

Jan de Jong



'Jan de Jong House', Schaijk.

Towards the end of his life, Jan de Jong faced a dilemma. He wanted nothing to do with personal fame and shunned publicity. At the same time, he felt that his most important work deserved recognition. That was his own house and office in Schaijk, Brabant: an ensemble of buildings and outbuildings, courtyards, and gardens that had been his architectural testing ground for nearly half a century.

In a final testament, he stipulated that this whole should be preserved – but he also drew up a declaration to show that this was not for his own glory. This ensemble was his contribution to the Bossche School, a 'movement' especially strong in the sixties that formed around the monk-architect Dom Hans van der Laan (1904–1991). This small, fervent group of mainly southern Dutch architects shared the quest the monk had instigated: unravelling the secrets of 'timeless architecture' – that is, a way of building that transcends the whims of personal taste.



De Jong 1917–2001.



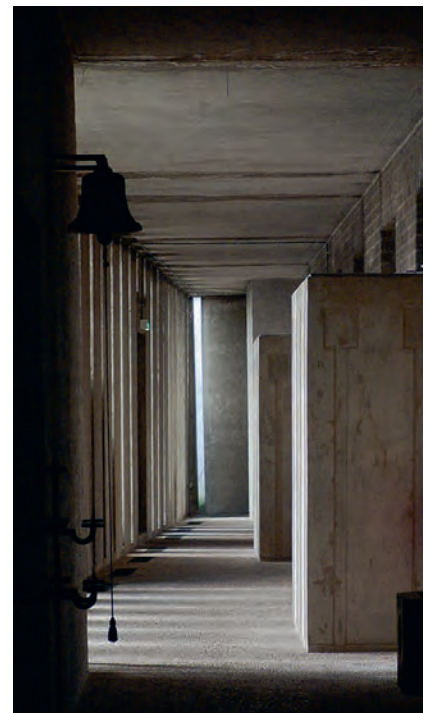


The monk's most brilliant pupil

Within this Bossche School, De Jong occupied a special place. It began around 1954, when the monk himself had built hardly anything but was teaching architects: at the post-academic course in church architecture in 's-Hertogenbosch. There he spoke about 'the plastic number'. The term stood for an ingenious system of proportions he had developed from a three-dimensional version of the golden ratio. This three-dimensionality made the theory seem tailor-made for architecture. But how exactly it could be applied – that the monk didn't yet know. For that, he sought – by his own account – support from practicing architects, namely the participants in that church architecture course.

Not all the students were enthusiastic. But De Jong became fascinated, and even temporarily closed his office to investigate the possibilities of the plastic number: "What I could do, I no longer wanted to do; and what I wanted to do, I could not yet do." It paid off: from 1956 onward, he designed in a completely new way, with that plastic number. Dom Van der Laan soon recognised De Jong as his most brilliant pupil.

In hindsight, this is what happened. De Jong showed – to Van der Laan as well – how the plastic number could



"What I could do, I no longer wanted to do; and what I wanted to do, I could not yet do."

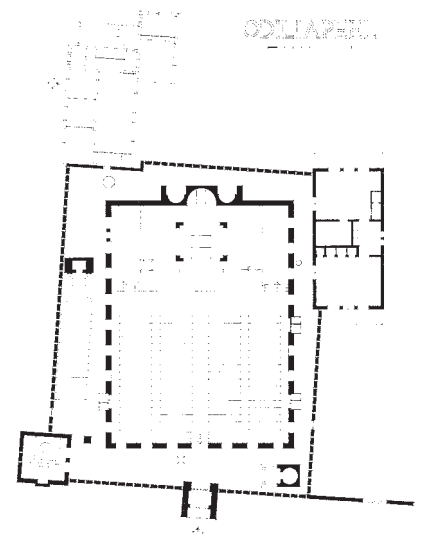
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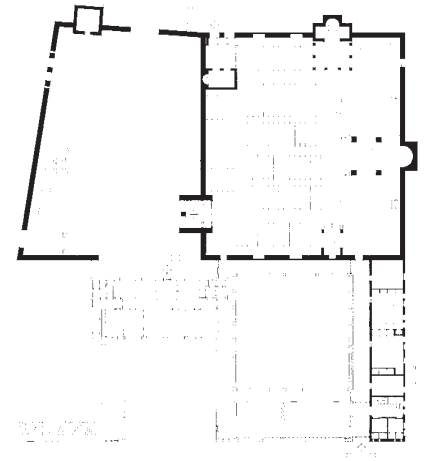
revolutionise architecture. He was the first ‘pupil’ to adopt a sober, austere formal language that truly expressed the play of measures. In this, he proved a natural talent. As a composer works with the Western tonal system, so De Jong worked with the plastic number. He chose, in other words, chords and melodies from the framework of this new system of proportions and used them to create new powerful architecture.

A testing ground in Schaijk

Between 1956 and 1960, De Jong realised three ground-breaking churches. Even then, he was already turning his property in Schaijk into a testing ground. The first result dates from 1956: a small garden pavilion in his front yard. The architecture is minimal. At the corner of a garden wall, four columns mark off a small outdoor room beneath a corrugated-sheet roof. Everything makes sense: the asymmetrical entrance, the height of the parapets, and the placement and thickness of the columns are all determined by the plastic number.



Church Rijswijk, 1956–59.



For De Jong, this was his first trial of the new architecture. From then on, he received his clients there so they would understand what he was doing.

In 1962, his first complete building on his own land was completed, designed according to his new vision. This studio, in his back garden, is a 1:1 model for the next stage of his research. The questions were now: How can you subdivide an interior space with columns and piers? And: How do you design a corner in an outdoor column gallery?

