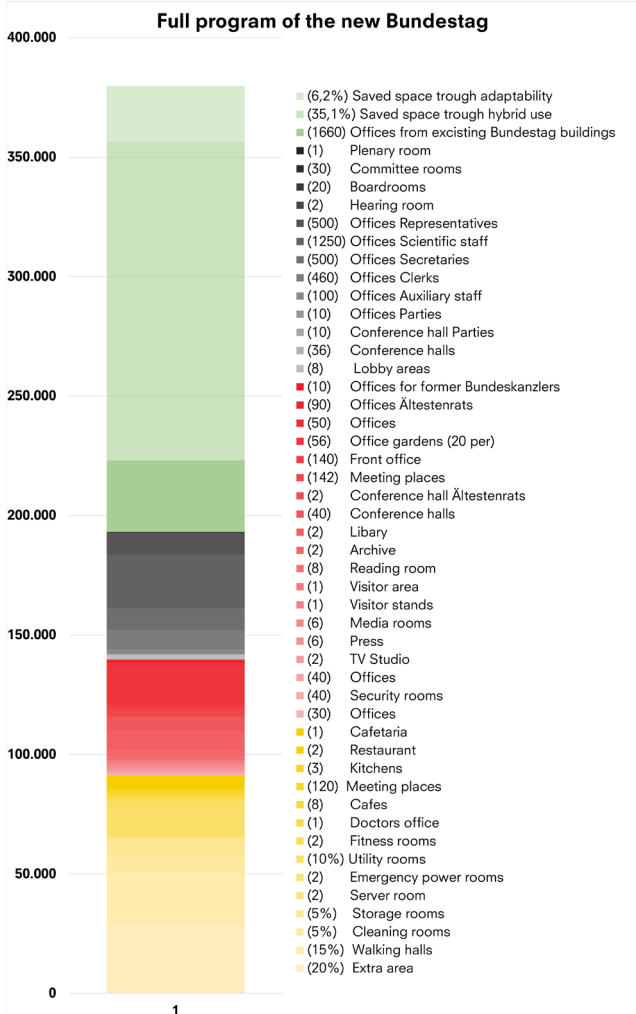


Figure 04: Program of the Adaptable Bundestag Complex with 41,3% reduction.

Design influenced by the Research

Also, my research into the client had an impact on the design of the Complex, because as a freely elected parliament body the client does not want any public scrutiny and cares a lot about public perception. This is reflected in my design by making use of symbolism and avoiding controversial design decisions. The Adaptable Bundestag Complex consists of 16 buildings (symbolizing the 16 states of Germany), and has multiple public parks, each symbolizing a certain idea or identity that Germany stands for. Also, the materialization (making use of the German colors and the national identity) is influenced my research into the client.



Figure 05: P2 Diagram with the symbolic 16 buildings and the 7 parks with symbolic meanings.

Specifically for the site my research into the Trees on the plot and in Berlin and Germany in general had a considerable impact on the form of the building. This was clearly visible in the mass study, were 9 different masses were analyzed, and 7 of them had a variant of form follows Trees in them.

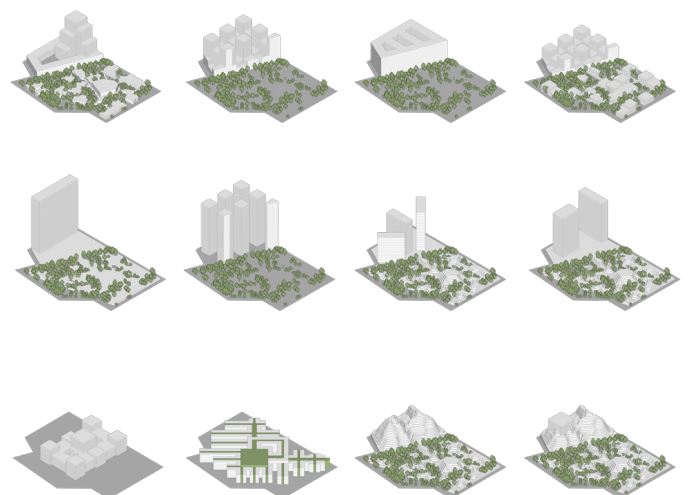


Figure 06: 3x3x3 massing options of which 7 follow the form follows trees strategy.

