



proyecto, progreso, arquitectura

ISSN: 2171-6897

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JAN DUIKER: A RIVER SIDE HOTEL IN DOLNÍ ZÁLEZLY NAD LABEM, CZECH  
REPUBLIC 1929-1930  
proyecto, progreso, arquitectura, núm. 10, mayo, 2014, pp. 16-31  
Universidad de Sevilla  
Sevilla, España

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## JAN DUIKER: A RIVER SIDE HOTEL IN DOLNÍ ZÁLEZLY NAD LABEM, CZECH REPUBLIC 1929-1930

JAN DUIKER: UN HOTEL JUNTO AL RÍO EN DOLNÍ ZÁLEZLY NAD LABEM, REPÚBLICA CHECA 1929-1930

Jan Molema

**SUMMARY** After the early death of Jan Duiker, his compatriot Han van Loghem wrote: “By no means everything in Duiker is sound in the sense of the mathematical technique, and often not from the viewpoint of centuries long utility. But precisely this makes that his work contains the freshness of the continuously renewing nature.” (De Hollandsche revue, jrg 41, 1936, no 8, p. 366).

Van Loghem's book *Bouwen Bauen Building Batir* (1932) has been the only publication in Duiker's life time in which some space was dedicated to his highly interesting entry for a competition for a riverside hotel in Salesel an der Elbe, now (Dolní) Zálezly nad Labem in the Czech Republic.

In this article the writer has tried to understand the project with his knowledge of Jan Duiker's work in general, from what Van Loghem published, and some additional drawings discovered and published in later years. Duiker's archive contains nothing. A detective story.

**KEY WORDS** Jan Duiker; competition; Salesel an der Elbe / (Dolní) Zálezly nad Labem; 1929/1930; modernity; design method

**RESUMEN** Después de la temprana muerte de Jan Duiker, su compatriota Han van Loghem escribió: “De ninguna manera en Duiker todo es inalterable en el sentido técnico de las matemáticas, y sobre todo desde el punto de vista de la utilidad a lo largo de los siglos. Pero precisamente esto hace que su trabajo contenga la frescura de la naturaleza que continuamente se renueva” (De Hollandsche revue, jrg 41, 1936, no 8, p. 366).

El libro de Van Loghem *Bouwen Bauen Building Batir* (1932) ha sido la única publicación sobre Duiker en vida en el cual, algunas partes, estaban dedicadas a su interesantísimo proyecto para el concurso para un hotel junto al río en Salesel an der Elbe, ahora (Dolní) Zálezly nad Labem en la República Checa.

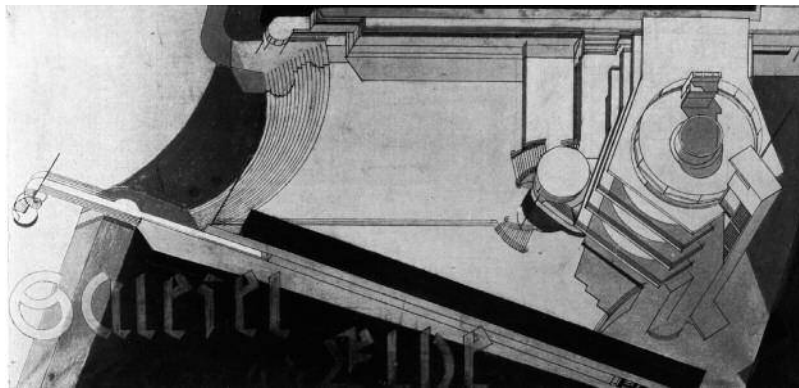
En este artículo, he intentado entender el proyecto con el conocimiento que tengo, en general, del trabajo de Jan Duiker, con lo publicado por Van Loghem y algunos dibujos adicionales descubiertos y publicados años más tarde. En el archivo de Duiker no hay nada. Ha sido una labor de detective.

**PALABRAS CLAVE** Jan Duiker; concurso; Salesel an der Elbe / (Dolní) Zálezly nad Labem; 1929/1930; modernidad; método de proyecto.

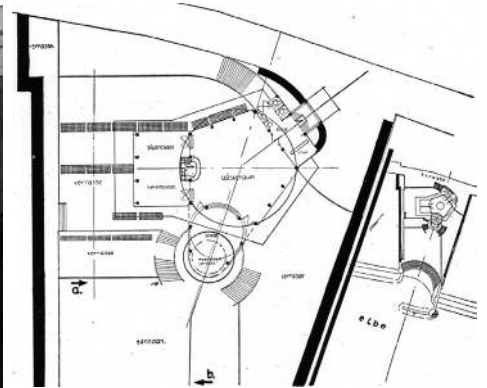
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1. Planometric drawing for the competition as published in: *ir. J.B. van Loghem, bouwen bauen bâtir building*, Amsterdam 1932. Unfortunately we are unable to define the applied colours. The text in old German gothic letters says: Salesel a(n) d(er) Elbe.

2. Situation and floor plans as published by Van Loghem op. cit.; the situation drawing was printed very small (from pier tot street side 2,8 cm). No indication of scale was given. NB the two fat lines indicate the row of (linden?) trees on either side of the plot.



1



2

*"By no means everything in Duiker is sound in the sense of the mathematical technique, and often not from the viewpoint of centuries long utility. But precisely this makes that his work contains the freshness of the continuously renewing nature".*  
J.B. van Loghem in *De Hollandsche revue*, jrg 41, 1936, no 8.

## INTRODUCTION

It was in a very small settlement, Dolní Zálezly (Lower Salesel), on the river Elbe, south of Ústí nad Labem and at an hour drive from Prague, that in 1930 a hotel should be built on the north bank of the stream. Therefore a competition was held for which the Dutch avant-gardist Jan Duiker (Den Haag 1890 – Amsterdam 1935) delivered an entry; he would receive the second prize. Duiker's *brother-in-arms* Johannes van Loghem published in 1932 part of the drawings of the project in his *Bouwen bauen bâtir building* (figures 1 and 2). C.A. Alberts with E.J. Jelles, also Delft trained engineer-architects,

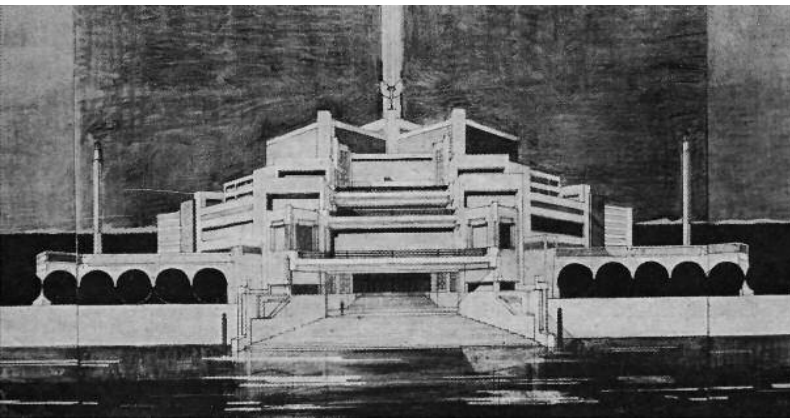
but from a post-war generation, added in 1972 three façades in their *Duiker 1890–1935*<sup>1</sup>.

Nothing more seemed to have been kept about this competition in pertaining archives, just as it happened in the case of the better-known Chicago Tribune competition (1922)<sup>2</sup> and in fact most of the other competitions, in which Jan Duiker and his colleagues Bernard Bijvoet and Jan Gerko Wiebenga ever took part<sup>3</sup>. Still, the project is to us one of the most revealing in Duiker's career. More so because we may suppose that in this case no other designer was involved. We haven't found indications in pertaining archives, neither has Van Loghem mentioned any.

