

# Drawing from Diffusion

**The role of image generation amid the rise of AI in Architecture**

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**Promotors:**  
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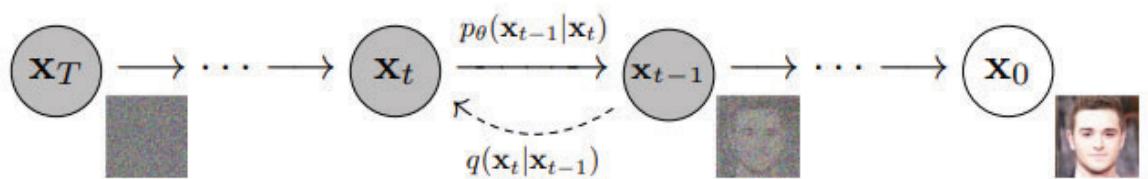


Figure 1. The workings of a diffusion model. (Source: arXiv:2006.11239v2 [cs.LG], <https://doi.org/10.48550/arXiv.2006.11239>)

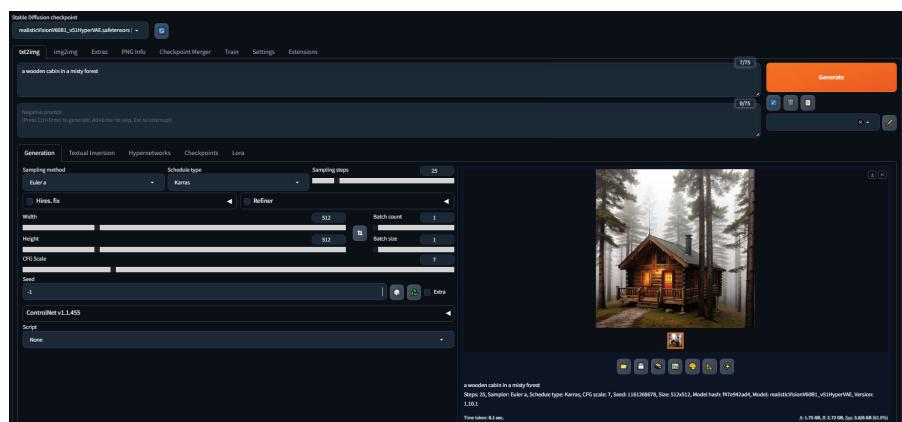


Figure 2. Text-to-Image technique in Stable Diffusion through A1111.

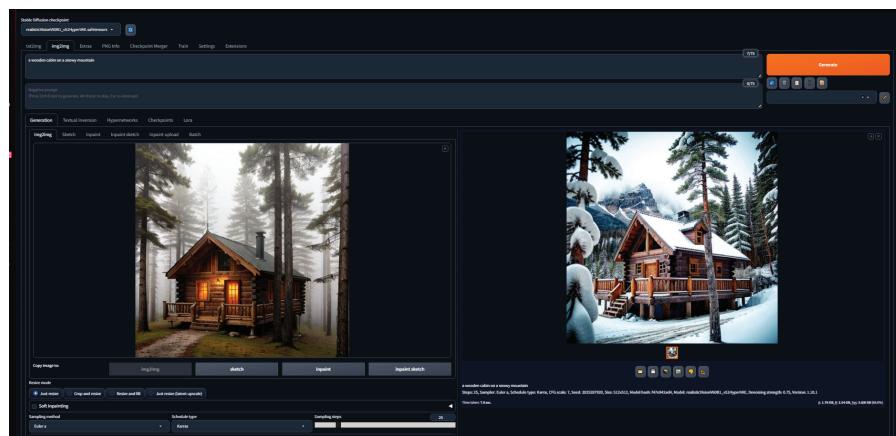


Figure 3. Image-to-Image technique in Stable Diffusion through AI111.

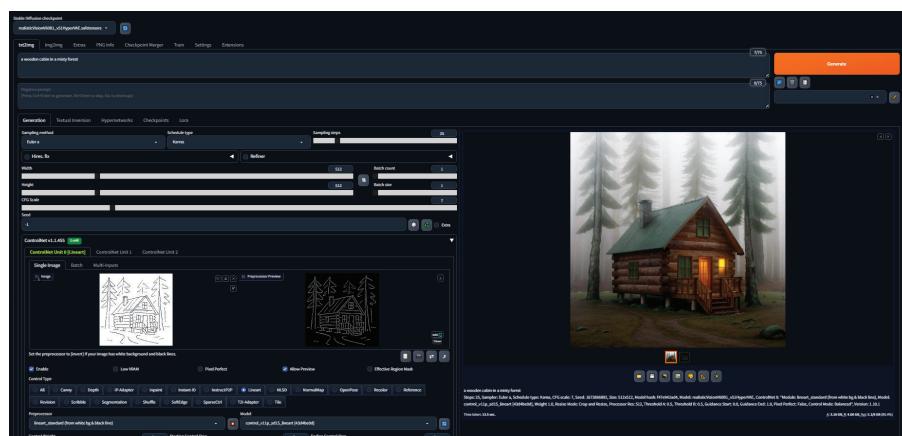


Figure 4. Sketch-to-Image technique in Stable Diffusion through A1111.

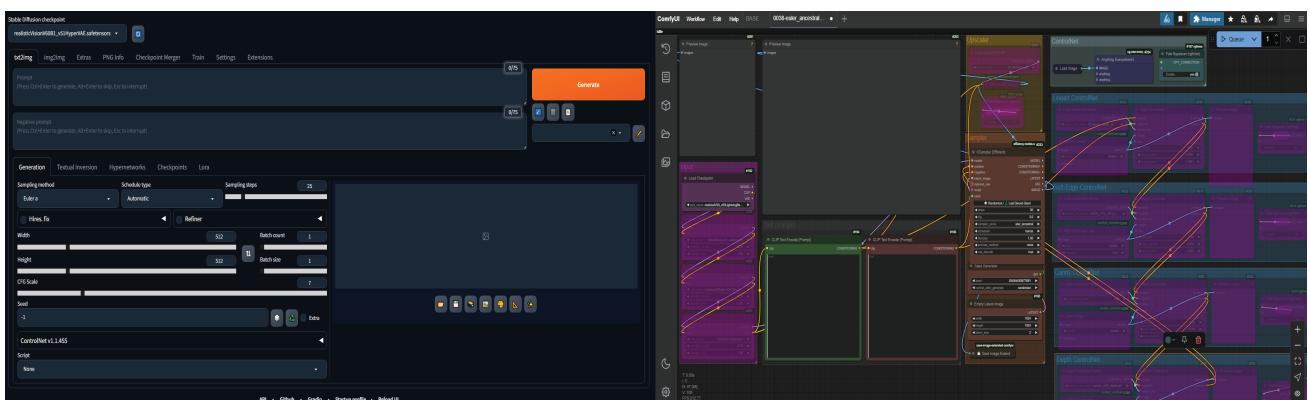


Figure 5. User interfaces of AI1111 (left) and ComfyUI (right).

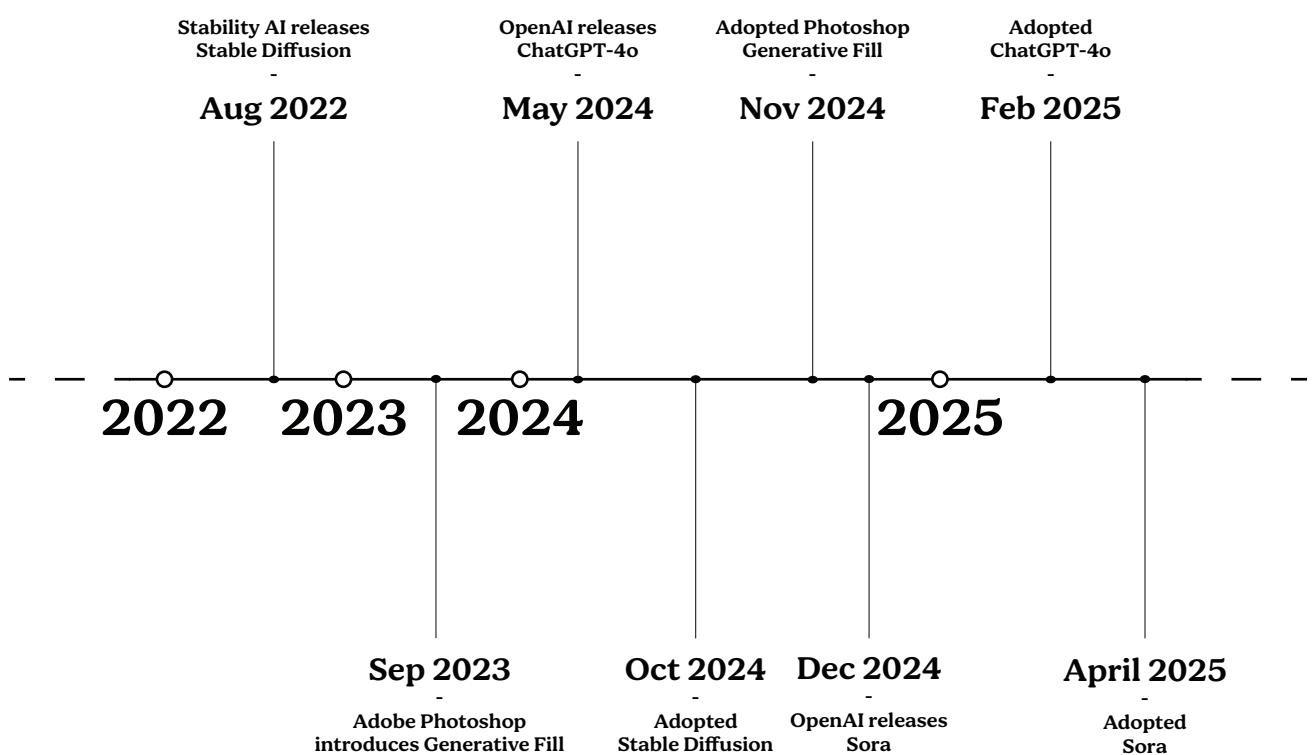


Figure 6. Timeline of the release date and adoption date of used tools.