Design influenced by the Research

For the Energy group lens research, the influence on my design was also considerable, because it forced a lot of design decisions regarding power production (Geothermal and Concentrated Solar Power) and other decisions forced by the Strategy Cards.

Research influenced by the Design

Finally, my design also influenced my research in such a way that a lot of the design aspects of a good functioning parliament were not only related to adaptability, but to other aspects, like public perception, symbolism, sustainability, etc. Because of that a lot of additional research was done into these topics.

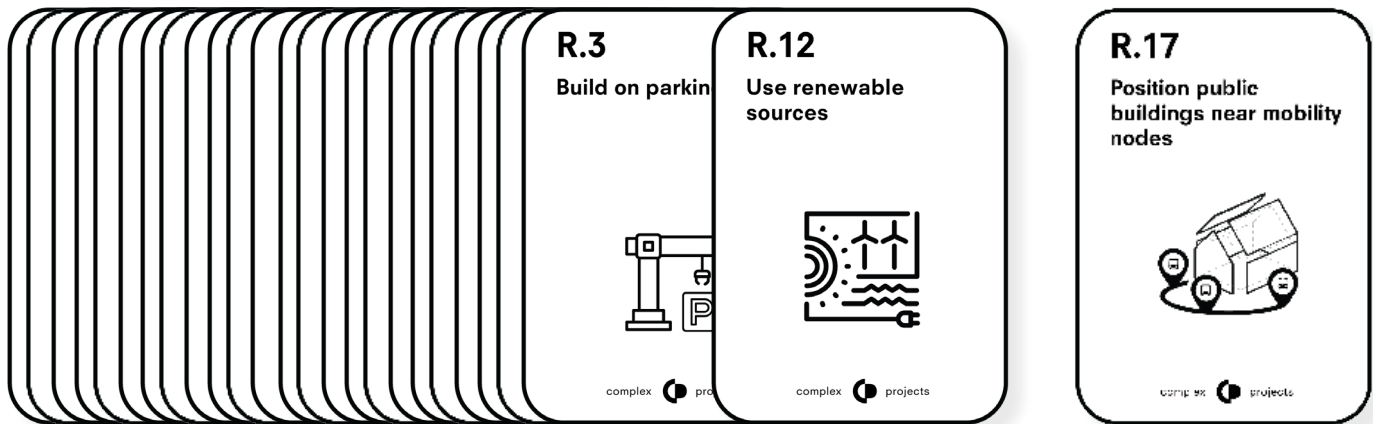


Figure 07: Strategy cards, developed by the Energy group, are used in the design



Figure 08: The strategy cards have certain power-ups this does mean that this strategy is a leading concept in the design of the Adaptable Bundestag.



Figure 09: The „Flagge der Einheit“ (Flag of Unity) in front of the Reichstag building. It is a symbol and stands for the unification of Germany as a monument on the Platz der Republik.

n VOLKE

**HOW DO YOU ASSESS THE
VALUE OF YOUR WAY OF
WORKING?**

06



**HOW DO YOU ASSESS THE
ACADEMIC AND SOCIETAL
VALUE, SCOPE AND IMPLICATION
OF YOUR GRADUATION PROJECT?**

07



Academic and societal value

My project is academically valuable as it combines multiple new principles of sustainable architecture, like a small scale geothermal powerplant in the basement and Concentrated Solar Power on building scale, demonstrating the application of theoretical principles in a “real-world design”. It also explores innovative design strategies, such as “Form follows Trees,” to connect built environments with “natural landscapes”, thereby contributing to the topic on sustainable urban development.

By creating an Adaptable and energy self-sufficient building, the design addresses urgent global societal challenges related to climate change and energy consumption. This not only reduces the building’s carbon footprint but also sets an example for future governmental and public buildings (in Berlin), promoting sustainability at the highest level of public administration.

My project also symbolizes Germany’s commitment to environmental changes, enhancing national pride and global reputation. By preserving as many trees as possible on the site, it respects and integrates into the “natural” environment, fostering a sense of respect for nature.