1. Ir. J.B. (Han) van Loghem: *Bouwen bauen bâtir building*, Amsterdam, 1932. This is without doubt the best report of the Modern Movement in the Netherlands up to that date, with brilliant black and white photographs. C.A. Alberts and E.J. Jelles, *Duiker 1890-1935*, in *Forum*, Amsterdam 1972. They obtained this material by sheer luck, after Lucy Duiker-Küpper had died. It is still in the hands of the Jelles family, who are not willing to give it up.

2. Of the competition, and concerning the entry by Bijvoet, Duiker and probably Wiebenga, we only have a perspective in two variants. Only perspectives seem to have been kept in the archives of the Chicago Tribune. We know a few floor plans though by some Dutch competitors. Thus we must be able to analyse to certain extent the entry of the three friends, which will be done in another text.

3. See: Molema, Jan: *Jan Duiker, works and projects* (preface by Kenneth Frampton), Barcelona: Gustavo Gili, 1991 (English/Spanish). I add, that this article shall form part of an upcoming book about these three foremen of the Nieuwe Bouwen (New Building) movement, architects-engineers trained at Delft Polytechnic.



3. League of Nations, Geneva. Design by Bijvoet, Duiker and Wiebenga. Perspective.

3

On the other hand, Bijvoet's and Wiebenga's closeness to Duiker easily leads to the suggestion that they at least must have known about Duiker's entry. The abundance of glass bricks in the project for instance makes us directly think of the Maison de Verre in Paris to which Bijvoet has contributed so much<sup>4</sup>. But it also brings us in mind the common proposal of the three for the complex of the League of Nations in Geneva, 1927 (figure 3).

#### THE COMPETITION

A quite late announcement appeared in the Zentralblatt der Bauverwaltung on 18 December 1929: Elbstrandhotel in Salesel (Tschechoslowakei)<sup>5</sup>. Entries for the (international) competition, which a hotel building consortium (Hotelbauconsortium Aussig) had organised, could be sent till 8 of January 1930. A Christmas marathon! But, as we can deduct from the Aussiger Tagblatt, the announcement must have been made earlier, 12 November, while questions could be sent till 8 December<sup>6</sup>. Entries should have arrived in Aussig (Ústí nad Labem) by 16 December. It is all a bit confusing. We haven't found the cause; competitors may have asked for a delay or there may have been little response at first.

#### THE ORGANISERS

Lawyer *Rechtskanzlei* Dr. J. Schmidt in Aussig announced the competition in the press as representative of an

anonymous Hotelbauconsortium, which planned to build several hotels along the Elbe reservoir under construction. The prize giving would be announced in all major newspapers and magazines, and an exhibition would be held. *"The project should present the most serviceable hotel organization and the most modern architecture. The hotel should further the tourism in the northern-Bohemian Elbe valley, as its natural beauties deserve"*<sup>7</sup>. The consortium predicted a row of hotels in the Elbe valley, as we read in the Reichenbergerzeitung of 28 October 1929. It had already acquired the necessary lots at the most attractive sites and would, after an open competition, present as their first project a Beach Hotel for Salesel.

#### PRIZE-WINNERS

There were three prizes to be given, together 16000 crowns; plus 5000 crowns to be spend on acquisitions<sup>8</sup>. Already on 5 February the same periodical published the results: 75 entries. The jury gave the first prize to Ingenieur Rudolf Kupka und Architekt Ernst Plischke, Reichenberg; the second prize (5000 Kr.) went to Ingenieur J. Duijker (sic!), Amsterdam and the third prize to Architekt Adolf Meretich, Karlsbad<sup>9</sup>. The design of Baurat Pusch, Dresden brought him 2000 Kr. The organisers also bought two entries for 1500 Kr. each from Architekt F. Schleibinger, Offenbach<sup>10</sup>.

4. See Molema, Jan: "Maison de Verre / Zonnestraal. Relato de dos edificios". En *Cuadernos de Notas*, número 14, Madrid, Summer 2013, pp. 98-132. Also on internet in colour: <http://polired.upm.es/index.php/cuadernodenotas/article/view/2088/2160>

5. *Zentralblatt der Bauverwaltung* 49. Jahrgang Berlin, den 18. Dezember 1929, Nummer 51, p. 841.

6. The competition must have been announced in more periodicals. We found it also in the Reichenbergerzeitung on Saturday 16 November 1929.

7. Reichenbergerzeitung 16 November 1929.

8. The jury members were: Architekt Prof. Dr. Krapf, Reichenberg, Prof. Dr.-Ing. Kral, Prag, Stadtbaudirektor Dr.-Ing. Krob, Aussig, Baurat F.J. Arnold, Aussig und Baumeister E. Lein, Aussig and some unknown persons, presumably of the organising entity. NB Reichenberg is Liberec, Prag is Praha (Prague) and Aussig is Ústí nad Labem. Terms and conditions could be acquired from the Rechtskanzlei Dr. J. Schmidt, Aussig, Lange Gasse 9.

9. His address was Panoramastrasse, Karlsbad. ([www.komotau.de](http://www.komotau.de))

10. *Zentralblatt der Bauverwaltung*, 50. Jahrgang, Berlin, den 5. Februar 1930, Nummer 5, p. 123. Also in the *Aussiger Tagblatt*, 22 January 1930, nr. 18, p. 3.

### WHO WERE THEY?

Apart from the fact, that we would like to know who the other 69 competitors may have been –those who did not win anything but who may have kept their entries in their archives– we were eager to trace the winners, hoping to find more information about the question (the so-called Unterlagen should be somewhere) and the answers to that question<sup>11</sup>.

Let us begin with the first prize: Ingenieur Rudolf Kupka und Architekt Ernst Plischke, Reichenberg (now Liberec). This Ernst Plischke must have been another than the well-known architect Ernst A. Plischke from Vienna<sup>12</sup>. First of all because the winners were from Reichenberg in Bohemia. Secondly: Ernst A. Plischke wrote in his autobiography, that he came back from the USA right after the Wall Street disaster, on 29 October, on a French steamer, passing through France, visiting Le Corbusier, arriving by X-mass 1929 in Vienna, where he started working in January 1930. Could he have delivered his entry by January 8, as the information in the Zentralblatt announced as 'Frist'? And why then not from Vienna, but from Reichenberg?<sup>13</sup> But also, Ernst A. Plischke did not mention the project, while he should have been proud of having won the competition.

All right, but how do we find the truth? Could someone in Reichenberg/Liberec not trace the right Plischke? Or Rudolf Kupka? This is another story: the Zentralblatt mentions Kupka as engineer, not as architect. Internet has not provided me with any 'Ingenieur' Kupka, but I did find a Czech (rather Sudetendeutsch) architect Rudolf Kupka<sup>14</sup>. He had been imprisoned in Siberia during the First

World War. In a handmade book, *Deutscher Almanach*, composed by one of his fellow prisoners in the Beresowka camp, a certain Arthur Lang, we find some gravestones this architect Rudolf Kupka had designed there. But, we found a few other clues: Architekt Rudolf Kupka (Reichenberg 1886, in 1931 active in Reichenberg) is mentioned in the Katalog der Sudetendeutschen Kunst-Ausstellung Nürnberg in der Norishalle am Marienortgraben vom 22. Februar bis 3. Mai 1931. Alas, the catalogue does not contain any image of his work, though it mentions 5 sheets with "Ansichten und Innenräume" of the Strandhotel Salesel!<sup>15</sup>.

