

FUTURE HEIRLOOMS

(Speculating) Dom Hans van der Laan's (Irrational) Bench

Design Proposal Document

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INTRODUCTION

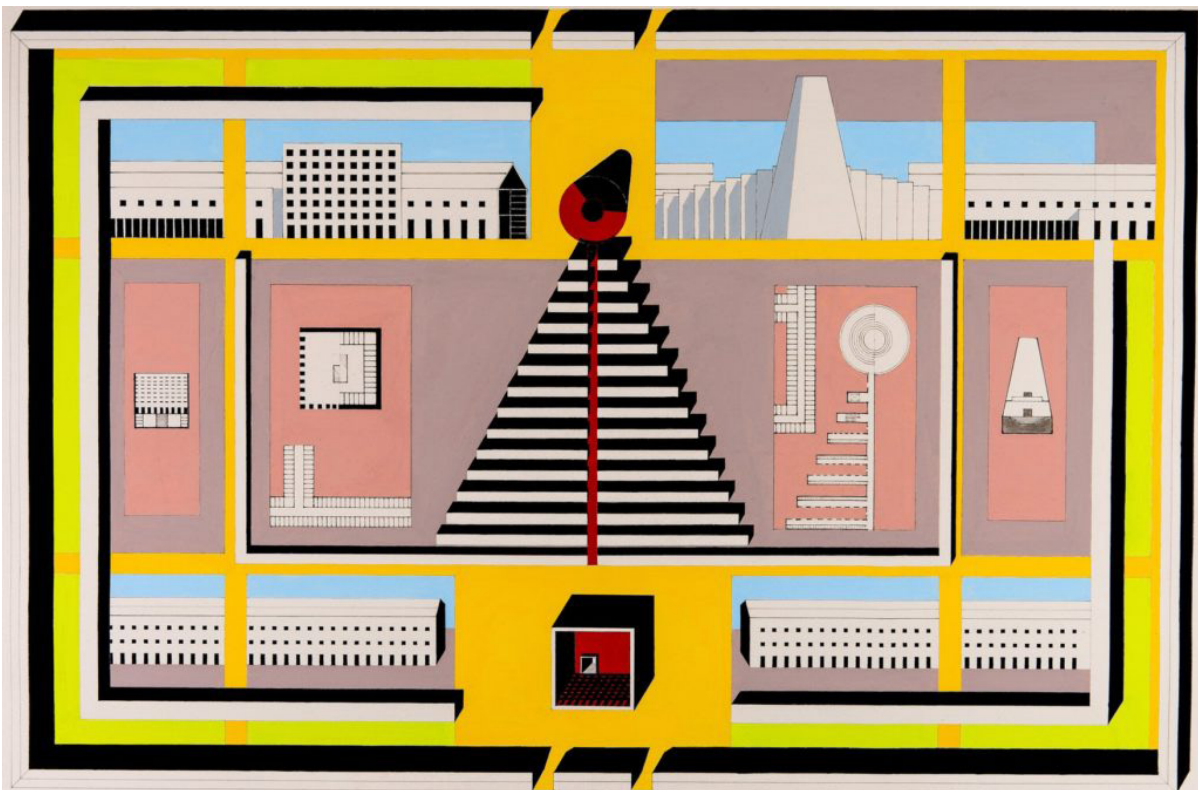
Starting from Typologies

keywords: typology, furniture heritage, more-than-human, Dom Hans van der Laan

Design objects are more than singular/non-referential beings; they are part of the environment they shape, as well as the historical context – like an architectural intervention, a street, a district, a community. Objects accommodate *the humans* who use them intensively. The typologies of furnitures we had until recently had stopped there in terms of users. But let's not stop there anymore. Let's add *non-humans* to the users, speaking of objects from our current perspective. Today, tomorrow, every day – and every year. That is why we need a new outlook of objects that stand the test of time and help us understand how to live together. *Staying relevant thanks to their solidity, usability and durability.* This is what makes up the definition of *typology* in architectural sense in my proposal.

As a designer who is particularly interested in typologies, we can look at furniture through that thread. In that way, they can be embedded in our complex, ever changing interior, architectural and even urban environment. Trends may come and go, but sticking with the long lasting power of the ordinary, the everyday is here to stay.

The combination of *reduction and simplicity* on the one hand and enrichment and sophistication on the other hand lends additional meaning to our objects. Yet, some needs to be *updated* in *our current understandings* of today, as with all typologies. These updates need to stem from a careful understanding of the *context* and an interest in strong formal and material presence. This proposal is of looking into the design heritage of *Dom Hans van der Laan*, putting it in today's context and restoring his rational ideas.