Then things moved quickly because his house at the time was beginning to feel cramped. That building, in the English country-house style, had been designed by De Jong



himself in 1949. It mirrored how he had once begun as an architect. The farmer's son De Jong, born in the Brabant river village of Lith, had scraped together diplomas as a carpenter, bricklayer, surveyor, and architectural draftsman through practical experience and evening courses. He had been proud of the 1949 house; he had married Riek de Groot there that same year and set up his own practice in it. But now, in 1962, it no longer pleased him. His hesitation to demolish and rebuild stemmed from a desire not to waste capital. Dom Van der Laan pushed him over the line: "Jan, if this is what you want, you must do it. We need built examples."



"Jan, if this is what you want, you must do it. We need built examples."

⦿ Dom Hans van der Laan
(1904–1991)

More manifesto than house

The main building on his property, completed in 1968, is more a manifesto than a house. An office and a large dwelling together frame a walled courtyard, with a pond at its heart and small pavilions on either side. The living room alone is 24 meters long. It's not the (scarce) furniture that sets the tone here but the architecture: a sequence of open spaces in which rows of columns mark the measure. Every detail, every piece of furniture, every spatial element is essential to the whole, as if each were its own little run in a piece by J.S. Bach.

Practical considerations played only a supporting role; the goal was an example of 'enduring' architecture: a 'house

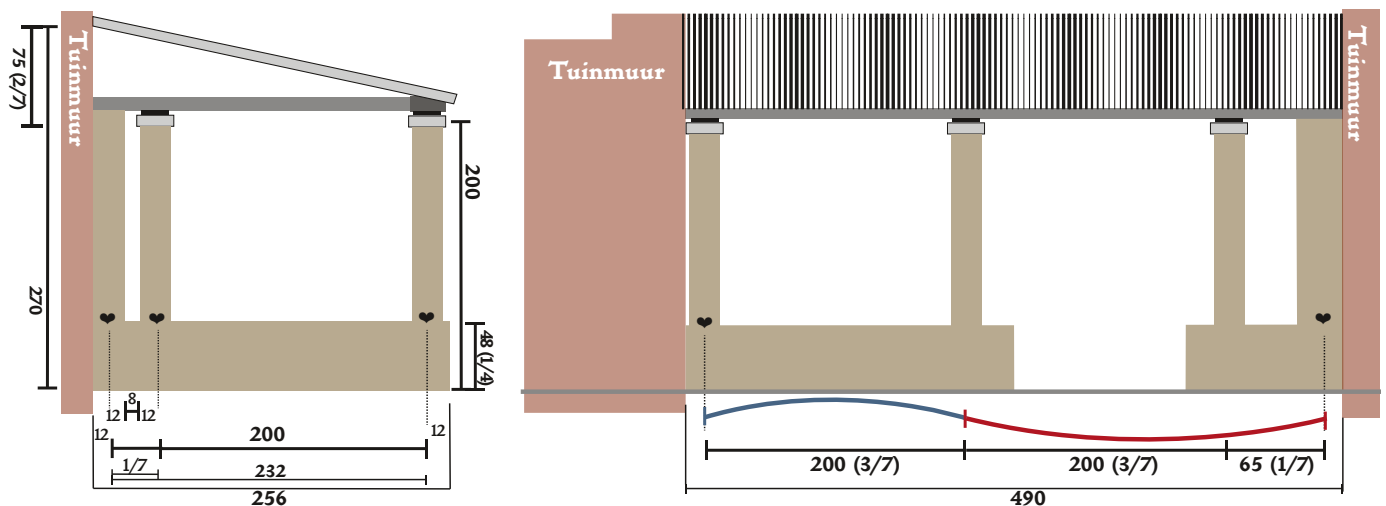


for the course' – a built demonstration of the Bossche teachings. The frame of the wide entrance door displays, in a Latin inscription, De Jong's now-matured vision: "It befits a wise architect to order spaces into a roof for the body and a vista for the spirit" (DISPONERE MOLEM CONDECET STRUCTOREM + SAPIENTEM ET ORDINARE SPATIA + CORPORI TECTUM MENTI PARARE STRATUM).

"It befits a wise architect to order spaces into a roof for the body and a vista for the spirit."

© Jan de Jong

This aligned with the message Dom Van der Laan had been advancing since the sixties: buildings should not only serve their practical function but, above all, be 'intelligible' to the intellect and beneficial to the human spirit (all of this, naturally, thanks to the plastic number as the ordering principle).



A world apart

Anyone who wants to understand De Jong's oeuvre must first become familiar with the plastic number. That applied to us too – Ids Haagsma and myself (Hilde de Haan), authors of both a building guide and a thick monograph on Jan de Jong. Yet we had long been familiar with the ideas of Dom Hans van der Laan, ever since we met the monk in 1979 for a series of interviews with architects for the weekly *Intermediair*. Of the roughly thirty architects in that series, the monk made the deepest impression – with no slight to the others. The way he spoke about architecture was simply a world apart. He asked: Why do people actually make buildings? His answer: “Natural space is too large for us, so we create spaces tailored to our measure.”

“Natural space is too large for us, so we create spaces tailored to our measure.”

🕒 Jan de Jong



Jan de Jong's living room.



Jan de Jong's office.

In subsequent conversations, he delved deeper into this. To experience spatial dimensions, he believed massive elements were necessary: columns and walls with perceptible thickness. These had to be properly 'dimensioned' – that is, using the plastic number. He considered the plastic number the ultimate instrument for giving the interplay between masses and spaces three-dimensional coherence. He also explained why this system of proportions was unique: it had universal validity because it was grounded in how the human mind experiences the world.