Scope and implecation of the project

Ethically, my design aims to avoid public scrutiny and improve public perception of the government. By designing a transparent and accessible parliament building, it promotes democratic values and public trust.

For the adaptable part of the design, the research is still plenty and beyond the reach/ time of this studio. Still the building’s adaptability ensures it can respond to future needs without significant environmental impact.

This project is not just an architectural experiment but a statement on the potential for architecture to address societal and environmental challenges. It tries to exemplify how thoughtful design can contribute to a more sustainable future.



Figure 011: The old Reichstag Building photographed from the exact location where the new Adaptable Bundestag Complex will be built.

**HOW DO YOU ASSESS THE
VALUE OF THE TRANSFERABILITY
OF YOUR PROJECT RESULTS?**

08



Transferability of the project

The transferability of my graduation project can be valuable to other future projects. The project's core principles of adaptability, energy self-sufficiency, Form follows Trees, and symbolic representation, can be applied to other architectural and urban planning projects.

The design's adaptability ensures that it can evolve with changing needs and technologies, making it a possible example for future-proofing public buildings that have fluctuating user numbers.

The emphasis on creating an energy self-sufficient building offers a scalable approach to reducing energy consumption and minimizing carbon footprints and making cities self-sufficient (goal of the energy lens group). The technologies and strategies used in my project can be adapted for various building types.

The innovative approach of preserving as many trees as possible demonstrates a coexistence between built and "natural" environments. This principle can be applied to urban planning and development projects globally, fostering biodiversity and enhancing urban green spaces.

The building's role in symbolizing national values, improving public perception and avoiding Public Scrutiny of the government highlights the importance of architecture in societal representation.



Figure 12: Photo of one of the four towers of the old Reichstag building, who symbolise the 4 kingdoms of Germany at the time.

HOW IS POLITICAL NEUTRALITY GUARANTEED IN THE RESEARCH?

09



Political neutrality

For a building design for a political organ, like the Bundestag, it is important to keep political neutrality in mind, because the users of the building have different political views, and these views can and will change over time as well.

In my design and research political neutrality is ensured through a balanced and inclusive approach that respects diverse political perspectives, especially regarding climate change. This neutrality is maintained through: Focus on universal values, such as Form follows Trees, to preserve “natural” landscapes, which are values that are not political. By focusing on universally accepted goals, such as don't demolish old trees, the project avoids political bias.

Political neutrality

The design's adaptability ensures it can accommodate future technological and policy changes, regardless of the political climate. This flexibility allows the building to remain relevant and functional even as political views on climate change evolve.

Focus on cost saving measures regarding self-sustainability. The research and design related to energy production are not necessarily for the benefit of climate change but mainly for reducing costs of the government. This is again a way to avoid political bias.



Figure 13: The plenary room (Plenarsaal) of the Bundestag, located in the old Reichstag building. On the top left the German eagle. This symbol is also the architectural element of this research.

**HOW DID YOU FIND YOUR OWN
WORKING WAYS & HOW WILL THE
FINAL PART OF THE GRADUATION
PERIOD BE FILLED IN?**

10



Own ways of working & improvements

Personally, I think my way of working was good, but there is still room for improvement. I think the research could have focused more on adaptability (now it also was focused a lot on public scrutiny for the client, the site and then mainly form follows trees, cultural symbolism, and sustainability).

Furthermore, I think that there should be more time for the designing part of the research. This was partly not possible because of the structure of the studio and partly because of my struggle with the massing of the building. I also think that in the future I will focus more on products and less on the 3D model. Now I worked too long on the 3D model on things that are never shown and way too detailed, instead of working on good floor plans, sections, details, etc.

The final part of the Graduation

The goal and plan of the final part of the graduation will be to focus more on the plenary hall and floor plans that explain the adaptability of the Adaptable Bundestag Complex. Furthermore, the plan is to make a final model and improve certain key Renders to finally combine this in the P5 Presentation.



Figure 14: The old Reichstag building with the iconic text of “Dem Deutschen Volke”. This means “Of the German people”, which shows that the parliament is not a ruler but a servant.

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Figures

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Figure 10: Analytical maps made of the trees on the plot. Top left map shows all the species of trees, Bottom left shows the height of the trees, and the right map shows the final form follows trees map, so the buildable area.
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