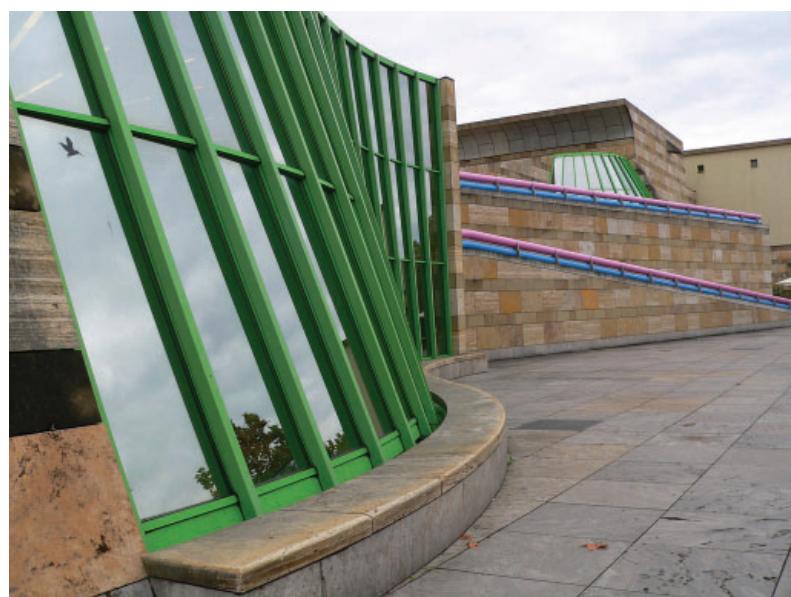


Figure 7. Facade of Neue Staatsgalerie. (Source: ©Flickr User: pov\_steve)



Figure 8. Facade of Neue Staatsgalerie.  
(Source: ©Canadian Centre for Architecture)



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(Source: De Vocht & Van Sande, 2021)



Figure 10. The architecture of Pezo von Ellrichshausen. (Source: El Croquis 214, 2022)

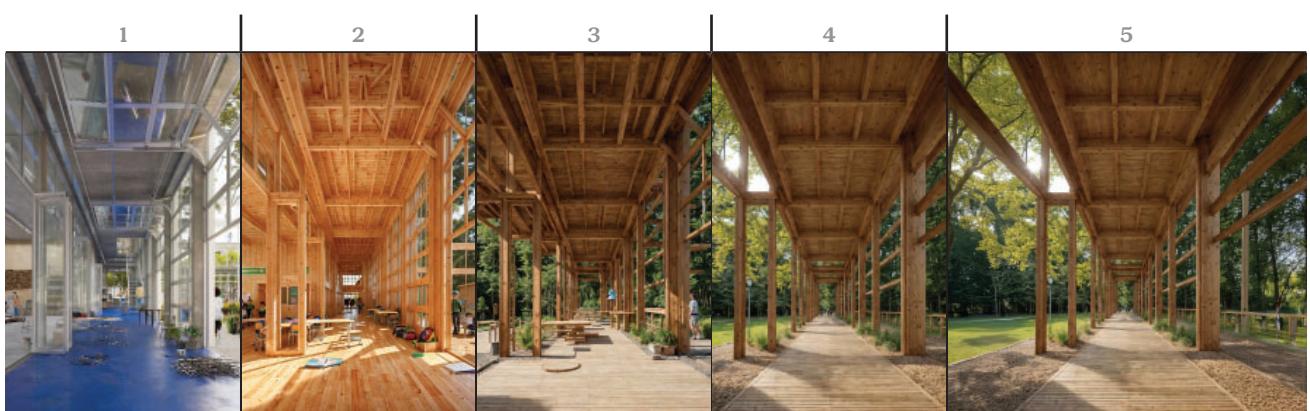




Figure 12. Process of reinterpreting an open structure as a building. (Source base image : Cechvala Architects)



Figure 13. Resulting images for Inside-Outside fragment.

Prompt: 'illustration of a courtyard of a low, single story, small primary school, connection to the interior through three facades, composition of the windows on the ground floor makes the rhythm of the canopy on the second floor, architecture'



Figure 14. Resulting images for Transparency

fragment.

LoRAs: ModelMaker-XL, Cardboard Style

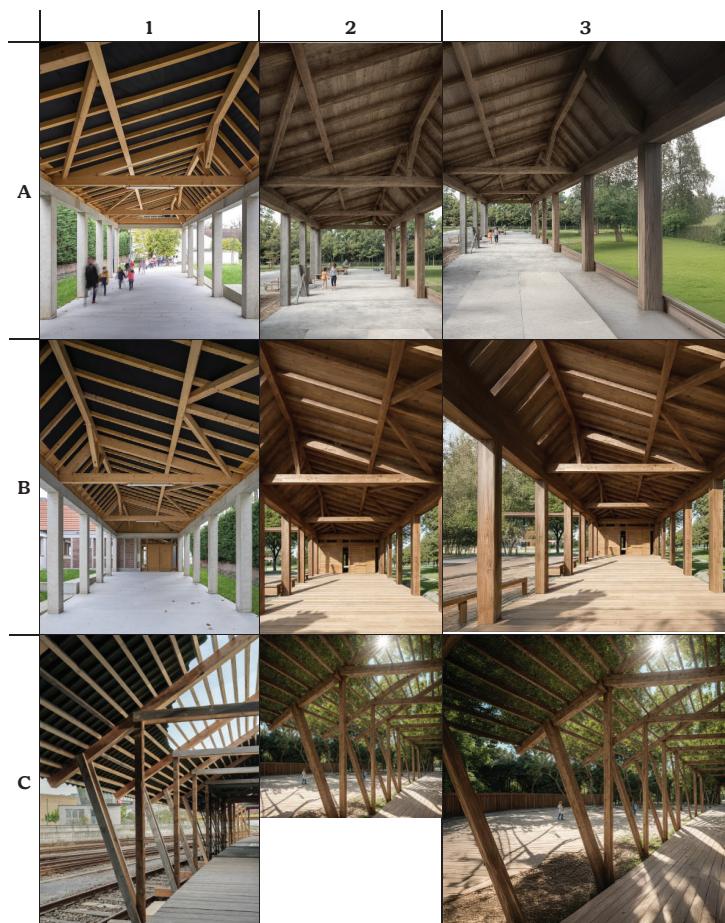


Figure 15. Process for Promenade fragment.



Figure 16. Collage (top) and Resulting image (bottom) for Promenade fragment.



Figure 17. Process for Inside-Outside fragment.

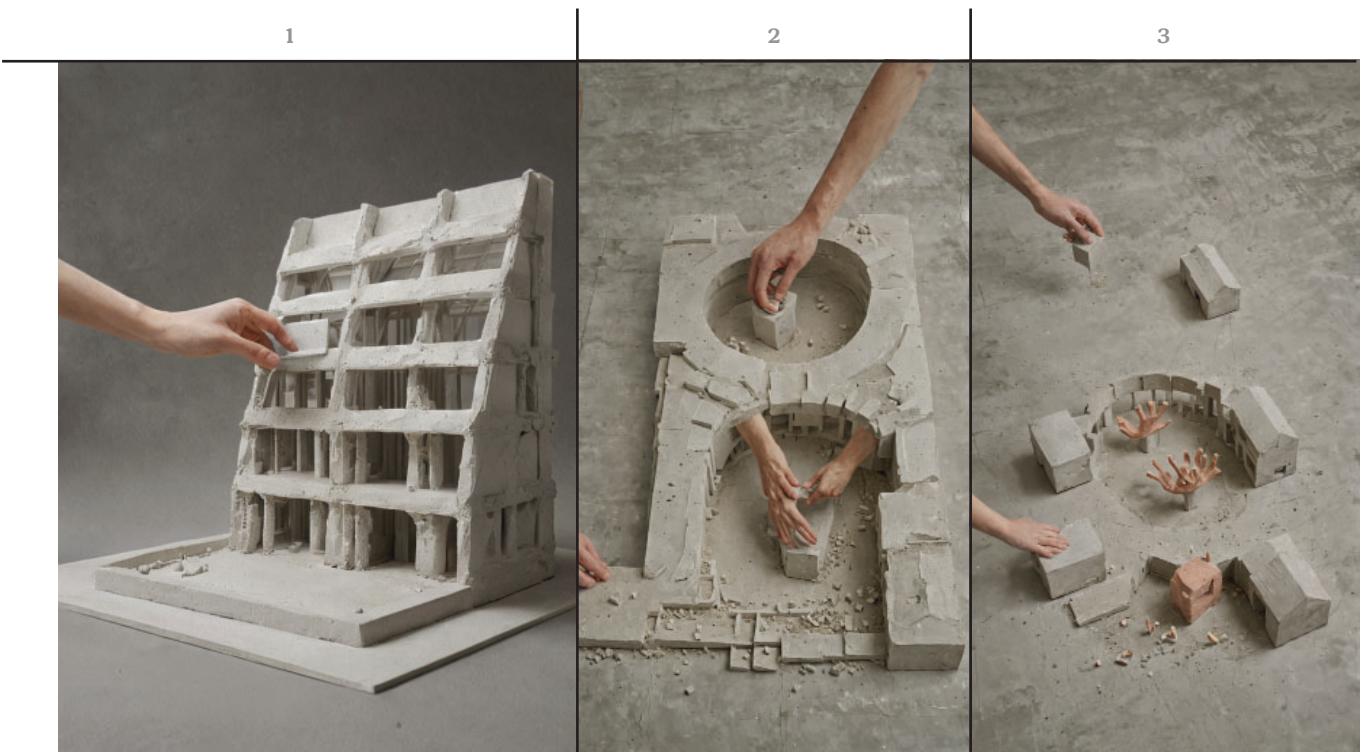


Figure 18. Process for Transparency fragment.

