

Bridging East and West. The Hagia Sophia shaping Dom Hans van der Laan's Architectonic Space.

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Introduction

In 1956, the Dutch Benedictine monk and architect Dom Hans van der Laan (1904-1991) started the design for the church and crypt for St. Benedictusberg in Vaals (1958-1960), in a an austere and elementary architectonic language. Devoid of any ornamentation, the crypt is shaped by six rows of carefully proportionated columns and window openings. No structural logic can be felt. The cells and central column rows each have their own different rhythms of primitive building blocks. This creates a dynamic and interwoven environment of superimposed spaces, oscillating through movement and modern diagonal perspectives. The rough materiality, range of grey complementary colors, furniture and the play of deep shadows and daylight create an overwhelming monumentality and an intimate deep quietness and calm at the same time. This haptic architectural language was unlike any of the previous realisations by Van der Laan or his students, which remained close to a traditional basilica typology and included classical ornamentation.



Figure 1: Dom Hans van der Laan, Crypt of St. Benedictusberg Abbey, Vaals, 1960. Photograph Jeroen Verrecht.

What induced this change? This paper traces how the Hagia Sophia in this shaped Van der Laan's identity and architectonic space. It became the protagonist in Van der Laan's teachings and architecture, evolving from a prototype towards an abstract sublimation of pattern thinking

that provided a universal approach towards an architecture that grows from a human scale and presence as a philosophical and material concept.

In search for the fundamental House

From 1945 till 1973, Van der Laan lectured to an audience of practicing architects in the *Course on Church Architecture* in 's-Hertogenbosch in The Netherlands. Already in his first lectures he approached the church as a *house*, where its primary function lay in the act of *dwelling* as a mental construct. Dwelling, feeling at home, meant that spaces create an order around us that is clearly readable. The inspirations were drawn from his Catholic Benedictine background, through the device *Ora et Labora*, meaning pray and work, life as an interplay between contemplation and daily activities. From St. Dyonisius he learned the concept of *Imma Sumis*; the highest always in reconciliation with the lowest, emphasizing the universal character of religious architecture. From this background he aimed to develop a fundamental theory, akin to a philosophical treatise, on the nature of architecture. About 370 Dutch and Belgian architects attended his twelve lectures, which he developed in cycles in A5 notebooks.

The central concept of the 12 lectures evolved around his own proportional series of the *Plastic Number*, approximately 3 : 4, which for Van der Laan offered an analogy between the bodily experience and the rational understanding of space. A building only became an immanent or true house when it clearly conveyed numeric proportions. He was looking for a design method where the 3 : 4 plastic number hierarchically interconnects all the built elements, from the building stone to the city fabric, as one hierarchical matrix of comparable sizes. The theoretical lectures in Den Bosch were followed by practical afternoons, where the architects measured and redrew old Syrian and Romanesque chapels and churches to test their disposition, applying the theory in the designs of their own religious and secular projects. It provided a fertile ground in both directions, as the analysis and buildings of Van der Laan's students proof to be equally influential for the theory and the austere architecture of the mentor. In 1960 Van der Laan's notebooks culminated in the publication of *Le Nombre Plastique* [the plastic number], the architectural theory that introduced his proportional system.¹ In 1977 a second publication followed: *Architectonic Space: Fifteen Lessons on the Disposition of the Human Habitat*.²

Introducing the Hagia Sophia

The notebooks of 1955, right before Van der Laan started his design for the crypt in Vaals, introduce an important hinging point. He abandoned the Western church model, introducing the Eastern mosque instead as his main examples. Several of Van der Laan's students redrew mosques to study their proportions and typology. One example took on the central position: it was the Hagia Sophia that proved to be the essential archetype that propelled his thinking. The encounter with the symbol of Byzantine architecture already occurred years before, alongside an interest for the Parthenon that embodied classical Greek architecture. Already in 1937, Van der Laan wrote to his brother Nico: 'Recently, I received a study on the Hagia Sophia through which I discovered many new points of view. At a certain moment, you suddenly get in touch with such a monument and that is enormously valuable.' Only two years before, in 1935, the Hagia Sophia

¹ Van der Laan, Dom Hans. *Le Nombre Plastique*, Leiden: Brill, 1960. Translated as: VDL, *Het plastische getal*, Leiden: Brill, 1967. Further translated in Italian.

² Van der Laan, Dom Hans. *De Architectonische Ruimte. Vijftien Lessen over De Dispositie Van Het Menselijk Verblijf*. Leiden: Brill, 1977. VDL, *Architectonic Space. Fifteen lessons on the disposition of the human habitat*, English translation by Richard Padovan, Leiden: Brill, 1983. Further translated in French, German, Italian and Spanish.

had been transformed into a museum, symbolizing the union of East and West under its Dome.³ Since the beginning of the 20th century, the fate of Hagia Sophia had begun to attract popular attention, and the Byzantine style became influential in church architecture. Since then, several Western studies were done on the building, one can only guess which one drew Van der Laan's attention.