Who were the others? Adolf Meretich, a quite productive architect from Karlsbad/Karlovy Vary. He is mentioned in the same catalogue. And there is one publication with his works till about the mid 1930's<sup>16</sup>. This includes a perspective of his prize-winning entry for Zálezly.

What about Baurat Pusch from Dresden? He was a man of some importance, and we did indeed find information about him on a few websites. Oskar Pusch was a German architect, regional historian and author. He worked firstly in Leipzig, later in Dresden. There the *Deutsche Bücherei* (1916) is his best-known work<sup>17</sup>.

### ONE MORE COMPETITOR

I somehow came across the name of Margarete Schütte-Lihotsky, who would have been amongst the competitors; and indeed the book about her, edited by Peter Noever, contains some material about the project, which she sent to Aussig; though in vain, no prize<sup>18</sup>. Anyway this material

11. Where I speak of we, I mean first of all my co-author ir. Suzy Leemans; but also irs. Peter Bak and Roel van der Heide and prof. dr. ir. Jos Tomlow, old-time students who made the trip to Zálezly nad Labem with me. I should also thank Martin Krsek and Jaroslav Zeman from Ústí nad Labem for their enthusiastic contributions.

12. Ernst Anton Plischke was the son (\*1903) of Anton Plischke (\*1875), an architect from Reichenberg who had immigrated to Vienna. But the prizewinner was Ernst Plischke. Could it be, that Ernst was Ernst A.'s uncle?

13. Plischke, Ernst A.: *Ein Leben mit Architektur*, Wien: Locker, 1989, p. 123: "Wir kamen knapp vor Weihnachten .. nach Wien zurück ..."

14. <http://www.archive.org/stream/arthurwolfpapers01wolf#page/n35/mode/2up>

15. "Ansichten und Innenräume" means facades and interior spaces. Numbers in the catalogue of this exhibition of the so-called Sudetendeutsche Art Exhibition, held in Nürnberg, were 521-523.

16. 'Architekt Adolf Meretich, Karlsbad', Wien/Pressburg, n.d.

17. The only name left is F. Schleiblinger from Offenbach.

18. Noever, Peter: *Margarete Schütte-Lihotsky, soziale Architektur, Zeitzeugin eines Jahrhunderts*. Wien: Böhlau Verlag 1996 (2<sup>nd</sup> ed.) p. 121. In fact this is the copy of a sheet from the magazine *Baumeister*, 1930. The authors had difficulty in finding the location. They talk about a little river or a canal: 'ein Flößchen oder Kanal'.



4. A view of the terrain with the researchers. The river dike left in the background, old through road at right.  
5. A map of Salesel an der Elbe.

4

makes a nice comparison possible and led me to a somewhat better understanding of Duiker's project<sup>19</sup>. We may signal here the location in Duiker's project of the common toilets and bathrooms in the corridors or halls, the quantity of rooms (six singles f.i.), the (required!) modernity of both; although Duiker's project is absolutely more personal, less influenced by Le Corbusier amongst others. In fact this is true for Duiker, Bijvoet and Wiebenga's work in general: generally no pilotis, no running windows, less colours, the skeleton is easier to identify, etc...

#### DUIKER'S INVOLVEMENT

One of the questions that came to my mind was: how did Duiker know about this competition? His 'own' magazine *De 8 en Opbouw* would not appear before 1932. The competition was not announced in Dutch architectural periodicals<sup>20</sup>. Is it possible that some befriended Czech (or German) colleague had informed him? Bohuslav Fuchs or Karel Teige for instance?<sup>21</sup> Were other Dutch architects invited? As far as I have seen their archives, I have not met any indication. Duiker's archive does not contain anything concerning the competition<sup>22</sup>. The excellent web site of the Royal Library in The Hague, which contains all Dutch important newspapers from 1618 on, neither shows any useable information<sup>23</sup>.

#### THE PROGRAM

As we do not have the competition terms or conditions, we must read Duiker's (and Schütte-Lihotsky's) proposal as such, unless the *Unterlagen* (conditions) are found. Many questions stay un-answered, because Duiker's drawings only show us one of the three upper storeys with the bedrooms on a small scale, plus the main floor. Neither the ground floor nor the basement, if there were one. But Duiker must have followed the program strictly, as he was amongst the prize winners<sup>24</sup> (figure 4).

#### THE SITE

It has been an exciting experience to search and find the exact location. Once it was clear to us, that 'Salesel a.d. Elbe' (as we read on Duiker's drawing) was identical to Dolní Zálezly nad Labem in Czech, and Google Earth became available, Duiker's drawings were precise enough to find the right location, despite local alterations. Especially the new through road along the Elbe River gave us problems. A simplifying factor turned out to be, that –apart from that new road– the gently sloping site is still practically unbuilt. The little community has kept it as a commons with a playing ground and a tennis court on the side. Also, Duiker's drawings –though sketchy– are in fact very precise: an angle in the roadside (not a bend) is still there<sup>25</sup>. Small thing, but important indication of the right site<sup>26</sup>.

19. The book though does not contain all the material in Schütte-Lihotsky's archive in the Universität für angewandte Kunst, Vienna.

20. F.i. Bouwkundig Weekblad Architectura

21. Karel Teige prepared and edited the general report *Die Wohnung für das Existenzminimum* for the third CIAM Congress in Brussels in 1930. From 1922 to 1928 he edited the avant-garde journal *Stavba* (Building); he also developed relations between Czech Moderns and leading figures abroad (e.g. Behne, Hannes Meyer, Le Corbusier, and the Vesnins).

22. Neither, till today, have I come across the competition in other Dutch or foreign archives, except the Schütte-Lihotsky Estate in Vienna.

23. [http://www.kb.nl/historische\\_kranten](http://www.kb.nl/historische_kranten).

24. Schütte-Lihotsky's entry, in the way it has been published, doesn't help much either.

25. The same we find in Schütte-Lihotsky's plan.

26. See Google Maps: 100 Rudé Armády, Zálezly nad Labem





5

Duiker must have been aware (or was it mentioned in the “Unterlagen”?), that the Elbe can bring high floods, like we have seen in recent years. He levelled out most of the lot from the street towards the riverbed, and put his building on top. He even left the ground floor more or less open, or so it seems, the best way to avoid serious problems in eventual floods. As a real Dutch engineer he put the complex between two dams from the street towards the dam along the river, which he had to dig off partly to provide a beach for the guests. Thus the hotel gives the impression of a mail boat moored between the moles of a harbour, very appropriate, and very ‘en vogue’! (figure 5).

#### THE BARRAGE AT SCHRECKENSTEIN

The idea of building a beach hotel here apparently relates to the construction of a dam in the Elbe some 20 kilometres downstream, to be ready in the spring of 1930. This would result in a lake-like situation with a higher, but essentially controlled water level, as we see it today. It would make swimming and other water sports much safer. But in an article in the *Reichenbergerzeitung*, published right at the moment that the entries for the competition had arrived, we can read about the problems that some foresaw<sup>27</sup>.

The dam would raise the water level in Zálezly approximately 4 meters; but sudden floods could be expected. And indeed, there is a mark from 2002 on a house opposite the site that indicates the water level having been more than three meters above street level<sup>28</sup>, Duiker’s hotel could still have had problems. The consortium must have been in doubt about their plans. Why nothing has been built is still an open question. It may have had to do with the developing political and social unrest in Bohemia<sup>29</sup>.