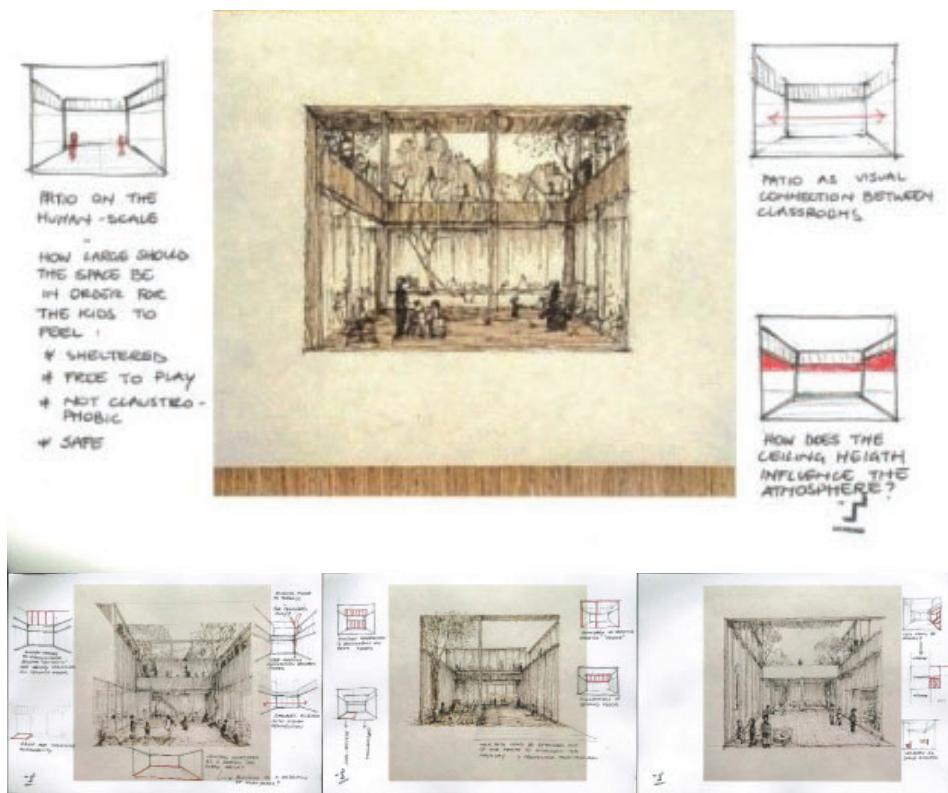


Figure 19. Example of annotation on a generated image.

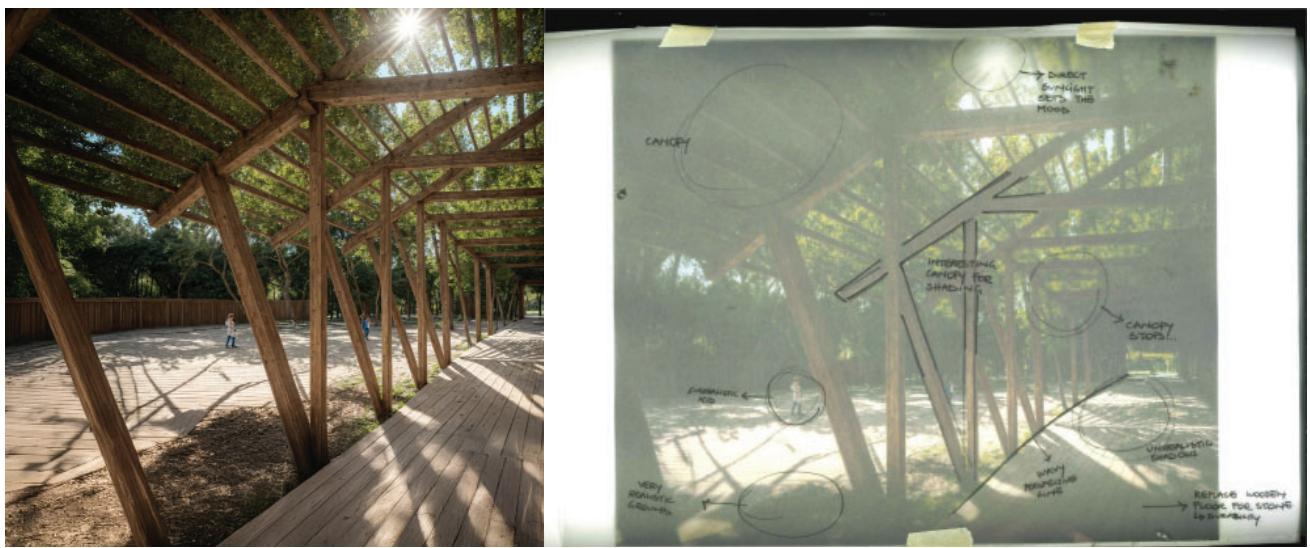


Figure 20. Additional example of annotation on a generated image.

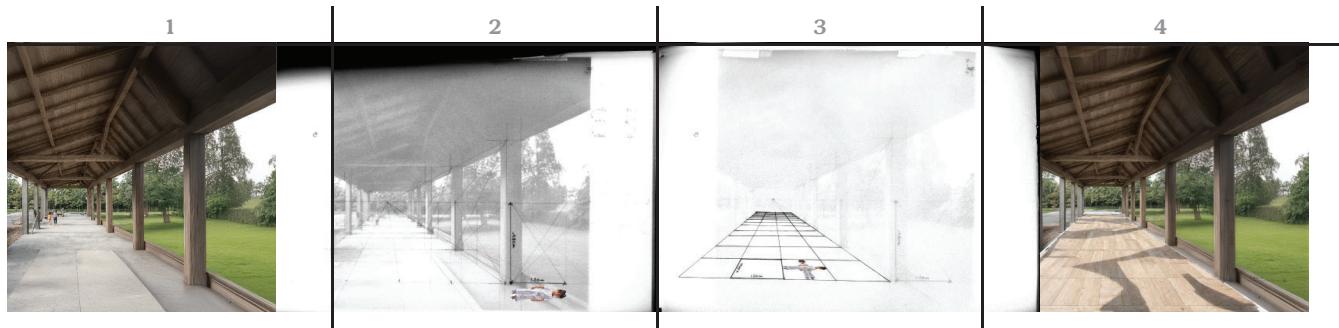


Figure 21. Additional example of annotation process on a generated image.

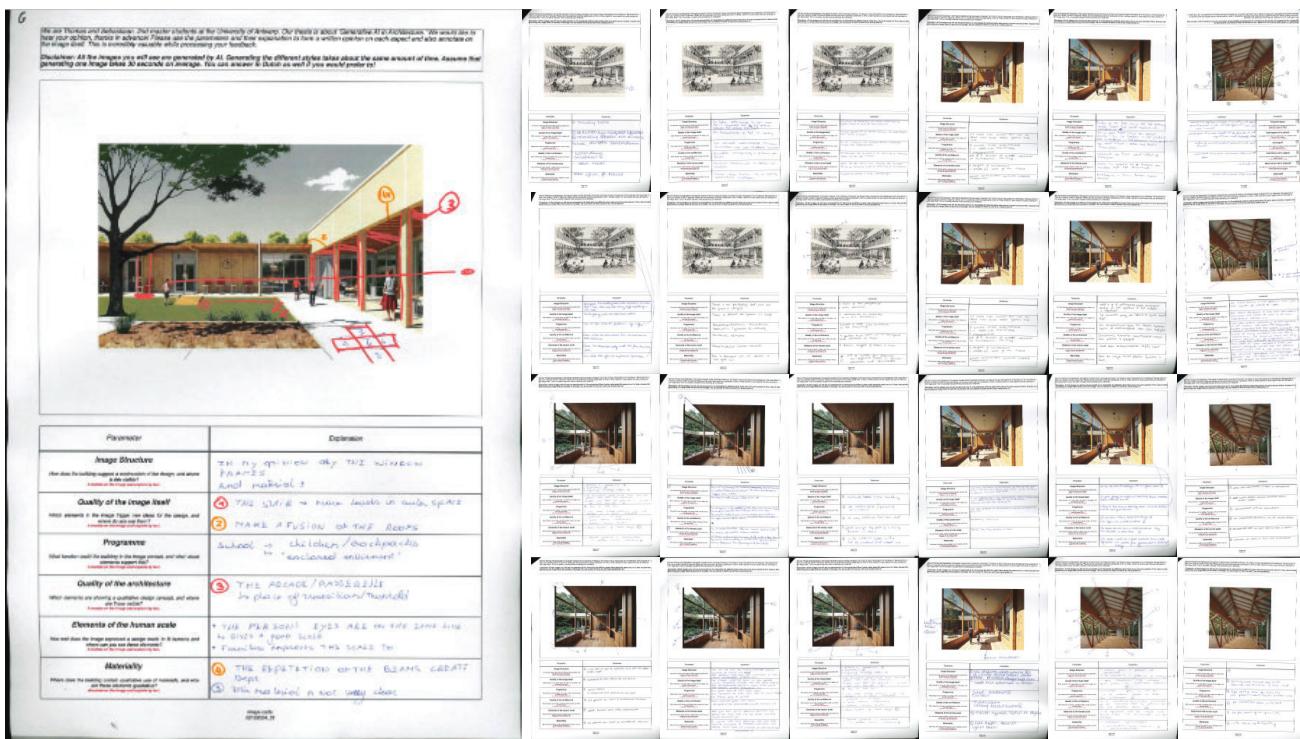


Figure 22. External annotation process on a generated image through fiches.

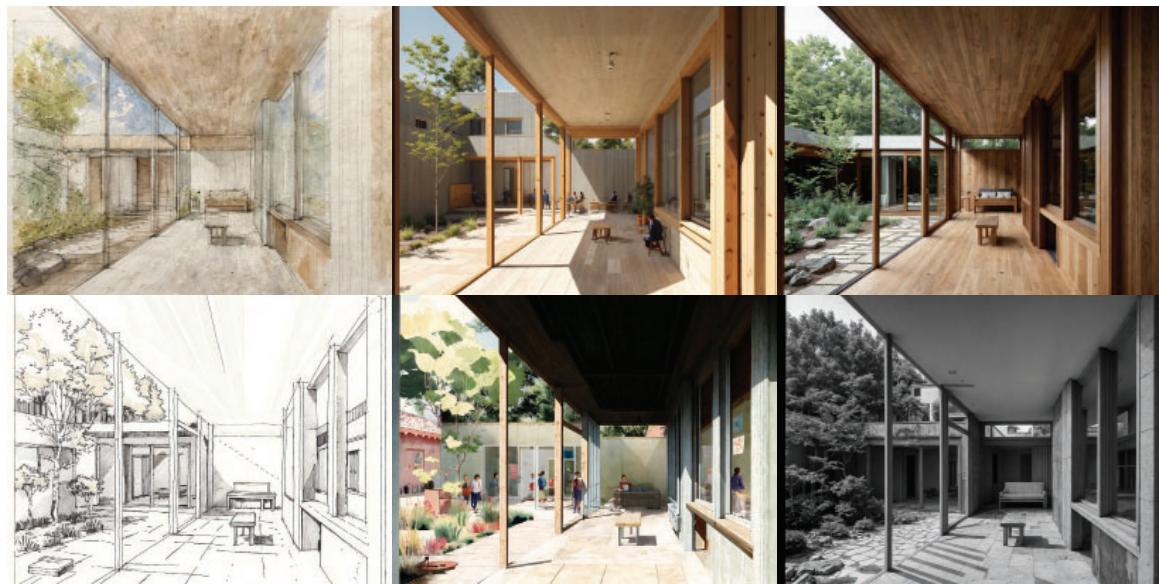


Figure 23. Stylistic differentiation on the same base image.