RATIONALITY

Dom Hans van der Laan

keywords: monk, plastic number, Bossche School

Dom Hans van der Laan (29 December 1904 – 19 August 1991) was a Dutch Benedictine monk and architect. He was a leading figure in the Bossche School. His theories on numerical ratios in architecture, in particular regarding the plastic number, were very influential. He may be regarded as intellectually related to the second generation of “De Groep”.

Hans studied architecture from 1923 to 1926 at the Technische Hogeschool of Delft, where M.J. Granpré Molière was the dominant figure. Granpré Molière regarded his Catholic faith as inseparably bound up with architecture, a concept with which Van der Laan could not agree. He did not complete his course and in 1927 moved to St. Paul’s Abbey, Oosterhout, to become a Benedictine monk. He was ordained

into the priesthood in 1934. Later he lived in St. Benedictusberg Abbey at Mamelis near Vaals. As sacristan he developed a strong interest in the design of liturgical objects and church furnishings. His interest in architecture was also reawakened. He tried to find an answer to the question of which criteria the aesthetics of a building must meet, and developed a theory of numerical relationships in which the “plastic number”, a three-dimensional expression of the golden ratio, played a central part.

After WW II, Van der Laan led a course in Church Architecture and monasteries, and also of secular buildings. From these courses arose the Bossche School. To illustrate his ideas about relationships he made use of two teaching aids developed by himself: the architectural abacus and the morphotheque, for two- and three-dimensional forms respectively. [1]



[1] Dom Hans van der Laan, *Biography*: [https://nl.wikipedia.org/wiki/Hans_van_der_Laan_\(architect\)](https://nl.wikipedia.org/wiki/Hans_van_der_Laan_(architect))
Image Credit: <https://domhansvanderlaan.nl/biography/>

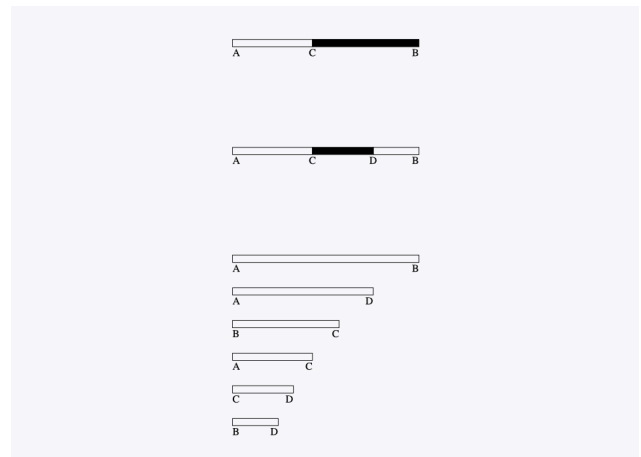
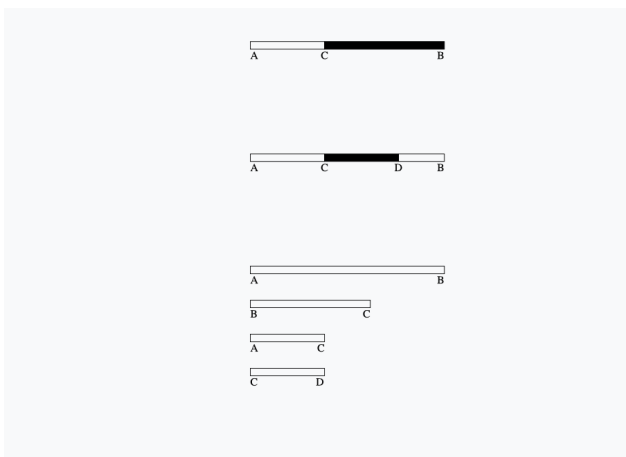
RATIONALITY

Plastic Number

keywords: typology, furniture heritage, non-human, Dom Hans van der Laan, restoring rational ideas

With the *Plastic Number*, Dom Van der Laan found a proportion that allowed all six segments produced by two subdivisions to be a continuous ratio, forming an additive geometric progression. The discovery of the *Plastic Number* grew out of a dissatisfaction with the *Golden Section*. Dom van der Laan claimed that this proportion did not allow for a certain *harmonious progressive subdivision of a measure*. When subdividing the largest measure according to the Golden Section ratio, one ends up with two equal parts. This is the first definition of the Plastic Number, as explained by Dom Van der Laan in his first lecture series in Leiden, on 16 January 1943.