Nevertheless, we have to wait twenty years before student architect Jos Naalden took the study further. After graduating from the course, he made a large series of drawings of byzantine architecture in plan and axonometric, of which the Hagia Sophia was one.

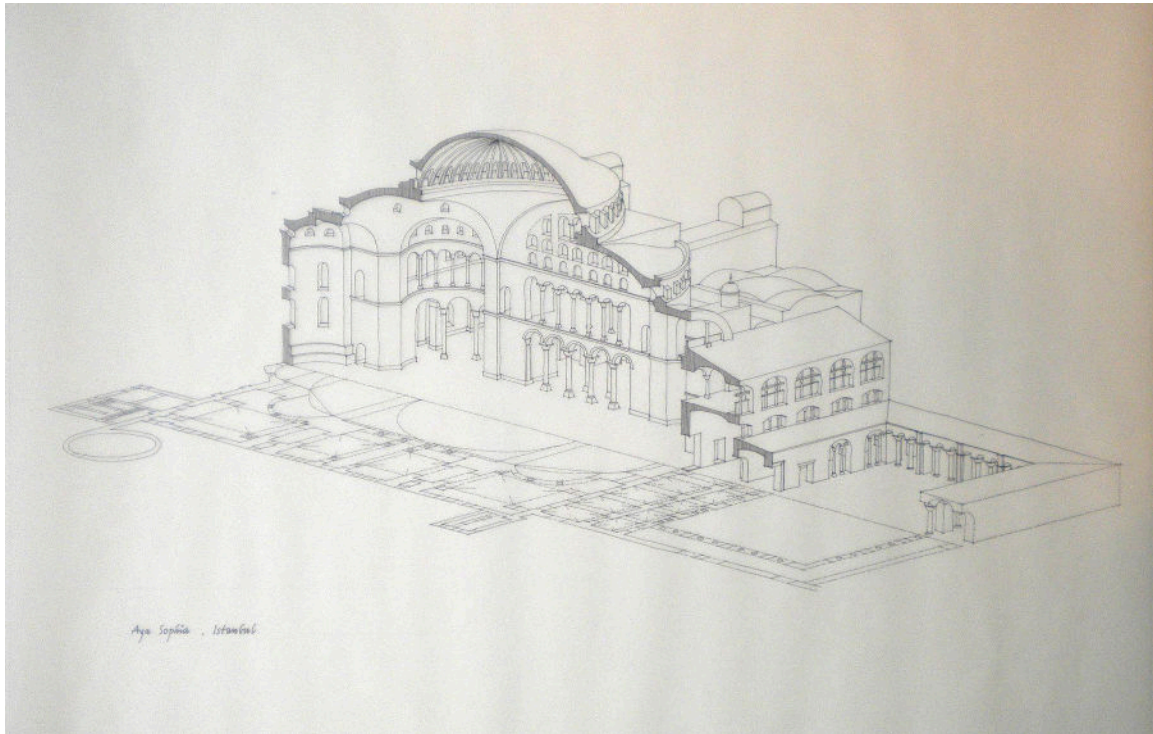


Figure 3: Isometric drawing of the Hagia Sophia by architect Jos Naalden for the CKA course, presumably 1955. Copyright Van der Laan Archives St-Benedictusberg Vaals.

Furthermore, he travelled to Istanbul to measure on site. As an exercise for the course, Naalden reconstructed the hierarchical 3 : 4 building up of the plan in five drawings, from a 3 : 4 proportion of the façade and a 3 : 4 relation between the central dome and the side galleries, to the smaller subdivisions and clustered columns. In the archives, we find a sketchy set up, with corrections made in pencil.

³ Akinci Yalt, Sevgi Tugce. *Hagia Sophia as a Fracture: Originality through Appropriations*, Master Thesis, Virginia Polytechnic Institute, Alexandria, Virginia, <https://vtechworks.lib.vt.edu/items/d3758159-57bd-4f70-90dc-b816d97f083e>, accessed 21 April 2024, 2021, 9.