Above: Entrance to 'Jan de Jong House'.

Left: Jan de Jong's living room.
Below: Gate on Jan de Jong's property, Rijksweg 56, Schaijk.



Van der Laan was convincing, all the more so because he brought out his '*morfotheek*', a box of blocks that made the system's dimensional leaps tangible. With it, he built a magnificent, circling space in no time. The decisive factor was his own building, through which he then guided us: the now-famous church, with atrium and crypt, of the Benedictine abbey in Vaals. This was fabulous architecture, which, in its pure spatiality, came closer to 'eternal beauty' than almost anything we had seen in contemporary architecture.

A theory without buildings

The plastic number seemed to us, all in all, a tidy, graspable whole. But our study of Jan de Jong would change that view. In De Jong's oeuvre, this system of proportions proved far more complex, exciting, and abstract than we had understood from Dom Van der Laan. With today's knowledge, that's understandable. When we met Dom Van der Laan in the late seventies, the monk must no longer have considered the genesis of his theory worth mentioning. He didn't say anything – at least not to us – about the Bossche course, which ended in 1973, even though his theory had truly matured through trial and error in interaction with practicing architects in the years before.

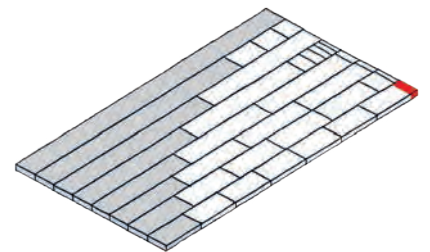
Once his book *De architectonische ruimte* ('Architectonic Space') was published in 1977, Van der Laan apparently wanted only one thing: to propagate the architectural theory he considered complete. The book contains no buildings, no architect is named, and nowhere is there any mention of architectural designs using the plastic number. That was, of course, a deliberate choice, but it also placed the book rather far from architectural practice. This became evident when we began studying De Jong's buildings.

The photo book that got out of hand

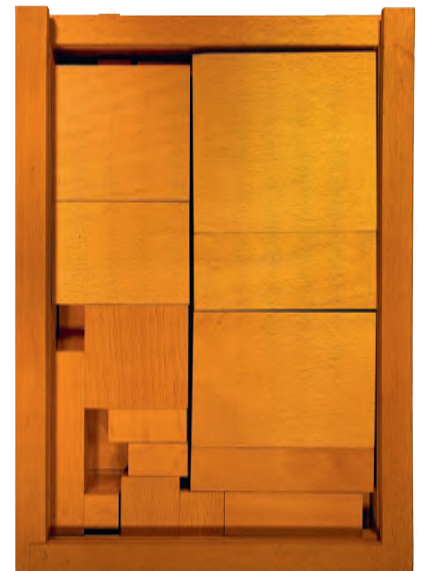
The initiative for a book about De Jong came in 2008 from the Jan de Jong Foundation. The idea was a modest photo book about this 'forgotten architect'; this would help ensure that, in accordance with De Jong's wishes, his most important buildings would be preserved.



Dom Hans van der Laan with his '*morfotheek*' in 1981.



The measure-system of the plastic number made visible using an abacus.



Blocks from the '*morfotheek*' in a wooden box.

That project got rather out of hand. To understand De Jong, we first wanted to know his entire oeuvre. The archive, however, was deficient, so we sought out many human sources. What we gathered this way was an overwhelming quantity of buildings, facts, and historical material (including a nearly completed manuscript by De Jong: his own theory of an urbanism of the plastic number). We eventually decided to present it in a 'two-stage rocket': first a building guide (2012) for the overview, then a full monograph (2015).