| I | II |
|--|--|
| Subdivision of AB into AC and CB according to the Golden Section: 1:1,61803... | Subdivision of AB into AC and CB according to the Plastic Number: 1:1,324718... or ca. 3:4 |
| Subdivision of the largest part CB into CD and DB according to the Golden Section. The result is two equal parts, AC and CD. There is no continuous subdivision. | Subdivision of the largest part CB into CD and DB according to the Plastic Number. C:D and A:C relate as 3:4. There is a continuous subdivision. |
| $AB : BC = BC : AC$ $AC = CD$ | $AB : AD = AD : BC$ $= BC : AC$ $= AC : CD$ $= CD : BD$ |
| two equal parts 'sameness' | |
| Golden Section: no continuous series Mathematical definition: $1 + x = x^2$ | Plastic Number: a continuous series of six parts interrelated by ca. 3:4 Mathematical definition: $1 + x = x^3$ |



PRACTICE

Design of the Table

keywords: section, plastic number, extrusion, merging aesthetics of building through objects

Dom van der Laan designed his furniture using its section as a pattern. Here are the basics of a table at Roosenberg Abbey. The dimensions of the leg, table top and base are the yardstick for the overall table. into the priesthood in 1934. Later he lived in St. Benedictusberg Abbey at Mamelis near Vaals. As sacristan he developed a strong interest in the design of liturgical objects and church furnishings. His interest in architecture was also reawakened. He tried to find an answer to the question of which criteria the aesthetics of a building must meet, and developed a theory of numerical relationships in which the “plastic number”, a three-dimensional expression of the golden ratio, played a central part. [1]

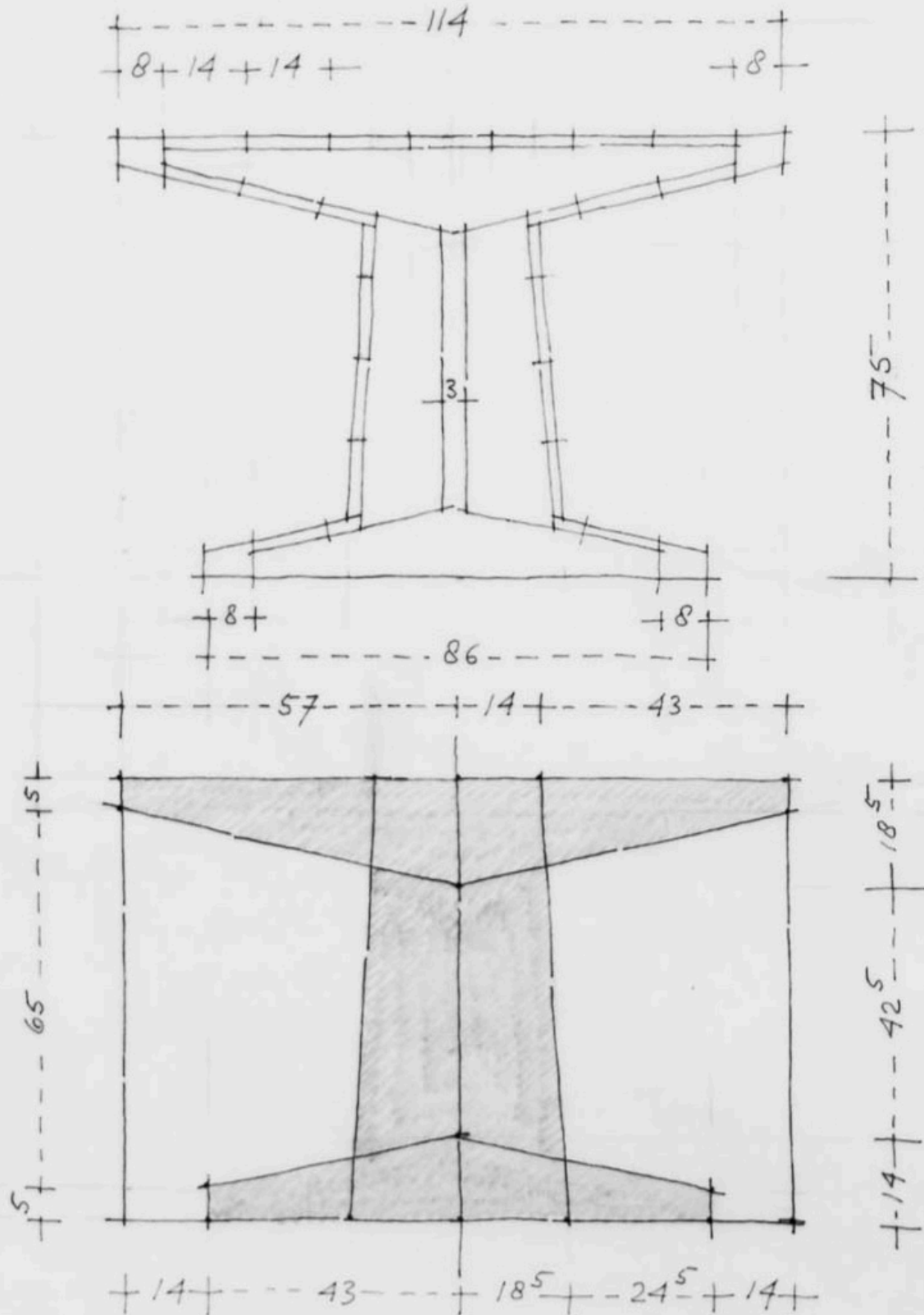
Last semester, whilst teaching drawing courses, we have looked into Dom Hans van der Laan’s plastic number in depth. We have built the form banks that he proposed and worked with his numbers. What we found out was that Laan’s rational beliefs are inspiring, yet often non-precise. Most of these numbers are rounded and representational.