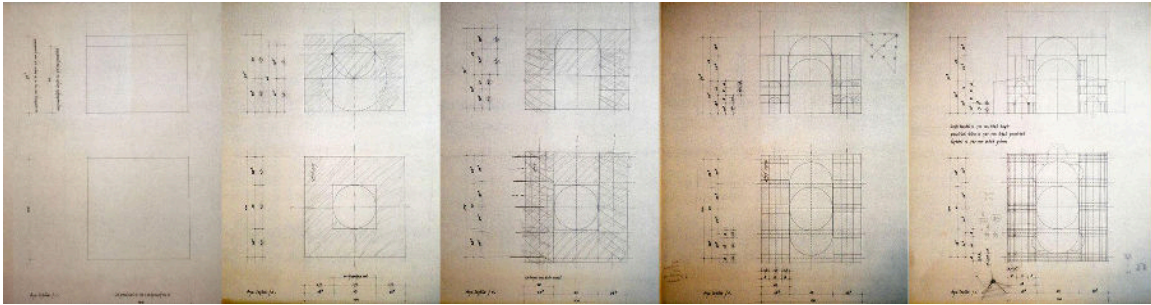


Figure 3: Hierarchical analysis in five drawings of the Hagia Sophia by student architect Jos Naalden for the CKA course, presumably 1955. Copyright Van der Laan Archives St-Benedictusberg Vaals.

Superposition of space

Naalden's analysis proves to be an exercise in search of classical compositional rules of eurythmy and symmetry. Van der Laan took this further. In the notebooks of 1955, we find a diagram looking for a different kind of typological foundation for spatial concepts that adhere with bodily presence and movement more than with visual perception.

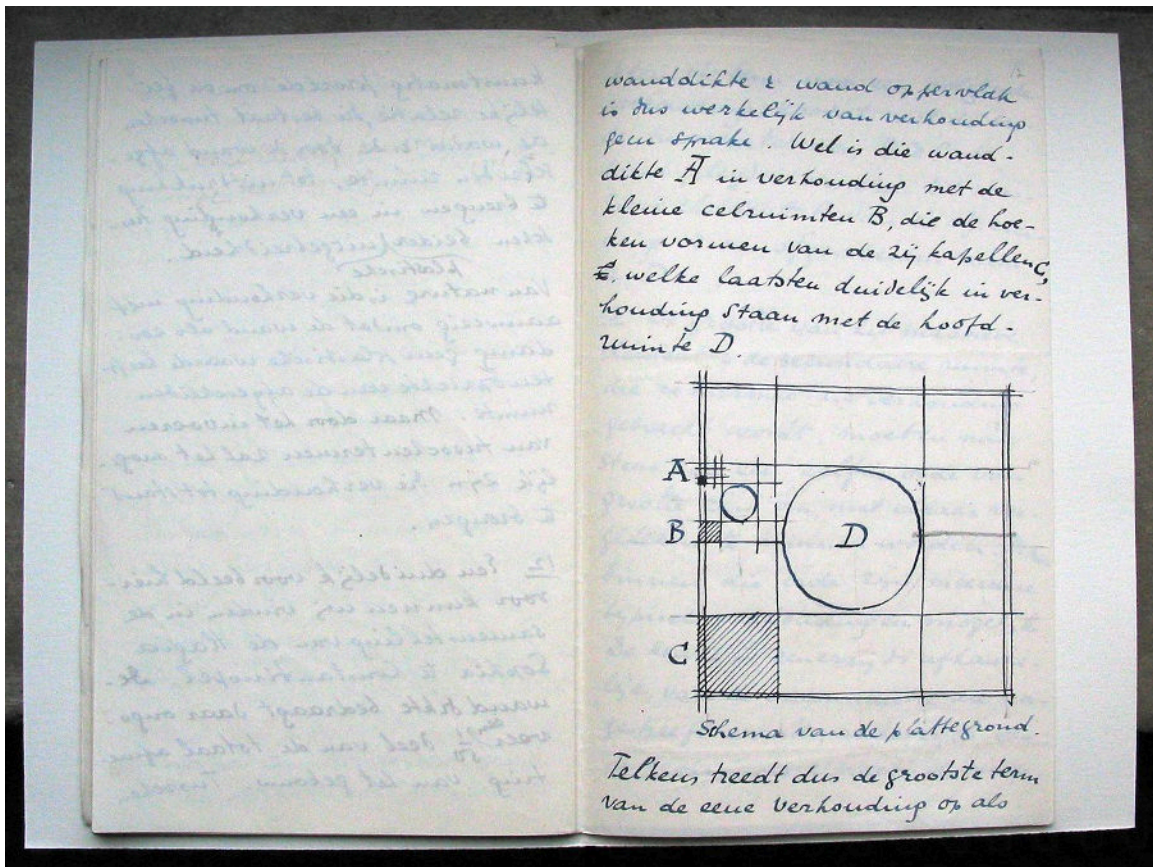


Figure 4: Dom Hans van der Laan, Analytical diagram of the Hagia Sophia, in 'Expressiveness', 14th Lecture given at the CKA, 7 and 21 May 1955, 17. Copyright Van der Laan Archives St-Benedictusberg Vaals.