Figure 24. Bias in image generation through prompting. Left: Generated image, Right: Source Image.

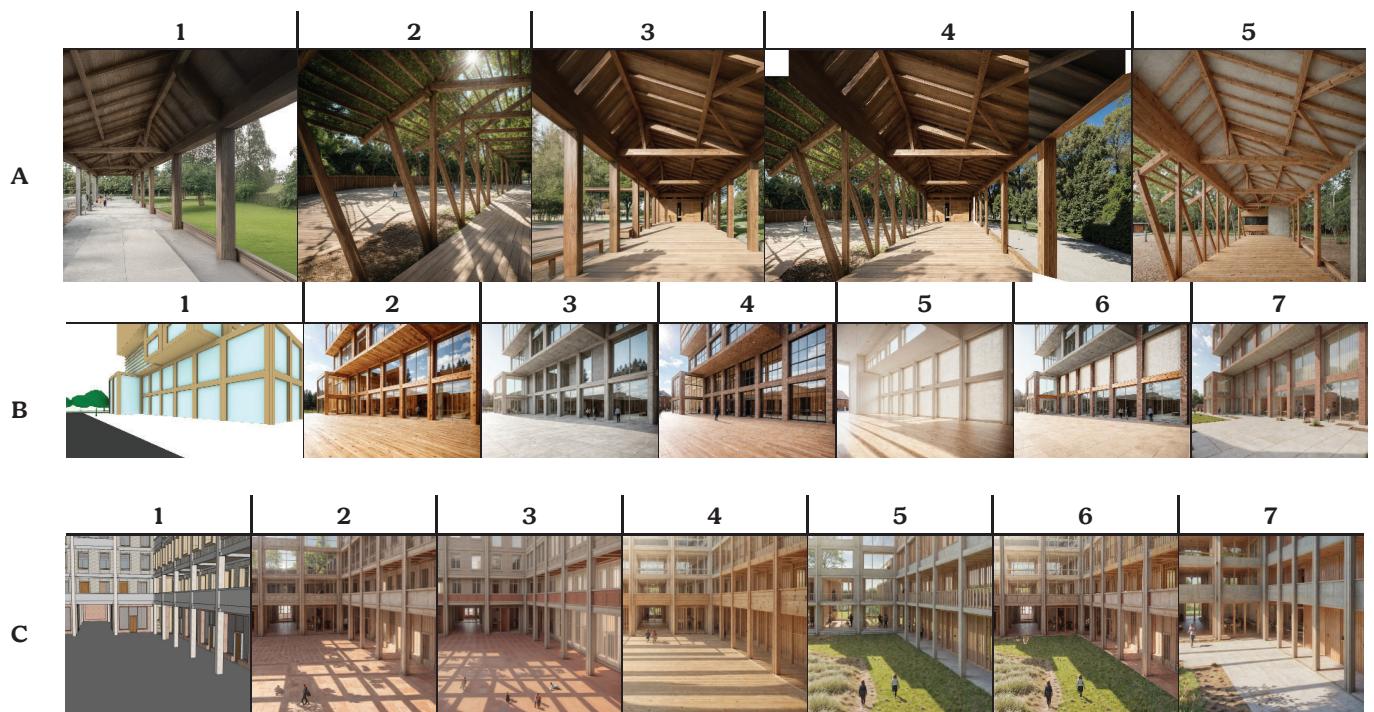


Figure 25. Examples of Collage Technique.

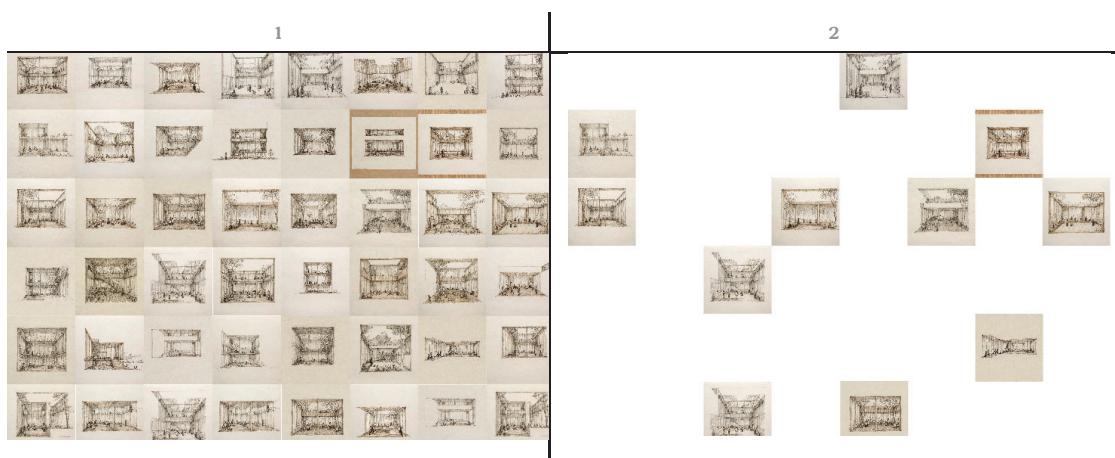


Figure 26. Example of Canvas Storm workflow,



Figure 27. Process of Retouche Technique workflow.



Figure 28. Process of Retouche Technique workflow based on PAAcademy input.

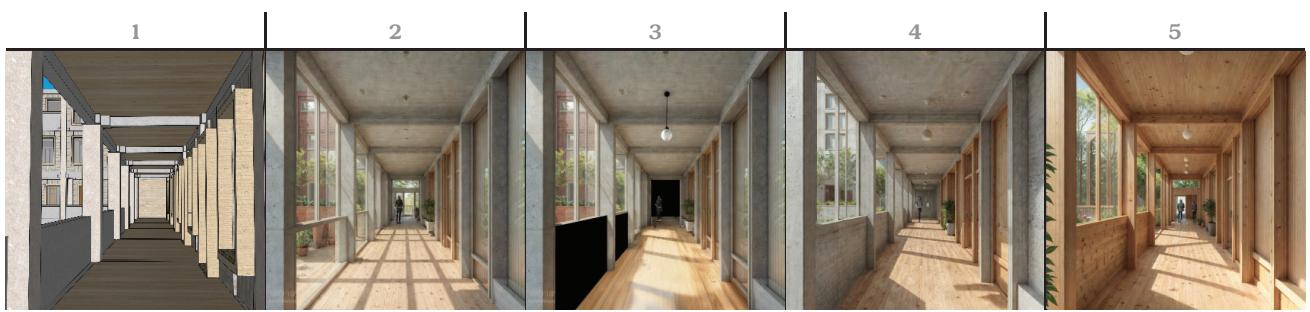


Figure 29. Process of Retouche Technique workflow. (Source: Gauthier Meyers)

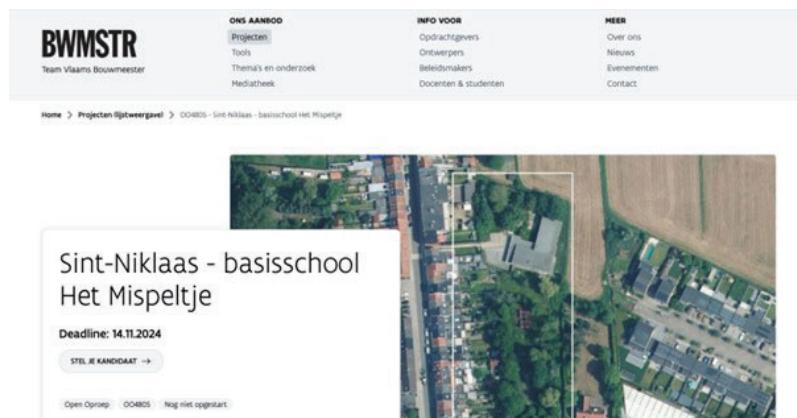


Figure 30. Open Call competition brief.