Therefore, we have posed ourselves how we can learn from his design ideas and philosophy and continue to bring certain things to our practice, whilst adding new things because these ideas need more refinement and personalization.

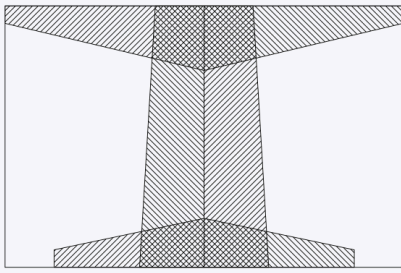
Therefore, whilst looking into the design of the table, these are the question to follow through: Is rational that rational? How to re-think this for the future?



[1] Source: <https://domhansvanderlaan.nl/theory-practice/practice/furniture-objects-garments/design-analysis/>
Image Credit: Coen van der Heiden

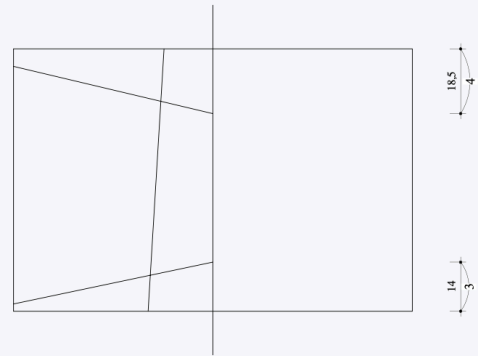


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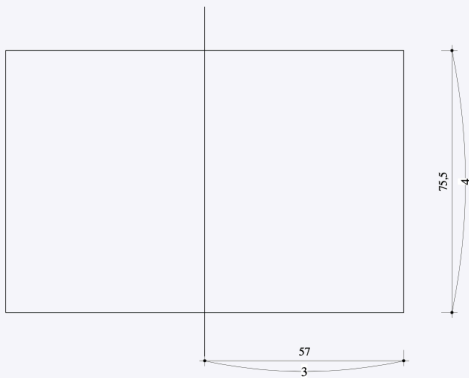
I

The table



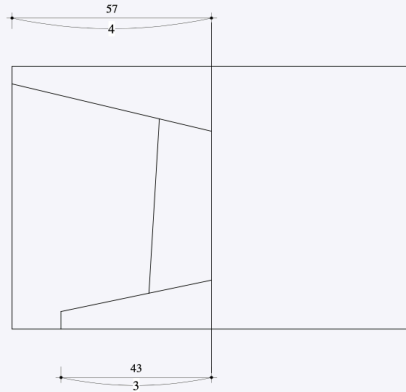
V

The table top is organised as a double composition. = 3:4 / 1:4



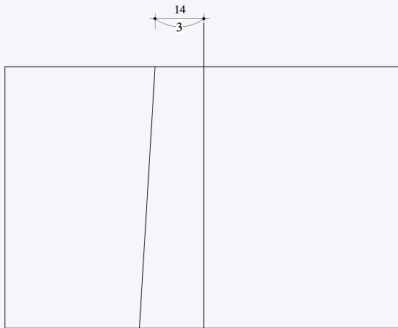
II

The table is symmetrical, so the design starts from two symmetrical halves of 3:4. 57 cm : 75.5 cm = 3:4