In the accompanying text, Van der Laan wrote that the wall thickness is about 1/50 of the total size of the building.⁴ This is all that is precise. The diagrammatic sketch itself deviates from the measurements and more complex superpositions of the Hagia Sophia itself. Van der Laan not only draws structure and axes, but the delineating lines where mass and space meet. The column A is never alone, but part of a pattern that puts it, not only in a repetitive series, but also in relation to a space B which it defines. With the drawing, Van der Laan introduced his new concept of superposition as a series of overlapping intermediary spaces, establishing a relationship between the wall thickness with the larger three-dimensional inner space. It aims to be a design principle, explaining a patterned spatial plan where the larger spaces arise through the peripheral conglomeration of smaller spaces that operate on a human scale. One is made by the other. About 10 years before Christopher Alexander started to introduce pattern language, it is difficult where these insights came from.⁵ Van der Laan never referenced his own theories. Nevertheless, this concept of superposition enabled Van der Laan to develop the plan of the crypt as a spatial pattern of superimposed rhythms that oscillate as one moves through it. In *Sacred Buildings* Rudolf Stegers has described this dual spatiality as consisting on the one hand of an extreme materiality: thick and rough masonry and concrete walls that capture the ever-changing daylight through elementary, repetitive openings; and as consisting, on the other hand, of an extreme immateriality, conveyed by the series of spaces forming a dynamic matrix of intertwined, overlapping entities.⁶

Nearness: Architectonic Space as a phenomenological matrix

In 1966, we find the sketch of the Hagia Sophia translated into an even more universal principle, when Van der Laan discovered the work of the phenomenologist Otto Friedrich Bollnow.⁷ This is one of the few references he makes, besides Vitruvius, Plato or the old church fathers. Bollnow introduced a threefold experience space around a person: the space that we draw into our existence through movement. the intimate workspace, the bigger walking-space and the vast visual field. Van der Laan literally translates these three interlocking spheres into a threefold architectonic space; cell, court and domain. In his book *Architectonic Space*, Van der Laan named this intertwined relationship between mass and space, between the thickness of the wall and the space it forms, nearness. The wooden models that accompany this concept, show how different dispositions are possible.

⁴ Van der Laan, Dom Hans. *Expressiveness*, 14th Lecture given at the CKA, 7 and 21 May 1955, 17.

⁵ Alexander, Christopher. *Notes on the Synthesis of Form*. Cambridge Massachusetts / London: Harvard University Press, 1964.

⁶ Stegers, Rudolf. *Sacred Buildings: A Design Manual*. Basel: Birkhäuser, 2008, 33.

⁷ Bollnow, Otto Friedrich. *Mensch und Raum*. Stuttgart: W. Kohlhammer GmbH, 1963.

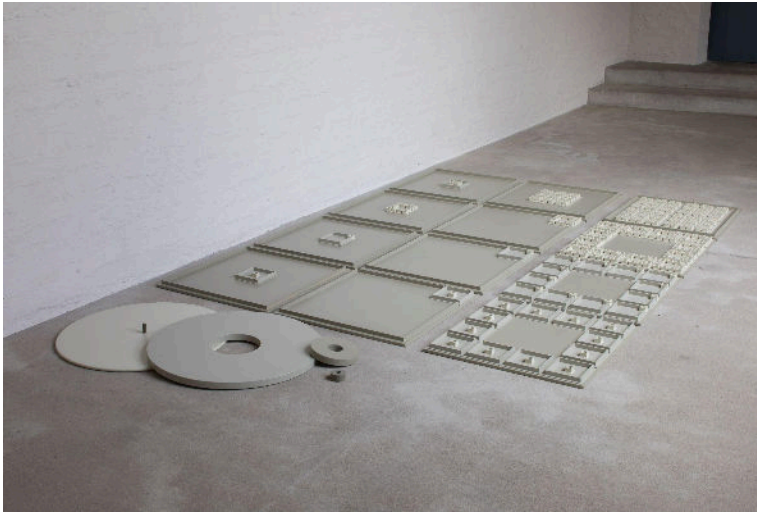


Figure 5: Dom Hans van der Laan, 9 dispositions cell, court and domain. Wooden models for Dom Hans van der Laan, *Model of Architectuur, modellen en meubels*, exhibition and catalogue, (Lemiers: Abdij St. Benedictusberg, 1982). Photograph Jeroen Verrecht.

Meant as a lesson, it was Van der Laan's aim to demonstrate how, when designing the house simultaneously with its walls, squares and the city, it was necessary to move away from the central disposition. The peripheral disposition, which is exactly the Hagia Sophia pattern diagram, was the model to follow. Van der Laan used it himself as a foundation for the four convents he built, and it occurs in the many projects of his students.

Moreover, the concepts of superposition and nearness provide a timeless universal foundation for a design methodology that superimposes bodily presence into the built environment, offering an approach to large-scale and complex new projects and reconversions. The Hagia Sophia proves to be the archetype that provided the design scheme. Every architecture that deals with being human aims 'to house', to provide a house in a functional and a philosophical manner. The Hagia Sophia in this proves to be a dynamic force for its creation.

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