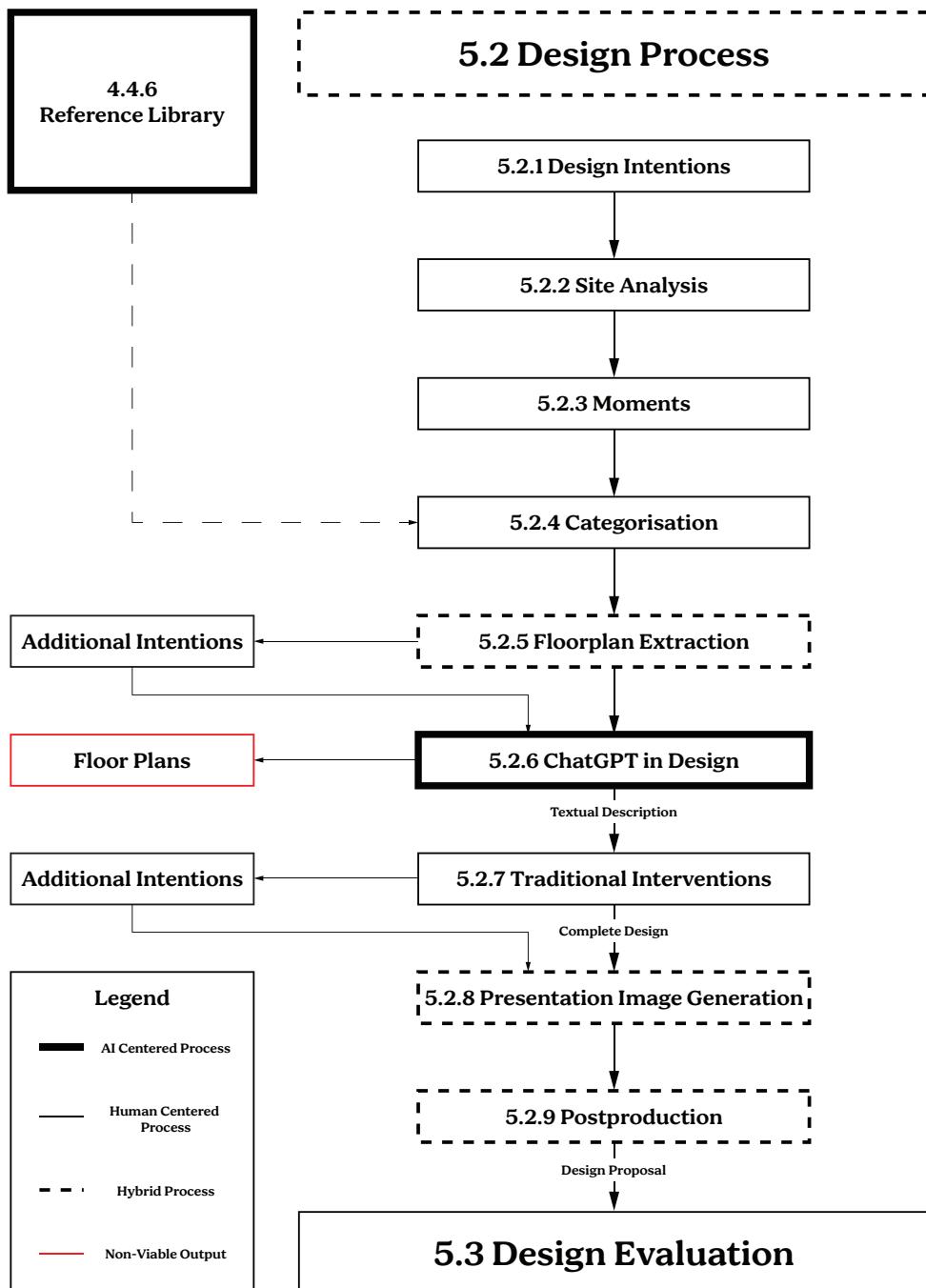


Figure 31. Scheme of hybrid design process.

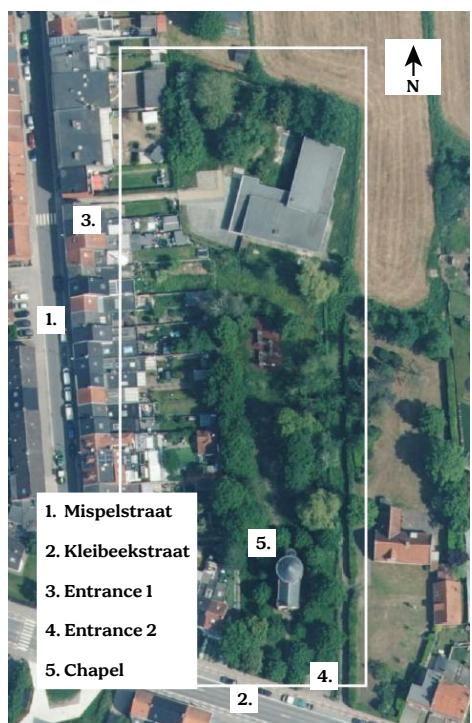


Figure 32. Site analysis.



Figure 33. Chapel on the site and sketch of its geometric simplification.

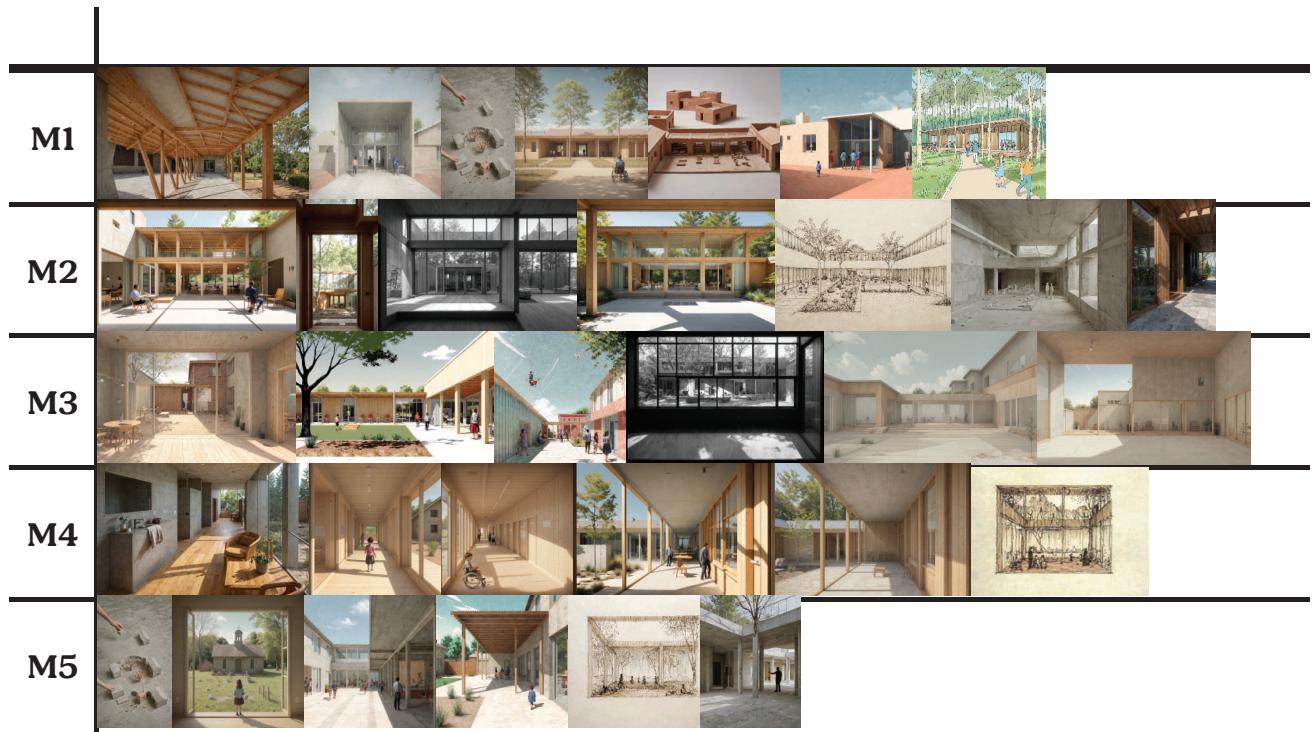


Figure 34. Selection of categorised images.

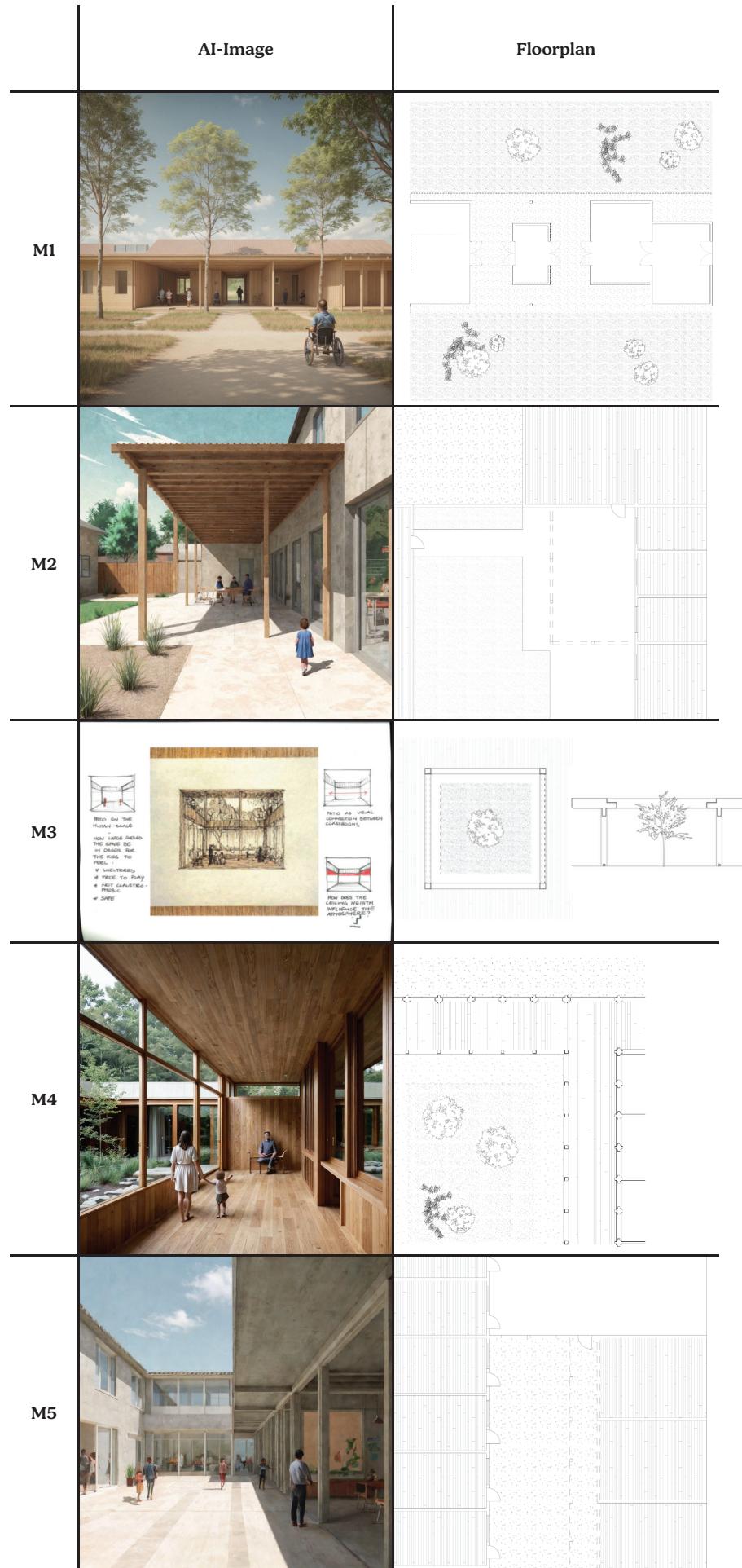


Figure 35. Selection of extracted floor plans.

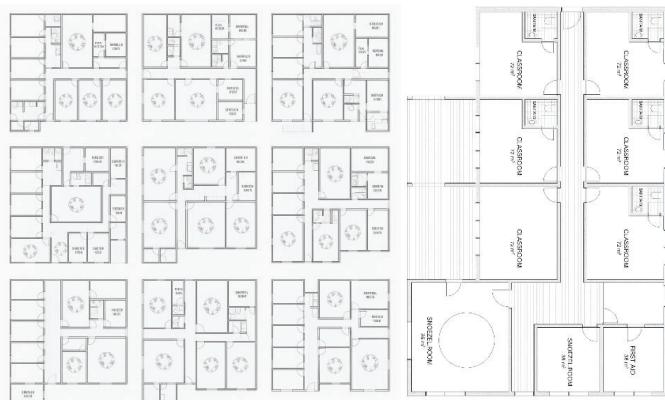


Figure 36. Selection of generated ChatGPT floor plans.