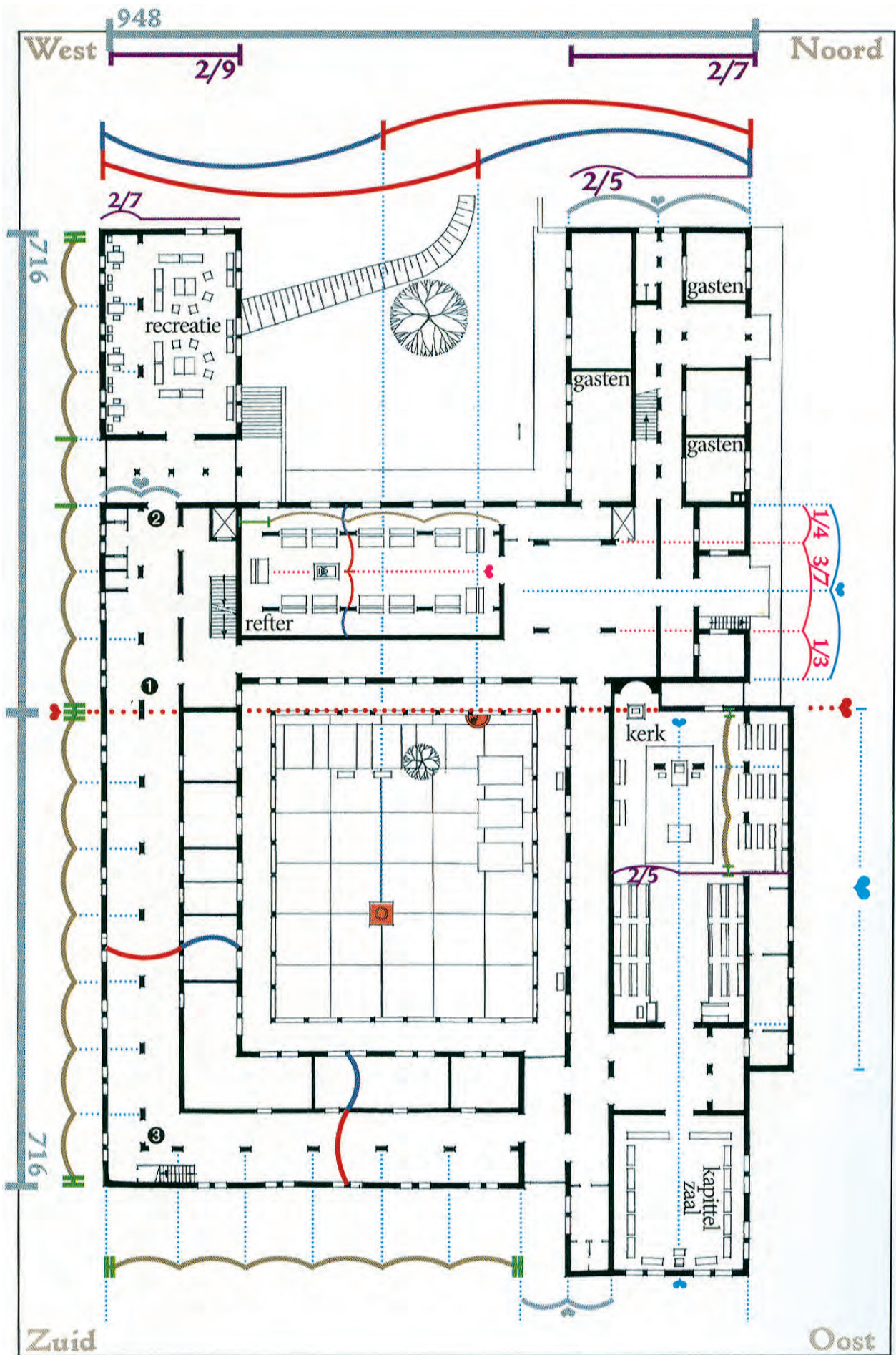
The most important connecting thread became: What can the plastic number mean for architecture? A second question followed: How did it come to be that way? Study material proved richly available. In De Jong's archive lay the entire series of written-out lectures that Dom Van der Laan had given as early as the thirties and forties on the precursor of the plastic number (the 'fundamental proportion of spatial discourse'). We also had access to all the lessons the monk gave in the fifties and sixties at the Bossche course, when De Jong was first a student and later an instructor there.



Colonnade at the Emmaus priory, Maarssen. A brief analysis of this 1960–1966 design by Jan de Jong is shown on the next page.



Next page: The design of the Emmaus priory, Maarssen (De Jong 1960–1966) was a 'tough nut to crack', even for Wim Ramselaar. The solution: the floor plan consists of two planes in the 'ground ratio' 3:4 on both sides of an axis. This ground ratio 3:4 is also visible in the open spaces of the bell tower.





The Emmaus priory in Maarssen
(De Jong, 1960–66).

This allowed us to trace the development of ‘the theory’ precisely alongside the works De Jong realised. We also found his other sources of inspiration, such as accounts of foreign journeys he had made and his shelves full of books on building in distant and ancient cultures.

Measuring millimetres

Our most important human source was Wim Ramselaar (1935–2013), a Delft-trained engineer and, for many years, a lecturer at TU Eindhoven. From 1961 to 1968, the golden years of the Bossche School, he served as a collaborating architect with De Jong. De Jong’s death in 2001 prompted Ramselaar to record his memories of that period, drawing on his old diaries. This exceptionally candid glimpse into De Jong’s daily practice ultimately appeared in full in the monograph.

Wim Ramselaar brought De Jong’s design approach to life for us: he knew exactly what had animated him in the sixties. He was also willing to analyse De Jong’s designs with us. That was often a real puzzle: dimensional sketches were missing, and explanations were rarely preserved. But you could still measure millimetres on the drawings and distil from them the application of the plastic number. Again and again, we discovered De Jong’s characteristic dimensional leaps and favourite themes, applied ever more ingeniously and in many variants. On 26 December 2013, Ramselaar died, long before the monograph was finished. His contribution shapes the entire book.

One instrument, two lives

Through this process, we made an interesting discovery. For De Jong, the plastic number was an instrument you could use to go in any direction. For Van der Laan, it was rather a stepping stone toward a comprehensive theory of architecture. This difference marks their lives.

The monk designed only a few buildings and became famous chiefly for his book *De architectonische ruimte*. De Jong, by contrast, was an architect through and through who, in hundreds of commissions, kept finding new ways to apply the system of proportions. Nevertheless, the plastic number – as an instrument for composing timeless architecture – was precisely the same for both.

Hold on tight: the mathematics

A brief explanation is indispensable here. Reader, hold on tight and take the time to understand the (simplified) genesis of the plastic number. Let's begin: the basis is a mathematical discovery the monk himself made around 1928 (the evidence for this dating lies in Dom Van der Laan's lectures from the war years). He was searching for a more refined proportional number than the golden ratio and found it in:

$1 : x : x^2 = x : x^2 : (1+x)$. That simplifies to $x^3 - x = 1$. Solving it yields 1.325 (circa 4:3) – or its reciprocal, 0.755 (circa 3:4). For comparison: the golden ratio, $1 : a = a : (1+a)$, or $a^2 - a = 1$, yields 1.618 (5:3) or 0.618 (3:5).

