

# Voortdurend Bench: A Masterpiece in Houthavenpark Amsterdam

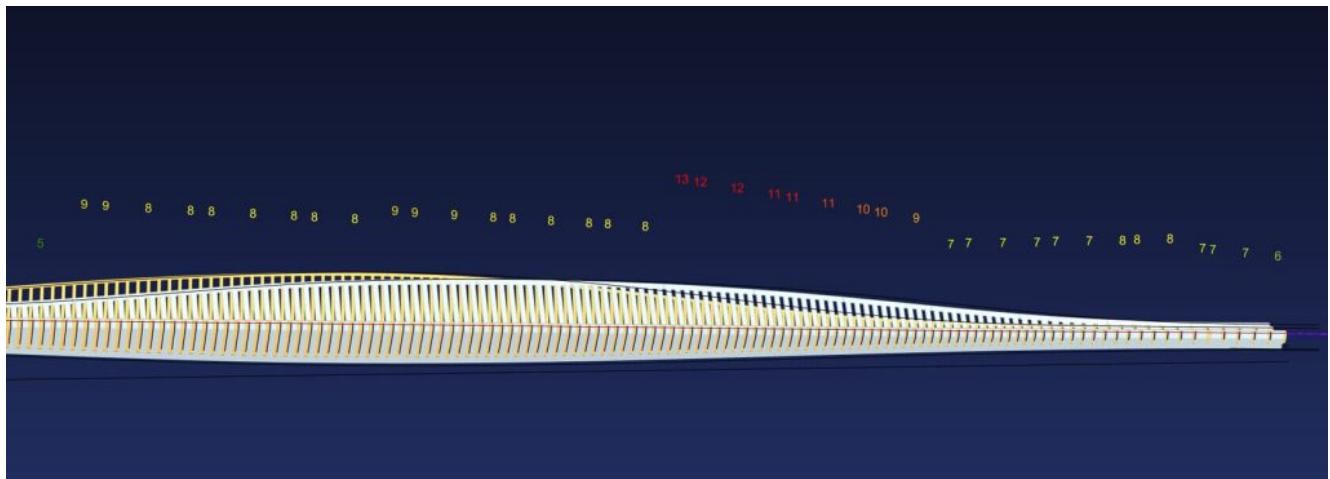
Voortdurend, a 170-meter-long art installation and bench, now graces Houthavenpark in Amsterdam. Designed by [Marjet Wessels Boer](#), this project seamlessly merges art and functionality, offering a visually striking public amenity. The realization of Boer's vision required innovative problem-solving and advanced computational techniques.

[STUDIOGIJS](#), led by Gijs de Zwart, played a crucial role in transforming the original design into a manufacturable product. The project required extensive use of [Rhino](#) and [Grasshopper](#). Each section of the bench was meticulously scripted, with only the five input curves per part left to define its unique shape.



The bench's design is both intricate and dynamic. The backside modules start behind the front parts, align at seating level, and then disappear again, creating a visually engaging pattern when viewed from different angles.

These backsides are tilted at a five-degree angle, adding to the installation's dynamic aesthetic as people walk or cycle past.