Figure 37. Contour input.

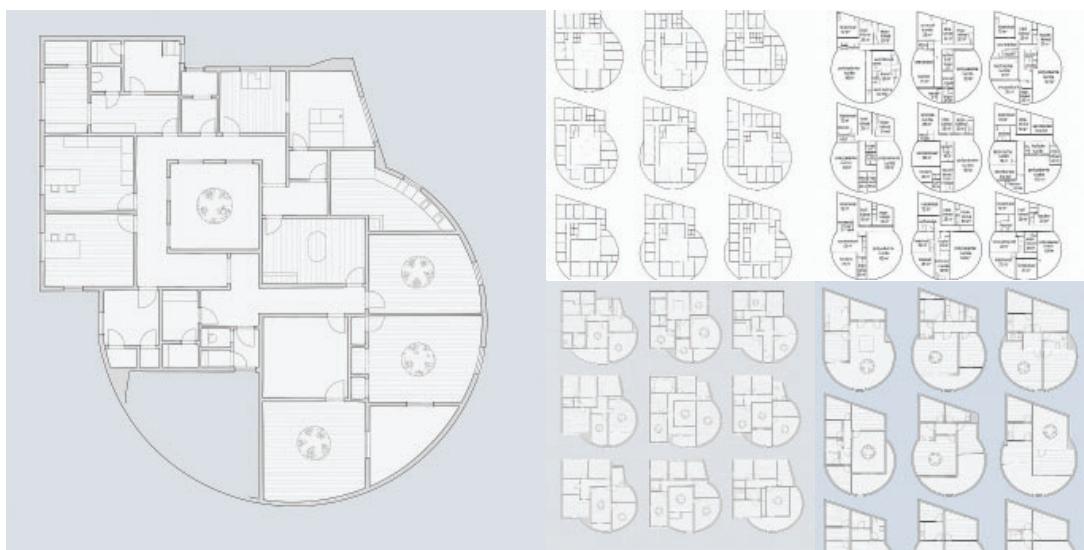


Figure 38. Generated ChatGPT floorplans with contour.

Absolutely — here is a **very high-level conceptual description** of how children with special needs (type 2) and their teachers, therapists, and supervisors engage with the building. This focuses on the **emotional, sensory, and spatial interactions** that architecture can support, anchored in the real needs of users.

#### ➊ A School That Understands Without Speaking

This school does not expect its users to adapt to it. It **adapts to them** — silently, patiently, respectfully. For type 2 students — children with cognitive and/or physical disabilities — every space they encounter speaks in a different language: not of signs or instructions, but of **form, light, material, and rhythm**. The building helps them **anticipate what comes next**, reduces friction, and gently encourages independence within a framework of care.

#### ➋ Arrival as Orientation

As a child arrives at the entrance — located deliberately at the **curved southeast edge** of the building — they do not encounter a maze, but a moment of **orientation**.

- The entrance is **wide and clear**, with generous overhangs shielding from rain and sensory overload.
- Surfaces are **non-reflective** and tactile: soft paving underfoot, warm timber at hand height.
- No automatic doors suddenly hiss open. Instead, a slow, deliberate passage into a **buffer zone** allows time to adjust — neither outside nor inside yet. From here, the **polyvalente ruimte** is visible — flooded with morning light — acting as the **visual anchor** for both children and adults. It is **the heart**, spatially and emotionally.

#### ➌ Calm, Structured, Predictable

Children with special needs often thrive in spaces that are:

- Logically sequenced**, with clear transitions and legible boundaries.
- Predictable**, so that anxiety is reduced through consistent layouts.
- Visually and acoustically calm**, reducing sensory overload and supporting focus.

This is not just a plan. It's a choreography:

- The **classrooms** are all the **same size and proportion**, arranged in a rhythm that children can learn by heart. Repetition is not monotony — it is **reassurance**.
- The **doors and windows** are always in the same position. Storage is integrated and concealed, avoiding visual clutter.
- Floor textures change slightly** between circulation and learning zones, allowing even non-verbal children to sense where they are.

#### ➍ Spaces That Support Autonomy and Retreat

The school is designed around a balance between **engagement and retreat**.

- Every classroom has a **niche or corner**, where a child can sit alone, partially enclosed — still visible, but softly separated.
- There are **windows at eye level** for children in wheelchairs, and **quiet side doors** leading to small outdoor patios for one-on-one activities or regulated outdoor time.
- The **snoezelruimte** is not hidden away but part of the care wing — easily accessible but acoustically isolated.

#### ➎ Supportive Architecture for Staff

Teachers, coaches, and therapists are not stationed in offices — they **inhabit the building alongside the children**.

- The layout allows **visual connectivity** without requiring constant physical movement. From the polyvalente ruimte, a staff member can see both the classroom cluster and the therapy wing.
- Breakout rooms** for therapy or small group work are **always** just one door away — no long transitions.
- There are **small resting alcoves**, even for staff — because a culture of care must include caregivers.

#### ➏ The Building as a Pedagogical Partner

This school teaches — not just through curriculum, but through **its physical presence**.

It teaches that:

- Slowness is okay**.
- Silence is a kind of communication**.
- Every child deserves architecture that reflects their reality**.

The building scaffolds learning by reducing noise, guiding the body, and encouraging the senses. It is a **low-stimulation, high-warmth environment**, where **thresholds are softened**, rooms are **understandable**, and the **architecture holds everyone** — child and adult — with equal dignity

Figure 39. ChatGPT's Textual Output

## Traditional Design Process

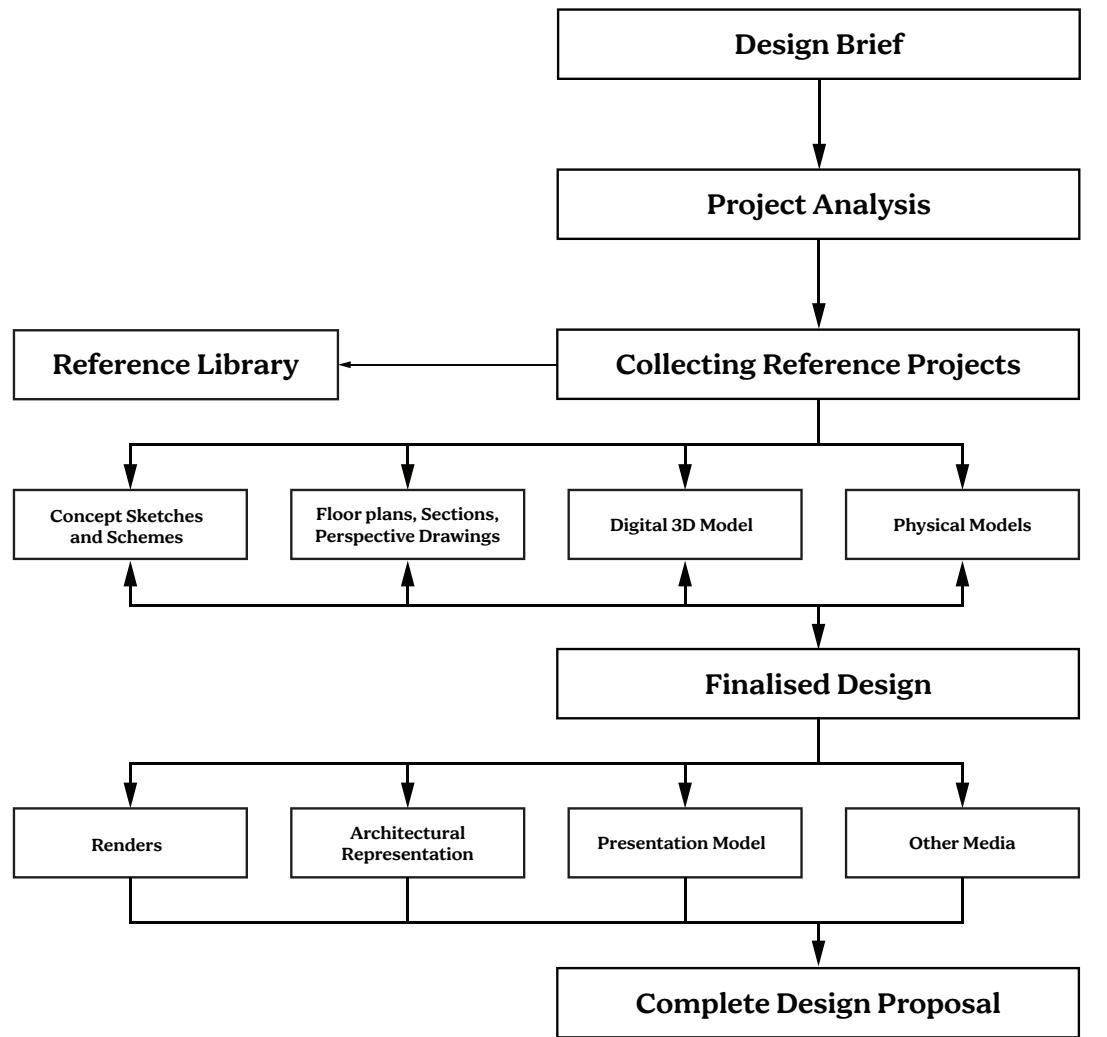


Figure 40. Our traditional design approach.