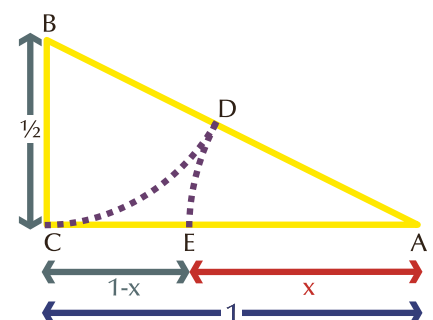
Dom Van der Laan would later stop mentioning this basic discovery altogether. In *De architectonische ruimte* (1977), he writes only of “an extraordinary ratio, namely circa 3/4”. Yet to truly understand his system of proportions, this mathematical discovery is essential. The core of the plastic number is a series of measures in which each is $1.325\times$ (around 4/3) larger than the one before – or, read downward, 0.755 (circa 3/4) of the one above. The series is, in principle, endless, but Dom Van der Laan had already applied several (brilliant) interventions to it in the forties, making it manageable for design practice.



‘The buildings of Jan de Jong – Pioneer of the plastic number’, ISBN 978 90 51050 462.



‘Jan de Jong, a monograph’, ISBN 978 90 51050 509.



The principle of the golden ratio.

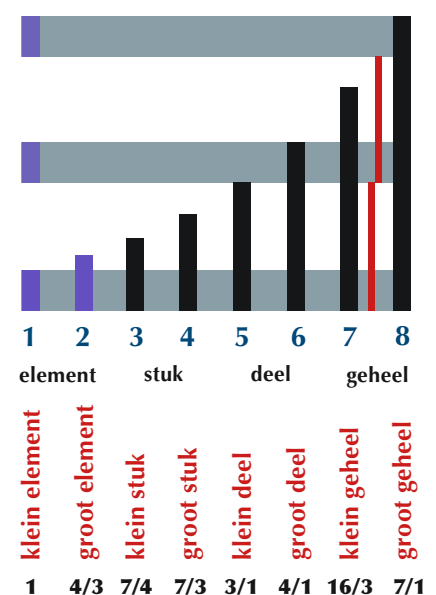
First of all, he decided to order the series of measures into octaves, in which the smallest ‘measure’ of each group of eight is at the same time the largest of the next group down. The choice of eight is mathematically ‘handy’: 1×1.325^7 is roughly a round number – about 7 (eight measures span seven steps). The reason was practical: a sevenfold division is something people can still take in quickly; beyond that, it gets harder.

Van der Laan made one more intervention: he decided that such a series of eight consecutive measures could be simplified to the simple fractions: $1/7$, $1/5$, $1/4$, $1/3$, $3/7$, $4/7$, $3/4$, 1 . That’s clearer at a glance, but it doesn’t quite add up. Take, for instance, the $1/5$ measure, where the deviation is greatest. In the series, each measure is about $4/3$ larger than its predecessor, but $1/7 \times 4/3 = 4/21$, not $4/20 (= 1/5)$. That ‘problem’ is solved by giving each measure a leeway (initially called ‘margin’) of about $1/49$. That fits within the system ($1/49 = 1/7 \times 1/7$), but it remained a choice made for practical use.

A timetable for timeless architecture

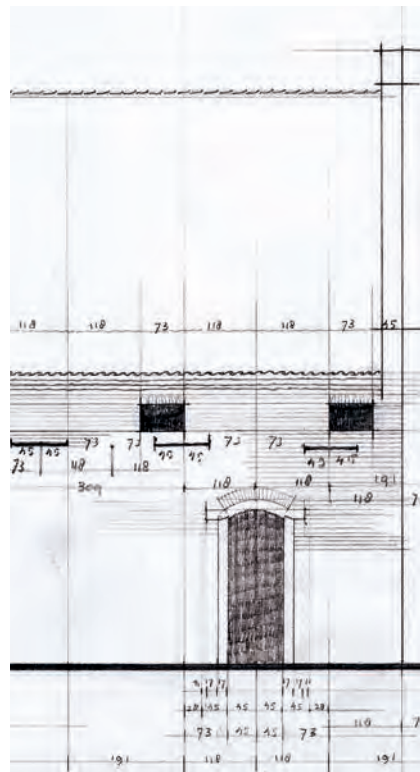
In the early fifties, when Jan de Jong first encountered the plastic number, its complexity was still fully legible in the notation system (used by Dom Van der Laan and his students). Typical is the ‘spoorboekje’ (‘little railway timetable’) that Jan de Jong would use throughout his life. In it, four, sometimes five, series stand side by side neatly, in both decimal notation and fractions. The permitted ‘margin’ is noted for each measure. Also indicated are all the double measures that had been woven into the system since the forties.

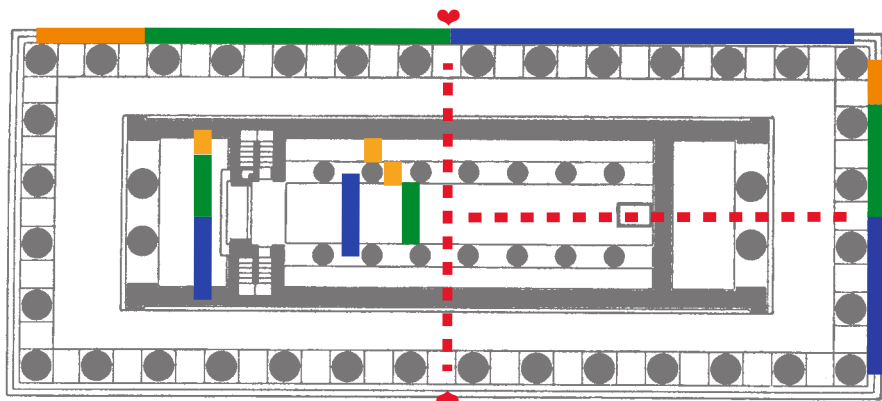
Once you grasp how it works, it’s a marvellous system, comparable to the Western musical tonal system. Once the principal dimensions of a building have been determined, you can draw on a coherent series of measures for the rest of the design, from spatial layout and facade composition down to detailing. De Jong steadily developed this approach into an intriguing play of margins, dissonances, and themes that can recur in different places, in a design, and at different scales.