#### THE EXACT LOCATION

The combination of the situation today with cadastral maps on the Internet and Duiker’s drawings gave us a fairly precise insight in the situation of the lot. Taking as a basic measure in Duiker’s plans the length of a bed, in those days 190 cm, we have been able to position the situation as Duiker drew it (in two different scales)<sup>30</sup>. Taking as an orientation point the already mentioned angle in the roadside (in fact the only one in this former through road in Zálezly), we have been able to place Duiker’s plan correctly in the site. What we have not found is the reason of the space left between the western side of his complex and the eastern of the next lot with the still existing villa. The eastern side is a straight line at a practically right an-

27. Saturday 18 January 1930.

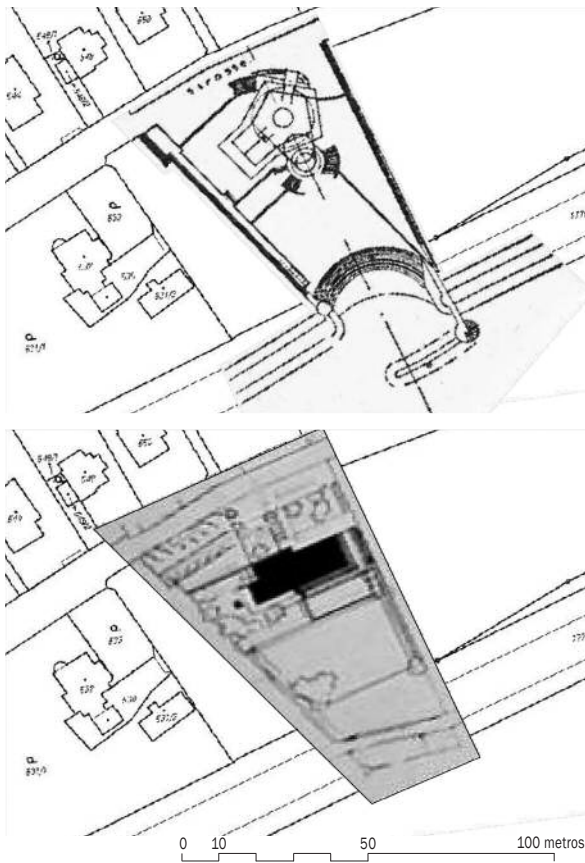
28. The post office at 100 Rudé Armáry. Visible on Google Earth.

29. The only Dutch newspaper that mentions Salesel is the left wing Tribune, which brought two articles about the social unrest in Bohemia and the result of the local elections, 15 April and 26 May 1932.

30. Duiker did not give any measure, just the scale of his drawings. The length of 2.00 m gives a bad result. And in those times beds would be at the most 1,90 m., which gives a satisfactory result. Doors and stairs can be other indicators, not so much floor heights.

6. Duiker's and Schütte-Lihotsky's site; inserted in a contemporary cadastral map copied from Internet.

7. Open Air School, Cliostraat Amsterdam; Van Loghem, op. cit., as executed (plan 6, 1928). A comparable structure, with its cantilevering and tapering beams and floor slabs and the slimming columns, would have been implemented in Salesel.



Zonneheide had just been presented, but fund raising for the realization was difficult. Late in the summer of 1930 the ephemeral 'tea house' at Zonneheide would open, at the time Duiker (with Bijvoet) received the commission for the nurses' roundhouse at Zonnestraat<sup>33</sup>. Meanwhile Bijvoet was busy in Paris (Maison de Verre), and Wiebenga as the municipal architect of Aalsmeer<sup>34</sup> (figure 7).

## FORM, STRUCTURE AND MATERIALS

### *The pentagon*

Why would one choose a pentagon as the elementary form for (a part of) a building? How to trace an angle of 108 degrees when not having the necessary tools? Did Duiker have a drawing machine? Or did he just use a ruler, pear wood triangles (45 and 30/60 degrees) and a compass? Plus a triangle with a swivelling arm, which he could adjust to any desirable angle, in this case 108°?<sup>35</sup> Duiker's stepson Arthur Hofmans answers that initially 'Jan' had a drawing table with a parallel guide and two loose triangles just as mentioned. "*The introduction in 1927 or 1928 of a Kühlmann drawing machine (...) was a memorable happening. Jan was very pleased*"<sup>36</sup> So a machine was available to draw the Salesel plan at the turn of the year 1929–'30.

Was it the (form of the) location that led Duiker to the pentagonal form? He clearly did not 'orientate' his building by using the north arrow; instead he put what *seems* the main axis in the situation drawing shown above on a right angle with the lake border, parallel to the east border line of the plot<sup>37</sup>. But this 'main axis' in the situation drawing is somewhat misleading. It gives a bit too much emphasis on the pentagon part of the building.

Duiker used three of the five axis of the pentagon for specific functions. The first with the 'main' axis and the inside/outside dance and music podia, a second

gle with the coastline of the lake. In fact it could have been 'anywhere' as it is nothing special (figure 6).

## OTHER PROJECTS AROUND 1930 BY DUIKER (BIJVOET AND WIEBENGA)

At the moment that he had to send his proposal to Aussig, Duiker moved from Daniel Willinkplein to Minervalaan in Berlage Zuid (Amsterdam), to a larger house where (for economic reasons) paying guests could be held. In 1928 they had sold their beautiful convertible Cleveland, as it had become too expensive to have a car<sup>31</sup>. The money for the second prize for the Zálezly entry must have been welcome<sup>32</sup>.

Duiker's open-air school was under construction (opening 28 of June), and he was working on the design for its entrance building. The design for an open-air school at

31. Source: Jan Duiker's stepson Arthur Hofmans in his book Hofman, Arthur: *Herinneringen aan Jan Duiker*. Lelystad/Rotterdam: MEDITekst, 1990.

32. Winning a competition can lead to most unpleasant results, as Duiker and Bijvoet had experienced in the competition for the National Academy for the Arts (Rijksacademie voor Beeldende Kunsten) in Amsterdam. The second prize brings money for the work done and leaves the architect in peace.

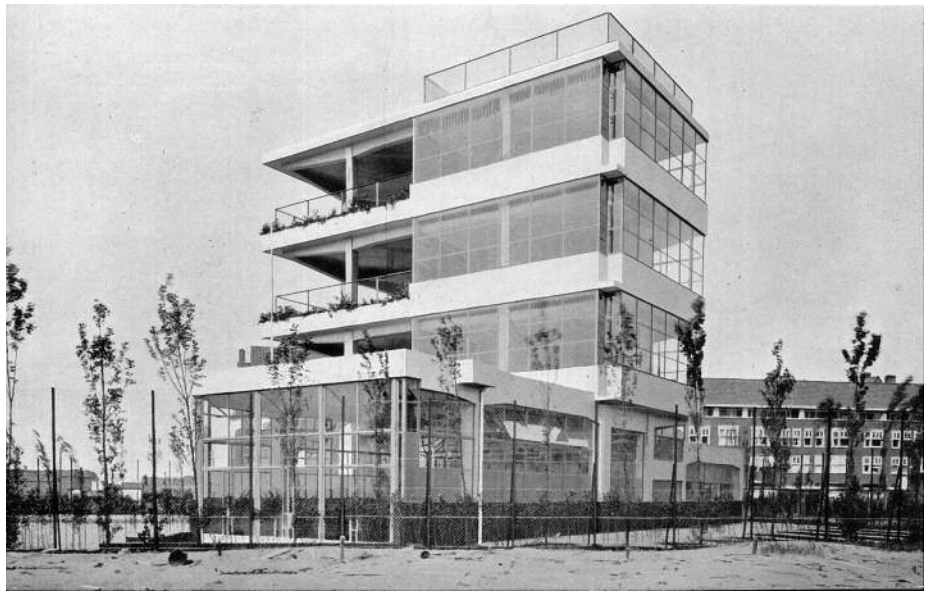
33. It reflects various aspects of the round part of the hotel.