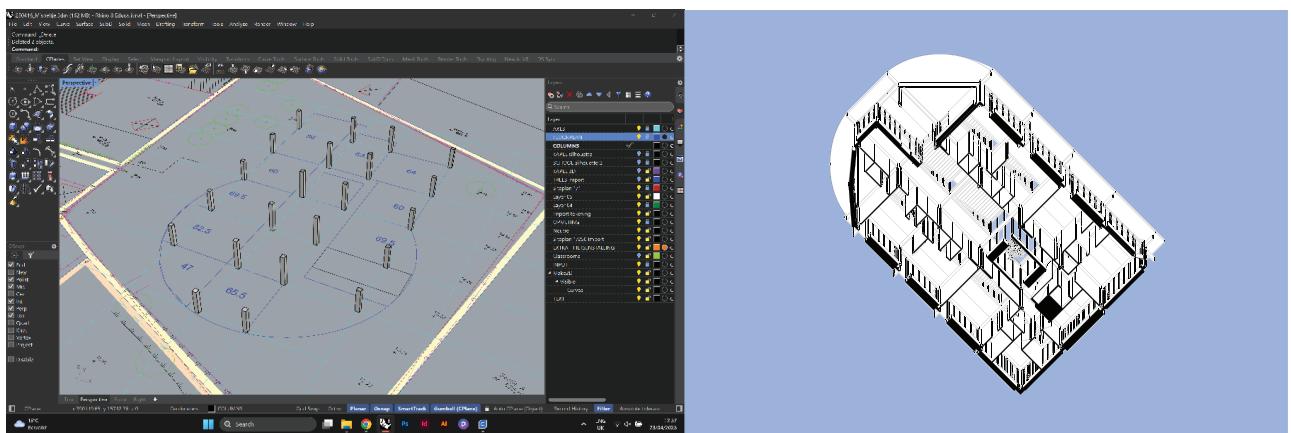


Figure 41. Resulting 3D model and axonometry.



Figure 42. Inspiration through Sora generation reminiscent of Utzol Centre, Aalborg.

	Shaded mode	Artistic mode	Raytraced mode	Iterative process in Sora	Selected output images
M1					
M2					
M3					
M4					

Figure 43. 3D-to-Presentation workflow through Sora.

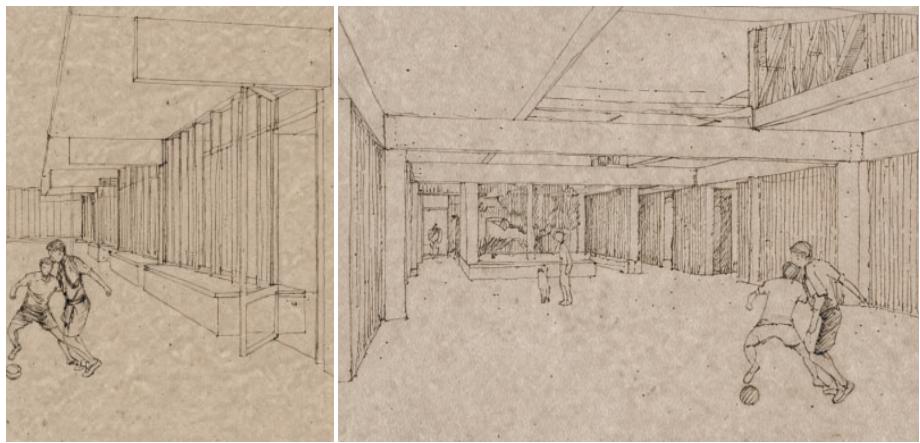


Figure 44. Results using older Stable Diffusion presets.



Figure 45. Left: Raw Sora output, right: postproduction.

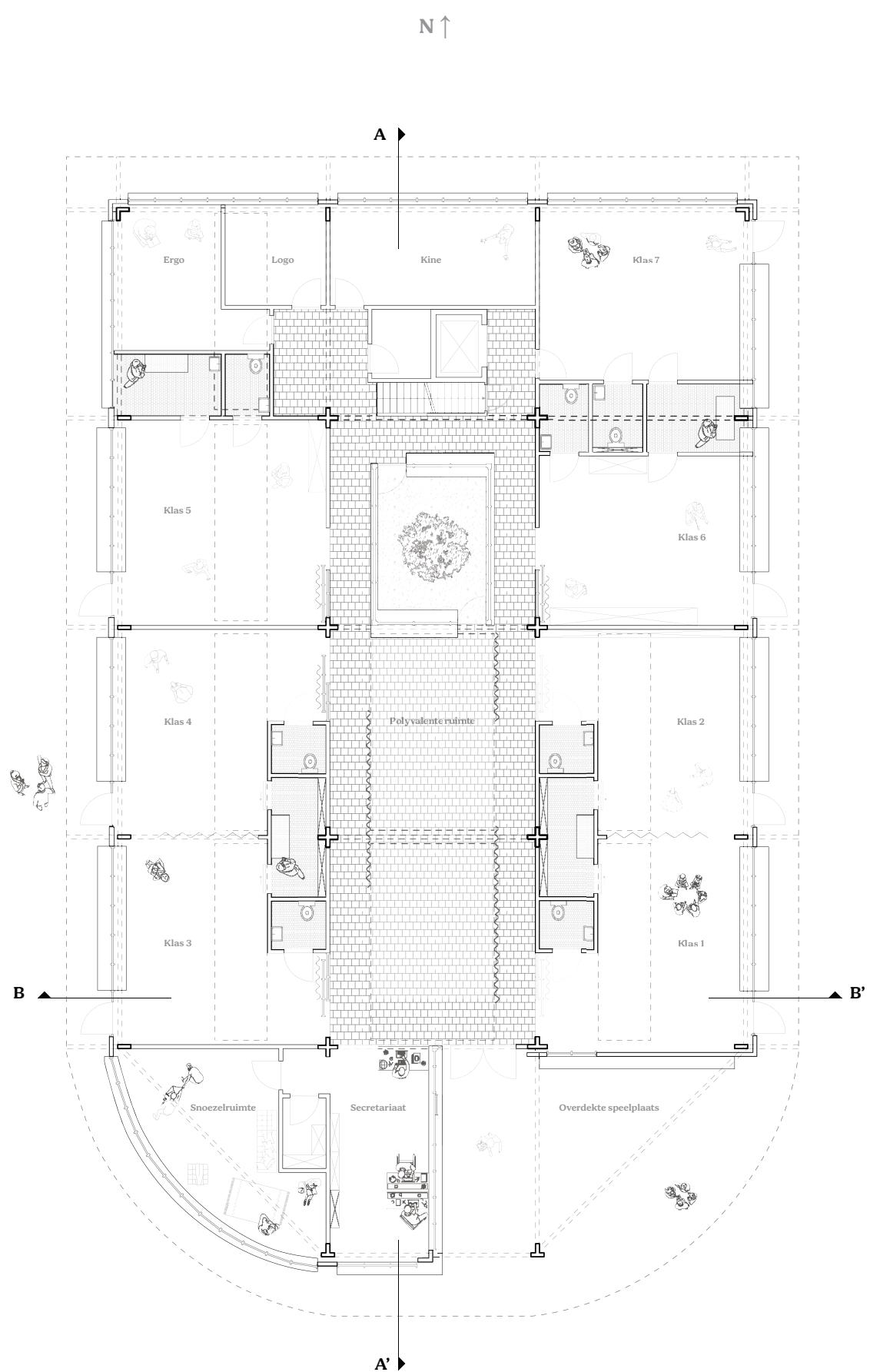


Figure 46. Floor plan +0, 1/200.

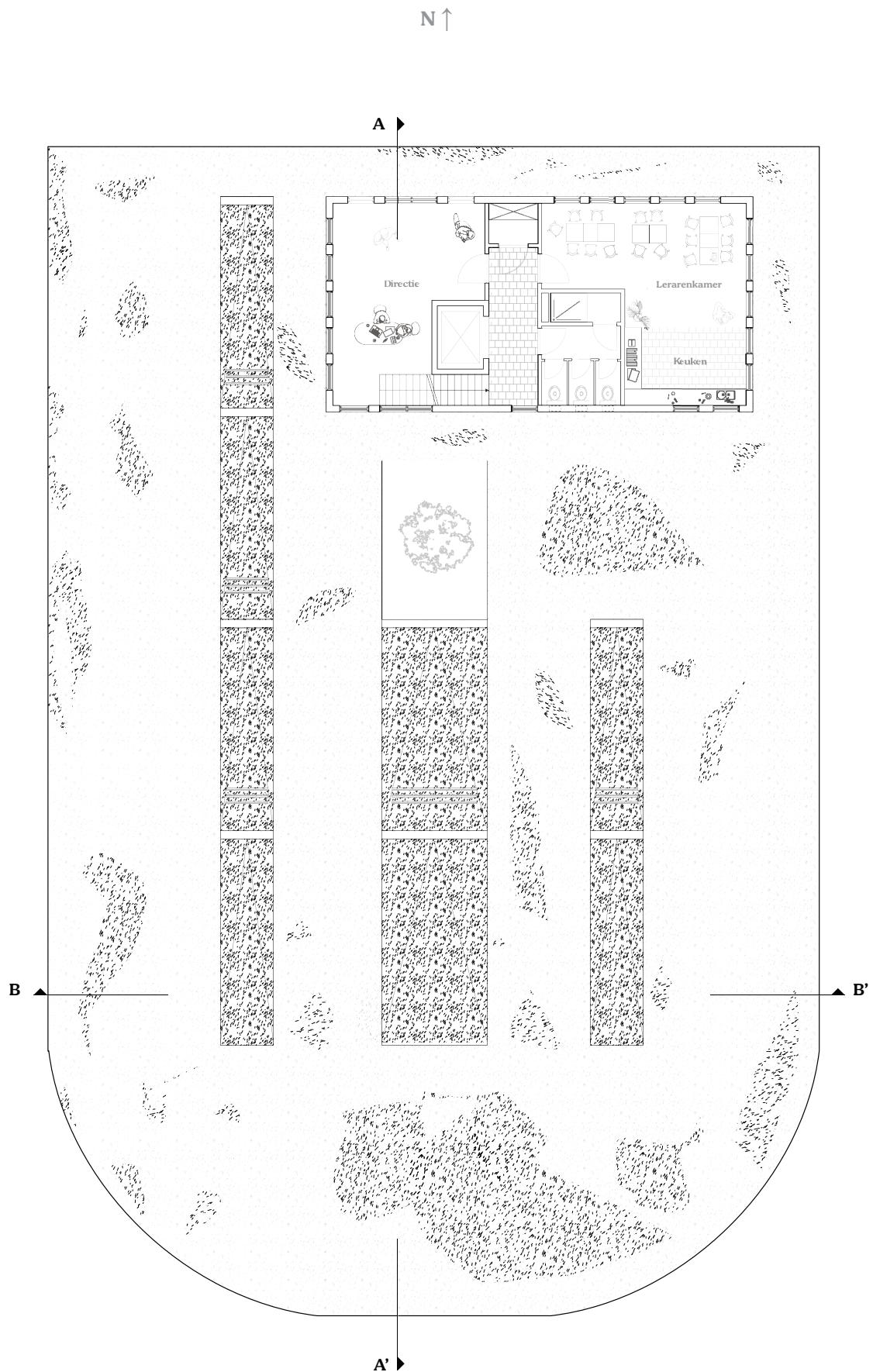


Figure 47. Floor plan +1, 1/200.