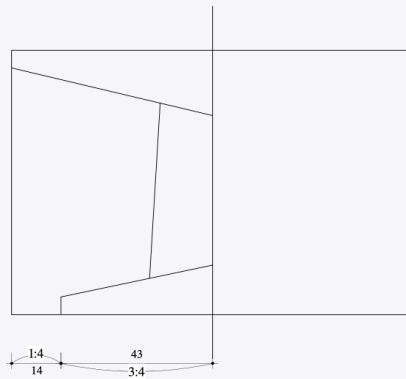
VI

The base is 3:4 of the table top. 43 cm : 57 cm = 3/4



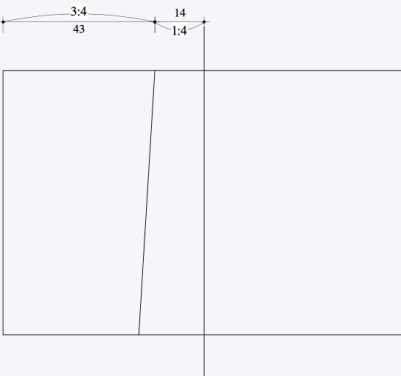
III

The central leg is an oblique offset of 3:4. 14 cm : 18.5 cm = 3:4. 14 cm : 100 cm = 1:7



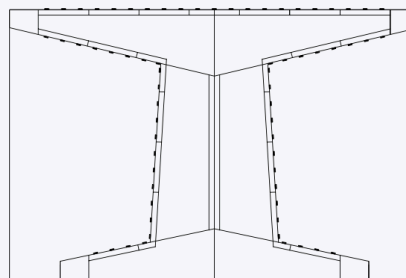
VII

The base is organised as a composition. 14 cm : 43 cm = 1:4 / 3:4



IV

The table top and the base have an offset of 4:3. = 4:3



VIII

The planks are 14 cm. 18.5 cm : 43 cm

DESIGN

Dom Hans van der Laan Bench

keywords: section, extrusion

As it was discussed in the table section, Dom Hans van der Laan's principle when designing objects stems from extruding the section. Therefore, the first design step comes from examining the section closely.

Strangely, the archive of Dom Hans van der Laan misses the bench and its measurements. Therefore, the table was used as the source of proportions and angles and the section was created from these existing information.

Later, the diagrams and updating the design had to come from the section once again, since these need to extrude to keep the initial design principle alive.



DESIGN

More-than-human

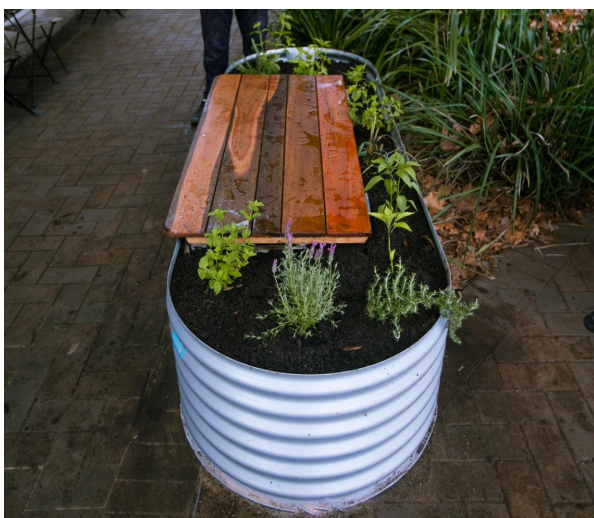
keywords: restoring rational ideas, designing for more-than-one

In recent years, more historically dynamic approaches have entered both biology and anthropology, and these allow scholars to appreciate the sometimes rapid historical shifts that have shaped our times. Anthropologists have turned to the interactions of people around the globe—those very people imagined outside history—to explain the world-making shifts of the last 500 years, such as the making of capitalism, empires, and commodity chains. Biologists have shown the importance of rapid and relentless evolution, as organisms respond to other species and to their nonliving environment. Far from being static since their millions-year-old origins, many organisms change at the same tempo as human histories. This is because human projects have become a major source

of change for other organisms. Human and nonhuman histories twine together in creating the Anthropocene, and scholars need to notice more of the threads in these knots. [1]

Feral Atlas points out to this necessary twining, and the design intends to follow this thread and integrate ways of more-than-human togetherness into our everyday life. What if we sit on top of a lid where the worms are gently flowing underneath and composting the vegetables and herbs that we integrate into our dinner? These are the new questions that we need to tackle, if we keep Feral Atlas in mind.

The reference that had been a source of inspiration was shown below, where underneath the wooden lid, there stands the compost bin which is surrounded by soil on both sides. Feeding, growing, uniting.