Some characteristics of the plastic number.

A photograph of a historic brick building, likely a windmill base, featuring a steep gabled roof with a small circular window, a large arched doorway, and several smaller windows. The building is surrounded by trees and a grassy area.





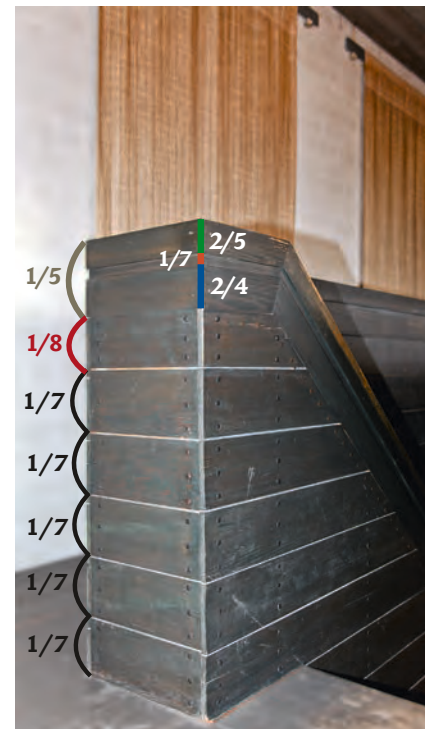
Forgotten, world-famous

Jan de Jong was forgotten. Dom Van der Laan became world-famous. This parting of ways was already taking shape in the late sixties. Even before the 'Jan de Jong House' in Schaijk was completed in 1968, the abbey church in Vaals was consecrated in 1967. Now that Dom Van der Laan had completed a masterpiece of his own – and had, moreover, himself moved from Oosterhout in Brabant to Vaals in South Limburg – a distance arose between him and his 'most brilliant pupil.'

That distance grew after the Bossche course was discontinued in 1973. This was due not only to those involved but also to the new era, in which churches were emptying and authorities were being challenged. Moreover, the former students now often had large firms and plenty of work, leaving no room for refined measurement games.

Jan de Jong remained an exception. Even after the sixties, he retained his original inspiration. Living in Schaijk helped: there, after all, he had his own architectural testing ground. He had no ambition for a large office – on the contrary. Around 1970, he dismissed all his employees except for one draftsman (Mart van den Broek) and a part-time site supervisor.

His work flourished as never before, though he no longer shared it with kindred spirits. He designed large town halls, threw himself enthusiastically into urban renewal and restoration, and developed his own theory of city planning and the plastic number. While Dom Van der Laan, with his important book and church, thought he had reached a final goal for a time, De Jong made a fresh start.



De Jong had found this formula in the temples of Paestum, Italy, which he visited for the first time in 1956 and immediately measured. (As you can see on his portrait picture on the first page.)

Next page: the 'timetable' showing the measures (with margins) and their fractions. De Jong made good use of these tables throughout his life, and eventually knew them by heart.