34. We are not sure about the dates of the proposal for a Jamin shop, but its circular plan must be taken into account here.

35. This was 1929, computers were just dreamed of. Later on Duiker must have been able to draw parabolas though, for instance in his Cineac design.

36. Hofmans, Arthur, op. cit, p. 55. See note 31.





defines the entrance part, a third one a rectangular block with rooms on the higher floors and meeting rooms on the main. The direction of that third axis of the pentagon seems to have defined the western limit of the lot, lying parallel to the side of the rectangle. This looks strange and should be explained.

Margarete Schütte-Lihotsky solves the problem<sup>38</sup>. In her situation drawing the western border of the terrain is exactly as Duiker drew it, including the same protrusion at the street side. Apparently it was a given line, not an invention of Duiker. This explains, I think, sufficiently the pentagon form as resulting from the inclination of the borderlines.

Duiker must have become aware of the fact that there was an inclination angle of precisely  $18^\circ$ , which led to the angle of  $(90+18) 108^\circ$  of the pentagon =  $6 \times 18^\circ$ . The pentagon contains 5 angles of  $108^\circ$ , which makes  $540^\circ$ .

#### Circles

*"Le courbe est ruineuse, difficile et dangereux: elle paralyse"*<sup>39</sup>.

On the bedroom floors Duiker applied within the pentagon a circle, divided into 6 segments of  $36^\circ$  with each a double bedroom. Three segments of  $24^\circ$  form two singles plus a passage,  $72^\circ$ . Two common bathrooms, a passage and service spaces occupy the rest of the circle, also  $72^\circ$ . A full circle contains  $20 \times 18^\circ = 360^\circ$ .

Why would an architect use a circular surface? Because of its ratio. The proportion between circumference and surface area is optimal. A minimum of façade with a maximum of enclosed area. If we apply a polygon instead, the ratio shall become lower with fewer sides.

The first circle in Bijvoet and Duiker's oeuvre we find in their refurbishment plan for the Rijswijksche Bank in The Hague (1918). The cylinder would have contained the bicycle shed on the ground floor, and would have soothed the edged corner in the exterior. The composition of this corner reminds us of what was 'en vogue' in Amsterdam School buildings, such as the so-called Schip by Michiel de Klerk in Amsterdam Spaarndammerbuurt<sup>40</sup>.

The first circle of larger dimension landed 'out of the blue' on top of the main building of Zonnestraal (late

37. He could have done the same with a triangular, rectangular or any other regular polygonal figure.

38. Thanks to a quick action of the directorate of the archive of the Universität für angewandte Kunst in Vienna, I received copies of the documents from her estate, pertaining to the competition. Which were very helpful indeed. I want to thank both Frau Silvia Herkt and Frau Natalie Feitsch from the Archiv der Universität für angewandte Kunst Wien for their quick and adequate response to my questions.

39. Le Corbusier, Recherche des principes fondamentaux d'urbanisme moderne, in: l'Urbanisme, Paris 1925.

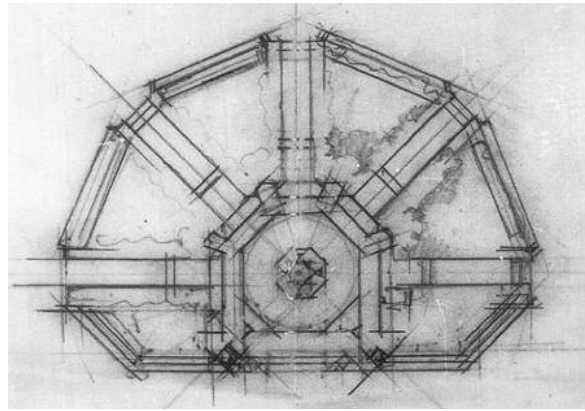
40. A second circular stairwell Bijvoet and Duiker would apply some years later in their famous gardener's house in Aalsmeer (1924-'25). A very visible volume in brick, soaring over the lower floor of the house. It must be understood as the representation of the traditional warehouse chimney, as we can see behind the house on old photographs. In no other building or plan in the earlier years of collaboration of the duo we find a single (part of a) circle or other bend form. This would only occur later. Duiker, maybe more than Bijvoet, became fond of circular stairs, in spite of their somewhat problematic use. The cylinder as an intermittent element comes in a variety of cases. Experiments with intertwined circular stairs we find in what Bijvoet and Duiker did with Jan Gerko Wiebenga in a prefabricated housing plan (in second instance for CIAM III in Brussels 1930) and in their first designs for the Nirwāna project (1926-'28).



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1927). Only during the construction Duiker (and or Bijvoet) concluded that there would be insufficient light inside the cross-formed building and therefore lifted the central part of the roof<sup>41</sup>. Why a circle on a square? I have no idea. Anyway, Zonnestraat also got a discernable cylindrical chimney and water tank<sup>42</sup> (figure 8).

#### *Polygons and circles*

By 1930 Duiker seems to have become a real fan of non-rectangular buildings. The mentioned circular rooftop of Zonnestraat got a variation in the ground plan for a maids' house with eight sides and a round roof. This was replaced by a design with a dodecagon with a circular roof topped with a round skylight. This solely dated design was made in the winter of 1930–1931, but the commission seems to have been given in the summer of 1930<sup>43</sup>. So, after the Salesel competition. At the same time the design

and model of the open-air school complex near Zonnestraat were ready and presented: a complex of rectangular pavilions radiating from a central round pond<sup>44</sup> (figure 9).

It was around this time that Duiker started his interest in polygonal forms and he was lucky! Salesel gave him an opportunity to investigate its applicability and utility. We must remember, that already in their design for the League of Nations in Geneva (February 1927) the half *octogonal* and cut *hexagonal* form had appeared in plan, while the full *octagonal* can be seen in the somewhat later plans for Hoogbouw; but we do not find any other pentagon<sup>45</sup>. The one in Salesel would be the only one in his career (figure 10).

Whether Duiker was aware of the idea that “*the Pythagoreans held the pentacle sacred to Hygeia, the Goddess of healing, whose name was an anagram in Greek for the elements water, earth, spirit, fire, and air*”<sup>46</sup>, I do not know,