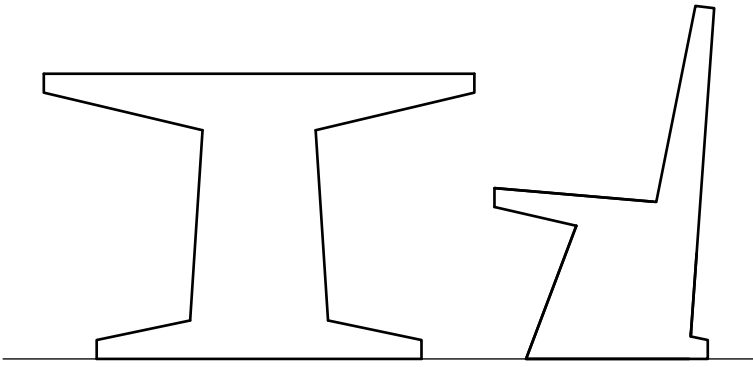
[1] Source: <https://feralatlus.supdigital.org/?cd=true&bdtext=feral-atlas-and-the-more-than-human-anthropocene>
Image credit: Cool Seats, <https://www.coolseats.com.au>, <https://www.wormfarmingsecrets.com/subpod-worm-farm-review/>

DESIGN

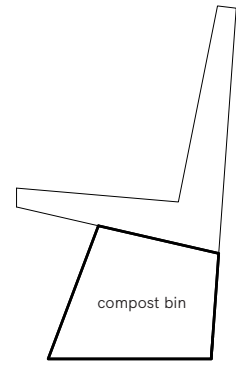
Proposal



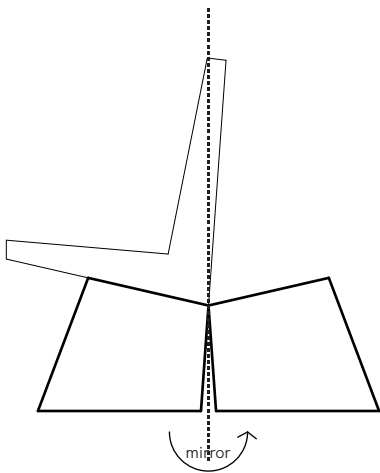
Collage of the bench proposal



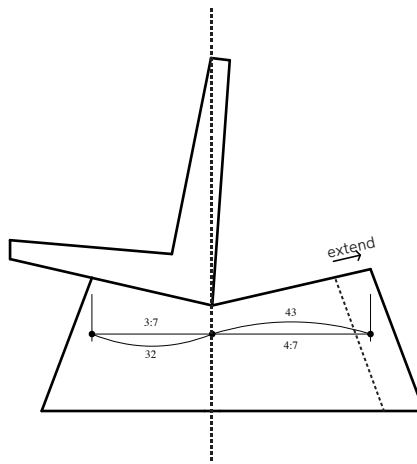
the original bench and the table



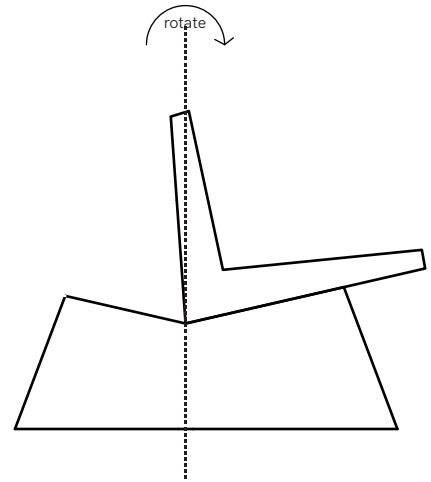
the bottom is too big, therefore it will be optimized by adding the compost bin inside, as well as simplifying the form



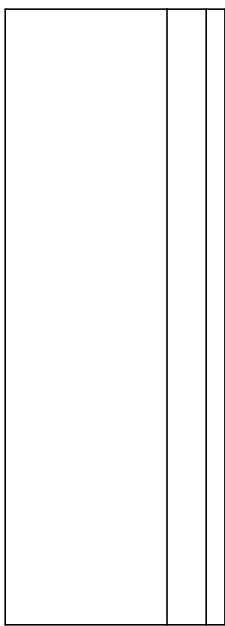
mirroring the compost bin volume



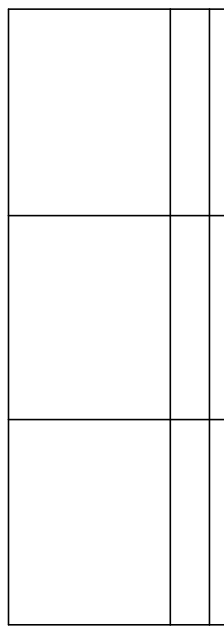
extending the other side so that the design measures can stick to Dom Hans van der Laan's proportions. what is achieved is 3:7 to 4:7