5226
5126
5026

7

6 4496
4410
4324

3945
3869
3794

5

4 3394
3329
3264

2978
2921
2864

4

3 2562
2513
2464

2248
2205
2162

3

2 1934
1897
1860

1697
1654
1632

7/3

2 1460
1432
1404

1281
1256
1231

7/4

1 1102
1081
1060

967
948
930

4/3

7/6 832
816
800

730
716
702

1

6/7 628
616
604

550
540
530

3/4

2/3 474
465
456

416
408
400

4/7

1/2 358
351
344

314
308
302

3/7

2/5 270
265
260

237
232
228

1/3

2/7 204
200
196

179
175
172

1/4

2/9 154
151
148

135
132
130

1/5

1/5 116
114
112

102
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1/7

1/8 87
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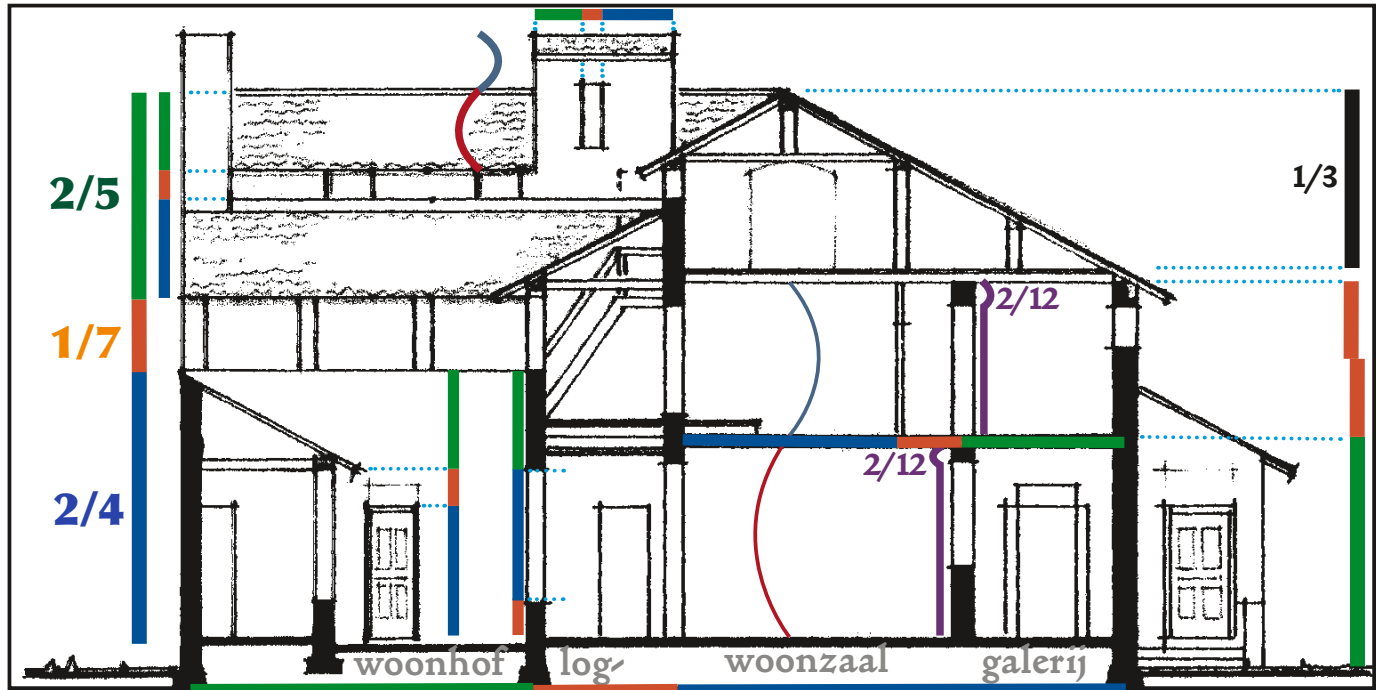
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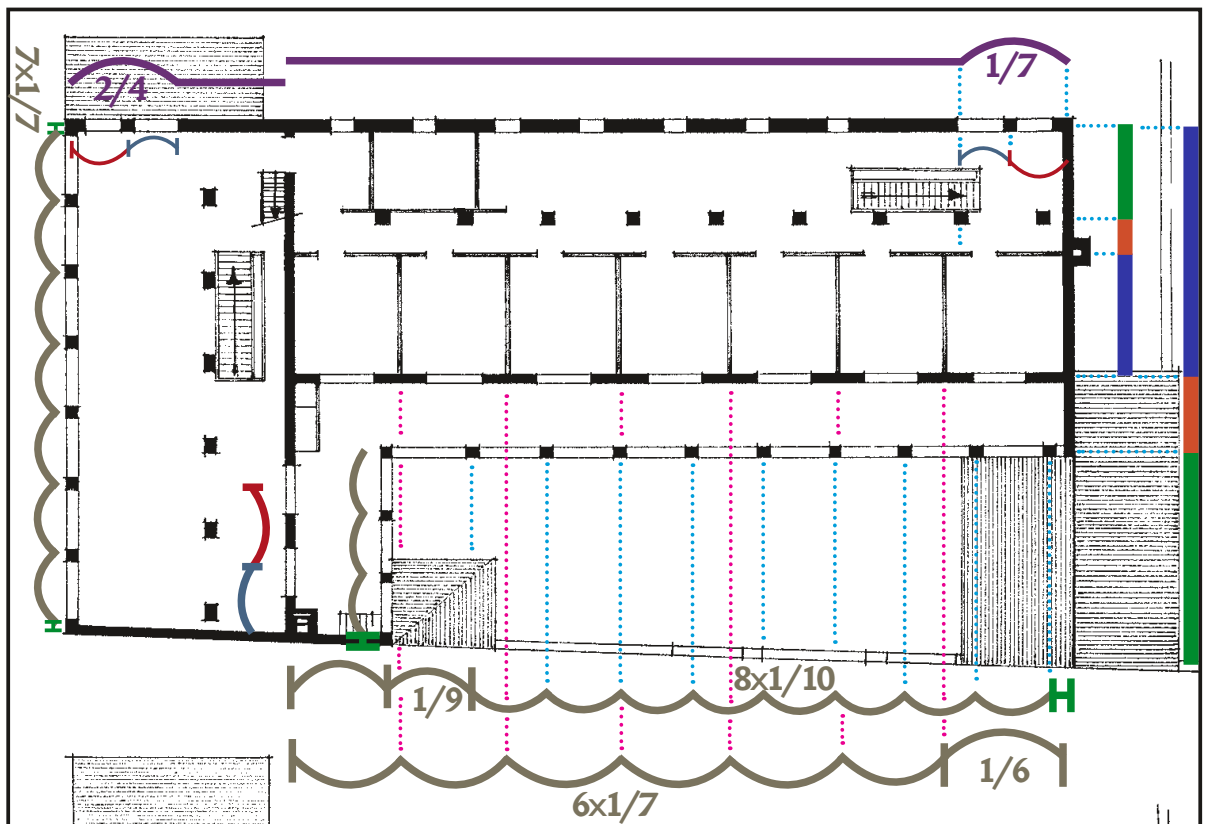
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De Jong enjoyed using formulas. In his (new) residential/office building, the formula $2/5-1/7-2/4$ is prominently present: from the small parapet of the staircase to the height of the walls and the floor plans.



BOVEN:
DWARS-
DOORSNEDE
BIJ WEST-
ZIJDE
WOONHOF.

RECHTS:
VERDIEPING.



In broad outline, he still endorsed Dom Van der Laan's theory, but he now also saw omissions in it. For instance, in city planning or exterior design, he sought further steps along the chosen path. He remained faithful to spatial articulation through columns and thick walls, and the musicality of the plastic number is evident in every building. The theory did not limit him, as his later work shows: he even designed in wood, using postmodern shapes and configurations.