41. This reason is at least generally accepted, but there is no proof.

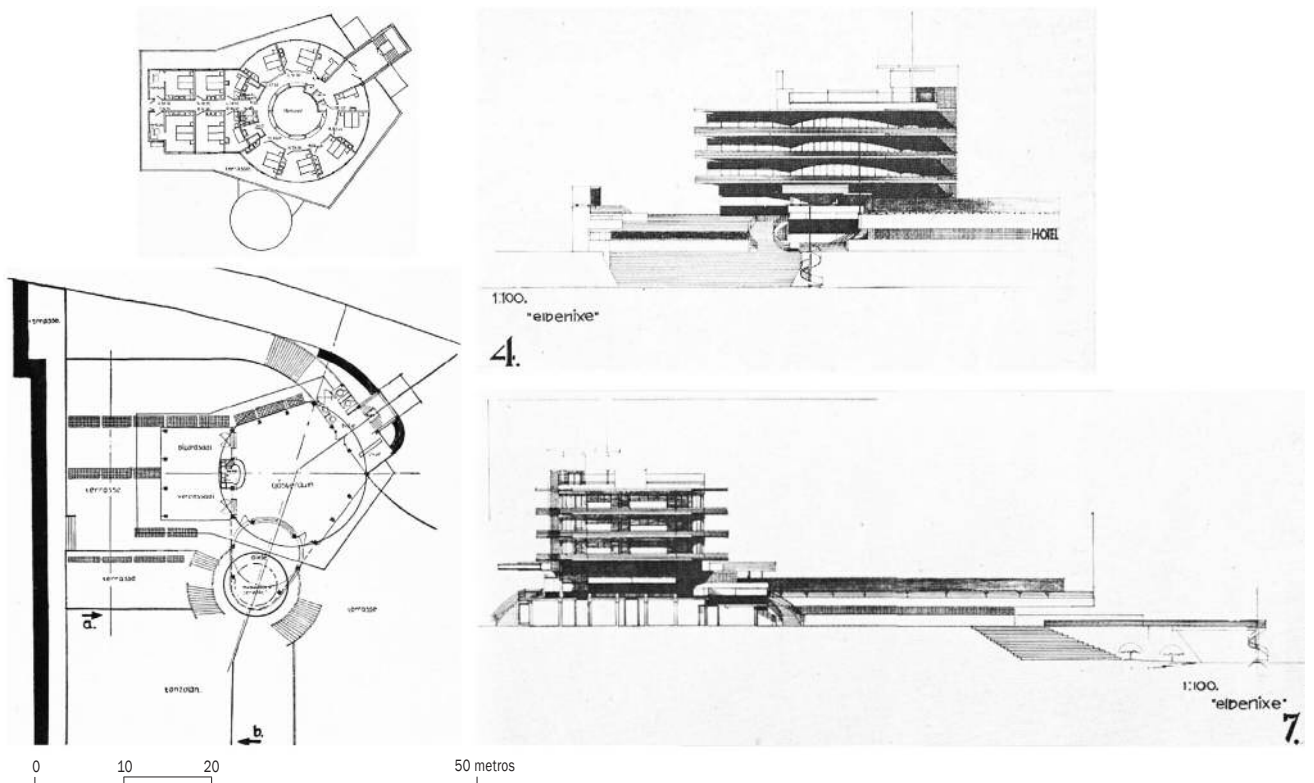
42. A circular pond in front of the main building was not executed though.

43. Jan van Zutphen, the godfather of Zonnestraat proposed it in a meeting of 10 June 1930. (Zonnestraat archive, IISG) But who knows whether Duiker has not worked on it before?

44. Zonneheide, 29-11-1929, photo of (an older!) model and text in Het Volk.

45. Quite surprising, even the small maid's house at Zonnestraat is very much comparable with the proposed design for the League of Nations complex.

46. <http://symbolictionary.net>. The Pentagon in Depth.



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but it seems to be adequate for a beach hotel. If one wants so, the fact that the central building of Zonnestraal received a Greek cross plan may be another indication for symbolism in Duiker's work; the commission had been given by the Dutch Red Cross. But this is not what we have researched, as Duiker to my knowledge did not think per definition in symbols when designing.

#### PROPORTIONAL SYSTEM

The use of a pentagon may lead us to the idea that Jan Duiker tried to use the Golden Section in his design here. When years ago I had the opportunity to show Zonnestraal to the American architect Steven Holl, he exclaimed: 'it's all Golden Section!' Well, it is not. And the good reason is, that this proportion is not practical in the execution of a work. But where Duiker applies the pentagon, he must have accepted this impracticality for some reason.

#### DIMENSIONS OF THE PROJECT AND THE SITUATION

Neither Duiker nor Schütte-Lihotsky added any measure to their drawings. As we do not have the originals

it is difficult to define the different measures of building and site. Duiker did the project in a short period. He was very able to do it, but in spite of that we found several irregularities in his plans, which makes conclusions risky. We checked the dimensions of the pentagon, the circles and the other 'additions' to the five-sided core. We have searched proportions between measures, and looked for simple dimensions. What we present here is a close approximation, as indicated based on the dimensions of a bed of 190 cm long<sup>47</sup> (figure 11).

#### THE REMARKABLE USE OF THE GLASS BRICK

In 1932 Howard Robertson<sup>48</sup> wrote about the contemporary Dutch architecture: *"On the other hand, there are new materials and fresh possibilities as regards form, which supply the incentive to pioneer and seek for new solutions to old problems. For example, the necessity for employing heavy framing round openings, and thick supports in general, is one which many modern architects would like to eliminate on the score of both utility and effect; yet the use of materials in such a way as to achieve the effects desired*

47. We also took other elements such as doors and stairs into consideration. Here I have to thank Peter Bak for doing the measured drawings included in his usual precise manner.

48. Robertson, Howard: *Modern Architectural Design*, Westminster, 1932, p. 89 etc. Robertson would be one of the architects of the United Nations complex in New York.





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12. Zonnestraal Main building.

13. Ter Meulen Pavilion, vintage photo showing the (double) T-beam structure. Beam spans 9 m. en 3 m.; floor spans 3m. and 1.50m. Floors 8-12 cm. thick.

14. Inside of Vocational school Scheveningen.

at the Hague by that pioneer in modernism, Berlage, who employs these bricks in combinations of green and white." Duiker and Bijvoet knew these buildings very well.

#### LEAGUE OF NATIONS COMPETITION

Probably the first time Duiker and his friends proposed the use of glass bricks in large quantities was in their entry for the League of Nations competition, which they delivered early in 1927<sup>50</sup>. The sketchy drawings we know of this project are similar to the first ones that Bijvoet made for the Maison de Verre. "Ber is now for some days in Geneva to study the plot for the League of Nations Headquarters competition, in which he wants to take part with Jan D(ui-ker). and Wiebenga" Co Bijvoet-Ezerman wrote this on 26 November 1926, with an addition in the margin on 3 December 1926. Bijvoet wrote on 24 February 1927: "But now it is really true (it is always slightly embarrassing to tell real truths) that in the last months we have passed a crisis that is really very suitable to blame for everything. You should know that we have made a design for the League of Nations, no kidding. And what is more: we have been able to deliver it (....)"

requires a considerable amount both of invention and technical skill. Effects are obtained by some of the more advanced modernists, which at first glance are puzzling. (...) Glass especially is a most intriguing material for modern work, and requires considerable skill in handling as well as wide research on the part of manufacturers as to the possible scope of its uses. Such buildings as the Vol Harding at The Hague, designed by J. R. Buijs provide examples of outstanding interest.<sup>49</sup> (...) Glass bricks are used increasingly in Holland, in white and in colour, an attractive example occurring in the interesting Christian Science Church

#### MEAGRE BUDGETS AND OTHER BUILDINGS

I do not know why Duiker has not made use of this highly transparent material in his most crystalline Dutch works, Zonnestraal in Hilversum and the Open Air School in Amsterdam (plans May 1927–August 1928)<sup>51</sup>. Too expensive maybe? Both were built on a meagre budget. Several not built designs for the SCALA cinema–cum–nightclub at Kleine Gartman–plantsoen in Amsterdam on the contrary show an abundance (1930–1934). It is only after Duiker's death when the glass block plays a, in this case modest, role: in his last project, the Hotel Gooiland, executed under Bijvoet. There is a peculiar

49. Correctly spelled De Volharding and J.W.E. Buijs.

50. This has been unclear for a long time, since no archive of the three contains a set of finished drawings. An interesting side step: Karl Moser, member of the jury, sketched the peculiar ground plan, a hand with spread-out fingers, in his notebook (ETH Zürich, Karl Moser Archive). We find this form more than once in Duiker's work.