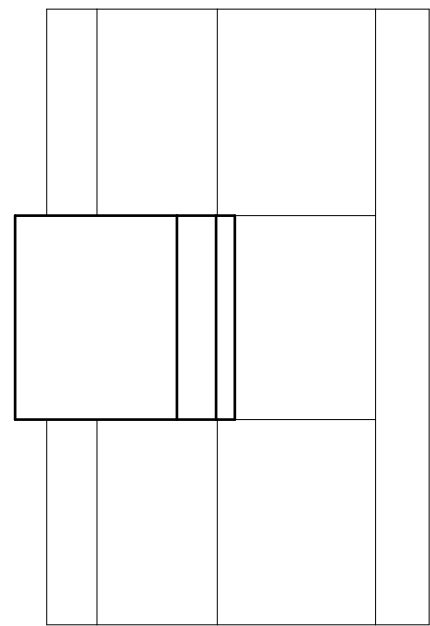
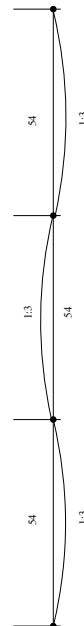
the seat can be rotated and aligned on the other side, which allows another take on the proportions of the bench



original bench plan

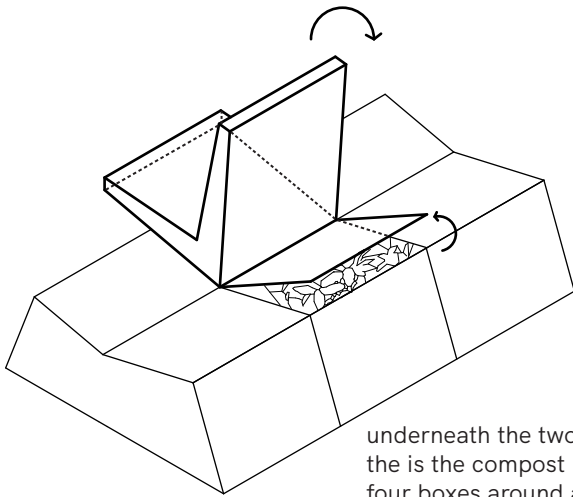


optimized to achieve his proportions

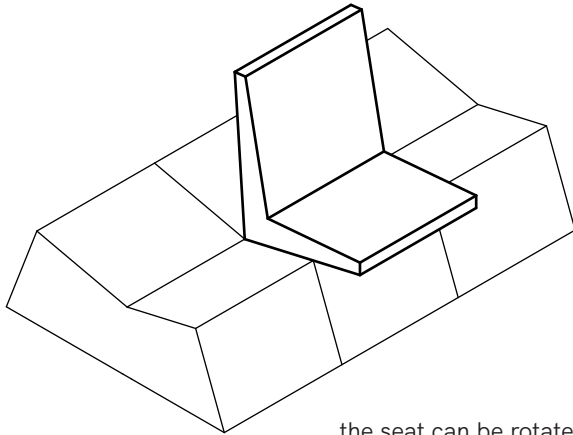
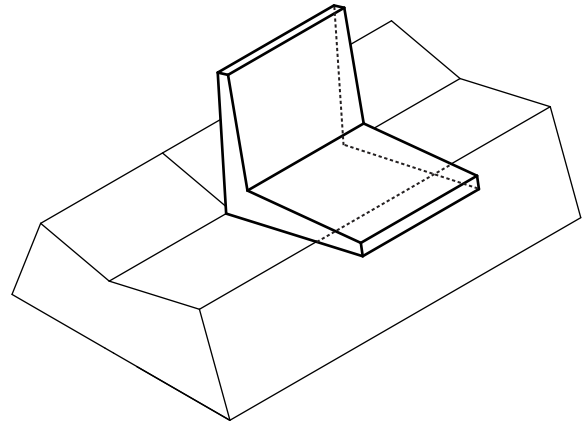


the four boxes are plants, the two are compost boxes

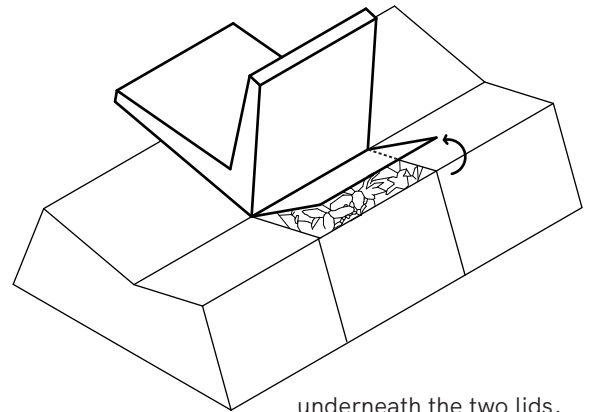
the seat can be rotated and laid on the mirrored



underneath the two lids, the is the compost bin, the four boxes around are filled with soil and plants