Residential building Gremmen,
Maasstraat Grave (1971–73).



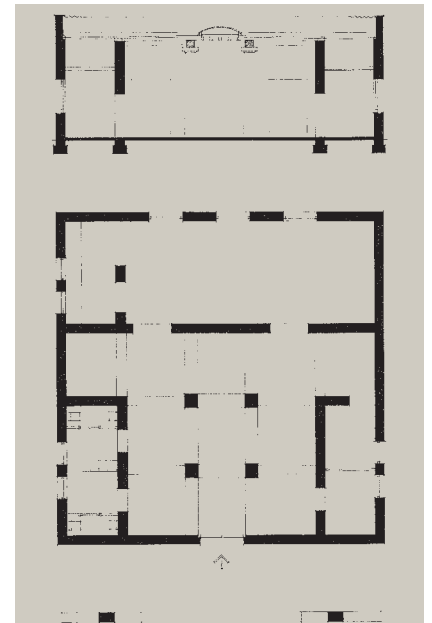
Ravenstein: two residential buildings on the Ds. Hanewinkelplaats (1969–71).



21 residential buildings on the Gasthuisstraat, Grave (1975).



Eleven residential buildings, each with a unique façade arrangement on the Hoofschestraat, Grave. City renewal from 1975–77.



Duinhaege cemetery on Akkerlaan 2, Drunen (Jan de Jong 1984/85). The columns narrow in size as they descend, with $\frac{1}{7}$ of a column's width.

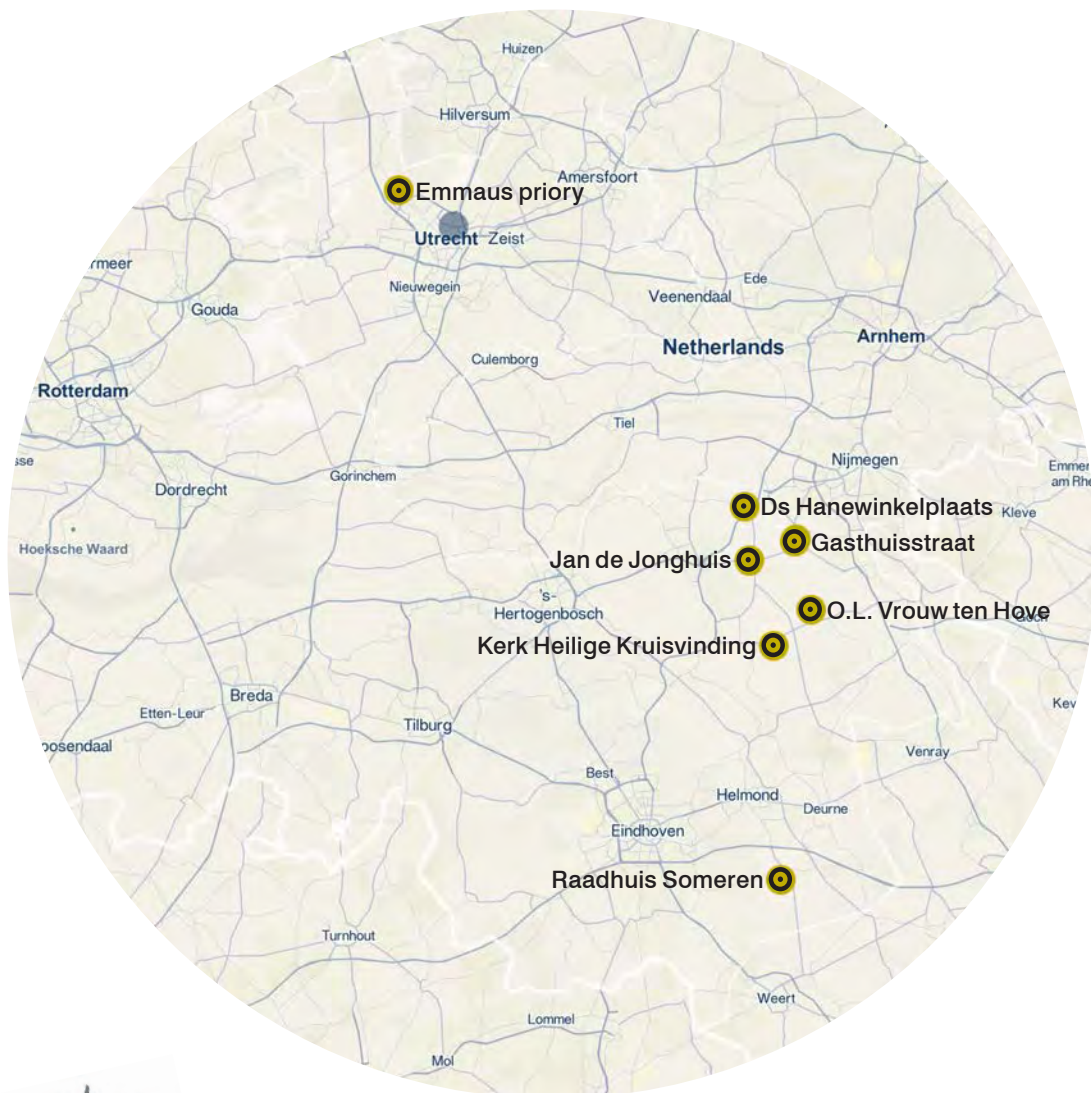


Duinhaege cemetery on Akkerlaan 2, Drunen (Jan de Jong 1984–85). The columns narrow in size as they descend, with 1/7 of a column's width.



Refurbishment and extension of the town hall in Someren (Jan de Jong, 1976–81)

Featured projects



Jan de Jong

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