51. Here, as in the Maison de Verre we touch once more the problem of authorship. The first plans for the Open Air School wear both names Bijvoet and Duiker; the later of six (!) designs the name, signature and/ or stamp of Duiker. Yet the lettering of the last design resembles very much that of the earliest drawings (known) for the Maison de Verre. See: Bak, Peter and Molema, Jan: *J. Duiker bouwkundig ingenieur*. Rotterdam: Stichting Bouw: 1982. Also: Molema, Jan: *Ir. J. Duiker* (Serie Architectuur). Rotterdam: Uitgeverij 010, 1989)



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corner in the café behind a stair, where the building touches the neighbouring plot. Glass for illumination was allowed, but no view outwards<sup>52</sup>. In none of all these Dutch works we find *panelled* glass bricks. Who then, developed these? My daring idea is: Bijvoet, with the aid of Duiker, while discussing the procedure of the (pre-)fabrication of the façades for Zonnestraal, as mentioned above.

Zonnestraal was by all means an experimental project. The façade elements were developed 'in situ' and there is a variety of solutions. As the first buildings (main building and the Ter Meulen pavilion) opened in June 1928, we can

safely place the start of this investigation a year before, mid 1927<sup>53</sup> (figures 12 and 13).

#### THE THIRD TECHNICAL SCHOOL IN SCHEVENINGEN, THE HAGUE

In June 1928, Duiker and Bijvoet received a new commission for this project<sup>54</sup>. Very different from the first design à la Wright. Already the earliest perspectives show large quantities of glass bricks to be applied in the street façade in corridors and staircase<sup>55</sup>. They show striking likeness again with the sketch Zoetbrood shows us of the front façade of the Maison de Verre<sup>56</sup> (figure 14).

52. For an explanation of this 'trouvaille' see: Jan Molema, id.

53. For Zonnestraal and its restoration see amongst other authors Wessel de Jonge in: Meurs, Paul and van Thoor, Marie-Thérèse (eds.): *Zonnestraal Sanatorium. The History and Restoration of a Modern Monument*, Rotterdam: NAI Publishers 2010.

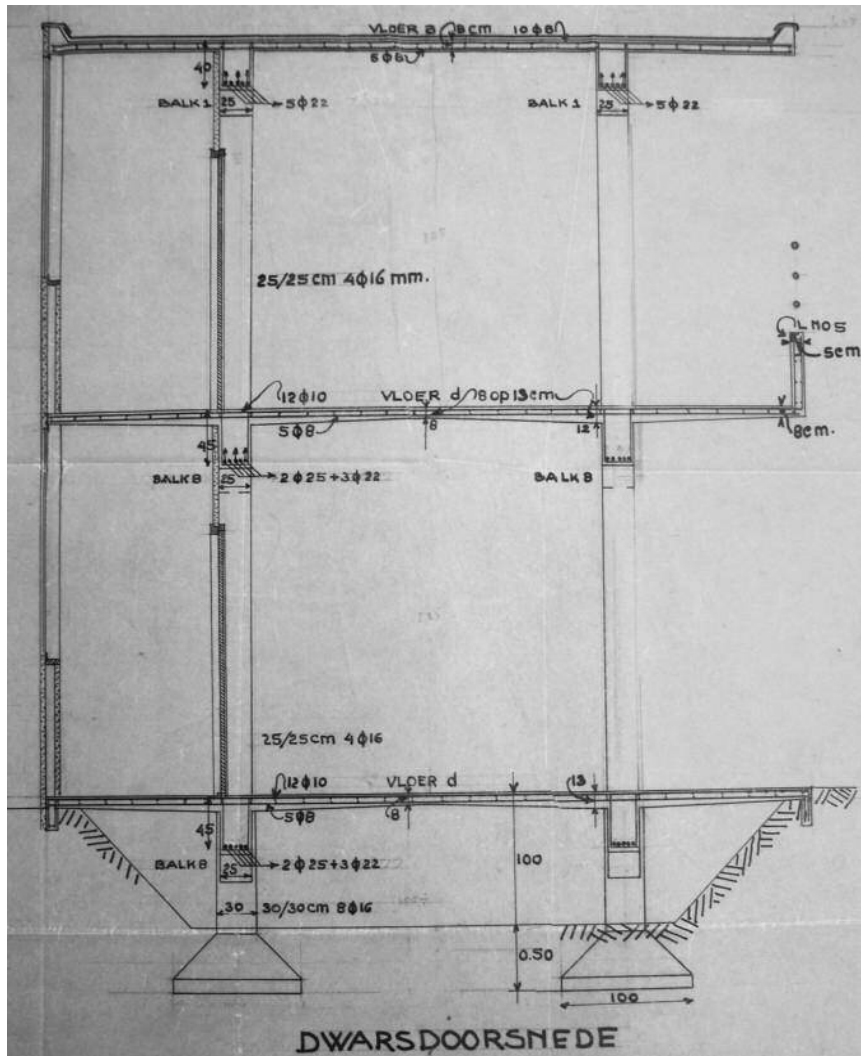
54. Because of an economic crisis the first commission was taken back in 1924, probably one of the origins of Bijvoet's emigration. The same happened to Berlage's Museum for the Hague.

55. This commission is again an interesting fact in relation to the social background of the architects: the secretary of the Technical school in The Hague was the father of Jan Duikers brother-in-law. The responsible alderman was Johan Willem Albarda (SDAP), who around 1920 lived next door to the studio of Duiker and Bijvoet. He was also involved in Berlage's commission for the Gemeentemuseum, The Hague; and in a way in the commission for Zonnestraal

56. [www.erzed.nl](http://www.erzed.nl)



15. Zonnestraal. Section through pavilion. In situ poured concrete structure with large spans, tapered cantilevering beams and floor slabs, based on a T-beam prefab system, patent of Bijvoet, Duiker and Wiebenga; obtained in 1926. (Patent published by C.A. Alberts and J.J. Jelles in: Jan Duiker 1890-1935.)



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### CONCRETE OR STEEL

In later years Duiker would apply steel frames, but around the time of the Salesel competition he would still use concrete, as may be visible in the drawings we know<sup>57</sup>. We have tried to analyse the whole structure, but this seems to be an impossible task with the available documents (or rather the published copies of these). The rectangular part may give us a clue. Duiker seems to have been excited by the patent he had obtained in 1926 with Bernard Bijvoet and Jan Gerko Wiebenga for prefabricated reinforced concrete elements consisting in two columns, a beam and a slab (figure 15).

This system the three elaborated in what we see in the main complex of the Sanatoria Zonnestraal, most clearly in the pavilions: an equilibrated system of two (or more) T-beams on columns, poured in situ. It is not difficult to see that this has been applied in the substructure of the rectangular part of the Salesel building. But how would Duiker use it in the circular (pentagonal) part of it. Was it at all applicable? While we can imagine it in the three additions (the rectangular part, the stairs- and lift volume and to a certain degree where the dance floor and the orchestra podium are suggested), it becomes difficult in the two zones in between.