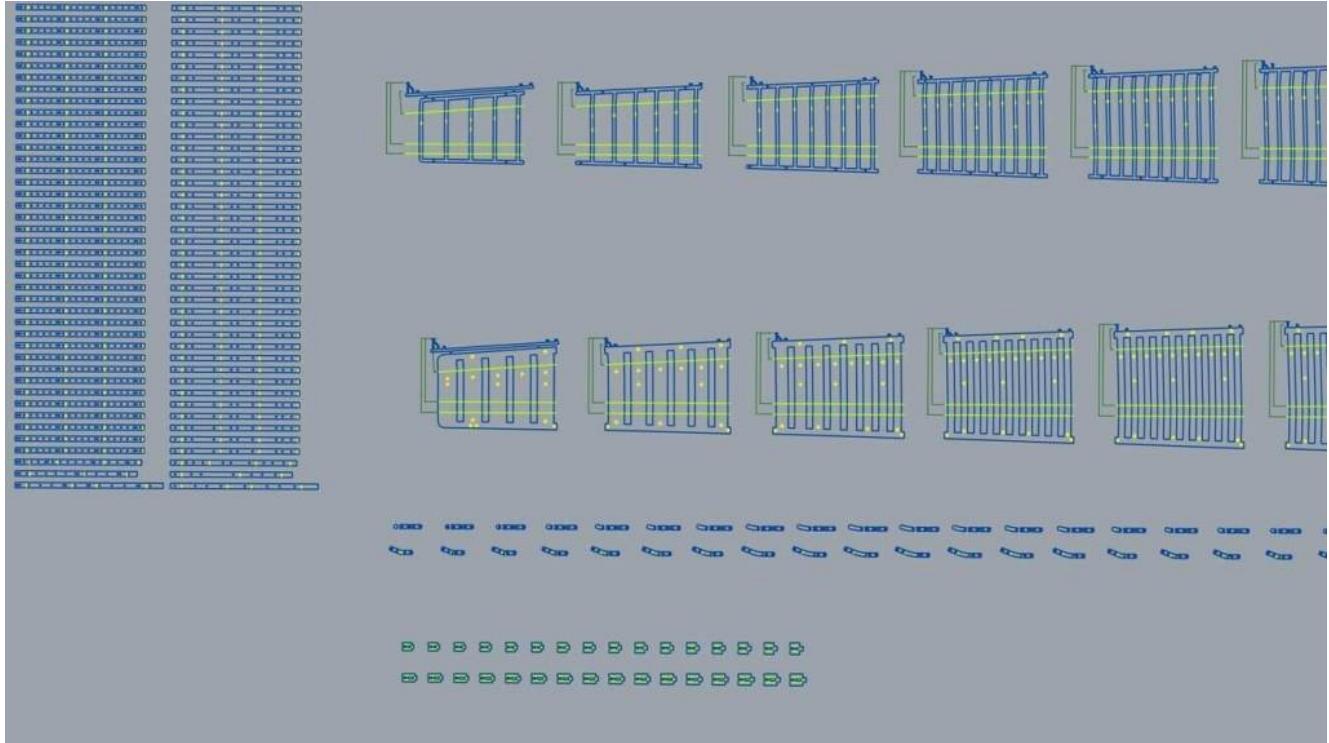


One of the major challenges was performing the installation on uneven concrete blocks. Due to the soft sand ground typical of Amsterdam, these blocks varied in height by up to 17 millimeters. Ensuring the bench remained level at seat height was paramount.

This was achieved by creating customized filler blocks, tailored to the precise measurements of the concrete bases. Each bench part, approximately one meter in length, required these bespoke supports to maintain the desired continuous form.



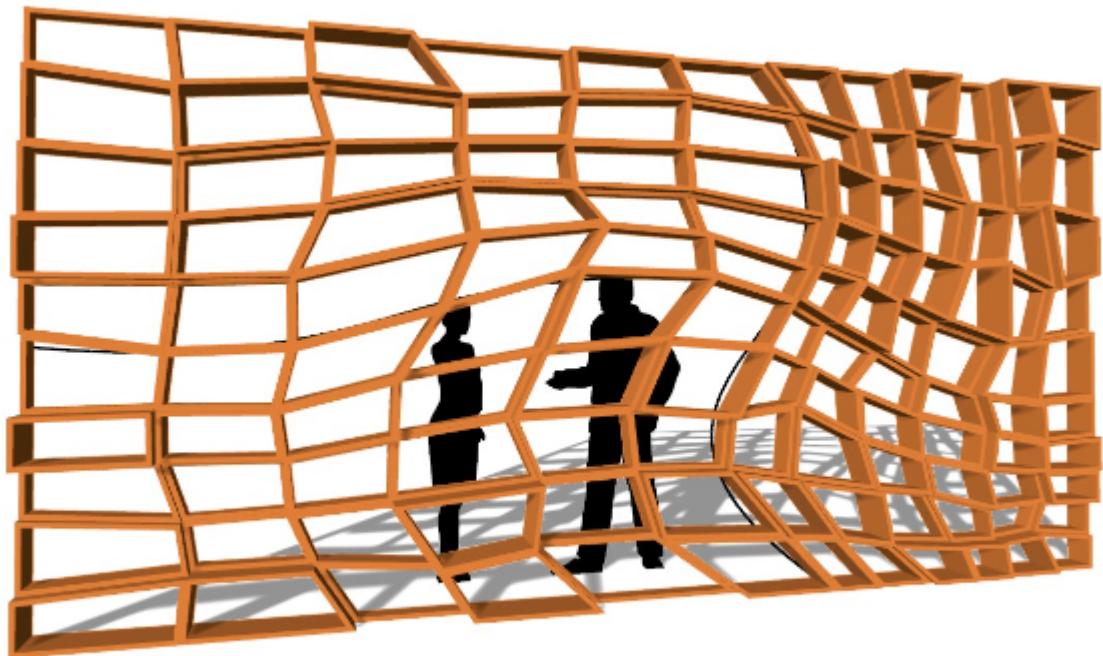
Another significant hurdle was generating accurate 2D production drawings from the 3D model. The 8mm thick laser-cut steel parts required precise bending, which was complicated by the lack of a dedicated sheet metal feature in Rhino. To overcome this, a custom algorithm was developed to account for bend factors, ensuring the parts could be manufactured correctly. Additional extensions were added to facilitate the bending process, which were manually removed before final finishing.



Throughout the project, various plugins enhanced the workflow. [Elefront](#) was used to manage block items and efficiently bake objects, while [Pterodactyl](#) aided in documentation. [Telepathy](#) helped manage and reuse parameters, preventing excessive complexity in the Grasshopper scripts.

Despite these tools, the project's complexity demanded a script comprising over 5000 components, taking up to 20 minutes to calculate each bench part fully.

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## See Also

[PANELING TOOLS FOR GRASSHOPPER 3D](#)

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Voortdurend stands as a testament to the power of computational design and the meticulous effort required to bring such an ambitious project to life. It not only enhances the park aesthetically but also serves as a functional piece of public art, demonstrating the successful blend of artistry and engineering.