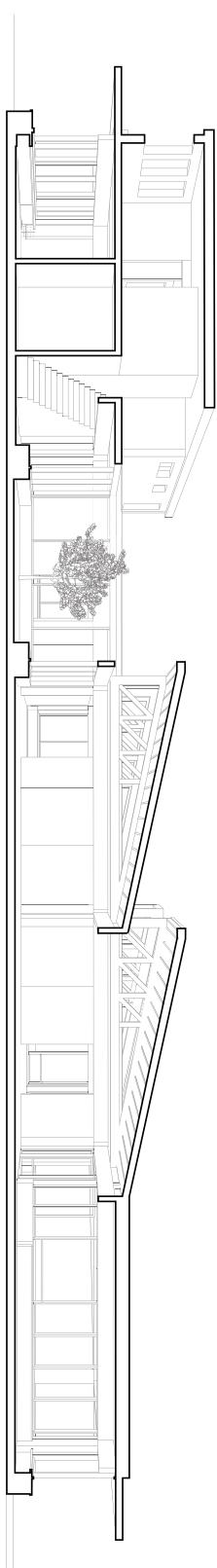


Figure 48. Section AA', 1/200.

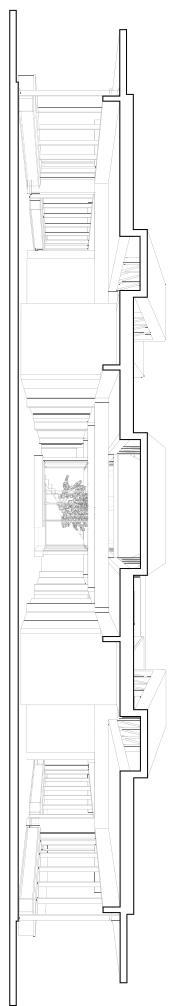


Figure 49. Section BB', 1/200.



Figure 50. Process of generating more abstract imagery.

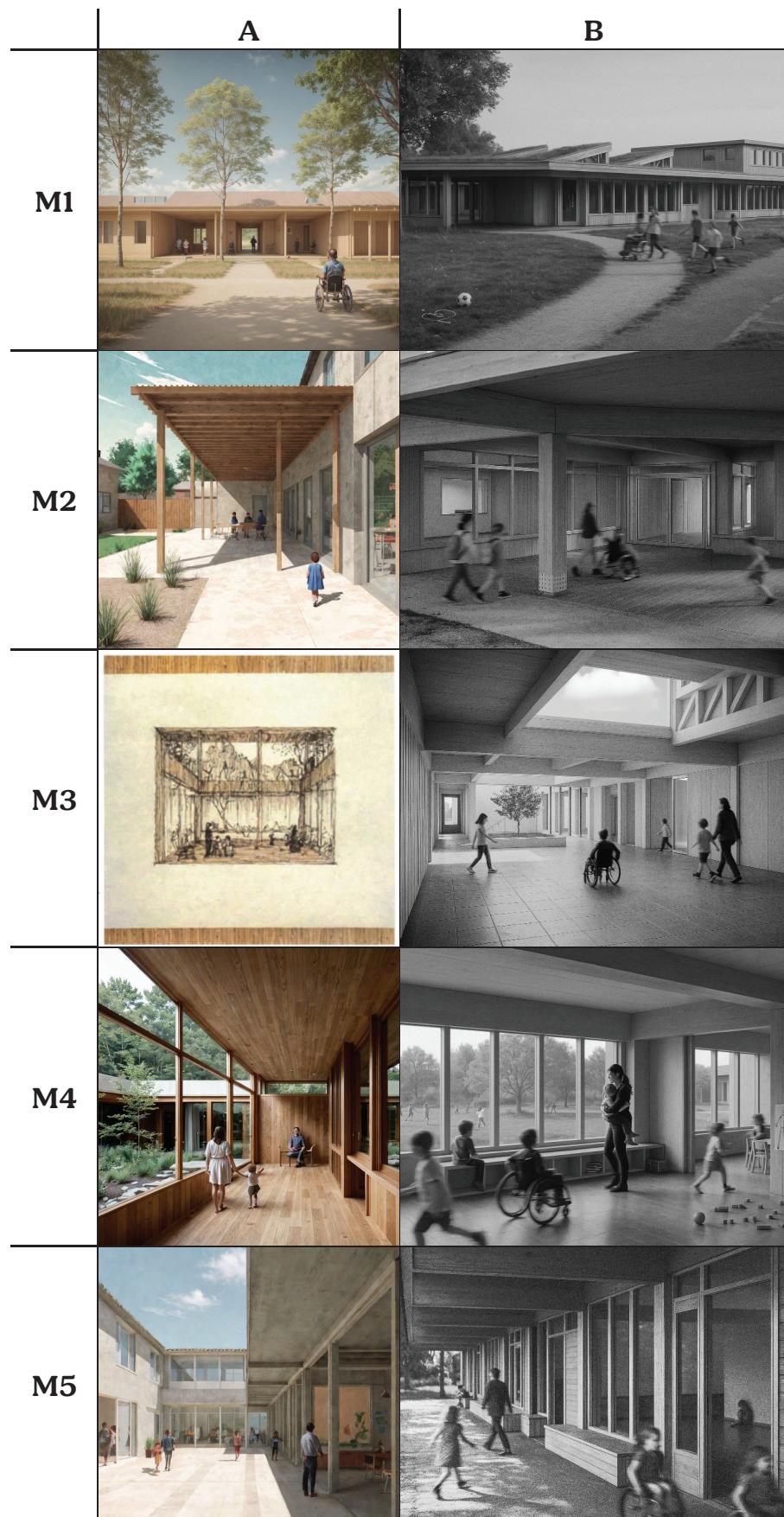


Figure 51. Design elements that reference the original generations.

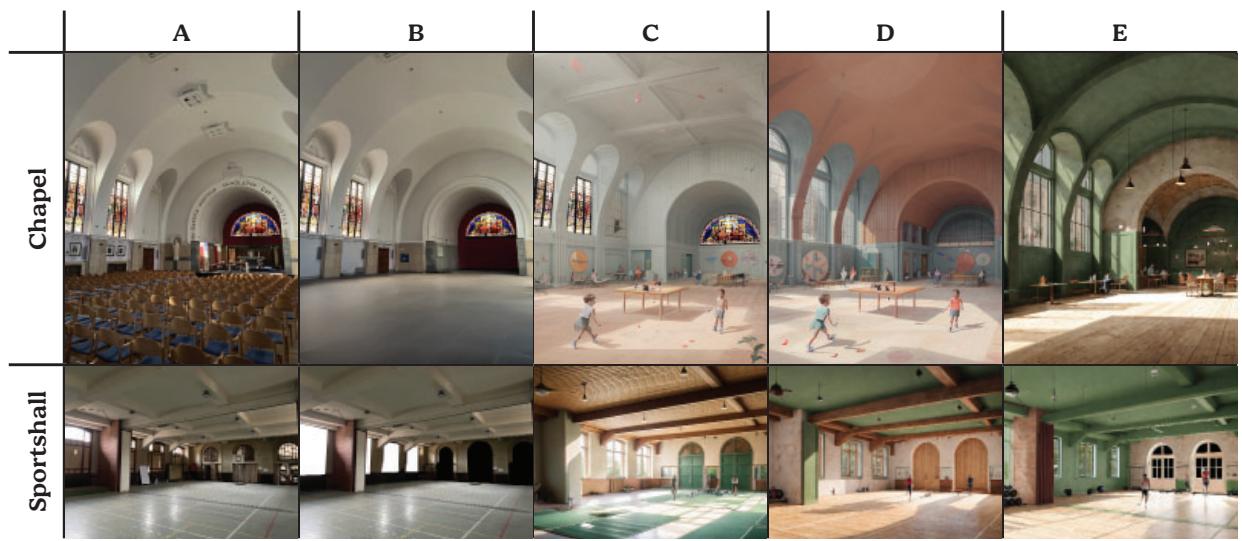


Figure 52. Process of generating visuals for an architectural office.

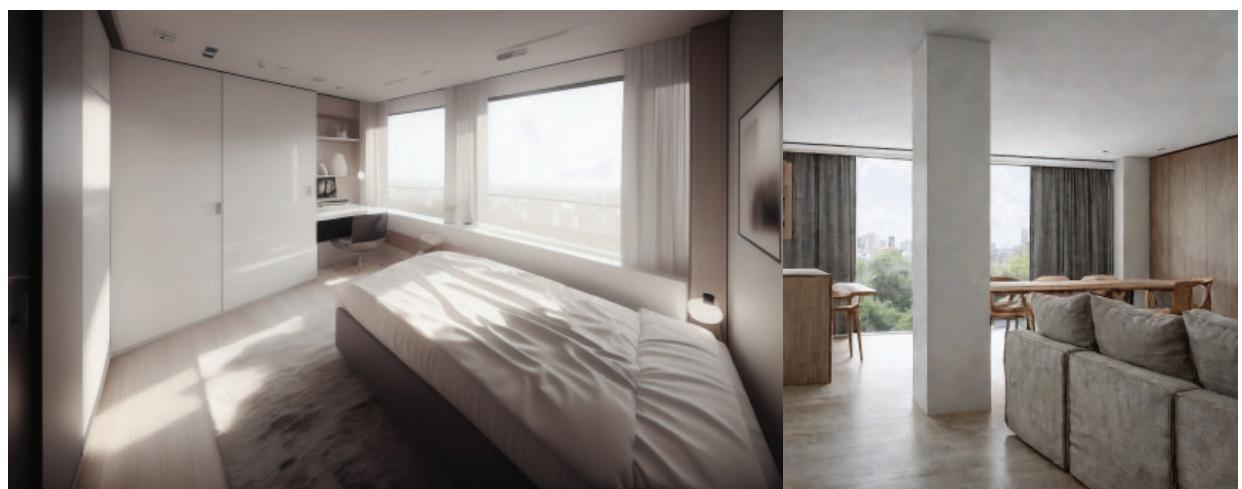


Figure 53. Images created in dialogue with estate agent.