57. There is one exception: the refurbishment by (Bijvoet and) Duiker of a pharmacy in Zandvoort, 1925.

Here begins to falter our understanding of the structure with its impressive cantilevers of beams and slabs. Also because in the upper floors Duiker introduced in both parts a system of load bearing separations between the rooms, at any rate in the circular part not coinciding with the main floor structure. For the circular part we can compare with the already mentioned nurses' house at Zonnestraal. Is it possible that Duiker thought of the upper parts as an integral box-like concrete structure of floors and walls forming one stiff whole, placed on a set of columns and beams? Would this be a combination of the round house at Zonnestraal in the upper floors and the Open Air School in Amsterdam in the substructure, including the main floor (with the 'Gästeraum', the central hall)? Or should we see the structure of the lower part of the pentagon as we draw it: a T-beam in a roundabout way on 15 columns with a cantilevering floor slab on both sides? Whatever the case, one must take into account what Duiker designed before, as well as what he drew afterwards. Unless the lacking drawings (the other floors and sections) turn up one sunny day, little else I can say about the main structure.

## PROBLEMS

One may want to compare Duiker's solution with (what we know about) Schütte-Lihotsky's entry. Her's seems more modest in plan and spatial composition, but gives us some understanding of the different functions in the complex, such as the covered car parking, which in Duiker's design we must imagine being placed in the (unknown) lower floor, probably in the triangular part between the street and the river on the eastern side of the lot, it's roof forming a large terrace with a row of 'coiffé' linden trees<sup>58</sup>. What to say about materials, colours, details, about functions like the breakfast and dining rooms, what about the conducts (see for instance the toilets on the guestroom floors), there are many questions left, occasioned by the lack of documents and descriptions, though comparison with the realised works of course can help to imagine several aspects, such as the colours: "Duiker" blue, white, some pure yellow, aluminum paint on steel elements, black.

## A GRID

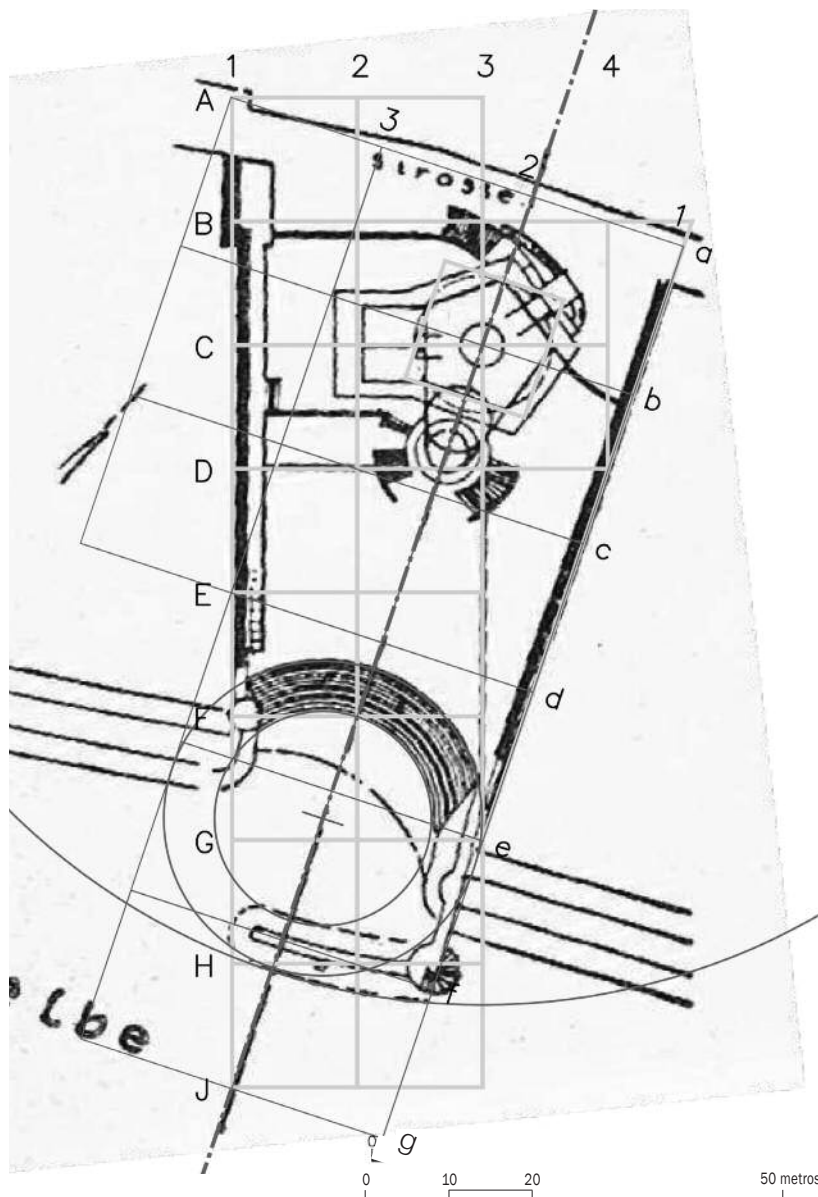
As I wrote: in the drawings that we know there are no measures; there is only one section, and some floor plans are missing. We have no details. Yet, there is something to add. As said before, the explicit line in the small situation drawing published by Van Loghem, which is running through the centre points of the pentagon and the small circles and parallel to the eastern borderline, is somewhat misleading. We should look at the situation and the plan in such way, that the western limit lies horizontal, as Van Loghem did with the axonometry. Then we see the pentagon, though very present by it's form, becoming less dominant in plan. The mathematical consequence of the form of the site, not a preconceived desired centralised space form.

The grid, that I introduce, gives more attention to the rectangular part of the plan. We see now, though we have to be careful with our conclusions because of the bad quality of the available drawings in the publications, that several parts fit in this grid of (approximately) 15x15 meters and subdivisions. The rectangle includes the long north-south wall of the large triangular part of the basement, the same line goes right through the centre of the pentagon. Also does the east-west centre line of the whole rectangular bloc. This point was determined as the functional pivot centre of the complex. Yes, but there is more: Duiker managed in this way to have another proportionally related grid following the eastern boundary! Now everything, including the different circles turn out to be defined by the grid and the proportion 1:3:√10, consequence of the inclination of the border lines.

I guess that Duiker, after noting the angle between both sides being 18°, which led him to the pentagon, began to draw a grid parallel to the western boundary. Such a grid we see on some of the drawings for the League of Nations complex for instance. The basic measure of the grid as we deducted it may not be 100% precise, but the pivot point seems to have been defined by the grid. This is how far I could come in tracing the design route, that Duiker choose. I leave it to the reader to study the drawings in this article and see what (s)he can add or

58. The black belts on either side of the beach.

16. Multi layer drawing of Duiker's solution. Attempt to understand Duiker's method of design. The proportion between the smaller and the larger module is  $3:\sqrt{10}$ . This proportion comes directly from the relative inclination of the sides of the plot, and leads to the pentagon. NB As said in the text, I had to use the small situation drawing by Duiker as published. But the analyses led to surprising results.



adjust. Well-documented solutions are understandably more than welcome (figure 16).

#### CONCLUSION

One wonders, when comparing the two known solutions, why Duiker choose such a complex, if not complicated, solution. Schütte-Lihotsky's building simply follows the direction of one border line, while Duiker seeks to combine those of both limits. But Duiker's Elbenixe would certainly have been one more of his most exiting buildings.

Shortage of information makes it difficult to analyse the project in every aspect. This may be the reason, that other authors have underestimated it. At least this has in the past been the case for the author of his article. The fact that, to my knowledge, never anything has been published about the projects of the competition has been sufficient reason for me to do my research in the context of our book about Jan Duiker, Bernard Bijvoet and Jan Gerko Wiebenga. This text I prepared specifically for PROYECTO.PROGRESO.ARQUITECTURA. ■

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Citations from letters by Bijvoet and his wife in Hendrik Andriessen archive (153/C), Nederlands Muziekinstituut, Den Haag (The Hague)

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