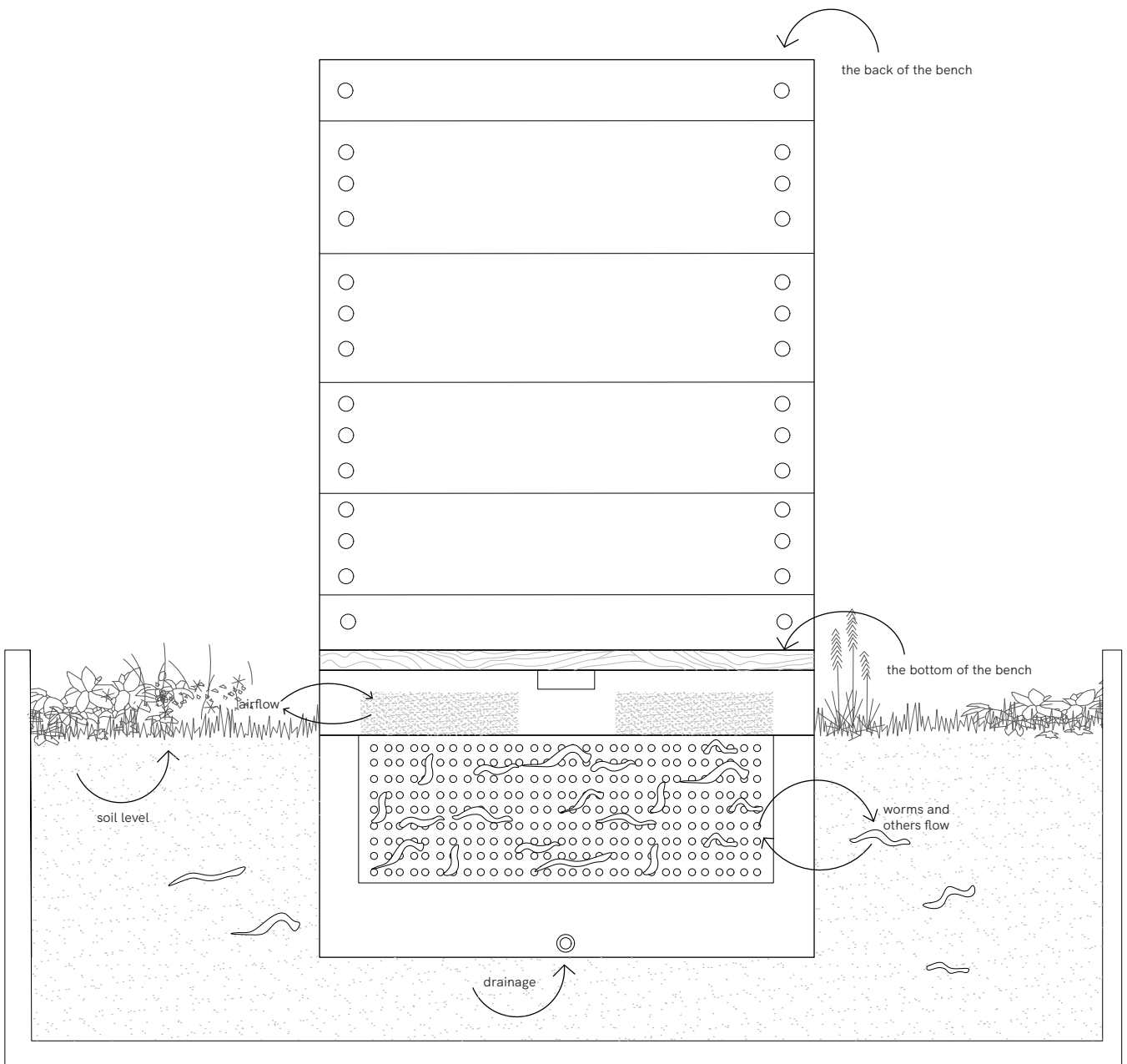


the seat can be rotated and laid on the mirrored



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Section Diagram, explaining the principal of the seat.
The bench and the compost boxes are made of hardwood.